

Impact of Homestay Scheme on Rural Economy Through Employment Opportunities and Income Generation in Uttarakhand Garhwal

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ABSTRACT

The Homestay Scheme plays a decisive role in fostering rural economic growth, particularly in the region. This study investigates how the Homestay Scheme influences the Rural economy in the Garhwal region of Uttarakhand, with the help of providing employment opportunities and income generation. The research employed Smart PLS-SEM to assess the measurement and structural model, validating the relationships between variables and confirming the robustness of the proposed model. Quantitative approach using both primary and secondary data. Primary data was collected from all 7 districts of the Garhwal region of Uttarakhand with a sample size of 235 respondents, selected using convenience sampling. Secondary data were sourced from the Uttarakhand Tourism site. Results reveal that the Homestay Scheme has significantly contributed to job creation and income enhancement for residents, particularly in rural and underserved areas. Moreover, the scheme plays a significant role of rural economic developer in the region through providing employment opportunities and income generation. The findings underscore the importance of further homestay program support to enhance sustainability over a long period of time and maximize their economic benefits. The study concludes with recommendations for policymakers and stakeholders to strengthen the Homestay Scheme's positive impact on rural development in Uttarakhand Garhwal.

Keywords: Homestay Tourism, Rural Employment, Income Source, Rural Economy, Garhwal-Uttarakhand.

INTRODUCTION

A homestay, as defined by the Uttarakhand tourism development board, is an arrangement where local people offer accommodation to tourists in their homes, providing them with a unique opportunity to experience the local lifestyle, culture, and traditions of Uttarakhand. Homestays are designed to promote sustainable tourism by integrating tourists into the

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community, thus fostering local economic growth while preserving cultural heritage. (Uttarakhand Govt., 2018). Another widely accepted definition is that a homestay is a form of accommodation where travellers stay with local families in their homes, offering a more personalized and immersive experience compared to conventional hotel stays. Homestays not only provide tourists with insight into local customs but also contribute directly to the local economy through employment generation and income distribution (S. Singh & A. Sharma, 2014). The Homestay tourism being run in the state has provided self-employment opportunities to the local people and has certainly contributed to the development of local traditional culture in the Garhwal region (Uniyal A. & Panwar S., 2023). This model of tourism supports sustainable development by engaging communities in tourism activities and offering them financial and cultural incentives (UNWTO, 2018).

Homestay tourism has gained increasing popularity as a form of alternative tourism that offers travellers a more authentic and immersive experience by staying in the homes of locals. This concept has its roots in community-based tourism, where tourists are integrated into the daily lives of host families, allowing them to engage directly with local culture, traditions, and customs (P. Sharma, 2018).

In rural areas, homestay tourism has become an important tool for economic development, particularly in regions where traditional industries may be declining (Bisht, 2017). By offering accommodation and associated services, homestay operators provide new employment opportunities for locals, not only within the homestays themselves but also through the creation of indirect jobs, such as local guides, transport providers, and suppliers (Babu & Bansal, 2018). The income generated from tourism activities can lead to improved living standards for host families and stimulate local economies by encouraging the growth of related sectors, such as agriculture, crafts, and local food production (Tolkach & King, 2015; Uniyal, et al., 2023).

HOMESTAY TOURISM IN UTTARAKHAND

The Uttarakhand homestay scheme is named as Pt. Deen Dayal Upadhyay Grah Awas Yojana has attracted considerable attention recently as a method to foster rural tourism, promote regional development, and its rapid growth in the region (Bhatt & Rawat, 2025). By enabling tourists to experience the local culture and way of life, homestays offer economic prospects for rural communities while upholding traditional practices and environmental sustainability (M., & Singh & Bhatt, 2019). In the context of Uttarakhand Garhwal, famous for its natural beauty and cultural heritage, the homestay program has become a vital strategy for enhancing local economies and encouraging sustainable development.

Uttarakhand Garhwal, situated in the Indian Himalayas, is abundant in cultural and natural resources. However, like many rural areas, it encounters challenges such as limited economic opportunities and outmigration. The homestay program has been implemented to tackle these challenges by capitalizing on the region's tourism potential (P. Sharma, 2018). Residents can directly benefit from tourism by transforming their homes into guest accommodations, ensuring a fairer distribution of income, and reducing the economic disparities between urban and rural areas (M., & Singh & Bhatt, 2019).

Economically, the program has provided a new income source for rural households, contributing to poverty reduction and decreasing reliance on traditional agriculture (Pant, 2019). Culturally, the interaction between tourists and hosts has facilitated the preservation of local traditions, languages, and crafts, which are often at risk of disappearing in the face of modernization (Rawat, 2021). Environmentally, the emphasis on sustainable practices within the homestay program has promoted conservation efforts, particularly in ecologically sensitive areas (Joshi & Singh, 2022).

This study is focused on exploring the diverse impact of the homestay scheme on rural economic development. Analyse the rural economic growth through employment opportunities and income generation provided by the homestay scheme. Offering insights into how rural tourism initiatives can be effectively utilized for sustainable development in similar contexts.

OBJECTIVES OF THE STUDY

This study aims to provide important insights into the role of Homestay scheme in strengthening the rural economy through the following objectives, which are as follows:

1. To examine the role of homestay Scheme in generating employment opportunities for local community. and its impact on rural economy in the Garhwal region.
2. To assess the impact of the homestay Scheme on income generation for homestay stakeholders and its effect on the rural economy growth in the region.
3. To analyse how the homestay Scheme contributes to the overall rural economic development of the Garhwal region of Uttarakhand.

HYPOTHESES FOR THE STUDY

The hypotheses have formed to test the relationship between the homestay scheme and its direct impact on the rural economy and indirect impact through employment opportunities and income generation on the rural economy in the Garhwal region of Uttarakhand.

H₀₁: The homestay scheme has no significant impact on generating employment opportunities for local communities, and it does not significantly impact local economy growth in the Garhwal region.

H₀₂: The homestay Scheme does not significantly affect income generation for homestay owners or stakeholders, nor does it influence local economic growth in the region.

H₀₃: The Homestay Scheme does not significantly contribute to the overall economic development of the Garhwal region.

CONTRIBUTION OF THE STUDY TO THE FIELD

This research makes a significant contribution to the literature by presenting an in-depth, empirical study of the economic effects of homestay tourism on rural development in Garhwal, Uttarakhand, an understudied region. It provides quantitative data on job creation and income growth within the Homestay Scheme. Additionally, it offers region-specific insights into the challenges and opportunities of tourism in the rural Himalayan context. The study demonstrates both direct and indirect impacts of the scheme on economic development, emphasizing income

generation, cultural preservation, and reduced rural-urban migration. The research addresses critical knowledge gaps by focusing on quantifiable economic outcomes and provides actionable policy recommendations to enhance the sustainability and effectiveness of homestay tourism, with broader implications for rural regions globally.

CONCEPTUAL FRAMEWORK OF THE STUDY

Conceptual framework of the study is developed with the help of the Homestay scheme as an independent variable impacts on dependent variables like employment opportunities, income generation and Economic growth.

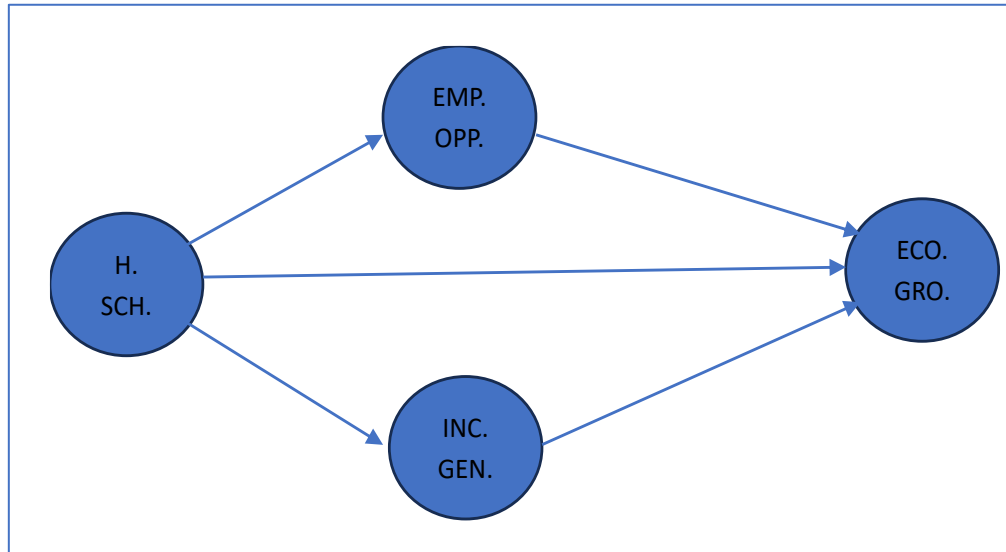


Figure 1 Conceptual framework for the study

IMPORTANCE OF THE STUDY

This study is important because it provides empirical evidence on the rural economic impact of the homestay scheme on the whole Garhwal region of Uttarakhand, addressing a gap in existing studies. By focusing on economic growth through employment generation and income growth through the homestay scheme in rural areas of the region. Its findings are crucial for designing effective tourism policies in similar rural regions.

The concept of homestay tourism has gained traction as a sustainable alternative to mass tourism, particularly in rural regions. Numerous studies have explored the impacts of homestay tourism on regional development, focusing on key factors such as employment, income, and economic development.

Homestay tourism has been recognized as a pivotal element in promoting sustainable tourism and regional development. According to Sati, (2020), Homestays provide an authentic cultural experience for tourists while generating income for local families. The tourism involves local communities in tourism activities; this fosters a sense of ownership and responsibility for the preservation of regional cultural heritage and natural resources (R. Singh et al., 2021). The National Strategy for Promotion of Rural Homestays by the Ministry of Tourism, Government of India, homestay tourism is encouraging entrepreneurship and employment generation in

rural areas through measures such as subsidies and streamlined licensing regulations (Ministry of Tourism, 2021).

EMPLOYMENT OPPORTUNITIES

Tourism is widely recognized as a driver of rural economic growth, particularly through job creation and increased income. Studies show that community-based and rural tourism, including homestay tourism, strengthens local economies by generating direct and indirect employment and improving livelihoods (Beeton & S., 2006; Bharat Budhathoki, 2013; Frey et al., 2010; A. Sharma & Negi, 2021). Evidence indicates that homestay tourism increases household income and economic resilience by involving residents as hosts, guides, and service providers, and by boosting demand for local goods and services (Bhalla et al., 2016; Joshi, 2024; Shukla, 2016). In Uttarakhand Garhwal, homestay schemes have significantly contributed to job creation, especially for women and youth, reduced rural unemployment, and curbed outmigration by supporting activities such as transportation, handicrafts, and guiding services (Awasthi & Mehta, 2020; Prajapati & Dodhi, 2023; P. Sharma, 2018). Similar outcomes in other regions further highlight the effectiveness of homestay schemes in promoting inclusive and sustainable rural development (Bhattacharya et al., 2023; Rawat, 2021).

INCOME GENERATION

Existing literature consistently identifies tourism as a major driver of income generation and economic development in rural areas. Leonandri et al., (2018), highlights the empowering effects of tourism by emphasizing its role in providing income to local communities, while (He & Wang, 2018) Link tourism growth to improved living standards among residents. Studies on homestay and rural tourism further indicate positive economic impacts. Koutsou & Fouskas, (2013), report that homestays contribute to increased rural income levels, fostering economic stability within these regions. In Uttarakhand, Pant, (2019) and Sati, (2020), Observe that homestay tourism has significantly raised household incomes by diversifying livelihoods beyond agriculture. Studies focused on the Garhwal region demonstrate that participation in homestay schemes leads to substantial income growth, improved financial stability, and elevated living standards, with earnings frequently reinvested in education, healthcare, and local infrastructure development (Joshi & Singh, 2022; M., & Singh & Bhatt, 2019).

Homestay tourism has a great impact on rural economies both directly and indirectly. Directly, it creates self-employment and income opportunities among locals, which forms more employment opportunities among community members, including cooks, cleaners, and guides. It has been observed in the literature that the income received by homestays enhances the financial stability of households and boosts local consumption, thus boosting the economy of rural areas. (Mbaiwa & J. E., 2005; S. Singh & Sharma, 2014).

Indirectly, homestay tourism also contributes to the development of the community by generating demand for local goods and services such as handicrafts, food, and transportation, which leads to a multiplier effect, which in turn contributes to the development of the community (Tolkach & King, 2015). Rural infrastructure development and the quality of the overall life also improve because of tourism development (Das & Chatterjee, 2015).

The framework of sustainable tourism underlines the idea that the homestay schemes facilitate environmentally responsible tourism, safeguarding culture and the well-being of the local communities (Choi & Sirakaya-Turk, 2014; Page & Hall, 2014). Homestays in Uttarakhand Garhwal have fostered the engagement of local entrepreneurship, cultural interaction, and empowerment of communities, which have enhanced stronger social cohesion and resilience (Bisht, 2017; Negi & Joshi, 2020; Rawat, 2021). In sum, homestay tourism is a useful instrument in terms of sustainable rural development since the tourism aspect promotes economic development, cultural heritage, and the welfare of the community.

CASE STUDY ON HOMESTAY OWNERS IN UTTARAKHAND GARHWAL

The literature consistently demonstrates that homestay owners perceive the success and sustainability of homestay schemes in Uttarakhand Garhwal as unequivocal. Research shows that participation in these schemes has led to increased income, improved living standards, enhanced social status among owners, and greater interest in conserving cultural and natural heritage (Lakhera et al., 2024). Owner motivation and satisfaction are identified as critical factors influencing service provision and long-term sustainability, as satisfied operators are more likely to deliver superior tourist experiences and contribute to community development (Pant, 2019; P. Sharma, 2018). However, increased operational demands may result in stress and burnout if adequate institutional support is lacking (Rawat, 2021). Furthermore, studies indicate that access to finance, marketing, and training significantly impact homestay performance, and the involvement of local government and non-governmental organizations is essential for enhancing operator capabilities and ensuring the sustainability of homestay schemes (Gupta & Pant, 2021).

The current body of knowledge about the homestay tourism indicates that there are a few significant research gaps. To begin with, the number of quantitative studies that strictly quantify the economic effects of homestay tourism on such important indicators as employment creation, income gains, and the economic development in the region is considerably low since most of the previous studies focused on the qualitative results, and therefore, the specific economic benefits remain under-researched (Zapata et al., 2011). Second, the economic sustainability of homestay tourism over a long period has not been studied adequately, especially in high seasonality areas, where the information regarding homestays' capacity to maintain stable income streams and year-round employment in the rural setting is scarce (Das & Chatterjee, 2015). Third, there has been a lack of focus on the indirect or spillover impact of homestay tourism on non-tourism sectors such as agriculture, handicrafts, and local trade, although they hold significance in comprehending the overall contribution of homestay tourism to the whole economy (Tolkach & King, 2015). It is necessary to address these gaps to formulate a detailed theoretical framework that will be used to study the Uttarakhand homestay scheme and its effects on employment, income, and the general economic development.

RESEARCH METHODOLOGY

This section outlines the research methodology, including sample selection, data collection, research design, and data analysis methods, used to examine the impact of the homestay scheme on employment, income generation, and economic development in rural areas of the

Garhwal region of Uttarakhand. The study objectives were reformulated as research questions and a hypothesis, which was tested using bootstrapping in SmartPLS. Consistent with (J. F. Hair et al., 2019), partial least squares structural equation modeling (PLS-SEM) was selected due to its suitability for testing conceptual frameworks with complex structures and non-normally distributed data.

SAMPLE AND DATA COLLECTION

The target population included the stakeholders of the rural homestays in all seven districts of the Garhwal Mandal of Uttarakhand. The Uttarakhand Tourism website (www.homestaytourism.gov.in), May 2024 lists over 5,000 registered homestays in the state, with about 2,700 of them in the Garhwal region. These homestays were initially classified into urban and rural units, with only rural homestays to be included in the research. The stakeholders of rural homestays were surveyed based on a structured questionnaire; more than 350 stakeholders were approached, and 235 valid responses were received, which is more than the recommended G-Power sample size of 97 and therefore considered sufficient. The criteria used to select the homestays were that they should be functioning for at least one year, should be registered as a homestay under the state homestay scheme on the Uttarakhand Tourism portal, and should have a direct or indirect effect on the local rural economy of the Garhwal region.

ANALYTICAL METHODS

The approach that was taken to conduct a quantitative research study focused on investigating the effects of the homestay scheme of the state, and the economic analysis involved to determine the effect of the scheme in terms of the creation of employment opportunities, increasing income, as well as economic growth of the rural regions, in accordance with the survey responses. The method empowers the validity of the results by systematically testing research questions. SmartPLS-SEM was also adopted as the statistical analysis tool because it suits exploratory research, non-normal data, large samples, as well as multifaceted models with multiple constructs (J. Hair & Alamer, 2022; J. F. Hair et al., 2019; Sarstedt et al., 2021a). It was deemed suitable in the analysis of the impacts of the homestay scheme as an exogenous variable on endogenous constructs (employment opportunities, income generation, and economic development) and, in the investigation of direct and indirect relationships in a single model.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 1: This table shows the categorical data related to the study and their frequencies. Here the cumulative percentage has used to check the missing values in the data.

Categorical data status					
Variables	Categories	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Gen.	Male	215	91.49	91.49	91.49

	Female	20	8.51	8.51	100.00
AGE	Below 30 years	26	11.06	11.06	11.06
	31 to 45 Years	115	48.94	48.94	60.00
	46 to 60 Years	75	31.91	31.91	91.91
	Above 60 Years	19	8.09	8.09	100.00
QUALI.	Illiterate	4	1.70	1.70	1.70
	Secondary	17	7.23	7.23	8.94
	S. Sec./Dip.	79	33.62	33.62	42.55
	UG	125	53.19	53.19	95.74
	PG	10	4.26	4.26	100.00
RR	1-2 Rooms	44	18.72	18.72	18.72
	3-4 Rooms	104	44.26	44.26	62.98
	5-6 Rooms	87	37.02	37.02	100.00
H.LOC	Rural	235	100.00	100.00	100.00

Source: Survey Data

In this study, the homestay scheme as an independent variable and other categorical data are shown through this table. The data shows that more than 91 percent of male participants are involved in the homestay operation. People of different age groups, including those in the age group of 31 to 45, with the highest number of people in the age group of more than 48 percent, are involved in running the homestay business, which shows the interest of middle-aged people in the homestay business. If we talk about the educated class, then not only educated but also uneducated people are participating in homestay operation, whose percentage is more than 1.5 and the highest number is of graduate class, which is more than 53 percent. It would not be wrong to say that an educated class is also looking at homestay as self-employment and is taking advantage of the state-run homestay scheme. If we talk about homestay location, all the homestays have been taken from rural areas of Uttarakhand Garhwal so that the impact of the homestay scheme in rural areas, such as employment generation, income source, and local economic development can be assessed. The registered rooms in homestays show that most of the medium sized homestays are in the area in which 3-4 rooms are available which is more than 44 percent. In the categories classified by Uttarakhand Tourism Development Board as per the availability of facilities like Gold, Silver, and Bronze, Silver has the highest number of more than 29 percent, while more than 31.49 percent non-category homestays are registered on the board's site.

Qualitative Data analyses

Table-2: In this study, qualitative data were used to enhance the depth and effectiveness of the analysis, and the findings are presented through the table provided below.

Qualitative data status					
Variables	Categories	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Motivational Factor of homestay scheme	Other Homestays	145	61.70	61.70	61.70
	Tax Free Bus.	52	22.13	22.13	83.83
	Inspired by govt. scheme	25	10.64	10.64	94.47
	Self-Employment option	11	4.68	4.68	99.15
	Other	2	0.85	0.85	100.00
Homestay Activities	Village visit	10	4.26	4.26	4.26
	Nature walk	21	8.94	8.94	13.19
	Hiking/Trekking	39	16.60	16.60	29.79
	Adventure sports	57	24.26	24.26	54.04
	Local cultural/fest. programmes	36	15.32	15.32	69.36
	Yoga/Meditation	40	17.02	17.02	86.38
	Fishing/Angling	17	7.23	7.23	93.62
	Other	15	6.38	6.38	100.00
Homestay Theme	Nature based activity	28	11.91	11.91	11.91
	Authentic local culture	23	9.79	9.79	21.70
	Peaceful environment	32	13.62	13.62	35.32
	Stay with the local family	32	13.62	13.62	48.94
	Home-made local Cuisine	65	27.66	27.66	76.60
	Other	55	23.40	23.40	100.00

Booking Sources	Taxi driver/guide/brokers	30	12.77	12.77	12.77
	Tourism site queries	55	23.40	23.40	36.17
	Already stayed tourist	40	17.02	17.02	53.19
	Walk-ins	60	25.53	25.53	78.72
	Own accommodation/travel agency bus.	31	13.19	13.19	91.91
	Own website query	13	5.53	5.53	97.45
	Nearby hotels/guest house/homestays	4	1.70	1.70	99.15
	Other	2	0.85	0.85	100.00

Source: Survey qualitative data

According to the qualitative data table, people in the Garhwal region are quite impressed by the state's homestay program, which shows that more than 61 percent of homestay operators or owners have joined this business after seeing other homestays running in the region. More than 22 percent of people in this area have been influenced by the state's tax incentive scheme, and only 4.68 percent people have joined the state's homestay scheme for self-employment purposes.

Discussing the activities of homestays located in the region, it is known that maximum 24.26 percent homestays relate to adventure sports which have immense possibilities in Uttarakhand. More than 17 homestays relate to yoga/meditation, 16.60 percent with trekking, and the least 4.26 percent homestays relate to village visit activities.

In keeping with the specialty of the region, the highest 27.66 percent of the homestays here adopt home-cooked local cuisine as the theme of their homestays, while the lowest 9.79 percent present authentic local culture as the homestay theme.

With reference to homestay bookings in the Garhwal region, the highest 25.53 percent bookings are done by the visitors themselves, while more than 23 percent of the homestay operators believe that they get bookings from the Uttarakhand Tourism Development site, which is an important step of the state policy to promote the homestay tourism program and is proving to be beneficial for the homestay operators or owners.

RESULTS AND INTERPRETATIONS:

PLS-SEM is a variance-based statistical technique used to analyze in the research of Social Science. It is suitable for studies in which research model is complex and multiple constructs and indicators. In PLS-SEM simultaneous assessment of measurement model and structural relationship, reliability, validity, and hypothesized relationship among latent variables. PLS-

SEM is useful for small to medium sample sizes and non-normal data makes it an effective analysis tool (J. Hair & Alamer, 2022; J. F. Hair et al., 2017; J. F. Hair et al., 2019; Sarstedt et al., 2021b). This section defines results and findings of the data analyses. All the necessary analyses on SmartPLS-SEM are done with the help of the attended Workshop of the Mehta Dhaval, (2023). And guidelines are followed given by the J. F. Hair et al., (2019).

First, the measurement model construct’s reliability and Discriminant validity have been checked and then statistical analyses has done by the bootstrapping with the help of SmartPLS-SEM software.

MEASUREMENT MODEL

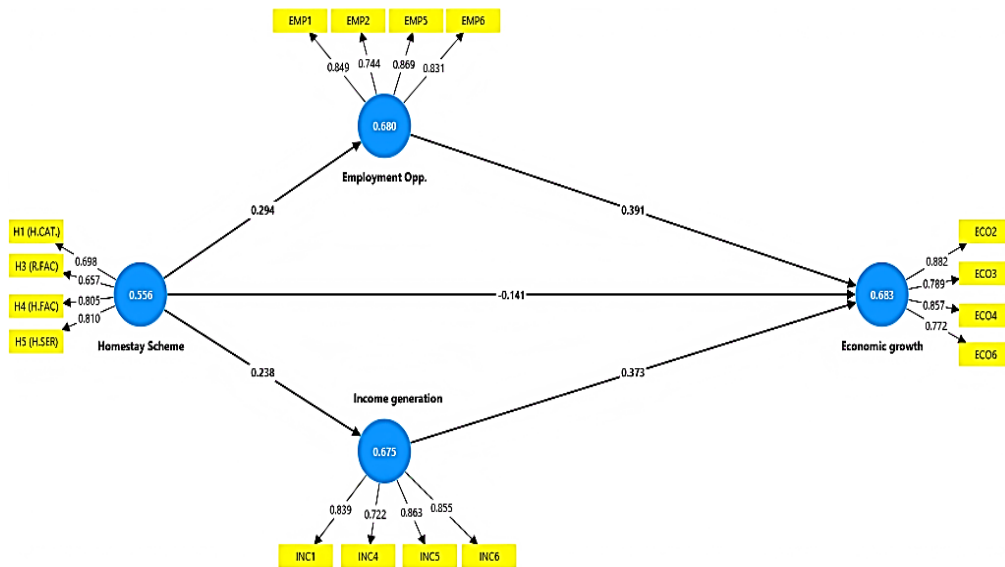


Figure 1: Measurement model of the study

The measurement model defines how to measure a latent variable. According to J. F. Hair et al., (2017) Researchers usually select reflective or formative measurement model from two different types. For this study Reflective measurement model is chosen which the necessary analyses are defined. According to Sarstedt et al., (2021a), firstly the loadings of reflective indicators were checked in which most of them were found to be more than the threshold limit of 0.708 but the loadings of H1 and H3 were slightly less than the threshold limit, hence the measurement model further checked which can be understood through the table.

Table:3 PLS-SEM assessment results of reflective measurement model

Construct reliability and validity: Overview							
Latent Variable	Indicators	Convergent validity			Internal consistency reliability		
		Loadings	Indicator reliability	AVE	Crobach's alpha	Composite reliability rho_a	Composite reliability rho_c
		> 0.70	> 0.50	> 0.50	0.70 - 0.90	> 0.70	> 0.70

Employment Opportunities	EMP1	0.849	0.721	0.680	0.843	0.857	0.894
	EMP2	0.744	0.553				
	EMP5	0.869	0.755				
	EMP6	0.831	0.691				
Economic Growth	ECO2	0.882	0.778	0.683	0.846	0.871	0.896
	ECO3	0.789	0.623				
	ECO4	0.857	0.735				
	ECO6	0.772	0.596				
Income Generation	INC1	0.839	0.704	0.675	0.838	0.850	0.892
	INC4	0.722	0.521				
	INC5	0.863	0.744				
	INC6	0.855	0.731				

This table shows the tests of internal consistency reliability and validity along with convergent validity of the constructs. This includes Cronbach alpha values of all constructs being above the threshold limit of 0.70 and between 0.90, composite reliability rho_a and rho_c all being above 0.70, average variance extracted (AVID) values being above the threshold value of 0.05, and loadings and reliability of all indicators being above the respective threshold values of 0.70 and 0.50 indicating the significance of the measurement model (J. F. Hair et al., 2018).

Discriminant validity

Table 4: Heterotrait-Monotrait ratio (HTMT) – Matrix

	Economic growth	Employment Opp.	Homestay Scheme	Income generation
Economic growth				
Employment Opp.	0.702			
Homestay Scheme	0.141	0.368		
Income generation	0.707	0.830	0.287	

HTMT (Heterotrait-Monotrait Ratio) is a statistical technique used to assess the discriminant validity of constructs in a model. Discriminant validity ensures that a construct is distinct from other constructs. The HTMT approach compares the correlations of items across different constructs (heterotrait- heteromethod) with the correlations of items within the same construct (monotrait- heteromethod). According to the J. F. Hair et al., (2018) the threshold value of

HTMT is less than 0.90 is significant for conceptually similar constructs and less than 0.85 is for conceptually different constructs. In this table HTMT value of all the constructs are less to the threshold value suggest that the constructs are sufficiently distinct from each other. For confirmation of the discriminant validity of the measurement model, the Fornell-Larcker criterion was again checked.

Table 5: Fornell-Larcker criterion

	Economic growth	Employment Opp.	Homestay Scheme	Income generation
Economic growth	0.827			
Employment Opp.	0.612	0.825		
Homestay Scheme	0.062	0.294	0.746	
Income generation	0.615	0.703	0.238	0.822

For the Fornell-Larcker criterion the square root of the AVE for all constructs are greater than threshold value 0.50 and the correlation between the constructs are highest in the model. This suggests that the construct shares more variance with its own measures than it does with other constructs. The values on the diagonal are higher than the off-diagonal values in their respective rows and columns which shows that value of Fornell-Larcker criterion table is supported the discriminant validity.

STRUCTURAL MODEL OF THE STUDY

Through figure 3 of the structural model, the hypotheses were assessed and first its collinearity was checked and then the effect of latent variables on each other was observed through path coefficients.

STRUCTURE MODEL

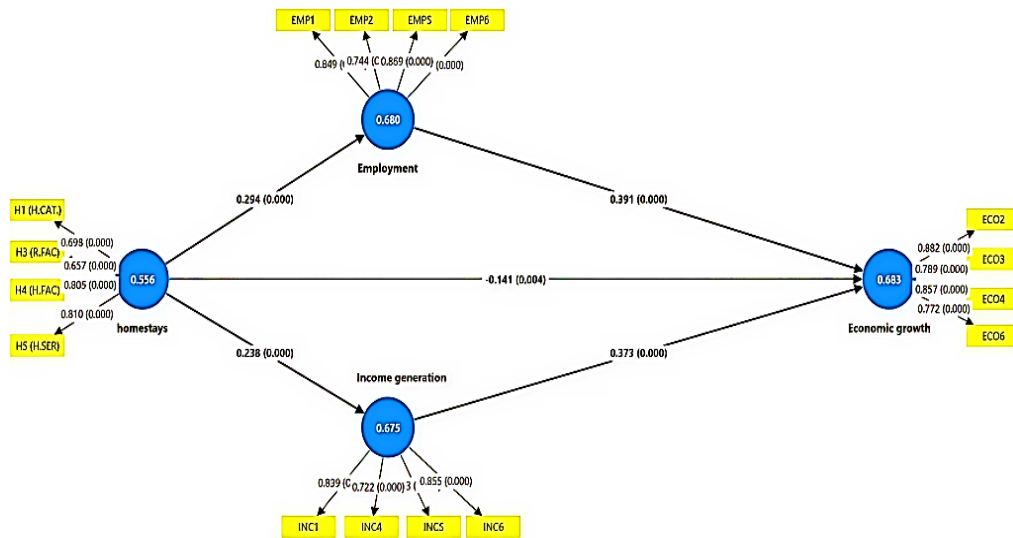


Figure 2: Structure Model of the study

Table 6: Collinearity statistics (VIF)

VIF	ECO2	ECO3	ECO4	ECO6	EMP1	EMP2	EMP5	EMP6
	2.173	1.802	2.113	1.639	1.999	1.595	2.185	1.982
	H1 (H.CAT.)	H3 (R.FAC)	H4 (H.FAC)	H5 (H.SER)	INC1	INC4	INC5	INC6
	1.274	1.289	1.818	1.577	1.866	1.528	2.668	2.591

Further Collinearity of the model has checked by the Variance Inflation Factor (VIF). In this, all the values of VIF are below the threshold limit of 3, which shows multicollinearity is not present between the constructs. After getting the significant results of the construct reliability and validity, discriminant validity, and Collinearity (VIF), further statistical analyses are done with the help of Smart-PLS SEM bootstrapping.

Table 7: Path coefficients of the structural model and significance testing results

	Path coefficient	95% confidence interval		Significant (p < 0.05)	f ² effect size (0.02: small effect, 0.15: Medium effect, 0.35: Large effect)	
Employment Opp. -> Economic growth	0.391	0.280	0.513	Yes	0.003	Negligible
Homestay Scheme -> Economic growth	-0.141	-0.240	-0.053	Yes	0.115	Moderate
Homestay Scheme -> Employment Opp.	0.294	0.159	0.399	Yes	0.042	Small
Homestay Scheme -> Income generation	0.238	0.085	0.341	Yes	0.095	Small
Income generation -> Economic growth	0.373	0.244	0.492	Yes	0.020	Small

Table 7 shows the Path coefficients of the structural model and its results of significance, described below:

H₀₁: The homestay scheme has no significant impact on generating employment opportunities for local communities, and it does not significantly impact local economic growth in the Garhwal region.

The path coefficient of the Homestay Scheme and employment generation is 0.294, suggesting a positive relationship between the variables. This means, increase of one unit also increases employment generation by 0.294 with moderate level. The p-value is less than 0.05 suggest a

significant relationship, and due to the significant relationship between both the null hypothesis (H_{01}) is rejected. The effect size of f^2 0.042 indicates a small effect, which is significant.

The path coefficient of the employment generation and economic growth is 0.391, suggesting a moderate positive relationship between the constructs. This means, if employment opportunities one unit increased that economic growth also increased by 0.391 at a moderate level. The p-value is less than the threshold value 0.05 show significant relationship between the constructs and here, null hypothesis is rejected. But the effect size of f^2 (0.003) is a negligible effect.

H₀₂: The homestay Scheme does not significantly affect income generation for homestay owners or stakeholders, nor does it influence local economic growth in the region.

The path coefficient of Homestay Scheme and income generation is 0.238 again suggesting positive relationship between variables. This show, if homestay scheme is increased by one unit that income generation also increased by 0.238 with moderate level. Again p-value is less than 0.05 suggest significant relationship and rejecting the null hypothesis (H_{02}). The effect size of f^2 0.095 is significant with a small effect.

The path coefficient of income generation and economic growth is 0.373 moderate level, indicate positive relationship between both constructs. This shows that if income generation increased by one-unit, economic growth also increased by 0.373 units. The p-value of 0.05 indicate significant relationship, and here, the null hypothesis is rejected. Which is significant with a small effect size of f^2 (0.020).

H₀₃: The Homestay Scheme does not significantly contribute to the overall economic development of the Garhwal region.

The path coefficient of the Homestay Scheme and economic growth is (-0.141) suggests that there is an inverse relationship between homestay scheme and Rural economic growth. But the p-value is less than the threshold value 0.05 show relationship between the variable is significant, Null hypothesis (H_{03}) is rejected. This means that the inverse relationship (-0.141) is statistically significant, and there is evidence that the homestay scheme affects the rural economic growth with a weak relationship. The effect size of f^2 0.115 value shows a medium effect, indicating the homestay scheme has a moderate influence on the rural economic development in the region.

The results show that the direct impact of the homestay scheme on economic growth is inverse or very weak. But the p-value is significant with the moderate effect size of f-square. Direct and indirect paths have a positive relationship between the homestay scheme and employment opportunities and economic growth, with a significant p-value and a small effect size of f-squared. Again, direct and indirect paths between the homestay scheme and income generation and economic growth are positive with a significant p-value, and the effect size of f^2 is small.

Q square - predict

Q^2 value is developed by Stone-Geisser (Gesser, 1974; Stone, 1974). They define that the value of a larger Q^2 value than zero for a certain reflective endogenous latent variable indicates the path model's predictive relevance for this construct. According to the J. F. Hair et al., (2017),

to Assess the model's predictive power by running the PLS predict procedure with ten folds and ten repetitions. Here main focused on the key target (Economic growth) of the model and then on employment opportunities and income generation.

Table-8: PLS Predict Results

	Q ² predict	RMSE	
		PLS- SEM_MAE	LM_MAE
ECO2	0.001	0.503	0.539
ECO3	-0.010	0.758	0.722
ECO4	0.000	0.558	0.566
ECO6	-0.009	0.637	0.638
EMP1	0.063	0.625	0.637
EMP2	0.044	0.677	0.686
EMP5	0.060	0.620	0.619
EMP6	0.029	0.771	0.777
INC1	0.051	0.724	0.731
INC4	0.002	0.866	0.855
INC5	0.030	0.635	0.644
INC6	0.033	0.759	0.767

Table 8 shows the PLS prediction result in which –

Economic Development: the constructs Q² predict ECO3 (-0.010) and ECO6 (-0.009) with RMSE values indicating relatively stable predictions. This suggests that the Homestay Scheme contributes positively to economic development but with some limitations, possibly due to external economic factors affecting the region.

Employment Opportunities: the indicators EMP1 (0.063), EMP2 (0.044), EMP5 (0.060), and EMP6 (0.029) related to Employment Opportunities outcomes demonstrated better predictive power, with positive Q² predict values. Which suggesting that the homestay Scheme is moderately effective in creating employment opportunities for the local community.

Income Generation: the indicators related to income growth, INC1(0.051), INC4 (0.002), INC5 (0.030), INC6 (0.033), also reflective medium predictive power in some cases, particularly INC4 and INC5, where the Q²predict values and RMSE measures were indicative of the Homestay Scheme's positive influence on stakeholders' income.

RESULT DISCUSSION

The objectives of the study are achieved with the help of data analyses on Smart PLS-SEM. Results show that the state government's homestay scheme has influenced the rural economy through employment opportunities and income generation options. Impact of the Homestay scheme on rural economic growth is presenting -0.141 path coefficients, which indicate reverse or weak impact, its p-value is significant, and f^2 playing moderate level effect size, the reason for which its impact is considered significant. Here is need for work to boost the rural economy. One side of the homestay scheme impacting rural economic growth through employment opportunities is playing a significant role with 0.294 path coefficients, which is quite good, and employment is impacting rural economic growth with 0.391 path coefficients, which means that employment and economic growth are more significant to the homestay scheme and economic growth. We can say that employment opportunities are playing a crucial role in the development of rural economy. On the other hand, the homestay scheme is influencing the rural economic growth through income generation by the homestay program in the rural areas of Uttarakhand Garhwal. Homestay scheme and income generation path coefficient is 0.238, which positive relationship and its p-value is also significant. Means that the homestay scheme is helping to earn income from the homestay tourism significantly. And ahead that income generation and rural economic growth which path coefficient is 0.373 with moderate level positive relationship and its p-value is significant with small size effect of f square. Here, income generation and rural economic growth are more significant to the homestay scheme and income generation. Based on mediation role, a comparison between employment opportunities and income generation that homestay scheme effect on rural economic growth through employment opportunities is stronger with 0.342 average path coefficient which is moderate level. The p-value is significant, and the null hypothesis is rejected. Another side in the mediation role, in comparison that homestay scheme influenced the rural economic growth through income generated by the homestay tourism in rural Garhwal, with 0.305 average path coefficient also this is moderate level positive impact. Its p-value is significant, and the null hypothesis is rejected again.

RMSE & MAE: The PLS-SEM model generally has lower or comparable Residual Mean Square Error (RMSE) and Mean Absolute Error (MAE) values compared to the Linear model (LM). This indicates that PLS-SEM performs slightly better in predicting these constructs, like ECO2, PLS-SEM RMSE (0.503) is lower than LM's (0.539), showing better. Same like that ECO2 all other constructs except ECO3, EMP5 and INC4 PLS-SEM RMSE values are more than LM's values which is not showing good prediction accuracy.

CONCLUSION

This study, the impact of homestay scheme on rural economy through employment opportunities and income generation in Uttarakhand Garhwal present significant results with moderate level relationship. In this study, on one hand, the homestay scheme is benefiting the rural economy through increased employment opportunities and income generation; on the other hand, the weak impact of the homestay scheme on the rural economy has been found. For further research, there is a need to demonstrate the impact of the homestay scheme on the rural economy through other factors available in the rural areas. The results of the study show its

limitations, which also affect the impact of the homestay scheme and its critical judgment. The results of the study fulfil the objectives and answer the research questions in a positive manner, but emphasize the need to focus more on it. For future research, this study suggests that the focus should be on factors like digital skills and usage.

Finally, the study provides valuable insights into the role of the homestay scheme in influencing employment opportunities and income generation in the Garhwal region. Further research and policy interventions are essential to fully realize its potential for driving sustainable rural economic development.

LIMITATION OF THE STUDY

The results present several limitations related to the study. Firstly, the study focused solely on rural areas, where the homestay scheme's impact was found to be significant but moderate level. However, including homestays in urban areas could potentially yield better results. Secondly, although 235 respondents were involved in the study, more accurate results could be achieved by increasing the sample size to better reflect the target population. Thirdly, while the economic impact of the homestay scheme in this study was examined through income and employment, other factors could also be included for a more comprehensive analysis. Lastly, the study is region-specific to Garhwal, a region that may have unique socio - economic conditions, which could limit applicability of the findings for other regions or context.

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