

**Community Perception Towards Tourism Development In Lahaul Valley, Himachal Pradesh
(India)**

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Abstract

The inauguration of the Atal Tunnel in October 2020 altered the tourism environment of Lahaul Valley in Himachal Pradesh, India and allowed year-round accessibility to the region. With this accessibility came a rapid influx of tourists, bringing both advantages and disadvantages to the local population. In ecologically fragile regions with rich cultural traditions like Lahaul, a community perception approach to tourism development is vital to ensure sustainable tourism development.

This study examined the local community's perception of tourism across three core dimensions: economic, socio-cultural, and environmental impacts. The analysis was guided by three hypotheses focusing on the influence of demographic variables—age, gender, education, occupation, and involvement in tourism—on residents' perceptions. The study also examined the per capita income that tourism generates among the respondent group. This study employed a descriptive research design and a quantitative approach. Primary data was obtained by the use of a structured questionnaire administered to 400 respondents from villages offering tourism-related activities.

The study reveals that tourism provides a stable and substantial mid-level income for a majority of local households. However, the most important finding that emerged from this study is the contrast in the nature of residents' perceptions across the three domains of tourism impact. In terms of economic and socio-cultural impacts, perceptions were mixed, reflecting both optimism and concern. The perceptions also vary according to specific demographic variables tested. In contrast, respondents across all tested demographic variables exhibited a strong and unified level of concern regarding environmental impacts, reflecting the fragility of the Himalayan ecosystem and the urgency for sustainable planning. The overall findings of the study support the need for integrated tourism policies that capitalize on economic potential and cultural strengths while placing environmental sustainability at the core of development strategies.

Keywords: Lahaul Valley, Community Perception, Tourism Development, Sustainability, Himachal Pradesh.

Introduction

Lahaul Valley, nestled in the Trans-Himalayan region in the state of Himachal Pradesh, India is endowed with stark cold desert landscapes, Buddhist monasteries, and adventure opportunities. Before the opening of the Atal Tunnel (built over the Rohtang Pass) in October 2020, tourism in the Lahaul valley has been developing slowly over the years because of the remoteness of the region. Previously, the valley was inaccessible to visitors for nearly 6-8 months in a year especially during the monsoon and winters; however, the commissioning of the Tunnel now provides enhanced accessibility (almost) throughout the year except for a few temporary closures caused by severe weather conditions. The starting point for many travelers heading to Lahaul is Manali, a major tourist hub in Himachal Pradesh. The tunnel now ensures uninterrupted connectivity between Manali and Lahaul spurring a surge in tourist inflows to areas like Sissu, Jispa, Tandi, Udaipur, Keylong, and Chandratat Lake. This development has positioned tourism as a key economic driver; however, the rapid growth of tourism in this ecologically fragile and culturally rich region raises questions about its

sustainability and impact on local communities.

Community perception plays a pivotal role in shaping the trajectory of tourism, as local attitudes influence the acceptance and success of tourism initiatives. If the residents' perception is positive, it fosters support, collaboration, and active participation while negative perceptions can lead to indifference or opposition and can hinder development (Yoon et al., 2001; Pekerşen & Kaplan 2022). In Himalayan regions, where communities rely on agriculture, tourism is increasingly seen as a supplementary income source. In Himachal Pradesh, studies highlight that communities generally perceive tourism as a development driver. Barbhuiya (2023) notes that post-pandemic tourism strategies in the state have emphasized economic recovery, with locals valuing tourism for its role in boosting household incomes and infrastructure development. However, negative perceptions arise when tourism disrupts local lifestyles or strains resources, as seen in overcrowded destinations like Kullu-Manali (Gupta & Sharma, 2022). Lahaul, being an emerging as well as an ecologically fragile destination, offers a unique case to explore how communities perceive the benefits and challenges in a less commercialized setting.

This research aims to explore the community perception towards tourism development in Lahaul Valley, with a focus on informing the optimal path for developing tourism sustainably.

Literature Review

Community perception is a critical factor in the sustainability of tourism development. Community perceptions are influenced by the economic, socio-cultural and environmental impacts of tourism (Tosun, 2002). Understanding community views on the *economic* (employment, income, job creation, infrastructure development etc), *socio-cultural* (cultural exchanges, cultural pride, cultural erosion, increased crime rates, changes in social norms etc), and *environmental* (awareness for conservation, pollution, waste generation, overuse of resources) impacts allows for developing appropriate plans, policies and sustainable strategies that align with the needs of the local community and thereby contribute to the overall resilience and sustainability of the destination. This understanding and approach are particularly relevant for emerging and fragile destinations like the Lahaul valley. In such cases, early and continuous local community engagement is crucial more so because of the heightened sensitivity of their social, cultural, and ecological systems.

Economic Effects and Community Perceptions

Studies like the one done by Linderová et al. (2021) emphasize that positive economic perceptions depend on community involvement in tourism planning to ensure local retention of profits. Tourism is a significant economic contributor in Himachal Pradesh, accounting for approximately 7.785% of the state's GDP (Economic Survey 2024-25, Government of Himachal Pradesh). Local communities perceive economic benefits through direct employment in homestays, dhabas, and guiding, as well as indirect benefits in agriculture (e.g., selling vegetables) and handicrafts (Sharma et al., 2021). Women, in particular, have embraced entrepreneurship through homestays, fostering economic empowerment (Chauhan, 2020). However, economic leakage remains a concern. Kumar and Gupta (2018) argue that external tour operators often capture a significant share of tourism revenue, limiting benefits to local communities.

Socio-Cultural Effect and Community Perceptions

Earlier research has found that tourism influences the socio-cultural fabric of host communities, with both positive and negative implications. Conversely, rapid tourism growth risks cultural commodification and social disruption. Mitigating the negative socio-cultural impacts is the way out with one strategy being community participation in tourism

governance ensuring that cultural heritage is respected (Hussain et al., 2024). These findings also resonate in Himalayan tourism context also. In their study, 'Cultural preservation in Himalayan tourism', Singh & Chauhan (2023) found that community perceptions are generally positive when tourism promotes cultural preservation, such as through festivals like Losar or the revival of traditional crafts. Gupta and Sharma (2022) highlight that in nearby Manali, locals perceive tourism as eroding traditional values due to commercialization. In Lahaul, the blend of Tibetan Buddhism and Hinduism, exemplified by monasteries like Guru Ghantal and temples like Trilokinath, attracts cultural and spiritual tourists (Singh & Mishra, 2020) and that tourism facilitates cultural exchange, enhancing local pride in Lahauli identity (Kumar & Singh, 2021).

Environmental Effects and Community Perceptions

Studies in Himalayan regions, like Nako in Kinnaur, show that communities support tourism when it aligns with environmental conservation (Sharma & Singh, 2016). In their paper, 'Climate change and tourism in the Himalayas', Sharma & Chauhan (2022) noted that community perceptions on environmental effects of tourism development are often negative when tourism threatens local resources, such as water or grazing lands, critical for agriculture and animal husbandry. In this context, ecotourism, which balances economic gains with environmental preservation, is well-received by communities in Himachal Pradesh (Krishnanand, & Raman, V.A.V. (2019); Kumar et al. (2017). Lahaul's cold desert ecosystem is highly vulnerable to tourism-related pressures, including waste accumulation, vehicular emissions, and resource depletion (Kuniyal, 2002). The surge in tourists post-Atal Tunnel has raised environmental concerns, prompting the Himachal government to form a committee to regulate tourism and protect Lahaul's ecosystem. The main objective of this committee is to ensure sustainable tourism in Lahaul and Kullu regions.

Community Participation and Sustainable Tourism

Community participation is pivotal to shaping positive perceptions and ensuring sustainable tourism. Tosun (2006) argues that involving locals in planning and decision-making enhances their sense of ownership and mitigates negative impacts. In Himachal Pradesh, programs like the Devbhoomi Darshan Yojna, which trains locals as tourist guides, have fostered positive community attitudes by providing economic and social benefits (HPTDC, 2023). Homestays, promoted under the 2008 'Incredible India Bed and Breakfast scheme', have similarly empowered communities including Lahauli's by integrating them into the tourism value chain (HP Economic Survey, 2013-14). However, barriers to participation, such as limited education or access to resources, can lead to negative perceptions. In Nako, an upcoming tourist destination in Kinnaur district of Himachal Pradesh, Sharma and Singh (2016) found that communities felt excluded from tourism benefits due to inadequate infrastructure and training. Lahaul faces similar challenges, with limited accommodation and tourist facilities potentially undermining community support for tourism (Kumar & Singh, 2021). Smart tourism initiatives, such as digital platforms for bookings and information, could enhance participation and improve perceptions by making tourism more accessible to locals (Zhang et al., 2022).

Lahaul-Specific Studies and Gaps

While literature on Himachal Pradesh's tourism is extensive, most research focuses on the broader Lahaul-Spiti district or popular destinations like Kullu-Manali. Lahaul-specific studies are scarce highlighting only its tourism potential and does not delve into perceptions. There are studies that offer insights into Himalayan community perceptions like Barbhuiya (2023) and Hussain et al. (2024), but their focus on other regions limits direct applicability to Lahaul. Publications like Outlook India and Times of India do provide anecdotal evidence of community concerns about overcrowding and environmental degradation in Lahaul post-Atal

Tunnel, but lack empirical data. Therefore, key gaps include the absence of studies on Lahaul's community perceptions, particularly post-2020, when tourism surged.

Objectives

The study will examine the local community's perception of tourism development in Lahaul Valley, focusing on three core areas:

- To assess the economic impacts of tourism as perceived by local communities, including employment, income generation, and infrastructure development.
- To study the socio-cultural impact of tourism, focusing on cultural preservation and cultural identity, cultural pride, and socio-cultural harms like commodification and/or disruption.
- To assess community concerns about the environmental impact of tourism, including perceptions of ecosystem fragility, pollution, strain on resources, and conservation.

Hypotheses

Community perceptions of tourism are significantly influenced by demographic variables such as age, gender, education, occupation, and income. These factors shape how residents evaluate tourism's economic benefits, socio-cultural effects, and environmental consequences, leading to a diversity of attitudes toward its development and sustainability. The current study is interested in examining the association between socio-demographic factors and residents' perceptions. Understanding these differences ensures inclusive tourism planning that reflects the needs and concerns of all demographic groups. It will also help identify which groups need more support, awareness, or involvement in decision-making. The following hypotheses are framed:

- Hypothesis -Economic Impacts
H1: Residents' perceptions of the economic impacts of tourism vary significantly based on age, gender, educational background, involvement in tourism, and occupation.
- Hypothesis B - Socio-Cultural Impacts
H2: Residents' perceptions of the socio-cultural impacts of tourism vary significantly based on age, gender, educational background, involvement in tourism, and occupation.
- Hypothesis - Environmental Impacts
H3: Residents' perceptions of the environmental impacts of tourism vary significantly based on age, gender, educational background, involvement in tourism, and occupation.

Research Methodology

A descriptive research design with a quantitative approach was employed in this study to systematically study how local communities perceive tourism development in Lahaul Valley, which led to measurable attitudes and opinions on each of the economic, socio-cultural, and environmental dimensions of tourism through the use of statistical tools to analyse the responses.

Research Instrument

The primary instrument used for this study was a structured questionnaire administered through face-to-face scheduled interviews. The first section collected the demographic profile of the respondents concerning variables like age, gender, level of education, occupation, income, and involvement in tourism. The second section included three sub-sections that collected community perceptions on economic, socio-cultural, and environmental aspects. Each dimension contained 12 items measured with a Likert scale of agreement. These items were rated on a scale of 1 to 5 in which Strongly Agree = 1 and Strongly Disagree =5.

The reliability of the instrument was assessed to determine its internal consistency using

Cronbach's Alpha coefficient. The calculated value was 0.779, and according to reliability thresholds (Hair et al., 2010), it indicated that the scale was statistically reliable and that it had an acceptable threshold for reliability. This means that the items used to construct the questionnaire reliably measured the constructs as reflected through the instruments.

Sampling and Data Collection

We targeted respondents from within the major tourism-influenced villages of Lahaul Valley, namely Sissu, Koksar, Gondhala, Tandi, Keylong, Jispa, Chandratul Lake, and Serchu. A purposive sampling method was applied to ensure representative demographic and economic characteristics of the Lahaul valley population. The total population of Lahaul is 10,199 as per Himachal Pradesh Government records and a total of 400 respondents were surveyed for the study.

The primary data were collected between July 2024 and February 2025. The timing coincided with peak periods of tourism activity, which ensured that responses were current and contextualized to the ongoing impact of tourism. The interviews were conducted in a more conversational fashion and cultural sensitivity, to encourage authentic responses from the respondents. Whenever possible, explanation and clarifications were made to the respondents to ensure they understood the questionnaire items. All relevant ethical guidelines for social research, especially in rural and indigenous contexts were adhered to during the study.

Data Analysis Tools

The data collected were processed and analysed with Statistical Package for the Social Sciences (SPSS). Descriptive statistics (means and standard deviations) were used to interpret the overall community perceptions of tourism. A subsequent inferential statistical analysis was used to assess for differences in perceptions across the demographic categories of age, gender, education level, occupation, and tourism involvement. Cross tabulations of selected demographic data were also performed in order to examine the per capita income that tourism generates among the respondent group.

Findings and Analysis

Demographic Profile of Respondents

The sample presented a modestly higher response rate of male data providers 59.3 percent; and a lower female response rate of 40.8 percent.

Table 1: Gender of Respondents

Gender	Frequency	Percent
Male	237	59.30%
Female	163	40.80%
Total	400	100.00%

The distribution of gender suggests a reasonable representation of both genders ensuring that views of both are present in the data relating to tourism development.

Table 2: Marital Status of Respondents

Marital Status	Frequency	Percent
Single	30	7.50%
Married	370	92.50%

Total	400	100.00%
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An overwhelming majority of the respondents (92.5%) were married which indicates that most respondents were settled adults who may have long-term perspectives on how tourism may impact community livelihood and values.

Table 3: Age Distribution of Respondents

Age Group	Frequency	Percent
20–29 Years	7	1.80%
30–39 Years	115	28.70%
40–49 Years	135	33.80%
50–59 Years	81	20.30%
More than 60 Years	62	15.50%
Total	400	100.00%

The largest percentage of respondents (33.8%) were in the 40 - 49 years group, followed by 30 - 39 years (28.7%). Thus, the majority of the study captured perceptions of adults within middle adulthood - an age group involved in economic and cultural activities in their communities.

Table 4: Educational Qualifications of Respondents

Education Level	Frequency	Percent
Less than High School	48	12.00%
High School	91	22.80%
College Degree	212	53.00%
Master's Degree & Above	31	7.80%
Professional Degree	18	4.50%
Total	400	100.00%

The majority of the respondents (53%) completed college and 12% did not graduate high school. Thus, we could reasonably conclude that the respondent base is fairly educated and impact awareness and opinions related to tourism development may be affected.

Table 5: Occupational Status of Respondents

Occupation	Frequency	Percent
Employed	33	8.30%
Farmer	39	9.80%
Self-Employed	281	70.30%
Housewife	35	8.80%
Retired	12	3.00%
Total	400	100.00%

Majority (70.3%) of the respondents were self-employed, primarily due to the prominence of tourism-related micro-businesses (e.g., homestays, food stalls, small shops). This occupational profile indicates the direct economic relationship many respondents held in respect to tourism.

Table 6: Annual Income of Respondents

Annual Income	Frequency	Percent
₹1–5 Lakhs	29	7.20%

₹6–10 Lakhs	259	64.80%
₹11–20 Lakhs	60	15.00%
Above ₹20 Lakhs	52	13.00%
Total	400	100.00%

Most of the respondents (64.8%) shared an income of ₹6–10 lakhs a year while a relevant percentage of 13% have earned above ₹20 lakhs.

Table 7: Involvement in Tourism Activities

Involvement in Tourism	Frequency	Percent
Yes	306	76.50%
No	94	23.50%
Total	400	100.00%

Most of the respondents (76.5%) were engaged directly with tourism-related activities. Respondents' high exposure level recommended that the community is engaged in the tourism economy, consequently their perceptions of tourism would be meaningful.

Demographic Relationship

Cross tabulations of the following demographic data were performed: Involvement in Tourism and Annual Income; Occupation and Annual Income and Involvement in Tourism and Occupation. The intent was to examine the per capita income that tourism generates among the respondent group. The per capita income generated by tourism plays a crucial role in shaping community acceptance of tourism development.

Table 8: Crosstabulation of Involvement in Tourism and Annual Income

Involvement in Tourism	1–5 Lakhs	6–10 Lakhs	11–20 Lakhs	Above 20 Lakhs	Total
Yes (n = 306)	27 (8.8%)	229 (74.8%)	40 (13.1%)	10 (3.3%)	306 (100%)
No (n = 94)	2 (2.1%)	30 (31.9%)	20 (21.3%)	42 (44.7%)	94 (100%)
Total (N = 400)	29 (7.2%)	259 (64.8%)	60 (15.0%)	52 (13.0%)	400 (100%)

Table 9: Crosstabulation of Involvement in Tourism and Occupation

Occupation	Involved in Tourism (Yes)	Not Involved (No)	Total (n)
Employed	17 (51.5%)	16 (48.5%)	33
Farmer	32 (82.1%)	7 (17.9%)	39
Self-employed	250 (89.0%)	31 (11.0%)	281
Housewife	0 (0.0%)	35 (100.0%)	35
Retired	7 (58.3%)	5 (41.7%)	12
Total	306 (76.5%)	94 (23.5%)	400

Table 10: Crosstabulation of Occupation and Annual Income

Occupation	1–5 Lakhs	6–10 Lakhs	11–20 Lakhs	Above 20 Lakhs	Total (n)
Employed	3 (9.1%)	6 (18.2%)	20 (60.6%)	4 (12.1%)	33

Farmer	9 (23.1%)	23 (59.0%)	7 (17.9%)	0 (0.0%)	39
Self-employed	15 (5.3%)	226 (80.4%)	30 (10.7%)	10 (3.6%)	281
Housewife	0 (0.0%)	0 (0.0%)	0 (0.0%)	35 (100.0%)	35
Retired	2 (16.7%)	4 (33.3%)	3 (25.0%)	3 (25.0%)	12
Total	29 (7.2%)	259 (64.8%)	60 (15.0%)	52 (13.0%)	400

Among the tourism-involved group, a vast majority (91.2%; n=306) reported 6 lakh and above annual income with the lower end of 6–10 lakhs income bracket being the dominant group (74.8%). Interestingly, a staggering 97.9 % non-involved households reported more than 6 lakh annual income (n=94); also, here the majority (44.7%) is concentrated in the highest income bracket (>20 lakhs); possibly indicating dependence on other profitable occupations (e.g., business, government jobs, or remittances). However, the comparison between the two groups cannot be conclusive since the total number of respondents in the tourism-involved group is three times more than that of the tourism non-involved group. The key take-away from this cross-tabulation exercise is that tourism provides a stable source of mid-level income (6-10 lakhs) for the majority of local households in Lahaul. Incidentally this figure is much higher than the average Per Capita Income (PCI) at current prices for FY2024-25 of the state of Himachal Pradesh which is estimated at ₹2,57,212 (Economic Survey Himachal Pradesh 2024-25) and the average figure for India which is ₹ 2,00,162 (National Statistical Office, GoI).

Community Perception Findings and Corresponding Hypothesis testing

Economic Impact Perception

This section investigates how the community perceive the economic impact of tourism.

Table 11: Economic Perception – Summary Statistics

Statement	Mean	SD
Tourism creates employment opportunities for the locals.	4.16	0.36
Introduction of tourism is beneficial to the local economy.	4.12	0.44
Tourism contributes to income and standard of living of the locals.	4.1	0.3
Some people are earning money by leasing out their lands and property for tourism activities.	4.1	0.38
Tourism development leads to high prices of land and property.	4.11	0.31
Tourism economy is dominated by the non-natives.	3.85	0.69
The cost of daily use items & commodities has gone up in the area because of tourism activities.	4.03	0.41

Overall, respondents agreed with the statements that tourism creates jobs, improves income and living standard. However, rise in prices of land, property and commodities were also raised as concerns. The respondent perception of being "tourism economy being dominated by non-natives" (3.85) was a noteworthy moderately strong negative indicator.

Hypothesis H1

There are significant differences in residents' perceptions of the economic impacts of tourism based on age, gender, education, involvement in tourism, and occupation.

Here, the Dependent Variable is 'Residents' perceptions of the economic impacts of tourism'.

Table 12: Summary of SPSS Results – Economic Impact Perceptions (Hypothesis H1)

Independent Variable	Test Used	Sig. (p-value)	F / t Statistic	Significance	Post-hoc (Tukey's)
Gender	Independent t t-test	0.065	t = 1.85	Not Significant	Not applicable
Age Group	One-Way ANOVA	0.021	F = 3.12	Significant	Significant difference: 40–49 vs. 60+
Education Level	One-Way ANOVA	0.042	F = 2.81	Significant	College Degree vs. Less than HS: $p < 0.05$
Involvement in Tourism	Independent t t-test	0.001	t = 3.29	Highly Significant	Not applicable
Occupation	One-Way ANOVA	0.056	F = 2.48	Marginally Significant	Not conclusive; Tukey's not significant

Gender did not show a statistically significant difference ($p = 0.065$), meaning males and females in general have a similar perception of the impact of tourism on the economy. Thus, for Gender: $p = 0.065 \rightarrow$ fail to reject H_0 for Gender (no difference).

Age was statistically significant ($p = 0.021$); the post-hoc results showed that older residents (60+) perceived economic impacts less positively than those aged 40-49 years. Thus, for Age: $p = 0.021 \rightarrow$ reject H_0 for Age (difference).

Education Level demonstrated some significant differences ($p = 0.042$). Participants with a college degree had significantly greater economic perception scores than those with less than a high school education. Thus, for Education: $p = 0.042 \rightarrow$ reject H_0 for Education (difference).

Involvement in Tourism has a strong effect ($p = 0.001$), meaning those involved in tourism directly perceived higher economic benefits from tourism. Thus, for Involvement in Tourism: $p = 0.001 \rightarrow$ reject H_0 for Involvement in Tourism (strong difference).

Occupation was marginally statistically significant ($p = 0.056$) and there was some difference however post-hoc comparisons didn't show any statistically meaningful differences between sub-groups. Thus, for Occupation: $p = 0.056 \rightarrow$ fail to reject H_0 for Occupation (marginal / not significant at 0.05).

There are statistically significant differences in residents' perceptions of the economic impacts of tourism based on age, education level, and involvement in tourism, but gender and occupation did not show significant differences. Since the findings are mixed, hence, we do not outright reject or accept the hypothesis.

Socio-Cultural Impacts

This section investigates community perceptions that tourism influences aspect of socio-cultural impacts in Lahaul valley.

Table 13: Socio-Cultural Perception – Summary Statistics

Statement	Mean	SD
Locals feel proud about their culture when tourist reveals interest in it and thus has increased the self-esteem of the	4.13	0.5

local.		
The women of the area are participating in tourism activities.	4.05	0.38
Tourists like to taste the local food cooked in traditional way	3.88	0.54
Culture has become as a commodity and modified as per the requirement of the tourist	3.74	0.83
Sometimes tourist visiting the tourist places do not respect the culture and behave in undesirable way considering themselves as superior beings.	3.85	0.62
Increased tourism in the area has led to negative effect on the local life style & culture	3.72	0.75
Increased theft	3.8	0.65
Increased alcoholism	3.7	0.65
Increased gambling	4.2	0.85

Overall, the respondents in the community have positive perceptions of cultural preservation and pride, with the 'mean' scores of two positive statements being greater than 4 and one pertaining to 'preference of local food by tourist' registering a mean score of 3.88 (moderately high). Regarding the negative impacts, the respondents have concerns about social and cultural degradation relating to tourism. Statements related to gambling and theft received moderately high mean scores (3.8 and 3.7 respectively) while the statement on 'increased gambling' registered the highest score of 4.2 indicating recognition of the potential of these issues to further compound the overall negative impacts of tourism development.

Hypothesis H2

Residents' perceptions of the socio-cultural impacts of tourism significantly vary according to their age, gender, education level, involvement in tourism, and occupation. Here, the Dependent Variable is 'Residents' perceptions of the socio-cultural impacts of tourism'.

Table 14: Summary of SPSS Results -Perception of the Socio-Cultural Impacts (Hypothesis H2)

Independent Variable	Test Used	Sig. (p-value)	F / t Statistic	Significance	Post-hoc (Tukey's)
Gender	Independent t-test	0.041	t = 2.05	Significant	Not applicable
Age Group	One-Way ANOVA	0.038	F = 2.65	Significant	Significant difference: 30–39 vs. 50–59
Education Level	One-Way ANOVA	0.128	F = 1.95	Not Significant	Not applicable
Involvement in Tourism	Independent t-test	0.003	t = 2.98	Highly Significant	Not applicable
Occupation	One-Way ANOVA	0.054	F = 2.38	Marginally Significant	Not conclusive (no strong pairwise result)

Gender differences were statistically significant ($p = 0.041$) with females typically indicating slightly higher agreeability about socio-cultural benefits of tourism. Thus, for Gender: $p = 0.041 \rightarrow$ reject H_02 for Gender (difference is significant).

Age Group was statistically different ($p = 0.038$). A Tukey's post-hoc test revealed that respondents aged 30–39 had significantly stronger positive perceptions than respondents aged 50–59. Thus, for Age Group: $p = 0.038 \rightarrow$ reject H_02 for Age (difference is significant).

The level of education had no statistically significant effect on socio-cultural perception ($p > 0.05$). Thus, for Education Level: $p = 0.128 \rightarrow$ fail to reject H_02 for Education (not significant).

Involvement in tourism was statistically significant ($p = 0.003$) indicating that individuals directly involved/engaged in tourism reflected more positively on socio-cultural effects. Thus, for Involvement in Tourism: $p = 0.003 \rightarrow$ reject H_02 for Involvement (highly significant).

Occupation was border line at ($p = 0.054$) indicating potential differences but inconclusive results. Additional testing or larger sample may provide statistically significance. Thus, for Occupation: $p = 0.054 \rightarrow$ fail to reject H_02 for Occupation (marginal / not significant at 0.05).

Like the economic impact, here also, the findings are mixed. Gender, Age, and Involvement in tourism demonstrated significance while Education level and Occupation do not. Hence, we do not outright reject or accept the hypothesis

Environmental Impact

This section covers how residents perceive the impacts of tourism on the environment. The Likert scale includes 4 positive and 4 negative statements.

Table 15: Environmental Perception – Summary Statistics

Statement	Mean	SD
The tourist flows have resulted in increased traffic enlarging the levels of pollution.	4.19	0.39
The garbage and littering in the area have increased due to Rural Tourism.	4.15	0.43
Tourism growth has coupled large construction activity such as hotels, restaurants damaging the landscape & ignoring tectonics & geology of the place.	4.09	0.52
Tourism has resulted in overcrowding in the rural area.	4.11	0.47
Tourism spending has also facilitated preservation and conservation of environment.	2.22	1.03
Tourism has resulted in preserving the natural resources and landscape.	2.88	1.07
There is a proper disposable system in place for waste & sewage.	1.34	0.62
Tourism has made villages to adopt renewable & energy saving technology.	3.12	0.94

The perceptions strongly reflected significant concerns (mean scores all above 4) for waste management, pollution, and overcrowding and more particularly for increased traffic with the highest mean score of 4.19. Even among the positive statements, residents showed little

confidence in the local systems as reflected in mean scores below 3 for environmental conservation, natural resources preservation or waste management, initiatives. Renewable energy adaptation was slightly better perceived with a mean score of 3.12

Hypothesis H3

Residents perceive environmental impacts of tourism differently due to their age, gender, education level, tourism involvement, and job.

Here, the Dependent Variable is 'Residents' perceptions of the environmental impacts of tourism'.

Table 16: Summary of SPSS Results Environmental Impact Perceptions (Hypothesis H3)

Independent Variable	Test Used	Sig. (p-value)	F / t Statistic	Significance	Post-hoc (Tukey's)
Gender	Independent t-test	0.017	t = 2.42	Significant	Not applicable
Age Group	One-Way ANOVA	0.005	F = 3.87	Highly Significant	Significant difference: 30–39 vs. 60+
Education Level	One-Way ANOVA	0.031	F = 2.63	Significant	High School vs. Postgrad: $p < 0.05$
Involvement in Tourism	Independent t-test	0	t = 3.74	Highly Significant	Not applicable
Occupation	One-Way ANOVA	0.014	F = 3.22	Significant	Farmer vs. Self-employed: $p < 0.05$

Gender was statistically significant ($p = 0.017$), with females reporting higher environmental concerns → reject H_03 for Gender (significant difference).

Age Group was statistically significant ($p = 0.005$). Results from Tukey's Post-hoc tests indicated respondents aged 60+ reported lower environmental degradation concerns than respondents aged 30-39. Hence, reject H_03 for Age (highly significant).

Education Level was statistically significant ($p = 0.031$), with respondents with post graduate education reported more critical environmental perceptions than respondents with high school education. Thus, for Education Level: $p = 0.031 \rightarrow$ reject H_03 for Education (significant).

Involvement in Tourism was statistically significant ($p < 0.001$), with involved respondents reporting higher awareness and concern regarding environmental impacts. Thus, for Involvement in Tourism: $p = 0.000 \rightarrow$ reject H_03 for Involvement (highly significant).

Occupation was statistically significant ($p = 0.014$), with farmers reporting higher environmental degradation concerns than self-employed respondents. Thus, for Occupation: $p = 0.014 \rightarrow$ reject H_03 for Occupation (significant).

All Independent variables (IVs) tested have significant differences ($p \leq 0.05$), therefore we accept Hypothesis H3 which assumes 'Environmental perceptions varied significantly according all demographic factors.

Table 6.5: Comparative Summary of Hypothesis Testing Results

Independent Variable	H1: Economic Impact	H2: Socio-Cultural Impact	H3: Environmental Impact
Gender	<i>Not Significant</i> ($p = 0.065$)	Significant ($p = 0.041$)	Significant ($p = 0.017$)
Age Group	Significant ($p = 0.021$)	Significant ($p = 0.038$)	<i>Highly Significant</i> ($p = 0.005$)
Education Level	Significant ($p = 0.042$)	<i>Not Significant</i> ($p = 0.128$)	Significant ($p = 0.031$)
Involvement in Tourism	<i>Highly Significant</i> ($p = 0.001$)	<i>Highly Significant</i> ($p = 0.003$)	<i>Highly Significant</i> ($p = 0.000$)
Occupation	Marginal ($p = 0.056$)	Marginal ($p = 0.054$)	Significant ($p = 0.014$)

The above table reveals the following:

Gender affected perceptions surrounding socio-cultural and environmental impacts, but not economic impacts.

Age affected perceptions across all the three core impact areas with environmental impact being highly significant

Education level is significant for economic and environmental perceptions but not for socio-cultural impacts

Involvement in Tourism was consistently highly significant in all the three perception areas.

Occupation was borderline significant to economic and socio-cultural perceptions, but was clearly significant for environmental concerns.

Discussion

This study examined the local community's perception of tourism development in the Lahaul Valley, Himachal Pradesh (India), across three core dimensions: economic, socio-cultural, and environmental impacts. The analysis was guided by three hypotheses focusing on the influence of demographic variables—age, gender, education, occupation, and involvement in tourism—on residents' perceptions. The findings of this research provide a complex and nuanced understanding of local community attitudes towards tourism development in the Lahaul Valley considering that there has been a significant increase in the tourist influx and accessibility to the valley following the opening of the Atal Tunnel.

Economic Impacts of Tourism

The community holds both positive view critical concerns regarding economic impacts of tourism. Respondents strongly agreed that tourism creates jobs, raises income levels, and improves living standards. These positive sentiments align with broader expectations of economic gain and prosperity that often accompany tourism in remote regions such as Lahaul. However, these benefits are not without challenges. Several respondents expressed concern over the rising cost of land, property, and basic commodities, indicating that tourism-led development may be contributing to price inflation and potentially making local living conditions less affordable. Notably, the perception that the "tourism economy is being dominated by non-natives" (mean score: 3.85) emerged as a moderately strong negative sentiment, suggesting that locals may feel economically marginalized or excluded from key

opportunities.

Further, the cross-tabulation analysis that was performed to understand the economic role of tourism revealed insightful patterns regarding involvement in tourism and income generation. Among those involved in tourism, 91.2% reported annual household incomes of ₹6 lakh or more, with the majority falling in the ₹6–10 lakh range. While non-involved households also reported high incomes—possibly due to profitable alternative occupations such as government jobs, business, or remittances—the sample size was significantly smaller (n=94 vs. 306), limiting direct comparability.

The presence of economically secure but tourism-independent households may partially explain the heightened environmental resistance observed in the data. As these groups do not rely on tourism as a primary income source, their perceptions may be more strongly shaped by concerns related to congestion, pollution, and loss of environmental quality rather than economic opportunity. This divergence underscores the presence of internal community heterogeneity in attitudes toward tourism expansion.

Nevertheless, the key takeaway is that tourism provides a stable and substantial mid-level income for a majority of local households. This is particularly notable when compared to the state average per capita income for Himachal Pradesh (₹2.57 lakh) and the national average (₹2.00 lakh). The implication is that tourism can play a central role in local economic security, especially when community involvement is encouraged and supported.

While tourism has significantly enhanced household income levels, particularly placing the majority of tourism-dependent households in the 6–10 lakh income bracket, the findings also reveal a distinct economic stratification within the community. A substantial proportion of higher-income households (>20 lakhs) are not directly involved in tourism activities and are likely dependent on salaried government employment, established businesses, or external remittances. This indicates that tourism primarily serves as a stabilizing livelihood option rather than a high-income pathway.

Socio-Cultural Impacts of Tourism

The socio-cultural assessment revealed that residents expressed strong agreement with statements affirming that tourism fosters cultural pride, preserves heritage (both mean > 4), and promotes local food (mean = 3.88). These views suggest that tourism is helping reinforce cultural identity and providing an avenue for community expression and visibility.

However, concerns were also raised about the social and cultural disruptions that often accompany tourism growth like commodification of the culture. Issues such as increased theft, alcoholism and behavioural changes among youth were the other concerns. The highest negative mean score (4.2) was recorded for the statement on increased gambling, indicating strong concern regarding the moral and social implications of tourism development.

The elevated concern regarding social vices such as gambling and theft suggests that residents perceive these issues as unintended consequences of rapid commercialization and increased tourist inflow. These concerns may be linked to the influx of transient populations, increased cash circulation, and erosion of traditional social controls, particularly in a region that had historically experienced limited external interaction.

An important paradox emerges wherein tourism simultaneously fosters cultural pride while heightening concerns of cultural commodification. While festivals, traditional attire, and local customs gain visibility and recognition through tourism, there is growing apprehension that

these practices may be selectively performed to meet visitor expectations rather than sustained as lived traditions. This tension reflects a shift from organic cultural expression toward staged representations, raising concerns about the long-term authenticity of cultural heritage.

Environmental Impacts of Tourism

Environmental impacts emerged as the most clearly and uniformly perceived concern across the respondent population. All negative environmental indicators (e.g., pollution, waste accumulation, overcrowding, and particularly increased traffic) received mean scores above 4, indicating a high level of environmental awareness and concern within the community. The highest mean score was for increased traffic (4.19), reflecting anxiety over infrastructure pressure and reduced quality of life.

Conversely, responses to positive environmental statements—such as local conservation efforts, natural resource preservation, and waste management—received low levels of confidence, with mean scores below 3. This implies that residents do not trust existing systems to manage the environmental impacts of tourism effectively. The exception was renewable energy adaptation, which showed slightly better acceptance (mean = 3.12), indicating cautious optimism towards environmentally sustainable innovations.

The strong and unified concern regarding environmental impacts reflects the intrinsic fragility of the Himalayan cold desert ecosystem. Increased vehicular movement, rapid roadside construction, and inadequate waste disposal systems exert pressure on Lahaul's delicate geology, limited soil regeneration capacity, and narrow valleys. The relatively low confidence in existing environmental management systems suggests that local residents perceive governance and infrastructure development to be lagging behind the pace of tourism growth, thereby intensifying apprehensions about irreversible ecological degradation.

Hypotheses Evaluation

Three hypotheses were proposed which posited that based on demographic variables, perceptions of tourism's economic impacts (H1), socio-cultural impacts (H2) and environmental impacts (H3) would vary significantly.

For **Hypothesis (H1)** regarding perceptions of tourism's economic impacts, the statistical analysis revealed that age, education level, and involvement in tourism did, in fact, show significant variation, while gender and occupation did not. Further test (Tukey's post hoc) suggests that, similar to those actively engaged in tourism, among the age and education level demographics, younger and more educated respondents were more likely to perceive economic benefits positively. Conversely, older residents appeared more cautious or critical. Given the mixed results, we do not conclusively reject or accept H1 but acknowledge that certain demographic factors play a more pronounced role than others in shaping economic perceptions.

For **Hypothesis (H2)** regarding socio-cultural perceptions, the results showed that gender, age, and involvement in tourism had significant effects, while education and occupation did not. A Tukey's post-hoc test had revealed that respondents aged 30–39 had significantly stronger positive perceptions than respondents aged 50–59. Therefore, the overall mixed findings suggest that women and older residents may be more sensitive to potential cultural degradation or shifts in community norms, while involvement in tourism may mediate perceptions through exposure to cross-cultural interactions. Similar to the economic hypothesis, H2 is neither fully accepted nor rejected, but partially supported, reflecting the complexity of socio-cultural impacts in transitional rural societies.

Hypothesis (H3), which posited that environmental perceptions vary significantly by all demographic variables, was fully supported by the data. Each independent variable—age, gender, education, occupation, and tourism involvement—showed statistically significant differences in environmental perceptions. Moreover, results from Tukey's post-hoc tests indicated respondents aged 60+ reported lower environmental degradation concerns than respondents aged 30-39; respondents with post graduate education reported more critical environmental perceptions than respondents with high school education and farmers reported higher environmental degradation concerns than self-employed respondents.

The perception that tourism-related economic activities are increasingly dominated by non-native operators signals potential economic leakage and marginalization of local stakeholders. External tour operators and investors may capture a disproportionate share of tourism revenue, limiting benefits for local households. This highlights the need for integrated tourism planning frameworks that prioritize local ownership, capacity building, and regulatory mechanisms that ensure equitable participation of indigenous communities.

This comprehensive significance suggests that environmental issues are universally acknowledged but understood through different lenses depending on demographic positioning. For example, older individuals may view tourism as a threat to traditional relationships with the land, while younger or tourism-involved respondents may be more focused on issues of waste management or transport congestion.

Limitations and Directions for Future Research

While the study offers a comprehensive understanding of community perceptions in Lahaul Valley, a major limitation is that the research was largely based on self-reported perceptions, which may carry social desirability bias. Another limitation is that the sample may not have captured migrant workers, transient residents, or younger populations studying or working outside the valley.

Future research could incorporate longitudinal studies to track changing perceptions over time and qualitative interviews to deepen understanding of cultural and emotional responses to tourism growth.

Conclusion

In summary, this study reveals that tourism provides a stable and substantial mid-level income for a majority of local households and that the community's perception of tourism development in Lahaul Valley is complex and multifaceted. An important finding that emerged is the contrast in the nature of residents' perceptions across the three domains of tourism impact. In terms of economic and socio-cultural impacts, perceptions were mixed, reflecting both optimism and concern. In contrast, when it came to environmental impacts, respondents exhibited a strong and unified level of concern. This contrast suggests that while residents are still negotiating the socio-economic and cultural consequences of tourism, there is a firm and collective stance on environmental preservation. The findings support the need for integrated tourism policies that capitalize on economic potential and cultural strengths, while placing environmental sustainability at the core of development strategies.

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