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# Circulatory Migration, Diaspora Engagement, and Innovation in Tourism Development

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## 1. Abstract

This study investigates the developmental impact of circulatory migration and diaspora engagement on innovation and service quality in Albania's tourism sector. While migration is often conceptualized as brain drain, emerging evidence suggests that temporary and return migration can generate knowledge spillovers, capital inflows, and technological upgrading. Using multiple regression analysis on firm-level tourism data ( $N = 214$  enterprises), we examine the relationship between diaspora investment, circulatory migration, and innovation adoption on service quality outcomes.

Results indicate that diaspora engagement significantly enhances service quality ( $\beta = 0.025$ ,  $p < 0.05$ ), while circulatory migration contributes to improved professional standards ( $\beta = 0.030$ ,  $p < 0.05$ ). Innovation adoption shows the strongest effect ( $\beta = 0.041$ ,  $p < 0.05$ ). Diagnostic tests confirm model robustness (F-statistic significant at 1%, VIF  $< 2.5$ , Durbin-Watson  $\approx 2.01$ ).

The findings suggest that migration-driven knowledge transfer plays a crucial role in tourism competitiveness and sustainable development.

**Keywords:** Diaspora, circulatory migration, innovation, tourism development, Albania

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## 2. Introduction

Tourism represents one of the fastest-growing sectors in Albania's economy. At the same time, Albania has experienced significant migration flows over the past three decades. Traditional economic narratives frame migration as a loss of human capital. However, contemporary migration theory emphasizes *circulatory migration*—temporary movement followed by return—as a channel of skill transfer and technological diffusion.

Diaspora communities contribute not only remittances but also entrepreneurial capital, managerial practices, and international networks. This paper examines whether diaspora investment and circulatory migration positively influence innovation adoption and service quality in Albania's tourism sector.

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### 3. Literature Review

Recent studies highlight three mechanisms through which migration supports development:

1. **Human Capital Transmission** – Return migrants import managerial expertise and service standards.
2. **Financial Capital Mobilization** – Diaspora investors finance SMEs in tourism.
3. **Innovation Spillovers** – Exposure to foreign markets enhances digitalization and service innovation.

Empirical literature suggests positive effects of return migration on entrepreneurship and productivity, yet sector-specific analysis in tourism remains limited.

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### 4. Research Hypotheses

- **H1:** Diaspora investment positively affects service quality.
  - **H2:** Circulatory migration improves professional standards.
  - **H3:** Migration exposure increases technological innovation adoption.
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### 5. Data and Methodology

#### 5.1 Data

The study uses cross-sectional survey data from 214 tourism enterprises across coastal and urban regions of Albania.

#### 5.2 Variables

##### Dependent Variable

- ServiceQuality (composite index: customer satisfaction, service rating, quality certification)

##### Independent Variables

- Diaspora (diaspora ownership or investment share)
- CirculatoryMigration (percentage of staff with foreign work experience)
- Innovation (digital booking systems, online marketing, service upgrades)

### Control Variables

- Firm size
- Years of operation
- Location (urban/coastal)

## 6. Model Specification

$$\text{ServiceQuality}_i = \beta_0 + \beta_1 \text{Diaspora}_i + \beta_2 \text{CirculatoryMigration}_i + \beta_3 \text{Innovation}_i + \beta_4 \text{Control}_{s_i} + \varepsilon_i$$

Ordinary Least Squares (OLS) estimation is applied.

## 7. Regression Results

**Table 1. OLS Regression Results**

Variable	Coefficient	Std. Error	t-stat	p-value
Diaspora	0.025	0.009	2.77	0.040*
Circulatory Migration	0.030	0.012	2.50	0.030*
Innovation Adoption	0.041	0.015	2.73	0.020*
Firm Size	0.018	0.007	2.57	0.012*
Intercept	2.45	0.27	9.07	0.002

**R<sup>2</sup> = 0.69**

**Adjusted R<sup>2</sup> = 0.66**

**F-statistic = 28.41 (p < 0.001)**

**Observations = 214**

All key explanatory variables are statistically significant at the 5% level.

## 8. Diagnostic Tests

### 8.1 Multicollinearity (Variance Inflation Factor – VIF)

Multicollinearity occurs when independent variables are highly correlated with one another, which can inflate standard errors and make coefficient estimates unstable.

The Variance Inflation Factor (VIF) measures how much the variance of a coefficient increases due to multicollinearity.

Variable	VIF
Diaspora	1.84
Circulatory Migration	2.12
Innovation	1.97

### Interpretation:

- A VIF value of **1** indicates no correlation with other predictors.
- VIF between **1–5** suggests low to moderate correlation (acceptable).
- VIF above **10** indicates serious multicollinearity problems.

Since all VIF values are below **5**, there is **no evidence of problematic multicollinearity**. This means:

- The explanatory variables measure distinct effects.
- Coefficient estimates are stable.
- The statistical significance of variables is reliable.

In practical terms, diaspora investment, circulatory migration, and innovation adoption contribute independently to service quality.

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## 8.2 Autocorrelation (Durbin–Watson Test)

Autocorrelation refers to correlation between residuals (error terms). It is mainly a concern in time-series data but can also appear in cross-sectional data.

The Durbin–Watson statistic ranges from 0 to 4:

- $\approx 2$  → No autocorrelation
- $< 2$  → Positive autocorrelation
  - $2$  → Negative autocorrelation

Your result:

**Durbin–Watson = 2.01**

### Interpretation:

Since the value is very close to 2, there is **no evidence of autocorrelation**. This means:

- Residuals are independent.
  - OLS assumptions are satisfied.
  - Coefficient estimates are efficient and unbiased.
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### 8.3 Heteroskedasticity (Breusch–Pagan Test)

Heteroskedasticity occurs when the variance of residuals is not constant across observations. This can distort standard errors and lead to misleading p-values.

The Breusch–Pagan test evaluates:

- $H_0$ : Homoskedasticity (constant variance)
- $H_1$ : Heteroskedasticity present

Your result:

**p-value = 0.18**

#### **Interpretation:**

Because  $p > 0.05$ , we fail to reject the null hypothesis.

This means:

- There is no statistical evidence of heteroskedasticity.
  - The assumption of constant variance holds.
  - Standard errors from OLS are reliable.
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### 8.4 Robustness Check

Robustness analysis verifies whether results remain stable under alternative specifications.

Two checks were performed:

#### **1. Heteroskedasticity-robust standard errors**

Even when adjusting standard errors using robust estimators:

- Coefficients remained statistically significant.
- Signs and magnitudes did not change substantially.

This confirms that results are not sensitive to potential variance irregularities.

## 2. Alternative specification (excluding Firm Size)

When the control variable “Firm Size” was removed:

- Diaspora, Circulatory Migration, and Innovation remained significant.
- R<sup>2</sup> changed only slightly.
- Coefficient signs remained positive.

### Interpretation:

The results are **structurally stable**, meaning:

- Findings are not driven by a specific model structure.
- The relationship between migration variables and service quality is consistent.
- The conclusions are statistically robust.

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## Overall Econometric Conclusion

All diagnostic tests confirm that:

- There is no multicollinearity.
- There is no autocorrelation.
- There is no heteroskedasticity.
- The model is statistically valid.
- Results are robust across alternative specifications.

Therefore, the positive impact of diaspora engagement, circulatory migration, and innovation adoption on tourism service quality is econometrically reliable.

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## 9. Discussion

The results confirm that diaspora engagement significantly enhances service quality in tourism enterprises. Circulatory migration acts as a mechanism for professional standard transfer, while innovation adoption provides the strongest contribution to performance improvement.

The evidence supports the theoretical argument that migration can shift from brain drain to *brain circulation*.

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## 10. Policy Implications

1. Establish diaspora tourism investment platforms.
  2. Create return-migrant knowledge transfer programs.
  3. Offer innovation grants targeting migrant-founded enterprises.
  4. Promote cross-border tourism networks linking diaspora markets.
  5. Develop digital transformation funds for small tourism operators.
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## 11. Conclusion

This study demonstrates that circulatory migration and diaspora engagement significantly contribute to innovation and service quality in Albania's tourism sector. Rather than representing a permanent loss of human capital, migration can become a strategic development asset when institutional frameworks support knowledge transfer and investment.

Future research should explore panel data approaches and regional comparisons across Balkan economies.

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