



Exploring the Influence of Ecotourism and Sustainable Tourism on Small Business Creation and Developing the Local Communities' Economy: A Study of Activities, Infrastructure, and Demographic Factors in Sulaymaniyah Governorate – Kurdistan region of Iraq

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Abstract:

In Sulaymaniyah City, Kurdistan Region of Iraq, this quantitative study was conducted in 2024 to examine the relationship between the establishment of small businesses and ecotourism. The total of the 92 respondents, who ranged in income and work experience, were between the ages of 18 and 45, with a few respondents being above 45. The majority of participants who travel for ecotourism, whether frequently or infrequently, primarily visit natural and cultural sites, according to the descriptive statistics. To confirm that the questionnaire items consistently reflected the same concept, a reliability test was conducted. The correlation analysis revealed a moderate to strong positive relationship between ecotourism activities and the development of small businesses. Economic factors and tourism infrastructure have a significant impact on this relationship, as indicated by regression and ANOVA results, which support the idea that these factors encourage small business growth. Additionally, the kinds of small businesses that are established are somewhat influenced by the demographics of visitors. The results show that there is a significant relationship between tourism infrastructure and the enhancement of the economic situation, which encourages local entrepreneurs and the sustainability of those businesses, leading to the optimization of socioeconomic advantages of ecotourism.

Keywords: Eco-tourism Activities, Sustainable Tourism, Tourism Infrastructure, Small Businesses, Local Community Economy



1 INTRODUCTION

Tourism has been identified as an important driver of economic growth, especially in developing countries where industries are not expected to generate adequate employment and economic opportunities [1]. Ecotourism, an environmentally conscious tourism, promoting eco-friendly travel while maximizing the prosperity of the local surrounding community, has gained importance as a sustainable method for long-term economic growth [1]. In recent years, the focus has shifted towards how sustainable tourism and ecotourism can contribute to entrepreneurship, particularly through setting up small businesses [2]. Since businesses will always try to improve the performance of their new products and services, entrepreneurship is naturally crucial in this area [3]. The following study examines how these tourism models contribute to the economic growth of Sulaymaniyah Governorate, a province in the Kurdistan region of Iraq, blessed with natural and cultural resources, but continues to suffer from economic hardships. Positive influences on local individuals in terms of economic impacts, such as job opportunities, enhanced infrastructure, and poverty alleviation, are mostly linked to ecotourism and sustainable tourism [4]. These types of tourism place great emphasis on the protection of local landscapes and culture, encouraging local stakeholders to participate economically. This can result in the development of small-scale businesses in retail trade, hospitality, and tour operations [5]. In regions like Sulaymaniyah in developing countries, where tourism economies may be underdeveloped due to traditional practices,

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ecotourism has enormous potential to harness natural and cultural resources for economic purposes while maintaining its commitment to sustainability. Sulaymaniyah Governorate in northern Iraq is endowed with a richly diversified landscape comprising mountainous regions and fertile valleys, making it a desirable location for ecotourism [6]. To enjoy small business development in the ecotourism sector, certain elements must be taken into account, including the local entrepreneurial potential, availability of capital, development of infrastructure, and government policies, likewise new substitute services, changing consumer preferences, technological change, and other external environmental factors can all pose danger to the ability of a business to develop and succeed [3]. The development of tourism is greatly aided by infrastructure, especially in sectors such as communication, accommodation, and transportation [7]. Moreover, the performance of small business enterprises is usually determined by demographic factors, including population, education level, and local attitude towards entrepreneurship [8]. Along with an investigation of the forces driving these in the Sulaymaniyah Governorate, this research aims to provide insight into how sustainable tourism can be used as an incentive for local economic growth in developing regions.

1.1 RESEARCH IMPORTANCE

Knowledge of the relationship between ecotourism activity and new business development is important to policymakers, host communities, and entrepreneurs because all the necessary ingredients— work, capital, tools, resources, methods, and marketplaces are combined in administration. These resources are mobilized to execute the business goals [9]. This study aims to clarify the economic interactions of ecotourism, offering practical guidance that can aid sustainable development efforts, stimulate local community participation, and enhance the broader contribution of ecotourism to regional economies.

1.2 VARIABLES

1.2.1 INDEPENDENT VARIABLES (IV)

- **Ecotourism Activities:** Those types of touristic activities that are eco-friendly and environmentally friendly, such as eco-friendly travelling, mountaineering, camping, wildlife observation, and long-term activities that protect nature.

1.2.2 CONTROL VARIABLES

- **Economic Factors:** Examine more general economic circumstances that might have an impact on the establishment of small enterprises outside of ecotourism.

- **Tourism Infrastructure:** Look at the existing infrastructure, including transportation and accommodation, and how it may affect the success of new businesses.

- **Visitor Demographics:** Analyse characteristics like age, income, and interests of ecotourists to determine how these factors might affect the types of businesses that emerge.

1.2.3 DEPENDENT VARIABLE (DV)

- **Establishment of New Small Businesses:** Investigate those small businesses that were influenced, started, and developed as a result of ecotourism and sustainable tourism practices.

These variables assist in understanding the influence of ecotourism activities on the creation of small new businesses while considering the control variables that work as factors of control on such movements, starting from the establishment of the businesses along with the increase of touristic activities, then their growth and sustainability.

1.3 RESEARCH PROBLEM

This study investigates the connection between the growth of new small businesses in Sulaymaniyah City, KRG, Iraq, and ecotourism activities. It focuses on understanding the degree and type of ecotourism activities in the area, including nature tours, green hotels, sustainable practices, and their impact on the growth of small business development. The study will also examine how tourism infrastructure, visitor profiles, and economic conditions shape these companies' failures and successes. Through exploring these dynamics, the study aims to develop a comprehensive picture of how ecotourism businesses interact with the entrepreneurship environment in the locality, ultimately producing beneficial information for the long-term development of small businesses in the region.

1.4 RESEARCH QUESTIONS

- 1- How do ecotourism activities affect the establishment of small new businesses?
- 2- To what extent do the control variables, such as economic factors and tourism infrastructure, influence the ecotourist activities and the creation of small new businesses?
- 3- To what extent was the creation of small new businesses influenced by the local tourism infrastructure
- 4- How do the demographics of visitors affect the kinds of small businesses that develop in response to ecotourism?

1.5 RESEARCH OBJECTIVES

- 1- Investigate the connection between different ecotourism activities and the creation of small businesses.
- 2- Analyze how economic conditions and tourism infrastructure impact the link between ecotourism and small businesses.
- 3- Examine how tourism infrastructure influences the relationship between ecotourism and new businesses.
- 4- Determine how visitor demographics shape the types of businesses that arise from ecotourism.

1.6 RESEARCH HYPOTHESIS

H1: The creation of new small businesses is positively correlated with the variety and frequency of ecotourism activities.

H2: The relationship between ecotourism and new businesses is positively impacted by the state of the economy and the infrastructure supporting tourism.

H3: Tourism infrastructure strengthens the positive relationship between ecotourism and the creation of new small businesses.

H4: Visitor demographics significantly affect the types of small businesses that arise from ecotourism.

1.7 LIMITATIONS

The generalizability of this study could be confined to geographical areas with established ecotourism operations. In addition, the accuracy of the findings depends on the reliability of self-reported data from tourists and enterprises, and global economic conditions could separately impact small business ventures regardless of ecotourism operations.

2 LITERATURE REVIEW

In order to acquire meaningful information regarding the contribution of ecotourism to the economy and its impact on development at the community level, this research aims to examine the relationship between ecotourism activities and the creation of small businesses [10]. Due to its emphasis on sustainability and community involvement, ecotourism has drawn significant interest for its contribution towards local economic development and conservation [5]. Many facets of ecotourism, such as its impact on wildlife conservation, natural habitats, and community welfare, have been investigated by researchers.

2.1 THEORETICAL FRAMEWORK

This study examines the relationship between ecotourism activities and small business establishment in Sulaymaniyah. The theoretical foundations are derived from a multidisciplinary group of frameworks that are under the categories of tourism development, entrepreneurship, and behavioral sciences.

The theories explain how local conditions, small business development, and ecotourism interact:

2.1.1 INDEPENDENT VARIABLE (IV): ECOTOURISM ACTIVITIES

The term ecotourism as an engine for socially and environmentally conscious development is supported by the idea of Sustainable Tourism Development Theory. According to this theory, tourism can support long-term ecological preservation and socioeconomic advancement if it is properly planned and managed [11]. Additionally, according to the Ecotourism Entrepreneurship Theory, particularly in rural and underdeveloped areas, environmental attractions offer both opportunity and motivation for entrepreneurial endeavors [12]. Together, these theories support the investigation of ecotourism activities like eco-travel, wildlife observation, and mountaineering as possible engines for the growth of new small businesses.

2.1.2 CONTROL VARIABLE (CV): ECONOMIC FACTORS

According to the Resource-Based View (RBV), organizational performance and innovation potential are significantly influenced by both internal and external resources, including financial capital [13]. According to the Tourism-Led Growth Hypothesis (TLGH), a rise in tourism also helps the economy as a whole, which can improve the environment for the establishment of new businesses [14].

2.1.3 CONTROL VARIABLE (CV): TOURISM INFRASTRUCTURE

According to Butler's Tourism Area Life Cycle (TALC) Model, building infrastructure is essential to the growth and consolidation stages of the tourism industry. As the number of tourists increases, basic services, lodging, and transportation must also change [15]. In a similar vein, the Destination Competitiveness Theory highlights that a destination's attractiveness and ability to support business growth are improved by supportive infrastructure [16].

2.1.4 CONTROL VARIABLE (CV): VISITOR DEMOGRAPHICS

In order to comprehend how attitudes, social norms, and perceived behavioral control impact individual intentions, such as the choice to travel or use ecotourism services, the Theory of Planned Behavior (TPB) is employed [17]. In this regard, visitor demographics like age, income, and values impact travel habits and determine the demand for particular services. Market Segmentation Theory, which maintains that customizing products for particular customer groups improves company relevance and profitability [18].

2.1.5 DEPENDENT VARIABLE (DV): ESTABLISHMENT OF NEW SMALL BUSINESSES

The creation of small businesses is often explained by the Entrepreneurship Opportunity Theory, which suggests that entrepreneurs identify and take advantage of market gaps, usually caused by shifts in consumer preferences or infrastructure changes, to launch new ventures [19]. In the ecotourism sector, these opportunities are commonly linked to natural attractions and the growing demand from environmentally conscious travelers. Additionally, the Stakeholder Theory emphasized that for a business to develop sustainability, it must consider and balance the needs of various groups, such as local residents, visitors, and governing authorities [20].

Table 1. Summary of the Framework Theories

Variable	Supporting Theory	Justification
Ecotourism Activities (IV)	Sustainable Tourism Theory, Ecotourism Entrepreneurship Theory	Explains how nature-focused tourism promotes eco-business
Economic Factors (CV)	RBV, Tourism-Led Growth Hypothesis	Economic context drives or restricts entrepreneurial success
Tourism Infrastructure (CV)	TALC Model, Destination Competitiveness Theory	Infrastructure enables or limits tourist access and service provision
Visitor Demographics (CV)	TPB, Market Segmentation Theory	Tourist characteristics shape business needs and offerings
Establishment of Small Businesses (DV)	Entrepreneurship Opportunity Theory, Stakeholder Theory	Ecotourism creates opportunities; small firms respond

Source: Developed by the Author

2.2 ECONOMIC IMPACTS OF ECOTOURISM

Studies reveal that by catering to newly formed small businesses, ecotourism greatly promotes the economies of localities [21]. Typically owned and operated by locals, such establishments are important in offering tourists special experiences, thereby increasing the appeal of ecotourism places [22]. Together, they diversify the economic activities within ecotourism areas by including locally-sourced goods, guided nature trips, and environmentally friendly hotels.

2.3 COMMUNITY DEVELOPMENT THROUGH ECOTOURISM

One recurring topic in the literature is the link between ecotourism and community development. By creating jobs and supporting cultural preservation, properly controlled ecotourism can empower nearby populations [23]. Small businesses growing inside ecotourism environments help to fairly distribute financial gains among the residents of the area [24]. Moreover, these companies encourage community involvement so that the people feel proud and responsible.

2.4 CHALLENGES AND CONSIDERATIONS

Despite the advantages of ecotourism in fostering small business growth, challenges remain. Over-commercialization, cultural commodification, and insufficient infrastructure can impede the sustainable growth of small enterprises in ecotourism areas [25]. Balancing economic growth with environmental preservation is critical to ensure the long-term viability of both ecotourism efforts and the businesses that depend on them [26].

2.5 DEFINITION OF ECOTOURISM

Responsible travel to natural settings to preserve ecosystems and help the local populace is known as ecotourism [27]. By lessening its negative effects on the environment and promoting regional economies and cultures, it places a high priority on sustainability [28]. Studies have shown that ecotourism can help local economies by creating jobs and helping small businesses grow [29], such as eco-lodges and craft shops perform well when ecotourism grows.

2.6 IMPORTANCE OF TOURISM INFRASTRUCTURE

For ecotourism to grow and improve, there needs to be suitable infrastructure for visitors. To entice visitors and support local enterprises, there needs to be adequate transportation, lodging, and facilities [30].

2.7 VISITOR DEMOGRAPHICS AND PREFERENCES

Ecotourists are also different in terms of their tastes based on their age, income levels, and personal interests. [23] clarifies that the information regarding these demographic factors is necessary in the delivery of tourism services to meet the individual requirements of every individual. There are a variety of social, cultural, and personal factors that can influence

the behavior of individuals when they buy [31]. Small businesses in Kurdistan can fulfill the needs of ecotourists by offering unique experiences like wildlife tours and eco-friendly accommodations, since customers are interested in more information regarding the nature of a specific product or service, and fulfill their requirements in a way that their buying decision remains as risk-free as possible [31].

2.8 CHALLENGES AND LIMITATIONS

Despite its potential, there are several barriers to the development of ecotourism in Kurdistan. Issues such as the absence of infrastructure, poor access to finance, and environmental degradation set the threshold high for sustainable tourism [32]. Competition from larger, established tourism markets may also make it difficult for small ecotourism businesses to thrive [33].

On the other hand, this study does not specifically examine broader external factors like government policies, political stability, or international economic disruptions. Such influences can play a significant role in shaping tourism trends and determining how well small businesses perform, which may, in turn, limit how broadly the findings can be applied.

2.9 GAPS IN RESEARCH, LITERATURE, AND CONTRIBUTION TO KNOWLEDGE

Despite growing research in ecotourism and sustainable tourism, the research in the case of Iraqi Kurdistan is not specific. Most previous research tends to outline the general advantages and disadvantages of ecotourism, but without examining its direct impact on local economies and small businesses. According to the research by [34], they have started working on frameworks to make sustainable ecotourism better in the region as well as promote Kurdistan's natural as well as cultural heritage. In order to fully understand the broader economic knock-on impact on entrepreneurship and long-term sustainability, further research is needed. Through examining how ecotourism operations in Sulaymaniyah foster the development of new small firms that consider social and economic sustainability, this research seeks to bridge this gap. Entrepreneurship among local populations. Recent studies often fail to consider the mediating and moderating variables influencing these relationships. This study fills the gap by studying the direct relationship between ecotourism activity and the formation of new small firms in Sulaymaniyah. This study tackles the social and economic determinants of long-term development [34].

2.10 PREVIOUS STUDIES

As a conclusion of the previous studies that were done in the region, it can be categorized as follows:

1- Ecotourism Sustainability and Conservation in Kurdistan: This study confirms, through its research, the relationship between environmental conservation and ecotourism and how, through the preservation of regional ecosystems and cultural heritage and the activation of the local economy, ecotourism can promote sustainable development. [33]

2- Ecotourism and Heritage for Sustainable Development: This Sulaymaniyah project aims to use ecotourism and heritage in a way that promotes community involvement and enhances economic opportunities through the exploitation of natural and cultural resources. [34]

3- UNDP and USAID Tourism Initiatives (Resuscitating Tourism in Kurdistan): In a comprehensive "Reform Roadmap," UNDP and USAID have joined together to expand tourism in the Kurdistan Region. Through policy, increased marketing, and private sector investment, this initiative seeks to advance sustainable tourism. The study also reveals that in Iraqi Kurdistan, ecotourism enables diversity in the local economy and creates sustainable jobs [35].

4- Community Attitudes Toward Sustainable Tourism: A study on local attitudes toward sustainable tourism in Kurdistan shows that community participation is the key to successful implementation [36]. Identification of these perceptions enables policymakers to formulate supportive tourism policies [37].

3 METHODOLOGY

3.1 RESEARCH DESIGN

This study uses a **quantitative research design** to answer the research questions and examine the relationship between ecotourism activities and the creation of small businesses in Sulaymaniyah Governorate, Kurdistan Region of Iraq. A survey questionnaire was used as the primary data collection instrument. The research framework contains dependent, independent, and control variables to measure the relationship between ecotourism activities and small businesses' establishment and development.

3.2 DATA COLLECTION

A structured questionnaire survey was used to gather the research data. The data collection took place in 2024, post-COVID-19. The questionnaire aimed to collect data on visitor demographics, infrastructure, and economic factors, as control variables for the independent variable ecotourism activities, and small business establishment as the dependent variable. To guarantee a reliable answer format for statistical analysis, it contained both multiple-choice and closed-ended

questions. Several participants, including local tourism business owners, tourists, travelers, and locals who engaged in such activities, received the questionnaire.

3.3 CONCEPTUAL FRAMEWORK

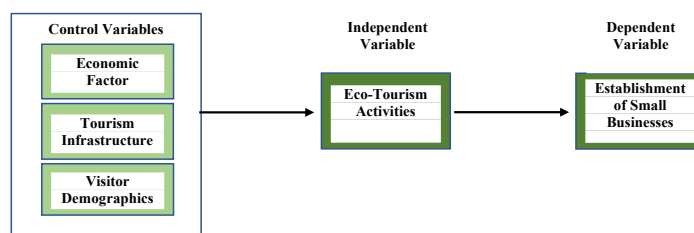


FIGURE 1. Research Model

Source: Developed by the Author

3.4 SAMPLE SIZE AND SAMPLING TECHNIQUE

A total of 150 questionnaire forms were distributed digitally by sending a Google Form online link to the targeted participants in the city of Sulaymaniyah and its surrounding towns under its governorate, and only **92 responses** were collected. The study employed a **random sampling technique** to certify the representation of different demographic groups and insights within the ecotourism industry.

3.5 JUSTIFICATION OF METHODOLOGY

In Social Sciences, research with a sample size greater than 50 is typically considered appropriate for detecting medium effect sizes with a significant level of 0.05 and statistical power of 0.80 [38][39], especially when employing statistical tests like ANOVA and linear regression. Additionally, by gathering a variety of viewpoints from stakeholders in the region, the random sampling technique improves the sample's representativeness, in addition to the ecotourism studies that usually operate with a moderate level of sample sizes due to accessibility and field work limitations [40]. 92 valid responses provide a reasonable and methodologically sound basis for analysis and generalization within the study's scope, given the study area's geographic and demographic specificity and in line with sample sizes used in comparable tourism-related research, as follows:

- In 2016, a doctoral thesis was conducted by Sarook Sarky under the title "An evaluation of participatory ecotourism planning approaches in the Kurdistan region of Iraq," in which 70 samples were collected from rural residents through a structured interview questionnaire, as well as 38 participants from different stakeholder groups were consulted to gain understanding about their point of view about eco-tourism [41]
- Another study was conducted in 2018 in Sulaymaniyah and Halabja cities by [36] where a total of 320 questionnaires (quantitative survey) were distributed among rural residents. The study was focused on the community attitudes toward ecotourism development.
- Another study in 2023 in Kurdistan, Iraq was conducted by [42] under the title of "Sustainable Tourism Management and Ecotourism as a Tool to Evaluate Tourism's Contribution to the Sustainable Development Goals and Local Community." Using the quantitative approach, a total of 109 survey forms were distributed among locals, tourists, and industry stakeholders.

The above studies shows that a sample size between 70-320 participants for related studies in the Kurdistan region of Iraq were conducted previously, which gives a justification for the number of 92 samples of this research, which is comparable and larger than some quantitative/qualitative studies and smaller than some others, depending on the sampling and analytical goals.

3.6 DATA ANALYSIS METHOD

The collected data were processed and analyzed using **SPSS (Statistical Package for the Social Sciences)**. The following statistical techniques were employed:

- **Descriptive Statistics:** To summarize the demographic characteristics of the respondents, including age, income, and occupation.
- **Reliability Analysis:** Cronbach's Alpha was used to assess the internal consistency of the questionnaire items.
- **Correlation Analysis:** Pearson's correlation coefficient was used to examine the strength and direction of relationships between ecotourism activities and small business establishment.

- **Regression Analysis:** Multiple regression analysis was conducted to determine the impact of independent variables (ecotourism activities, economic factors, tourism infrastructure, and visitor demographics) on the dependent variable (establishment of small businesses).

- **ANOVA (Analysis of Variance):** This test was applied to assess whether significant differences exist among different respondent groups based on their demographic characteristics.

3.7 ETHICAL CONSIDERATIONS

This research strictly follows ethical guidelines by obtaining informed consent, ensuring voluntary participation, and protecting the confidentiality and anonymity of all participants. It respects local cultures and avoids any exploitative practices. The study maintains strong academic ethics, strives to represent all groups fairly, and seeks to support local communities by engaging stakeholders and sharing the outcomes in meaningful ways.

4 RESULTS AND DISCUSSIONS

4.1 DESCRIPTIVE STATISTICS

Involve techniques for summarizing, organizing, and interpreting key characteristics of a dataset. These methods include measures like mean, median, mode, standard deviation, frequency distributions, and percentages, helping to present data in a clear and concise way. Rather than making predictions or inferences, descriptive statistics provide an overview of the collected data, making it easier to recognize patterns and trends.

Table 2. Age Distribution of Respondents

	Frequency	Percent	Valid Percent
Under 18	1	1.1	1.1
18-24	32	34.8	34.8
25-34	41	44.6	44.6
35-44	14	15.2	15.2
45 and above	4	4.3	4.3
Total	92	100.0	100.0

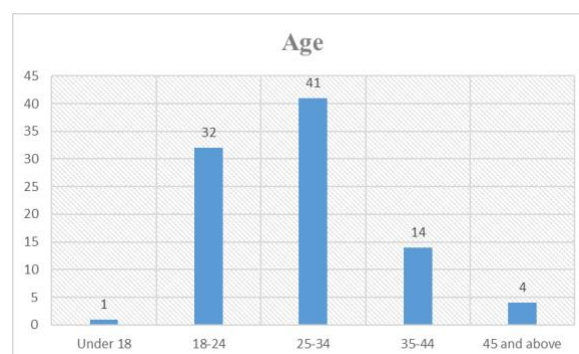


Figure 2. Age Distribution of Respondents

The table and the bar chart above provide a breakdown of age distribution in this study. It shows the frequency and percentage of respondents in each age group. The age group "18-24" has the highest percentage, with 34.8%, followed closely by the "25-34" group at 44.6%. The "35-44" group accounts for 15.2%, and those under 18 make up 1.1%. The "Valid Percent" column mirrors the same percentages as the "Percent" column, confirming that all entries are valid. The data shows a relatively young sample, with the majority of participants falling within the 18-34 age range.

Table 3. Occupation Distribution of Respondents

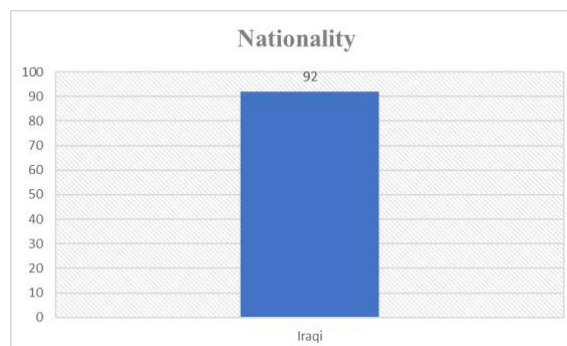
	Frequency	Percent	Valid Percent
Student	33	35.9	35.9
Employed	37	40.2	40.2
Self-employed	17	18.5	18.5
Unemployed	4	4.3	4.3
Retired	1	1.1	1.1
Total	92	100.0	100.0

**Figure 3. Occupation Distribution of Respondents**

The table and bar chart number 3 show the employment status of individuals. The largest group is employed (40.2%), followed by students (35.9%) and self-employed (18.5%). A smaller portion is unemployed (4.3%), while only 1.1% are retired. This indicates that most respondents are either working or studying, with fewer engaged in self-employment or retirement.

Table 4. Nationality Distribution of Respondents

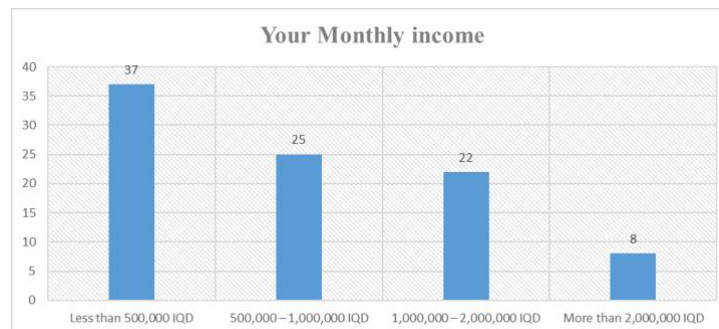
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Iraqi	92	100	100.0	100.0

**Figure 4. Nationality Distribution of Respondents**

The table and bar chart 4 show the nationality distribution of the surveyed individuals. All 92 respondents (100%) are Iraqi, meaning there is no diversity in nationality within this dataset. The valid percent and cumulative percent are also 100%, confirming that every participant belongs to the same nationality group.

Table 5. Monthly Income Distribution of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 500,000 IQD	37	40.2	40.2	40.2
500,000 – 1,000,000 IQD	25	27.2	27.2	67.4
1,000,000 – 2,000,000 IQD	22	23.9	23.9	91.3
More than 2,000,000 IQD	8	8.7	8.7	100.0
Total	92	100.0	100.0	

**Figure 5. Monthly Salary Distribution of Respondents**

The table and bar chart 5 show income distribution in IQD. The largest group (40.2%) earns less than 500,000 IQD, followed by 27.2% earning 500,000 – 1,000,000 IQD and 23.9% earning 1,000,000 – 2,000,000 IQD. Only 8.7% earn more than 2,000,000 IQD, indicating that most individuals have low to moderate incomes.

Table 6. Description of the frequency of the visit

How frequently do you visit sulaymaniyah city for ecotourism activities? or how frequently do you participate in the ecotouristic activities in sulaimaniyah?				
	Frequency	Percent	Valid Percent	Cumulative Percent
Never	10	10.9	10.9	10.9
Rarely	15	16.3	16.3	27.2
Occasionally	34	37.0	37.0	64.1
Valid Frequently	22	23.9	23.9	88.0
Very Frequently	11	12.0	12.0	100.0
Total	92	100.0	100.0	

The table shows the frequency of participation in ecotourism activities in Sulaymaniyah. The largest group (37.0%) participates occasionally, followed by 23.9% who engage frequently. 12.0% participate very frequently, while 16.3% do so rarely. 10.9% have never participated. This indicates that most people engage in ecotourism at least occasionally.

The table shows factors influencing the choice of Sulaymaniyah for ecotourism. Cultural attractions (29.6%) are the most important factor, followed by diversity of ecosystems (23.7%) and sustainable tourism reputation (21.1%). Accessibility (18.4%) also plays a role, while 7.2% cited other reasons.

Table 7. Description of the Decision of Choice

What factors influence your decision to choose Sulaymaniyah City for ecotourism activities? (Select all that apply)				
		N	Percent	Percent of Cases
A	Accessibility	28	18.4%	31.1%
	Diversity of ecosystems	36	23.7%	40.0%
	Cultural attractions	45	29.6%	50.0%
	Reputation for sustainable tourism practices	32	21.1%	35.6%
	Other	11	7.2%	12.2%
	Total	152	100.0%	168.9%

Table 8. Description of Interest

What interests you the most when participating in ecotourism activities? (Select all that apply)				
		N	Percent	Percent of Cases
1 ^a	Nature Exploration	92	48.4%	100.0%
	Wildlife observation	46	24.2%	50.0%
	Sustainable living	25	13.2%	27.2%
	Cultural experiences	14	7.4%	15.2%
	Adventure activities	9	4.7%	9.8%
	Other	4	2.1%	4.3%
	Total	190	100.0%	206.5%

a. Dichotomy group tabulated at value 1.

The table shows the main reasons for engaging in ecotourism in Sulaymaniyah. The most common reason is **nature exploration (48.4%)**, followed by **wildlife observation (24.2%)** and **sustainable living (13.2%)**. **Cultural experiences (7.4%)** and **adventure activities (4.7%)** are less common, while **2.1%** chose other reasons.

4.2 RELIABILITY ANALYSIS

Reliability analysis is the process of assessing the consistency and dependability of a system, product, or measurement over time. It evaluates the likelihood of failure and identifies factors affecting performance to improve durability and accuracy.

Table 9. Reliability Analysis

Reliability Statistics	
Cronbach's Alpha	N of Items
0.793	22
Cronbach's Alpha	N of Items
0.793	22

This table shows the reliability of a test or questionnaire using **Cronbach's Alpha**, which measures how well the 22 items are related to each other. The **Cronbach's Alpha value is 0.793**, meaning the test has **good reliability**. This suggests that the questions are consistent and measure the same concept effectively.

If the value were higher, closer to **0.9 or above**, the test would be even more reliable. If it were lower, below **0.7**, it might indicate that some questions do not fit well together. Since the number of items is **22**, this means the reliability was calculated based on these 22 questions. Overall, a score of **0.793** is considered acceptable and reliable.

4.3 CORRELATION ANALYSIS

Correlation analysis is a statistical method used to measure the strength and direction of the relationship between two or more variables. It helps determine how changes in one variable are associated with changes in another.

Table 10. Correlation between Variables

Establishment of small businessesEcotourism Activities			
Establishment of small businesses	Pearson Correlation	1	0.623**
	Sig. (2-tailed)		0.024
	N	92	92
Eco-tourism Activities	Pearson Correlation	0.623**	1
	Sig. (2-tailed)	0.024	
	N	92	92

This table shows the correlation between **the establishment of small businesses** and **ecotourism activities** using **Pearson Correlation**. The Pearson Correlation value is **0.623**, which means there is a **moderate to strong positive relationship** between these two factors. This suggests that as ecotourism activities increase, the establishment of small businesses also tends to increase. This confirms the first hypothesis H₁.

The **Significance (Sig. 2-tailed) value is 0.024**, which is **less than 0.05**. This means the correlation is **statistically significant**, indicating that the relationship is unlikely to be due to chance.

Table 11. Correlation Between Variables

Correlations				
Establishment of small businessesEcotourism ActivitiesTourism infrastructure				
Establishment of small businesses	Pearson Correlation	1	0.623**	0.744**
	Sig. (2-tailed)		0.024	0.032
	N	92	92	92
Ecotourism Activities	Pearson Correlation	0.623**	1	.667**
	Sig. (2-tailed)	0.024		0.000
	N	92	92	92
Tourism infrastructure	Pearson Correlation	0.744**	.667**	1
	Sig. (2-tailed)	0.032	0.000	
	N	92	92	92

**. Correlation is significant at the 0.01 level (2-tailed).

This table shows the correlation between **ecotourism activities**, **tourism infrastructure**, and **the establishment of small businesses**. The **Pearson correlation between small businesses and tourism infrastructure is 0.744**, which indicates a **strong positive relationship**. This means that better tourism infrastructure is linked to the growth of small businesses. Similarly, the correlation between **ecotourism activities and small businesses is 0.623**, showing a **moderate to strong positive relationship**.

The correlation between **ecotourism activities and tourism infrastructure is 0.667**, which is also significant. This suggests that as ecotourism activities increase, tourism infrastructure also improves, which in turn supports the establishment of small businesses.

Since all **Sig. values are below 0.05**, the relationships are **statistically significant**. This supports **H₃**, which states that **tourism infrastructure helps strengthen the positive relationship between ecotourism activities and small business growth**.

In conclusion, investing in **tourism infrastructure** can enhance the benefits of **ecotourism activities**, leading to **more opportunities for small businesses**.

4.4 REGRESSION ANALYSIS

It is a statistical method used to examine the relationship between a dependent variable and one or more independent variables. It helps predict outcomes and understand how changes in one factor affect another.

Table 12. Coefficient Between Variables

Coefficients				
Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	
(Constant)	2.119	0.514		4.1230.000
1 Economic factor	0.132	0.172	0.081	0.7650.044
Tourism infrastructure	0.149	0.140	0.037	0.3500.048

a. Dependent Variable: Establishment of small businesses

The **Coefficients table** provides more details. The **constant value is 2.119**, meaning that even without considering economic factors and tourism infrastructure, some businesses would still be established. The **economic factor has a B value of 0.132 and a Sig. of 0.044**, showing a **positive and significant** effect on small businesses. Similarly, **tourism infrastructure has a B value of 0.149 and a Sig. of 0.048**, meaning it also has a **positive and significant** influence.

This supports the hypothesis (H₂), which states that **economic factors and tourism infrastructure positively influence the connection between ecotourism activities and small business growth**. In conclusion, improving economic conditions and tourism infrastructure can help encourage more small businesses to develop in areas with ecotourism activities.

Table 13. Coefficients Between Variables

Coefficients				
Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	
(Constant)	1.775	0.667		2.6630.009
1 Visitor demographics	0.012	0.151	0.009	0.0760.049
Ecotourism Activities	0.319	0.322	0.118	0.9890.033

a. Dependent Variable: Establishment of small businesses

The hypothesis (H₄) suggests that the types of **small businesses** that pop up because of ecotourism are affected by who the visitors are, meaning their age, income, interests, and other **demographics**. The numbers from the analysis show that visitor demographics do have a small but noticeable influence (**with a significance value of 0.049, which is just under the common threshold of 0.05**). This means the background and preferences of tourists play a role in shaping the kinds of small businesses that open in ecotourism areas.

At the same time, **ecotourism activities** themselves have a stronger impact (**with a significance of 0.033**) on business creation. So, while **visitor demographics** matter, the actual ecotourism experiences offered are even more important in determining what kinds of small businesses emerge.

In short, both visitor demographics and ecotourism activities influence new small businesses, but ecotourism activities have a bigger effect.

4.5 ANALYSIS OF VARIANCE (ANOVA)

ANOVA is a statistical method for figuring out whether the means of three or more independent groups differ in ways that are statistically significant. To determine whether observed differences in means are more likely to be the result of chance or real effects, it examines variation both within and between groups.

Table 14. Analysis of Variance (ANOVA)

ANOVA					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.293	2	0.147	3.78	0.045
1 Residual	34.573	89	0.388		
Total	34.866	91			
a. Dependent Variable: Establishment of small businesses					
b. Predictors: (Constant), Tourism infrastructure, Economic factor					

According to the ANOVA test, the hypothesis acceptance will be as follows:

1-Null Hypothesis (H_0):

There is no statistically significant effect of economic factors and tourism infrastructure on the establishment of small businesses in Sulaymaniyah city.

$H_0: \mu_1 = \mu_2 = \mu_3 \dots \dots \dots = \mu_n$

2- Alternative Hypothesis (H_1):

There is a statistically significant effect of economic factors and/or tourism infrastructure on the establishment of small businesses.

H_1 : At least one group mean differs

That is, at least one of the predictors has a significant impact on the dependent variable.

Decision Rule:

- If Sig. (p-value) < 0.05 → reject the null hypothesis (H_0)
- If Sig. $\geq$ 0.05 → fail to reject the null hypothesis

$F = 3.78 > 3.10$ (the critical/table value at $df_1 = 2$ and $df_2 = 89$)

Thus, the **ANOVA table** shows whether the overall regression model is significant. The **Sig. value is 0.045**, which is **less than 0.05**, meaning the model is statistically significant. This suggests that economic factors and tourism infrastructure have a positive effect on the establishment of small businesses.

5 DISCUSSION

The study's conclusions provide crucial new information about the dynamic interplay between Sulaymaniyah City's small business expansion and ecotourism activities. According to the descriptive analysis, the participants in ecotourism are mainly young and economically diverse, and they travel mainly for nature exploration, wildlife observation, and cultural attractions. The survey instrument successfully captures the relevant aspects of this relationship, according to the reliability analysis.

Ecotourism activities and the launch of small businesses are strongly, favourably, and statistically significantly correlated, according to the correlation analysis. This is in line with the expanding knowledge that ecotourism boosts local economies in addition to raising environmental consciousness.

It is also evident from regression analysis that economic factors and tourism infrastructure have a significant impact on this relationship. Improved infrastructure facilitates entry and enhances the overall experience of guests, which fosters commercial prospects. Economic factors like income levels and financial support allow entrepreneurs to benefit from the

growing tourism market. Moreover, the nature of small businesses that emerge relies upon the population of tourists. Therefore, information concerning the nature and preferences of tourists is required for modifying business services.

In comparison with some regional research results, in 2024, a doctoral thesis was conducted on “GIS-Based Ecotourism Potentially Assessment in Kurdistan Region -Iraq” while 82 indicators from the fields of natural-based ecotourism, ecotourism hospitality, and intangible cultural heritage were used [43]. The results showed that 79.58% of the area is at least moderately suitable, and 36.94% is highly or very highly suitable for ecotourism practices. This research shows that KRI has a lot of potential for long-term ecotourism and gives the KRG and private sector good ideas for how to plan tourism growth.

On the other hand, results from different regions in the world, such as Southeast Asia and specifically Vietnam, the Mekong Delta, where it was determined that major mediating factors affecting ecotourism performance were visitor satisfaction. The research used structural equation modelling (SEM) to analyse data from 685 participants, and results showed that factors that had the strongest impact were nature, culture, safety, and service quality. While Experiences, amenities, locals and food, and drinks had a moderate to minor effect. The study highlights that for ecotourism to grow sustainably in the area, it is imperative to enhance travel services, environmental preservation, cultural preservation, and local hospitality [44].

In addition, [45] a study was conducted in some Asian countries that looked at how ecotourism, as determined by the sustainable development index (TSDI), affects the growth of the green economy in ASEAN nations, such as Malaysia, Thailand, and Indonesia, between 2000-2021. TSDI, green GDP growth, governance quality, official exchange rates, foreign direct investment (FDI), and globalization are among the important variables examined using a system-GMM dynamic panel data approach. The findings support the Tourism-led Economic Growth (TLEG) hypothesis by demonstrating a positive linear relationship between ecotourism development and green economic growth. While FDI tends to harm green growth because of investments in non-green sectors. Good governance and favourable exchange rates also support green growth. The impact of globalization was neglected.

The results showed a strong correlation between sustainable economic outcomes and enhancing tourism sustainability through improved governance, infrastructure, and support for SMEs (small and medium-sized enterprises). To sum up, ecotourism is essential to the post-COVID-19 green economic recovery in ASEAN. To support effective policymaking, more nation-specific research and sophisticated modelling approaches are advised [45].

Overall, these results reveal how investment in infrastructure, economic support, and tourism development is interconnected in forming ecotourism-related small businesses. Although the analysis highlights strong internal links between ecotourism and the growth of small businesses, it is important to recognize that external factors, like changes in government policy, political conditions in the region, and global economic trends, can also have a major impact. For example, government support or funding programs could either help these tourism activities or create barriers to their success. These external factors should be taken into account when applying the study's conclusions more broadly.

CONCLUSION

As the study revealed, ecotourism and the development of small businesses have a strong positive relationship. It reveals how ecotourism works as an engine for local economic development. Both the state of the economy and tourism infrastructure were highlighted as powerful enablers, where stronger economic conditions along with better infrastructure had a positive impact on new business creation. Demographic elements such as age or income level of visitors do not greatly influence new business or entrepreneurial development, albeit to some degree. With all these findings, it seems appropriate that investments in tourism infrastructure and supportive economic policy are dominantly motivating factors to accelerate growth in small businesses driven by ecotourism. All in all, building sustainable ecotourism helps in the encouragement of the local self-driven economic progress.

RECOMMENDATIONS

1- Invest in tourism infrastructure (Responsible parties: Government, KRI municipalities, Kurdistan Tourism Board, Private Sector, Stakeholders): Enhance ecotourism sites' access, accommodation, transport, and recreational facilities to improve visitor experiences and encourage extended visits, since the **tourism infrastructure has a B value of 0.149 and a Sig. of 0.048**, meaning it also has a **positive and significant** influence.

2- Financial support to the local entrepreneurs (Responsible parties: Government, Private Sector, NGOs): by allocating capital, providing grants, and organizing training programs to small businesses that serve the tourism industry, since the **economic factor has a B value of 0.132 and a Sig. of 0.044**, showing a **positive and significant** effect on small businesses.

3- Raise Awareness and Promote Ecotourism (Responsible parties: Government, KRI Municipalities, Kurdistan Tourism Board, Stakeholders): According to the results, visitor demographics have a moderate effect on ecotourism activities; hence, emphasizing the cultural and natural features in Sulaymaniyah to attract a wider range of visitors

could increase the demand for local businesses, as well as helping to safeguard natural and cultural heritage resources and ensuring that ecotourism remains an effective and life-saving tool of economic development.

4- Customize Business Development to the Demographics of Visitors (Responsible parties: Private Sector, such as travel agencies, Stakeholders, such as local communities, business owners, researchers in the interested fields): Through providing information about the age, income, and interests of tourists to assist businesses in developing products and services that cater to the variety of visitor demographics.

5- Involve local partners in the planning process (Responsible parties: KRI municipality, Kurdistan Tourism Board, Private Sector, Stakeholders): though promoting the collaboration among government, communities, and the private sector to ensure that growth in tourism infrastructure development is aligned with small business support programs.

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