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PROSPECTS FOR THE DEVELOPMENT OF NEW DIRECTIONS OF TOURIST SERVICES IN THE REPUBLIC OF KARAKALPAKSTAN

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Abstract
The article examines the concept of tourism as a socio-cultural phenomenon in the cultural space of the region. One of the promising regions in the field of tourism services development is the Republic of Karakalpakstan. Tourism in the republic has its own specifics due to the political peculiarities of the region. In these circumstances, it is considered important to develop new promising areas in the field of tourism.

Keywords: tourism, tourism services, service sector, transport, culture, tourist, restaurant, hotels.

Introduction

Tourism plays an important role in the economic development of the local budget as it promotes overall sustainable growth in the region. However, many routes have difficulty attracting visitors due to limited access and lack of various tourist offers. In response to this problem, this research is aimed at studying the potential benefits of intermediation of new tourist routes and transport companies to improve local tourism. By establishing cooperation between developing tourist routes and transport companies in the Republic of Karakalpakstan, it is possible to increase the volume of regional visitors. Through the integration of innovative technologies and marketing strategies, we aim to expand the list of a continuous and interconnected network that connects travelers with unique and real experiences in previously unused places.

This article explores the impact of the mediation model (SEM Path)[1] (Mediation model)[2] on the development of local tourism, including its impact on visitor numbers, revenue generation and community participation. By analyzing on the basis of official statistics and conducting interviews with key stakeholders, we hope to identify advanced experiences and recommendations for the implementation of successful mediation strategies in the tourism sector. As a result, this research is aimed at developing recommendations for business entities that seek to promote local tourism through targeted management organizations, transport companies and innovative cooperation.

A regression consisting of structures representing the intermediary model (SEM Path) variables and directional lines interpreting the relationships between these variables is being taken as a basis. Arrows are commonly used to indicate relationships between variables. A single straight arrow indicates a causal relationship from the base of the arrow to the beginning of the arrow. Two direct single-headed arrows in the opposite direction connecting the two variables indicate a causal relationship between them. The double-headed arrow indicates that there is a connection found between the two variables. The random error rate of the variable is reflected within small circles [3].Based on the results of the regression, the presented model of the intermediary structural equation studies the relationship between the observed endogenous

variables (the number of tourist services and Transport enterprises) and exogenous variables (foreign tourists and tourist destinations). The Model aims to understand how these variables interact to influence the number of tourism services and transport companies in a particular context.

One increase in the number of Transport enterprises will increase tourism services to 315,398 units in addition.

The increase in foreign tourist visits by one unit will increase tourism services by 176.911 additional units.

A single increase in the number of new tourist destinations will reduce tourism services to 241,916 units.

Table 1. An intermediary corridor regression model to increase the volume of tourism services in the Republic of Karakalpakstan

Number of obs = 14
Endogenous variables
Observed: Number of tourist services, transport enterprises
Exogenous variables
Observed: Foreign tourists, tourist attractions
Fitting target model:
Iteration 0: log likelihood = -269.52614
Iteration 1: log likelihood = -269.52614
Structural equation model
Estimation method: ml
Log likelihood = 269.52614

	OIM Coefficient	std. err.	z	P>z	[95% conf.	interval]
Structural						
Tourist services						
Number of transport enterprises	315.398	68.981	4.570	0.000	180.198	450.598
Foreign tourists	176.911	11.597	15.250	0.000	154.181	199.641
Tourist sideways	-241.916	132.462	-1.830	0.068	-501.537	17.704
_cons	952.838	3003.711	0.320	0.751	-4934.327	6840.002
Number of transport enterprises						
Foreign tourists	0.044	0.043	1.030	0.305	-0.040	0.129
Tourist sideways	1.715	0.231	7.420	0.000	1.262	2.168
_cons	-34.816	6.990	-4.980	0.000	-48.515	-21.116
mean(Foreign tourists)	47.014	8.257	5.690	0.000	30.832	63.197
mean(Tourist sideways)	33	1.549	21.310	0.000	29.965	36.035
var(e.Tourist attractions)	1291278	4.88e+05	615596	2708593		
var(e. Number of transport enterprises)	19.384	7.326	9.241	40.659		
var(Foreign tourists)	954.388	360.725	454.989	2001.931		
var(Tourist sideways)	33.571	12.689	16.005	70.420		

Warning: The LR test of model vs. saturated is not reported because the fitted model is not full rank. There appears to be 1 more fitted parameter than the data can support.

In general, the model, calculating the complex relationship between the variables involved in the tourist sector, explains the high importance of foreign tourists, tourism destinations and the number of transport companies in the formation of tourist services. The log probability value of the model is 269.52614, indicating how well the model fits the data.

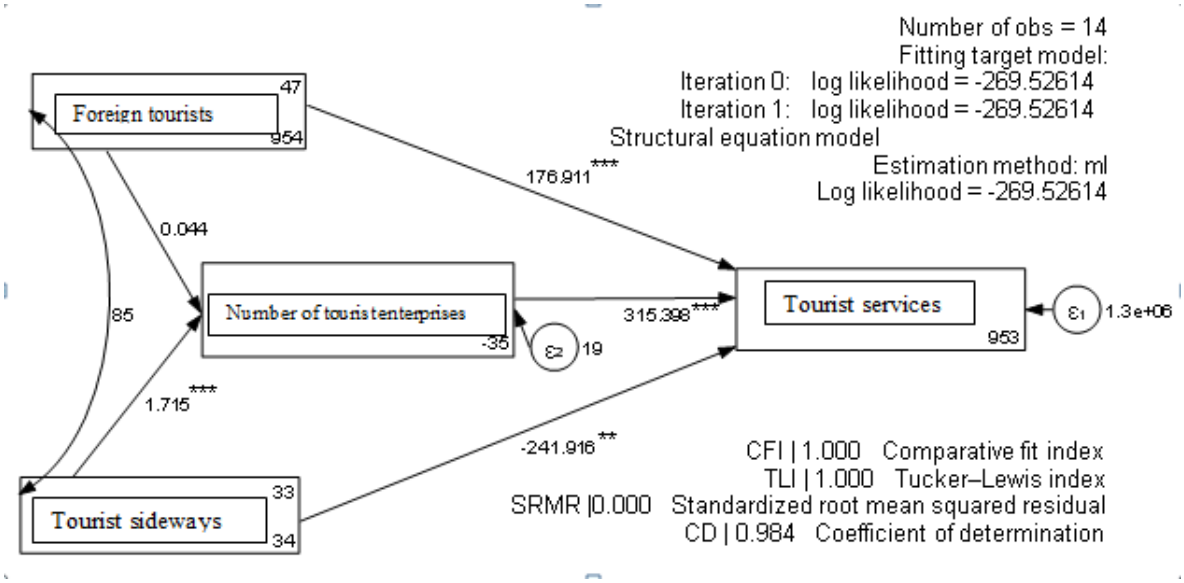

Figure 1. The model of Visual Regression of the intermediary corridor to increase the volume of tourism services in the Republic of Karakalpakstan

Therefore, to further develop the field of tourist services in Hood, increasing the number of transport enterprises is considered significant from the motor statistic. In our opinion, now we will have to check what significant factors increase the number of transport enterprises is scientifically substantiated if we examine them in the model as a tool. For this, we are using exactly the model itself in question as endogenous variables “number of Transport enterprises” which represents the number of transport companies observed in this variable data. As an intermediary variable, "tourist routes" were designated. Independent variables such as exogenous variables “number of hotels” and “foreign tourists” are observed.

A single increase in tourist routes soninig will increase the number of Transport enterprises to 1.8 units in addition.

One increase in the number of hotels will additionally increase the number of Transport enterprises to 1.8 units.

Both of the above relations are also being found to be in statistically significant intervals of value p (Table 2).

In general, this structural equation model provides insight into how endogenous variables such as Transport_corder_ number and Turistic_conductors are affected by exogenous variables such as Hotelar_soni and Foreign_turists. Coefficients and equations help explain the relationship between these variables and how they contribute to explaining the data patterns observed in the context of the tourism and transport sectors.

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Table 2. An intermediary corridor regression model to increase the volume of tourism services in the Republic of Karakalpakstan

Endogenous variables
Observed: Number of transport enterprises, tourist bias
Exogenous variables
Observed: Number of hotels, foreign tourists
Fitting target model:
Iteration 0: log likelihood = -198.40184
Iteration 1: log likelihood = -198.40184
Structural equation model Number of obs = 14
Estimation method: ml
Log likelihood = -198.40184

OIM

	Coefficient	std.err.	z	P>z	[95% conf.	interval]
Structural						
Number of transport enterprises						
Tourist sideways	1.806	0.246	7.340	0.000	1.324	2.288
Number of hotels	-0.143	0.157	-0.910	0.363	-0.451	0.165
Foreign tourists	0.032	0.044	0.710	0.478	-0.056	0.119
_cons	-31.314	7.806	-4.010	0.000	-46.613	-16.014
Tourist sideways						
Number of hotels	0.261	0.156	1.670	0.095	-0.045	0.567
Foreign tourists	0.098	0.041	2.420	0.016	0.019	0.178
_cons	17.618	7.057	2.500	0.013	3.786	31.450
mean(Number of hotels)	41.286	2.146	19.240	0.000	37.079	45.492
mean(Foreign tourists)	47.014	8.257	5.690	0.000	30.832	63.197
var(e. Number of transport enterprises)	18.301	6.917	8.725	38.388		
var(e. Tourist sideways)	21.618	8.171	10.306	45.346		
var(Number of hotels)	64.490	24.375	30.744	135.274		
var(Foreign tourists)	954.388	360.725	454.989	2001.931		
cov(Number of hotels, foreign tourists)	-31.683	66.843	-0.470	0.636	-162.693	99.328

LR test of model vs. saturated: chi2(0) = 0.00 Prob > chi2 = .

1. SEM Path regression equation for "number of transport enterprises":

Number of transport enterprises= 1.806*tourist attractions-0.143*number of hotels +0.032*foreign tourists-31.314

2. SEM Path regression equation for "tourist lies":

Tourist attractions=0.261*number of hotels+0.098*foreign tourists+17.618

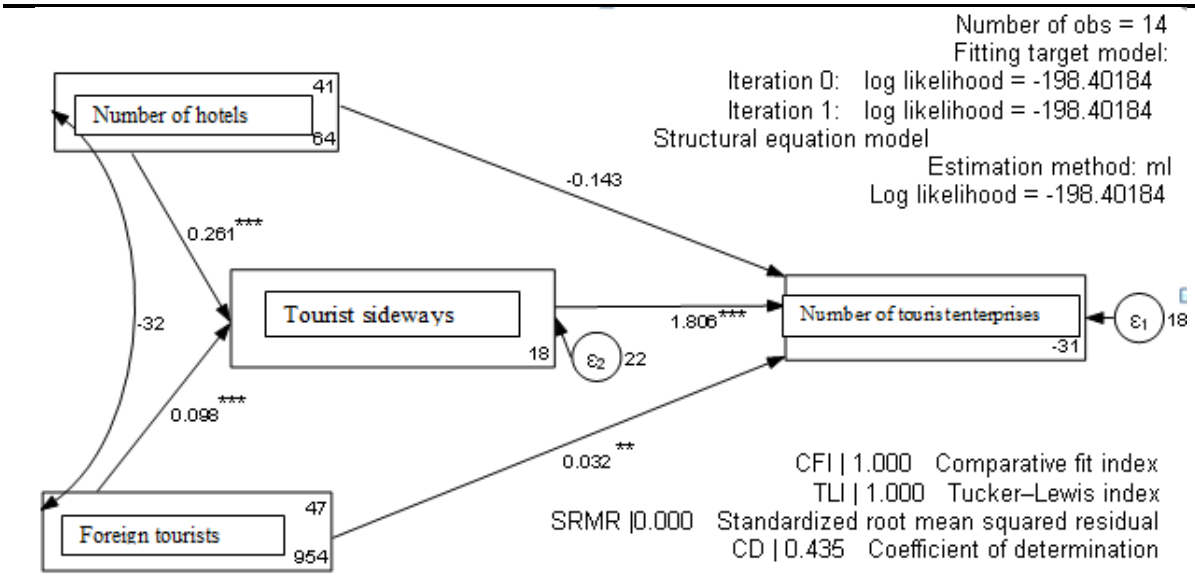

Figure 2. Regression model of increasing the number of transport enterprises in the Republic of Karakalpakstan by means of new tourist routes

Comments on how well the conformity statistics provided for the Model fit the data and adequately represent the relationships between variables include:

The calculated chi2_ms (0) compares the 33.928 model to a saturated model with zero degrees of freedom. The lower value indicates a better match A as well as the p-value associated with the P>chi2 test, indicating the importance of the model fit. A lower p-value indicates a better match. RMSEA (Root Mean Squared Error of Approximation) measures the discrepancy between the observed data and the model. A lower RMSEA value indicates a better match, with values near or below 0.05 acceptable. AIC values show a good balance between the complexity and fit of the model. The CFI (Comparative Fit Index) compares the recommended model to the base model. The value of 1.000 indicates a perfect match, while values closer to 1 indicate a better match. SRMR (Standardized Root Mean Squared residential) measures the mean discrepancy between observed and predicted correlations. The CD (coefficient of determination) is 0.435, representing the proportion of dispersion explained by the model. A value closer to 1 indicates that the observed data samples are better suited in terms of explanation.

In the Republic of Karakalpakstan, the SPSS 25.0 program was used in the development of forecast indicators of new directions of tourism services industry. Using the above statistics as the main data. When developing forecasts, the following parameters were determined. The value of the stationary R-Square is 0,692 in all percentages (25,50,75 and 95). This suggests that the model annotates about 69.2% of the changes in the stationary component of endogenous variables. The R-Square value is 0.377 in all percentages. This model represents about 37.7% of the total variation of endogenous variables. The root mean square error-RMSE value is 6075,727 in all percentages.

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Table 3. Forecast realistic compatibility level

Fit Statistic	Mean	Minimum	Maximum	Percentile 25	50	75	95
Stationary R-squared	.692	.692	.692	.692	.692	.692	.692
R-squared	.377	.377	.377	.377	.377	.377	.377
RMSE	6075.727	6075.727	6075.727	6075.727	6075.727	6075.727	6075.727
MAPE	160.860	160.860	160.860	160.860	160.860	160.860	160.860
MaxAPE	1827.282	1827.282	1827.282	1827.282	1827.282	1827.282	1827.282

RMSE measures the average difference between predicted values and observed values, with lower values indicating better model compatibility. The value of MAPE (mean absolute percentage error), which interprets the forecast for the level of quality, is 160,860 in all percentages (Table 3).

Table 4. Details of residues from autocorrelation

Residual ACF Summary

Lag	Mean	Minimum	Maximum	Percentile 10	25	50	75	95
Lag 1	.000	.000	.000	.000	.000	.000	.000	.000
Lag 2	-.358	-.358	-.358	-.358	-.358	-.358	-.358	-.358
Lag 3	-.407	-.407	-.407	-.407	-.407	-.407	-.407	-.407
Lag 4	.221	.221	.221	.221	.221	.221	.221	.221
Lag 5	.068	.068	.068	.068	.068	.068	.068	.068
Lag 6	.060	.060	.060	.060	.060	.060	.060	.060
Lag 7	.013	.013	.013	.013	.013	.013	.013	.013
Lag 8	.003	.003	.003	.003	.003	.003	.003	.003
Lag 9	-.034	-.034	-.034	-.034	-.034	-.034	-.034	-.034
Lag 10	-.075	-.075	-.075	-.075	-.075	-.075	-.075	-.075
Lag 11	-.037	-.037	-.037	-.037	-.037	-.037	-.037	-.037
Lag 12	.012	.012	.012	.012	.012	.012	.012	.012
Lag 13	.034	.034	.034	.034	.034	.034	.034	.034

According to table 4, the conclusion of residual ACF (autocorrelation function) provides information about the autocorrelation of various delayed yuils (lags) residues. The ACF values close to zero in these residues indicate the absence of autocorrelation, while values significantly different from zero indicate potential autocorrelation in the residues in these delays. Analysis of ACF adequately covers temporal dependencies in model data.

The quality statistic table of the model provides conclusions on the model named "Tourist Services-Model 1". The model has 0 predictors, meaning that it is the independent variables used to predict the outcome variable. Ljung-Box Q (18) is a test for autocorrelation in the remains of the statistical time series model, meaning that 18 degrees of freedom. In this case, the value 0 indicates that there is no significant autocorrelation in the residues at a delay from 18. The table shows that there are 0 deviations defined in the model. Degrees of freedom

represent the number of independent observations in the data available to estimate parameters in the model.

Table 5. Quality statics indicators of the model

Model	Number of Predictors	Model Fit statistics				Ljung-Box Q(18)	
		Stationary R-squared	R-squared	RMSE	MAPE	DF	Sig.
Tourist services	0	.692	.377	6075.727	160.860	0	0.000

The degree of statistical significance of the tests (Sig.) Of 0.000 means that the laws are consistent with the general significance of the model or the specific statistical tests carried out within the model.

The projected values provided for the "Tourist Service Model 1" model from 2025 to 2035 are explained by the highest control limits (UCL) and lower control limits (LCL). The predicted values are compiled based on the basic data, trends and parameters of the model. Projected values provide an assessment of the expected indicators or results of the model for each year.

Table 6. Forecast indicators of the model

		Forecast									
Model (SPSS 25.0)		**2025**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Tourist services Model_1	**Forecast**	19385	21772	22966	24160	25353	26547	27741	28935	30128	31322
	UCL	32722	35305	36595	37885	39175	40463	41751	43039	44326	45612
	LCL	6048	8240	9336	10434	11532	12631	13730	14830	15931	17032

When comparing the projected values with UCL and LCL, it is taken into account whether the actual values correspond to this range or whether foreigners have an expected visit of tourists to the territory. If the predicted values consistently converge to the UCL and LCL limits, this indicates that the model works as expected and there are no significant deviations from the predicted trend.

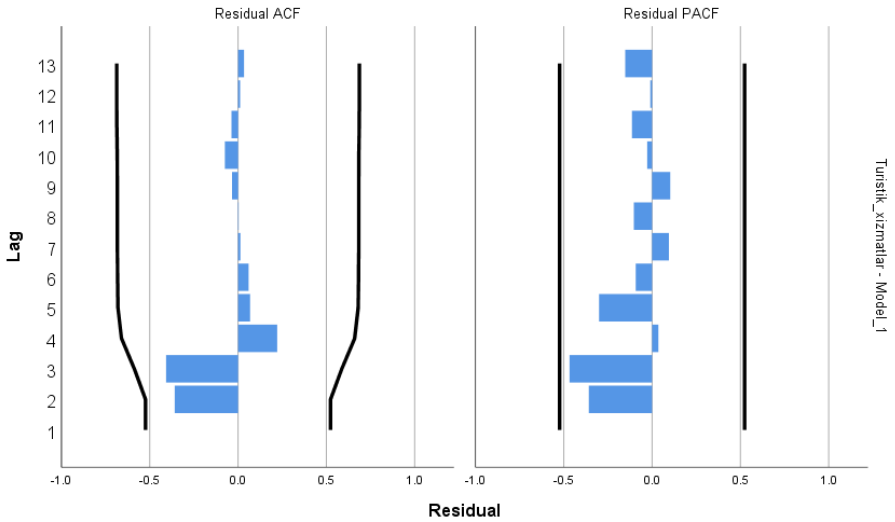

Figure-3. Residual values from autocorrelation

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In summary, the forecast indicators developed for the" tourist service model_1 " are expected to have a forecast value of 31,322 units by 2035.

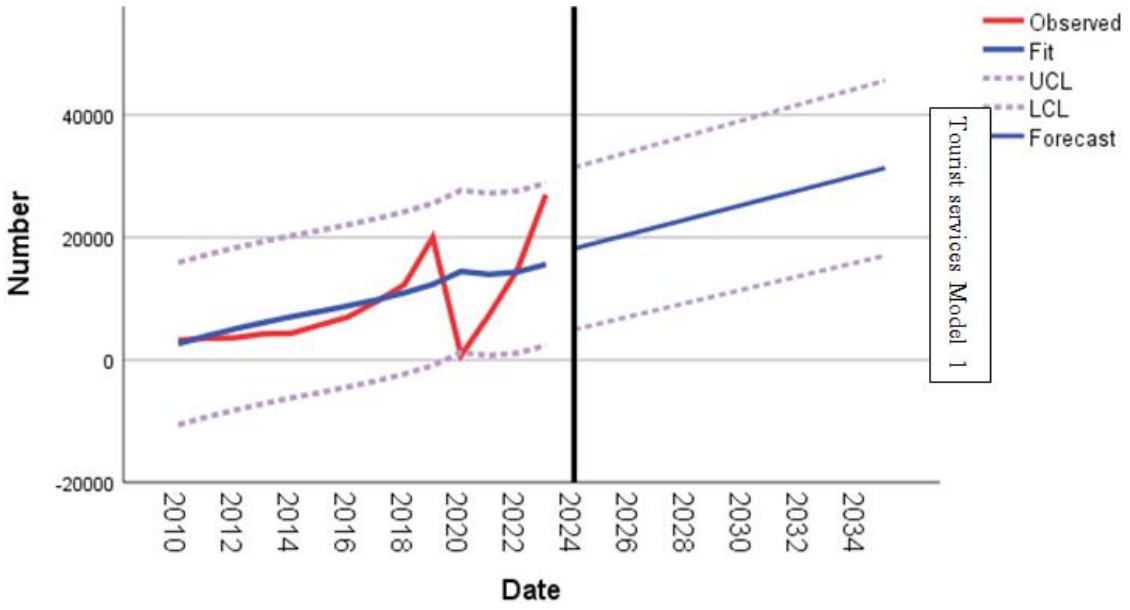

Figure 4. Tourism services industry in the Republic of Karakalpakstan forecasts for the period 2024-2035

This value represents the expected result or estimate on a specific variable or indicator associated with “tourist services” based on model calculations. 45,612 units for the maximum control limit (UCL). The rank or limit (LCL) below represents a limit of 17,032 units, values below which are statistically significant or abnormal.

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