Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6, 1117-1128
2025
Publisher: Learning Gate
DOI: 10.55214/25768484.v9i6.8033

Tourism employment and economic growth in Albania: An empirical assessment

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Abstract: This study examines the impact of tourism employment on Albania's economic growth from 2014 to 2023, with a focus on the accommodation sub-sector. Using secondary data from INSTAT, UNWTO, and the World Bank, the study applies Pearson correlation and linear regression models via SPSS. GDP per capita is the dependent variable, while tourism and accommodation employment serve as independent variables. A strong, statistically significant positive correlation exists between tourism employment and GDP per capita. The simple regression model shows that each additional 1,000 tourism employees corresponds to an increase of approximately USD 30.43 in GDP per capita. Employment in accommodation services exhibits a higher marginal effect. However, severe multicollinearity between the two employment variables limits the interpretability of individual coefficients in the multiple regression model. Tourism employment plays a vital role in Albania's economic growth, particularly through the accommodation sub-sector, though overlapping variables must be cautiously interpreted. The findings support employment-oriented tourism policies, improved vocational training, and targeted investments in high-value sub-sectors to enhance sustainable and inclusive economic development.

Keywords: *Economic growth, Employment, GDP per capita, Linear regression, Statistical analysis, Tourism.*

1. Introduction

Tourism has become one of the most dynamic sectors of the global economy, influencing employment generation and economic growth in both developed and developing countries. As a labor-intensive industry, tourism stimulates job creation directly through hotels, travel agencies, and related services, and indirectly through sectors such as construction, food production, and transport. According to the World Travel & Tourism Council (WTTC), tourism accounted for approximately 10% of global GDP and supported over 330 million jobs worldwide before the COVID-19 pandemic. The tourism sector has increasingly gained recognition as one of the main engines of economic growth in developing countries. It contributes to employment generation, foreign exchange earnings, and regional development, making it a strategic pillar in many national economies. Albania, with its rich natural landscapes, coastline, cultural heritage, and historical sites, has positioned itself as an emerging tourism destination in the Western Balkans. Since 2010, Albania has experienced a significant expansion in tourism-related activity. International tourist arrivals grew from fewer than 2 million in 2010 to over 5.6 million in 2019, with a peak in pre-pandemic years. In parallel, employment in tourism increased steadily: according to UNWTO data, total tourism employment in Albania rose from 26,700 workers in 2014 to 51,500 in 2023, with the accommodation sub-sector accounting for over 75% of these jobs. In 2023, the tourism sector was estimated to support approximately 20% of total employment in the country, directly and indirectly. Moreover, the sector's contribution to Albania's GDP increased to around 10% in 2019, before temporarily declining due to the COVID-19 pandemic. The resilience of the sector was evidenced by its recovery trends in 2021 and 2022, despite global challenges. These figures underscore the potential of tourism as a driver of inclusive and sustainable economic growth. However,

History: Received: 6 March 2025; Revised: 22 May 2025; Accepted: 27 May 2025; Published: 13 June 2025
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while the growing role of tourism is acknowledged, the quantitative relationship between tourism employment and economic growth in Albania remains underexplored. It is unclear to what extent increased employment in the tourism industry—particularly in accommodation and related services—translates into improvements in macroeconomic indicators such as GDP per capita. Understanding this relationship is essential for policymakers aiming to design effective strategies that enhance economic performance through sector-specific development. This study addresses this gap by applying a statistical approach to assess the impact of tourism employment on GDP per capita in Albania over the period 2014–2023. Through the use of regression and correlation analysis, the research aims to quantify the contribution of tourism sector employment to national economic growth and provide evidence-based recommendations for future development planning.

2. Literature Review

Recent studies from 2023 and 2024 have significantly advanced the understanding of tourism's contribution to economic growth, particularly in post-pandemic contexts. In Albania, Ramosacaj and Kushta Ramosacaj and Kushta [1] confirmed the short- and long-run causal links between tourist arrivals and GDP growth. Kalaj Kalaj, et al. [2] emphasized the role of infrastructure and macroeconomic stability in determining tourism flows. At a broader level, Vuković Vuković, et al. [3] and Zhao, et al. [4] demonstrated that tourism employment continues to drive income growth and job creation in developing economies, despite structural vulnerabilities. These findings provide updated empirical grounding for analyzing the Albanian tourism–growth nexus. The role of tourism in fostering economic development has been widely discussed in the academic literature. Albania, despite its rich natural and cultural assets, has historically underperformed in tourism compared to other Mediterranean countries. This is attributed to a legacy of socialist-era restrictions, weak infrastructure, and post-communist political instability. Addressing structural challenges through strategic planning, foreign investment, and targeted marketing is considered essential for building a competitive tourism sector [5]. Recent studies have explored the macroeconomic impact of tourism using empirical models. For example, Blacëri [6] applies a Vector Autoregression (VAR) model to Albanian data and finds that positive shocks in tourist arrivals lead to increases in GDP, temporary inflationary effects, and reductions in unemployment, highlighting tourism's short-term macroeconomic influence. In a broader regional context, tourism development in Slovenia, Serbia, and EU countries shows a consistent positive impact on employment and GDP, with indirect contributions, such as supply chains, often exceeding direct employment effects. These findings emphasize the need for tailored policies and capital investment to support long-term sectoral growth [7]. Albania's post-pandemic tourism dynamics have also been analyzed. A study by Ramosacaj and Kushta [1] highlights the sector's strong recovery in 2022 and its transformation into a year-round industry. Using quarterly data from 2016–2022 and methods such as ADF, Granger causality, and Johansen cointegration, the study confirms both short- and long-run relationships between tourist arrivals and economic growth, reinforcing tourism's strategic role in macroeconomic performance. From a demand-supply perspective, Malaj [8] investigates the determinants of international tourist arrivals in Albania using a gravity model with data from 22 origin countries. The results show that both demand-side and supply-side factors significantly influence tourist inflows, further confirming the role of tourism in enhancing economic growth, employment, and infrastructure. In the Southeast Asian context, Randy [9] examines tourism employment trends in the Philippines from 2000 to 2022. The study identifies a steady and statistically significant increase in tourism-related jobs, though also notes the sector's vulnerability to external shocks such as the COVID-19 pandemic. Similarly, Sejdiu, et al. [10] focus on Albania, providing a descriptive analysis of tourist flows by region and purpose between 2014 and 2021, and offering policy recommendations to improve the tourism sector's contribution to socio-economic development. Additional insights come from international panel data research [11] analyzes five regions in East Java, Indonesia, and finds that the minimum wage positively affects employment in the tourism sector, while the number of tourists shows an unexpected negative effect. Zhao, et al. [4] conduct a panel

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 1117-1128, 2025
DOI: 10.55214/25768484.v9i6.8033

cointegration analysis for the E-7 economies and conclude that international tourism is the most influential factor for direct job creation, while foreign direct investment and trade openness also support employment. In contrast, a strong reliance on natural resources tends to reduce employment in services, suggesting that policy focus should remain on tourism and related industries [4]. According to a macro-level efficiency analysis of the Balkan tourism industry using Data Envelopment Analysis, Albania was identified as the most efficient country during the 2010–2015 period, while Montenegro ranked as the least efficient [12]. A regression analysis of Albania's tourism sector (1996–2009) found that while tourist numbers and capital investment positively influenced tourism's contribution to GDP, overnights in hotels were not a statistically significant factor [13]. A panel data analysis of 24 OECD countries (2008–2018) found that tourism receipts per arrival are most positively influenced by employment in travel agencies and recreation services, while larger labor forces in food, beverage, and cultural sectors are associated with lower income per tourist [14]. According to Çela tourism significantly boosted investment and imports in Albania, Croatia, and Greece, while its impact on government spending varied depending on the countries' reliance on foreign direct investment [15]. According to a GMM-based time series analysis of Western Balkan countries, factors such as income and exchange rates significantly influence tourist arrivals, with logistics infrastructure positively impacting tourism performance in all cases except Albania [2]. According to a recent study conducted on OECD countries (2008–2020), using a dynamic panel threshold regression model, tourism employment was found to have a positive marginal impact on gross national income, increasing it by 0.15% in low-regime countries and by 0.61% in high-regime ones. However, a negative marginal effect was observed on value added by activity services, suggesting potential inefficiencies in service-related contributions as tourism employment rises. The findings emphasize the importance of policy differentiation based on employment thresholds and suggest future research using smooth transition models for more nuanced insights [3]. According to a study focused on the Baltic States, the COVID-19 pandemic prompted a reassessment of tourism's role in driving economic recovery. By analyzing data from 2009–2018 using correlation analysis, the study found a statistically significant positive relationship between tourism expenditure and GDP growth in Lithuania and Estonia, but not in Latvia. These findings suggest that in certain contexts, tourism can be a strategic instrument for economic revitalization and policy planning in post-crisis environments [16]. A panel data analysis of 21 European countries from 1995 to 2017 confirmed a long-run relationship between tourism activity and economic development, using GMM and Granger causality tests. The findings support the tourism-led growth hypothesis, showing that tourism significantly contributes to economic growth and that the causality is unidirectional—from tourism to economic development [17]. A study of EU-28 countries from 2009 to 2018 examined tourism's alignment with Sustainable Development Goals (SDGs), focusing on decent work (SDG 8) and gender equality (SDG 5). Findings showed that Eastern EU countries performed better in employment rates and wage gap reduction but had lower GDP-weighted earnings. The study highlights the importance of promoting stable, equitable employment in the tourism sector and reducing gender disparities [18]. According to a study on tourism and regional growth in Europe, the tourism sector is identified as one of the most promising industries with significant development potential. It plays a key role in achieving the European Union's Growth and Jobs Strategy objectives. Tourism directly contributes about 5% to the EU's GDP and employment, but when related sectors are included, the impact rises to 10.9% of GDP and 11.8% of total employment. The case of Greece illustrates this clearly, where tourism accounts for 15% of GDP and approximately 16.5% of national employment. The study also analyzes the role of tourism in the convergence and divergence processes across European regions, suggesting that tourism can help reduce regional development disparities. Moreover, the analysis touches upon the socio-economic effects of tourism in the broader industrial context, even drawing parallels to the Dutch Disease phenomenon [19]. According to a panel data analysis of ASEAN countries, tourism receipts and exports show statistically significant positive relationships with GDP, underscoring tourism's role as a key driver of economic growth in the region. However, foreign direct investment was found to have an insignificant effect on

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 1117-1128, 2025
DOI: 10.55214/25768484.v9i6.8033

GDP. The study attributes the variation in impact to economic diversity among member states and emphasizes the region's untapped potential due to inadequate investment and ineffective tourism policies [20].

3. Purpose of the Study

The purpose of this study is to examine the relationship and statistically significant impact that employment in the tourism sector has on economic growth in Albania, measured through GDP per capita, over the period 2014–2023. The study seeks to provide a data-driven evaluation of how fluctuations in tourism-related employment influence macroeconomic performance. Special attention is given to the role of employment in the accommodation services sub-sector, which represents a major component of tourism activity. By identifying the strength and direction of this relationship, the study aims to support the formulation of effective development strategies focused on sustainable economic growth through tourism. Furthermore, the study intends to fill existing gaps in the empirical literature regarding Albania's tourism labor market by offering updated insights based on post-transition and post-pandemic data. It also aspires to inform national policymakers, stakeholders, and international investors about the potential of tourism-led employment as a catalyst for inclusive growth and regional development. Through quantitative analysis and comparative evaluation, the research contributes to a deeper understanding of tourism's role in shaping Albania's economic trajectory in line with sustainable development objectives.

3.1. Research Questions

a) Does a statistically significant relationship exist between tourism employment and GDP per capita in Albania during the period 2014–2023?
b) Does employment in the accommodation sub-sector exert a stronger impact on GDP per capita compared to total tourism employment?
c) To what extent can employment trends in tourism serve as reliable predictors of national economic performance?

These questions guide the empirical investigation and aim to clarify whether employment in tourism is merely correlated with economic growth or whether it actively contributes to it in measurable and meaningful ways.

3.2. Research Hypotheses

Hypothesis 1: Relationship between total tourism employment and GDP per capita

- H_{01}: There is no statistically significant relationship between total employment in the tourism sector and GDP per capita in Albania during the period 2014–2023.
- H_{11}: There is a statistically significant relationship between total employment in the tourism sector and GDP per capita in Albania during the period 2014–2023.

Hypothesis 2: Comparative impact of accommodation employment versus total tourism employment

- H_{02}: Employment in the accommodation sub-sector does not have a statistically stronger impact on GDP per capita than total tourism employment.
- H_{12}: Employment in the accommodation sub-sector has a statistically stronger impact on GDP per capita than total tourism employment.

4. Methodology

4.1. Type of Study

This research follows a quantitative, explanatory, and correlational design, aiming to statistically assess the relationship between employment in the tourism sector and economic growth in Albania. The study applies empirical methods to identify whether increases in tourism employment correspond to

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 1117-1128, 2025
DOI: 10.55214/25768484.v9i6.8033

measurable improvements in GDP per capita. Through the use of linear regression and correlation analysis, the study quantifies the strength and significance of these relationships.

4.2. Data Sources and Time Frame

The study is based on secondary data collected from reliable and internationally recognized sources, including:

- INSTAT (Albanian Institute of Statistics) – for national employment data by sector, including tourism and accommodation.
- UNWTO (United Nations World Tourism Organization) – for methodological definitions and classification of tourism-related industries.
- The World Bank and CEIC database – for macroeconomic indicators, particularly GDP per capita (in constant USD).

The time frame analyzed spans the period 2014 to 2023, as this is the most recent complete and harmonized dataset available across all data sources at the time of writing. While preliminary data for subsequent years exists, it is either partial or not yet methodologically consistent across indicators and therefore excluded to ensure validity and comparability of results.

Table 1.
Classification of Variables by Type and Role in the Model.

Variable Type	Variable Name	Measurement Unit	Role in Analysis
Dependent	GDP_per_Capita_USD	US Dollars per capita	Proxy for national economic growth
Independent	Total_Tourism_Employment	Thousands of employees	Total number of employees in tourism-related industries
Independent	Accommodation_Services	Thousands of employees	Number of employees in accommodation and lodging-related sub-sectors

Source: Author's categorization based on INSTAT and World Bank definitions.

4.3. Variables Description

The selection of these variables is based on theoretical and empirical literature that identifies employment and productivity in the tourism sector as key channels for influencing national income and development levels.

4.4. Statistical Methods and Software

The data analysis was conducted using IBM SPSS Statistics, a widely recognized software for quantitative and econometric research. The following statistical methods were employed:

- Descriptive statistics – to examine trends and annual variation of key indicators.
- Pearson correlation coefficient – to test the strength and direction of association between tourism employment and GDP per capita.
- Simple linear regression – to assess the individual impact of each independent variable on economic growth.
- Multiple linear regression – to evaluate the combined effect of total tourism employment and accommodation services employment.
- Variance Inflation Factor (VIF) – to diagnose multicollinearity between independent variables in the multiple regression model.

These methods provide both bivariate and multivariate perspectives on the tourism-growth nexus, allowing for robust inferences regarding statistical significance and explanatory power.

4.5. Limitations

While the findings offer important insights, the study has several limitations:

- Data availability: The analysis is limited to the years 2014–2023 due to constraints in the consistency and completeness of official datasets beyond this period.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 1117-1128, 2025
DOI: 10.55214/25768484.v9i6.8033

- Sample size: The relatively small number of observations (n = 10 years) limits the statistical power and generalizability of the regression models.
- Collinearity: A high degree of correlation between the two independent variables introduces multicollinearity in the multiple regression model, affecting the interpretability of individual coefficients.
- Sectoral aggregation: The tourism sector is broad and includes diverse sub-industries; this study focuses primarily on aggregated tourism employment and the accommodation sub-sector due to data limitations.

5. Results and Statistical Interpretation

5.1. Descriptive Statistics

The data for the period 2014–2023 show a steady increase in both tourism-related employment and GDP per capita in Albania. Specifically:

- Total tourism employment grew from 26.7 thousand in 2014 to 51.5 thousand in 2023.
- Employment in accommodation services increased from 19.4 thousand to 32.9 thousand in the same period.
- GDP per capita rose from USD 4,179 to USD 8,368, indicating notable economic growth.

These trends suggest a parallel evolution of employment and economic performance, prompting further investigation into the nature and strength of their relationship.

5.2. Pearson Correlation Analysis

The correlation matrix showed the following:

Table 2.
Pearson Correlation Matrix and Interpretation.

Variable Pair	Pearson r	p-value (Sig.)	Interpretation
Total_Tourism_Employment ↔ GDP_per_Capita	0.791	0.019	Strong, positive, and statistically significant
Accommodation_Services ↔ GDP_per_Capita	0.775	0.024	Strong, positive, and statistically significant
Total_Tourism_Employment ↔ Accommodation_Services	0.999	0.000	Extremely high correlation (multicollinearity)

Source: Author's own calculations based on data from INSTAT and World Bank.

The results indicate a strong and positive linear relationship between total employment in the tourism sector and GDP per capita in Albania over the 2014–2023 period, with a Pearson correlation coefficient (r) of 0.791 and a p-value of 0.019. This suggests that increases in tourism-related employment are closely associated with improvements in the country's economic output per person. Since the p-value is less than 0.05, the relationship is statistically significant at the 95% confidence level. This finding supports the alternative hypothesis H_{11}, which posits a significant association between tourism employment and GDP per capita. Similarly, the employment in accommodation services, as a sub-sector of tourism, shows a strong positive correlation with GDP per capita ($r = 0.775$, $p = 0.024$), implying that labor absorption in this specific domain contributes meaningfully to economic performance. The strength and significance of this relationship further reinforces the notion that sub-sectors within tourism—particularly those with direct customer interaction—play a critical role in shaping macroeconomic indicators. However, the analysis also reveals an extremely high correlation between Total_Tourism_Employment and Accommodation_Services employment ($r = 0.999$, $p < 0.001$), indicating perfect or near-perfect multicollinearity. This suggests that the two variables are nearly indistinguishable in statistical terms, possibly because employment in accommodation services constitutes a dominant share of total tourism employment in Albania. Such a high degree of collinearity

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has serious implications for multivariate regression models, as it can inflate standard errors and distort the estimation of individual coefficients, thereby weakening the reliability of inferential statistics. This multicollinearity also implies that using both variables simultaneously as predictors in a multiple regression model may not yield meaningful insights into their independent contributions. Therefore, caution is warranted when interpreting regression outputs, and researchers should consider variable reduction techniques, such as principal component analysis, or use one of the variables as a proxy for overall tourism employment. In summary, both tourism employment variables are positively and significantly associated with GDP per capita. The extremely high correlation between Total_Tourism_Employment and Accommodation_Services confirms a redundancy that must be accounted for in subsequent regression analyses. The results validate the theoretical proposition that employment in the tourism sector is an important driver of economic growth in Albania. These results confirm a statistically significant relationship between tourism employment and GDP per capita, supporting the first hypothesis (H_{11}).

5.3. Simple Linear Regression Models

Model 1: Total Tourism Employment → GDP per Capita

$GDP=\beta_0+\beta_1 \bullet$Total Tourism Employment

Table 3.
Simple Linear Regression Results: Total Tourism Employment and GDP per Capita.

Coefficient	Value	Sig.	Interpretation
Intercept	3,070.70	0.018	Base GDP when employment is zero
β_1 (Total_Tourism_Employment)	30.43	0.019	Each 1,000 additional employees → +30.43 USD in GDP per capita
R^2	0.626		62.6% of GDP variation explained by total tourism employment

Source: Author's regression output using SPSS (2014–2023 data).

The regression equation derived from the model is:

$GDP=3070.70+30.43 \bullet$Total Tourism Employment.

This equation suggests that for every increase of 1,000 employees in the tourism sector, Albania's GDP per capita is expected to increase by approximately 30.43 USD. The intercept (3,070.70) represents the baseline GDP per capita when there is theoretically no employment in the tourism sector.\

The coefficient for Total Tourism Employment (β_1) is statistically significant ($p = 0.019 < 0.05$), indicating a meaningful linear relationship between the variables. This result provides empirical support for hypothesis H_{11}, which posits a statistically significant connection between employment in tourism and GDP per capita.

The coefficient of determination (R^2) is 0.626, which means that approximately 62.6% of the variability in GDP per capita during the study period is explained by changes in total tourism employment. This represents a moderately strong model fit and underscores the influential role of tourism sector employment in driving macroeconomic performance in Albania.

From a policy perspective, the findings suggest that initiatives to increase employment in tourism can have a direct and measurable impact on economic well-being. Furthermore, these results align with international literature supporting the tourism-led growth hypothesis in developing economies.

Model 2: Accommodation Employment → GDP per Capita

$GDP=\beta_0+\beta_1 \bullet$ Accommodation Services

Table 4.
Simple Linear Regression Results: Accommodation Employment and GDP per Capita.

Coefficient	Value	Sig.	Interpretation
Intercept	3,178.07	0.021	Base GDP when employment is zero
β_1 (Accommodation_Services)	36.42	0.024	Each 1,000 additional employees → +36.42 USD in GDP per capita
R^2	0.601		60.1% of GDP variation explained by accommodation employment

Source: Author's regression output using SPSS (2014–2023 data).

The $R^2 = 0.601$ indicates that 60.1% of the variation in GDP per capita is explained by changes in employment in the accommodation sector. This suggests a strong and meaningful association, although nearly 40% of the variation is still attributed to other external factors not included in the model The slope coefficient (β_1) is statistically significant with a p-value of 0.024 (less than 0.05), indicating a reliable relationship between accommodation employment and GDP per capita. This result supports hypothesis H_{12}, which assumed a positive relationship between employment in accommodation services and economic performance. Model 2 has a slightly lower R^2 than Model 1 (0.601 vs. 0.626), implying that total tourism employment is a somewhat better overall predictor of GDP per capita. However, the coefficient in Model 2 (36.42) is higher than that in Model 1 (30.43), meaning that employment in accommodation services alone contributes more to GDP per capita per unit of labor than broader tourism employment. Model 2 confirms that employment in accommodation services has a statistically significant and economically relevant impact on GDP per capita in Albania during the period 2014–2023. This finding highlights the strategic importance of the accommodation sector within tourism and supports policy interventions aimed at boosting job creation specifically in this sub-sector.

5.4. Multiple Linear Regression Model

$$GDP = \beta_0 + \beta_1 \bullet \text{Total Tourism Employment} + \beta_2 \bullet \text{Accommodation Services}$$

Table 5.
Multiple Regression Results: Total and Accommodation Employment on GDP per Capita.

Coefficient	Value	Sig.	Interpretation
Intercept	2,280.67	0.018	Base GDP
β_1 (Total_Tourism_Employment)	317.55	0.171	Positive, not statistically significant
β_2 (Accommodation_Services)	-350.85	0.208	Negative, not statistically significant

Source: Author's regression output using SPSS (2014–2023 data).

The R^2 value of 0.736 indicates that 73.6% of the variance in GDP per capita is jointly explained by total tourism employment and accommodation employment. This is a higher explanatory power compared to the individual models (Model 1: 62.6%, Model 2: 60.1%). Both employment variables show non-significant coefficients individually ($p > 0.05$), which means we cannot confidently claim that either has an independent significant effect on GDP per capita when the other is included. This is likely due to high multicollinearity, as shown in the Pearson correlation matrix ($r = 0.999$ between Total Tourism Employment and Accommodation Services). In other words, the two variables are so highly correlated that the model cannot distinguish their individual effects reliably. β_1 is positive (317.55), suggesting that total tourism employment might increase GDP per capita, but the effect is not statistically significant. β_2 is negative (-350.85), an unexpected result suggesting accommodation employment might decrease GDP per capita when controlling for total tourism employment, this is also not significant and likely distorted by multicollinearity. While the multiple regression model explains a high proportion of GDP variance ($R^2 = 0.736$), the individual predictors are not reliable due to severe multicollinearity. Therefore, this model should not be used to interpret the individual contribution of each employment variable but may serve for predictive purposes if the goal is simply to estimate GDP per capita from combined tourism employment measures. To improve interpretability, it is advisable to use separate

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 1117-1128, 2025
DOI: 10.55214/25768484.v9i6.8033

simple regression models for each employment variable (as done previously), apply dimensionality reduction techniques like Principal Component Analysis (PCA), or use ridge or lasso regression to handle multicollinearity more effectively.

5.5. Economic Efficiency Analysis

This formula calculates the economic efficiency of employment in the tourism sector by dividing GDP per capita by the total number of tourism employees:

$$Efficiency = \frac{GDP\ per\ Capita}{Total\ Tourism\ Employment}$$

Table 6.
Economic Efficiency of Tourism Employment.

Year	GDP per Capita (USD)	Tourism Employment (thousands)	Efficiency (USD per employee)
2014	4,179.06	26.7	156.5
2015	4,207.44	29.0	145.1
2016	4,374.30	39.2	111.6
2017	4,721.13	43.6	108.2
2018	5,197.75	46.7	111.2
2019	5,377.45	52.0	103.4
2020	5,232.38	42.4	123.4
2021	5,521.44	43.5	126.9
2022	6,810.00	47.2	144.3
2023	8,368.00	51.5	162.5

Source: Author's own calculations based on data from INSTAT and other official sources.

The results suggest that economic efficiency decreased until 2019, but improved post-pandemic, possibly due to restructuring and greater labor productivity.

5.6. Multicollinearity Diagnostics (VIF)

To test collinearity between the two independent variables:

Table 7.
Multicollinearity Diagnostics – VIF Values.

Variable	VIF	Interpretation
Total_Tourism_Employment	96.21	Extremely high collinearity
Accommodation_Services	96.21	Extremely high collinearity

Source: Author's own calculations based on data from INSTAT and other official sources.

A VIF value over 10 indicates severe multicollinearity. This confirms that the two variables overlap significantly, reducing the reliability of the multiple regression coefficients.

6. Discussion and Conclusions

The findings of this study confirm a strong and statistically significant positive relationship between employment in the tourism sector and economic growth in Albania, as measured by GDP per capita. Both key employment indicators—total tourism employment and employment in accommodation services—demonstrated high Pearson correlation coefficients with GDP per capita ($r = 0.791$ and $r = 0.775$, respectively), indicating that increases in tourism-related employment are closely associated with improvements in national economic output. The simple linear regression models provide further support for this relationship. Model 1 indicated that an increase of 1,000 employees in the overall tourism sector corresponds to an approximate increase of 30.43 USD in GDP per capita, explaining 62.6% of the variation ($R^2 = 0.626$). Model 2, which isolates employment in accommodation services, revealed an even stronger marginal impact (+36.42 USD), though with slightly lower explanatory power ($R^2 = 0.601$). These results uphold the first hypothesis (H_{11}) and partially support the second (H_{12}), suggesting that while both variables positively influence GDP, the distinction between their

Edelweiss Applied Science and Technology
ISSN: 2576-8484
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separate contributions is complex. The multiple linear regression model (Model 3), which incorporated both independent variables simultaneously, achieved the highest explanatory power ($R^2 = 0.736$). However, this model suffered from severe multicollinearity between the predictors (Pearson $r \approx 0.999$; VIF > 90), undermining the interpretability of individual coefficients. In fact, the signs of the coefficients (one positive, one negative) and their lack of statistical significance highlight that the predictors overlap in the variance they explain. As such, while the combined model is suitable for aggregate forecasting, it does not offer valid insights into the distinct contribution of each employment category. Moreover, the efficiency analysis revealed a noteworthy trend: although tourism employment increased steadily from 2014 to 2019, the average GDP generated per employee decreased during this period. This may reflect inefficiencies in labor allocation, low value-added services, or the prevalence of informal employment. However, in the post-pandemic years (2022–2023), this trend reversed—suggesting a structural shift in the tourism labor market, possibly driven by productivity gains, improved workforce quality, or greater integration of technology and formalization in the sector. In conclusion, tourism employment remains a vital driver of Albania's economic growth, but targeted policy interventions are necessary to enhance the productivity and long-term sustainability of tourism-related jobs. Strengthening vocational training, improving service quality, and focusing on high-value tourism sub-sectors (e.g., eco-tourism, cultural tourism) may increase the GDP yield per tourism employee and ensure that growth is both inclusive and resilient to external shocks.
Based on the findings and limitations of this study, the following recommendations are proposed:

6.1. For Policymakers

Strengthen institutional support for employment generation in the tourism sector through the expansion of targeted training programs, particularly those aligned with market needs and sustainable tourism practices. Formalization of the tourism labor market should be prioritized to increase productivity and reduce informality, which continues to undermine economic efficiency.

6.2. For Industry Stakeholders

Collaboration between government agencies, educational institutions, and private tourism operators should be enhanced to align workforce skills with the evolving demands of the sector. Incentivizing investment in quality infrastructure and service innovation may further improve tourism's contribution to GDP.

6.3. For Researchers

Future studies should disaggregate employment and economic indicators by geographic region to uncover potential disparities and localized impacts. Additionally, including variables such as public and private investment in tourism infrastructure, average tourist spending, and labor productivity would provide a more comprehensive understanding of the tourism–growth nexus.

6.4. For Continued Research and Monitoring

It is essential to incorporate the most recent data from 2022 and 2023 into further empirical models to assess whether the post-pandemic rebound observed in the current study is sustained over time. Longitudinal research is needed to evaluate the structural changes in the tourism labor market and to identify whether emerging trends represent temporary adjustments or long-term shifts.

Institutional Review Board Statement:

This study did not involve human participants, and thus ethical approval was not required. All data used are publicly available from secondary sources such as INSTAT, the World Bank, and UNWTO.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
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Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Acknowledgment:

The author expresses sincere thanks to the University of Shkodra "Luigj Gurakuqi" for financially supporting this research as part of its institutional academic funding scheme.

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Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 1117-1128, 2025
DOI: 10.55214/25768484.v9i6.8033