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Forecasting Hotel Service Indicators in the Khorezm Region, Uzbekistan

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Abstract– Identifying the factors influencing the development of tourism and hotel services in the Khorezm region, examining their interrelationships, and forecasting future trends based on econometric models constitute an urgent research task. In the growth of tourism service volume in the Khorezm region, hotel and similar accommodation services play a decisive role. Accordingly, this study identifies several key determinants affecting regional tourism service volume, including the number of hotels and similar accommodation facilities, bed capacity, the number of accommodated guests, and the number of overnight stays. Based on annual data for the period 2013–2024, a twelve-year dataset was constructed to develop a multi-factor econometric model. The dependent variable is the volume of tourism services in the region (million UZS), while the explanatory variables include: (X1) the number of hotels and similar accommodation facilities, (X2) the number of beds, (X3) the number of accommodated guests, and (X4) the number of overnight stays. In addition, ARIMA models were applied to forecast key tourism and hotel industry indicators for 2025–2028. The results demonstrate a steady upward trend in tourism service volume and hotel infrastructure indicators, confirming the critical role of accommodation capacity in regional tourism development.

Keywords: tourism industry; hotel services; accommodation facilities; ARIMA; econometric forecasting

1.0 INTRODUCTION

Globally, the hotel services market is regarded as a socio-economic phenomenon that directly and indirectly influences the development of the tourism industry and its associated infrastructure. In the context of accelerating globalization, the hospitality industry contributes significantly to foreign currency earnings and employment generation. According to the World Tourism Organization, the hospitality and tourism sector accounts for approximately 9% of global GDP, 5% of total tax revenues, 7% of global investment, and provides employment for more than 230 million people (https://www.unwto.org/). In this regard, under the conditions of an innovative economy, the rapid development of hotel services has become an urgent issue.

In the era of globalization, numerous scientific studies are being conducted worldwide to identify the specific characteristics and development trends of the hotel services market, to examine how the hospitality industry contributes to the socio-economic development of regions, and to explore the effective utilization of regional potential based on modern approaches.

In this context, priority research areas include improving the organizational and economic foundations for the development of the regional hotel services market, investigating the specific aspects of service quality assessment in the hospitality industry, forming hotel service clusters to promote the unique hospitality potential of regions, and forecasting regional hospitality industry indicators using multifactor econometric models.

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In the Development Strategy of the New Uzbekistan, the adoption of a dedicated program to make tourism a key driver for job creation in the Khorezm region, as well as the construction of modern hotels and tourist-recreational entertainment complexes, have been put forward as important priorities.

To effectively implement these objectives, priority research areas include improving the organizational and economic mechanisms for developing the regional hotel services market; establishing a virtual association of hotels to facilitate mutual exchange of experience within the hotel services market, forming hotel service clusters to promote the region's unique hospitality potential, assessing the quality of hotel services; and forecasting tourism and hospitality industry indicators in the region using multifactor econometric models.

Hotel services refer to the process of providing accommodation and related services to guests by tourism-oriented hotel enterprises. These services encompass accommodation facilities, food and beverage services, retail services, transport, and sports and leisure sectors. The hotel services market represents the aggregate of enterprises operating in this sector and plays a crucial role in shaping competition, intermediaries, and consumer behavior (Федсов, 2008).

In contemporary research, simulation and econometric modeling techniques are widely applied to analyze hotel service markets. These methods allow for segmentation of consumers by preferences, income levels, and behavioral characteristics (Козлова., Климкина., Швакова., 2014). Seasonality is another defining feature of tourism and hospitality demand, often analyzed using time-series models to capture stochastic and cyclical fluctuations. International experience also highlights the importance of analyzing hotel room availability, pricing dynamics, and demand–supply conditions using empirical approaches. This method makes it possible to test the stochastic nature of seasonality in the hotel services market and to observe seasonal fluctuations (Chang et al., 2019).

In international practice, the availability of different types of hotel room options is analyzed using online hotel booking platforms. In this process, the status of each type of room option is examined through comprehensive empirical analysis. In each region, the demand–supply conditions of room prices are characterized by room availability and average room rates (Aki-Hiro Sato., 2013). In developing countries, qualitative research approaches are widely used to analyze the demand and supply of services provided by star-rated hotels by monitoring tourist segments and service quality levels (Pardayev, 2013).

2.0 LITERATURE REVIEW

Forecasting service indicators in the hotel industry has become an essential component of tourism planning, destination management, and strategic decision-making. Hotel service indicators—such as occupancy rate, average daily rate (ADR), revenue per available room (RevPAR), and tourist arrivals—are widely used to evaluate the performance and sustainability of hospitality businesses. Accurate forecasting of these indicators enables hotel managers and policymakers to anticipate demand fluctuations, optimize resource allocation, and improve service quality.

A substantial body of research has focused on tourism demand forecasting and hotel performance prediction. Early studies by Song Haiyan and Gang Li emphasized the importance of econometric models for forecasting tourism demand. Their work highlights the application of time-series models such as ARIMA, vector autoregression (VAR), and econometric regression models to predict tourist arrivals and accommodation demand. These approaches have been widely adopted in hospitality research because they can capture seasonal patterns and macroeconomic influences on tourism flows.

Another important strand of literature focuses on the application of advanced quantitative methods in hotel demand forecasting. For example, studies by Rob J. Hyndman and George Athanasopoulos demonstrate how modern time-series forecasting techniques—such as exponential smoothing and machine learning models—can significantly improve forecasting accuracy. In the hospitality context, these methods allow researchers to analyze complex relationships between tourism demand, pricing strategies, and external factors such as economic conditions, seasonality, and destination attractiveness.

Research has also explored the relationship between tourism development and regional hotel performance indicators. Scholars such as Chris Ryan and Dimitrios Buhalis highlight that destination competitiveness, infrastructure development, and marketing strategies strongly influence hotel demand patterns. In emerging tourism destinations, forecasting models can help local authorities plan infrastructure investments, develop sustainable

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tourism strategies, and support private sector decision-making.

In the context of Central Asia and Uzbekistan, tourism development has gained increasing attention in recent years due to government policies aimed at expanding international tourism and improving hospitality infrastructure. Studies focusing on regional tourism development emphasize the growing importance of historical and cultural destinations such as Khiva and the wider Khorezm Region. These destinations attract both domestic and international visitors, which increases demand for accommodation services and highlights the need for accurate forecasting tools. However, compared with more established tourism markets, empirical research on hotel service forecasting in Uzbekistan remains relatively limited.

Recent studies suggest that combining traditional econometric models with modern data-driven approaches can enhance forecasting performance in tourism and hospitality research. By analyzing historical hotel service indicators and tourism demand patterns, researchers can identify trends and seasonal fluctuations that affect regional hotel markets. For a developing tourism destination such as the Khorezm region, forecasting hotel service indicators is particularly important for improving capacity planning, investment decisions, and service management.

Numerous international scholars, including Kotler, Baumgarten, Berezovaya, McKenzie, Fornell, Riley, and Mojayeva, have examined the formation and development of hotel service markets. Their studies emphasize marketing strategies, service quality, consumer satisfaction, and competitiveness in the hospitality industry (Котлер Ф., Мейкенз Дж., 2002). In Uzbekistan, significant contributions to the study of regional hotel service market development have been made by Pardayev, Egamberdiyev, Ruzmetov, Mirzayev, Rakhimov, Tuxliyev, Matyakubov, Aliyeva, and Abdullayeva. These studies focus primarily on organizational and economic mechanisms, service quality, and efficiency improvement (Pardayev, 2013).

However, the scientific works of the above-mentioned economists have not sufficiently examined the organizational and economic aspects of developing the regional hotel services market, the establishment of hotel service clusters to promote hospitality potential, the formation of effective models of the hotel services market, or the forecasting of hotel industry indicators using multi-factor econometric models. The insufficient study of the specific characteristics of the hotel services market today underscores the relevance of this research topic and enables the accurate determination of its aim and main objectives.

Numerous studies have been conducted on the evaluation of service quality in hotels. In the first place, we focused on the essence and content of service quality. According to foreign scholars (Lewis & Booms, 2007), service quality is a measure of the extent to which the delivered service meets customers' expectations. Petrick (2004) argues that quality is one of the best indicators of repurchase intention and that it has both a direct and moderate influence on behavioral intentions.

Furthermore, based on the findings of Wetzels and Bloyemer (2008), quality has a direct impact on customers' preferences and their willingness to recommend the service to others.

According to Zeithaml (2009), perceived value refers to the customer's overall assessment of a product's utility based on perceptions of what is received and what is given.

Several studies have been conducted on tourism development and forecasting in Uzbekistan. For instance, Safarov et al. (2022) used ARIMA and ARDL models to forecast the tourism inflow to Uzbekistan, evaluating the impact of factors such as prosperity, infrastructure, safety, and the environment. Their results indicate that tourism inflow experienced significant growth after the pandemic, and high demand is expected in the future.

Research on tourism development in the Khorezm region often focuses on regional clusters and sustainable development. Ruzmetov et al. (2024) proposed mechanisms to improve the formation of tourism-recreational clusters in Khorezm and forecasted the growth of tourist inflow for 2024–2027. To conduct econometric analysis, they employed specialized econometric modeling using the statistical and forecasting software Rwies 9.

3.0 METHODOLOGY

3.1 Research Methods

In this study, methods such as systematic analysis, economic statistical analysis, econometric modeling, and forecasting were employed to examine the tourism and hotel service indicators of the region. The research is based on both quantitative and qualitative approaches, primarily utilizing advanced econometric and time series models to model and forecast tourism demand indicators. This choice reflects the evolution of tourism forecasting

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techniques, which have progressed from simple static regressions to dynamic and hybrid models (Song & Witt, 2000; Song et al., 2019).

There is a considerable body of research on econometric modeling and forecasting in the field of tourism, which employs time series, econometric models (such as ARIMA, ARDL, OLS), and other methods to predict tourism demand. This study adopts a quantitative research methodology to analyze and forecast key hotel service indicators in the Khorezm region of Uzbekistan. The analysis is based on secondary data collected from official statistical sources, including regional tourism authorities and national statistical reports. The dataset covers the period from 2015 to 2024 and includes important hotel service indicators such as the number of hotels, number of rooms, tourist arrivals, occupancy rates, and revenues from hotel services.

To identify trends and predict future developments in the hospitality sector, the study applies the **ARIMA model**, a widely used econometric technique for time-series forecasting. The ARIMA approach is particularly suitable for analyzing historical data patterns and generating reliable short-term forecasts when the data exhibit temporal dependence.

The methodological procedure involves several stages. First, descriptive statistical analysis is conducted to examine historical trends in hotel service indicators in the Khorezm region. Second, stationarity of the time series is tested using differencing procedures to ensure the suitability of the data for ARIMA modeling. Third, appropriate ARIMA parameters (p, d, q) are identified through autocorrelation and partial autocorrelation functions. The selected model is then estimated using statistical software, and diagnostic tests are performed to evaluate model adequacy and forecasting accuracy.

The forecasting results provide projections of hotel service indicators for the coming years and help identify potential growth patterns in the regional hospitality sector. These forecasts can assist policymakers, tourism authorities, and hotel managers in planning infrastructure development and improving service capacity to accommodate increasing tourist demand in the Khorezm region. During the research process, the statistical description of factors was examined before constructing a multi-factor econometric model (Table 1).

Table 1. Statistical Description of Factors

	LN(Y)	LN(X_1)	LN(X_2)	LN(X_3)	LN(X_4)
Mean	8.869693	8.996571	3.520205	1.590620	2.492476
Median	8.960109	8.402259	3.688879	1.842453	2.524928
Maximum	11.79059	13.68948	4.430817	3.784190	3.332205
Minimum	3.995732	8.179480	2.302585	0.593147	1.386294
Std. Dev.	3.944505	2.045770	0.573883	1.361617	0.436990
Skewness - S	-0.22695	1.696145	-0.826527	1.051341	-0.722690
Kurtosis - K	1.484885	4.890067	2.460191	2.790735	4.200505
Jarquye-Bera	1.230712	10.05332	1.722783	2.881250	2.353556
Probability	0.489018	0.006561	0.401964	0.236780	0.308270
Sum	125.5149	169.9451	55.32328	25.44992	39.87961
Sum Sq. Dev	105.9011	62.77760	4.840125	16.90545	2.864410
Observations	12	12	12	12	12

The data presented in Table 1 provide, for each factor, the mean, median, maximum, and minimum values, as well as the standard deviation, which indicates the extent of deviation from the mean. Additionally, the table includes the skewness coefficient (Skewness – S), which shows whether the theoretical distribution curve of each factor is shifted to the right (S>0) or left (S<0) relative to the normal distribution curve, and the kurtosis coefficient (Kurtosis – K), which indicates whether the curve is more peaked (K>0) or flatter (K<0) compared to the normal distribution. To confirm the conformity of each factor to a normal distribution, the table also provides the Jarquye-Bera test (Jarquye-Bera) values.

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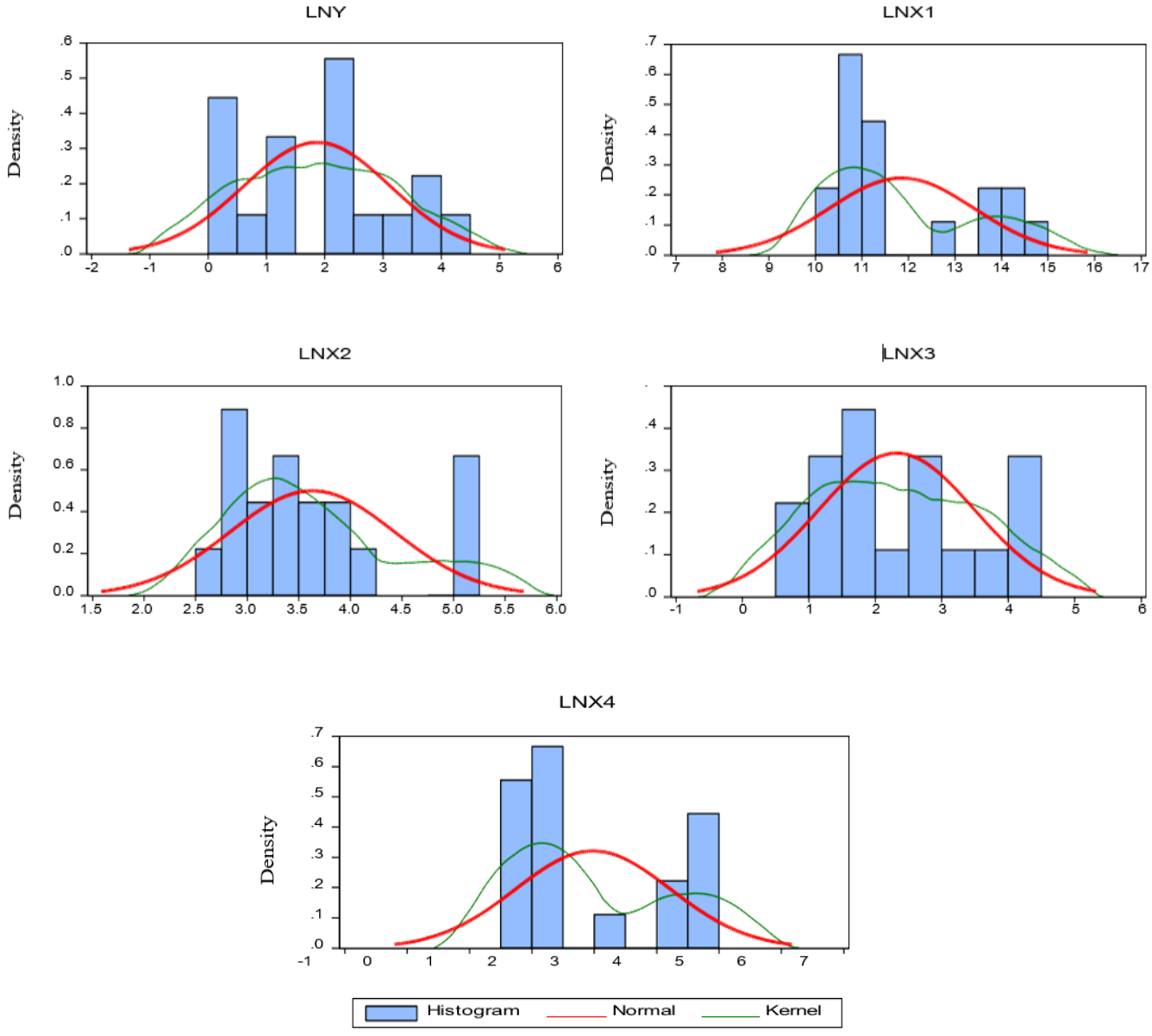
When constructing an econometric model, the conformity of factors to a normal distribution is examined using skewness and kurtosis coefficients as well as the Jarquye-Bera test. The numerical values in Table 1 indicate that the skewness, kurtosis, and Jarquye-Bera test statistics are relatively small, suggesting that the factors can be assumed to be approximately normally distributed. Conversely, higher values of skewness, kurtosis, and the Jarquye-Bera test in Table 1 indicate a significant deviation of factors from normality. To provide a clearer understanding of this, the normal distribution functions of each factor were also examined (Figure 1).

Figure 1. Graphs of the normal distribution functions of the factors



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3.2 Data Collection

The data collection focused on historical time series and macroeconomic indicators affecting tourism and hotel services. The main variables include tourist arrivals (TA), tourism expenditures (TE), hotel occupancy rates, and average length of stay (Song & Witt, 2000; Lim, 1997). The explanatory variables comprise real income (GDP per capita), relative prices (Consumer Price Index adjusted for exchange rates), exchange rates, climate indices, and dummy variables for crises (Smeral, 2010; Kulendran & Witt, 2003).

Based on the studies of the aforementioned scholars, a correlation analysis was conducted during the research process to select factors for a multi-factor econometric model. In this process, pairwise correlation coefficients between factors were calculated and their matrix was determined (Table 2). Table 2 shows that there are strong relationships between the dependent variable (LnY) and the explanatory variables (LnX1, LnX2, LnX3, LnX4), as the pairwise correlation coefficients exceed 0.8.

Table 2. Matrix of pairwise correlation coefficients between factors

	LnY Correlation	LnX1 Correlation	LnX2 Correlation	LnX3 Correlation	LnX4 Correlation
LnY Correlation	1.000000				
LnX1 Correlation	0.836233	1.000000			
t-Statistic	3.689965	-----			
Probability	0.0011	-----			
LnX2 Probability	0.873733	0.560371	1.000000		
t-Statistic	6.782304	2.603292	-----		
Probability	0.0000	0.0507	-----		
LnX3 Correlation	0.858306	0.587913	0.535021	1.000000	
t-Statistic	4.426522	4.927241	4.566063	-----	
Probability	0.0006	0.0002	0.0013	-----	
LnX4 Correlation	0.877800	0.619978	0.516274	0.674262	1.000000
t-Statistic	6.773466	2.654575	8.759844	4.466899	-----
Probability	0.0000	0.0206	0.0000	0.0052	-----

Table 2 also presents the significance and probability of the correlation coefficients. Below each correlation coefficient, the corresponding t-value calculated using the student's t-test and its probability are provided. In econometric analysis, it is generally required that the probability between factors does not exceed 0.05. For instance, the pairwise correlation coefficient between the volume of tourism services (LnY) and the number of hotels and similar accommodation facilities (LnX1) is r_(ln(x_i), ln(x_j)) = 0.836, with t = 3.690 and prob = 0.0011. This indicates a strong relationship between the two factors, confirms the statistical significance of the correlation, and demonstrates a positive association at the 95% confidence level. Hence, the factors included in the multi-factor econometric model meet the criteria for correlation coefficients based on the student's t-test and associated probabilities.

3.3 Data Analysis Procedure

To forecast hotel and tourism indicators in the Khorezm region over the medium term, the ARIMA (Autoregressive Integrated Moving Average) model was employed. Box and Jenkins proposed identifying non-stationary series, demonstrating that by taking successive differences, they can be transformed into a stationary form suitable for ARIMA modeling (Rizkya, Indah, Syahputri, Khalida, Sari, Rachida, & Siregar, Ikhsan & Utaminingrum, J., 2019).

The Box-Jenkins methodology for fitting an ARIMA model to a specific set of observations consists of four stages:

1. **Model identification** – the process of selecting the model that best fits the observed real-world process;

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2. Model estimation – obtaining estimates of the parameters included in the model using regression methods;

3. **Model testing** – verifying the adequacy of the model through regression assumptions, tests for the normality of residuals (Jarque-Bera test), autocorrelation of residuals (Durbin-Watson test), tests for the constancy of random variances (e.g., Cochran and Goldfeld-Quandt tests), and the quality of model specification (F-test);

4. Forecasting – using the model for prediction purposes.

Forecasting was carried out using the ARIMA (Autoregressive Integrated Moving Average) model, which is characterized by the order (p, d, q), where p represents the autoregressive parameter, d the degree of differencing (integration), and q the moving average parameter. The general form of the ARIMA model is as follows:

$$Yt = \alpha + \beta 1Yt{-}1 + \cdots + \beta pYt{-}p + \epsilon t + \mu 1\epsilon t{-}1 + \cdots + \mu q\epsilon t{-}q \quad (1.1)$$

In the ARIMA (Autoregressive Integrated Moving Average) model, it is first necessary to develop a separate ARIMA model for each indicator of the hotel and tourism sector. Based on calculations using the available statistical data, ARIMA models were constructed to forecast the main indicators of the region's tourism sector (Table 3).

Table 3. Results of the ARIMA models for forecasting the main indicators of the region's tourism sector

Dependent Variable: D(LNY,1)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.223632	0.068393	3.26980831	0.0067
MA(1)	-0.889999	0.093213	-9.5480137	0.0443
R-squared	84.84001	Mean dependent var		0.211739
Adjusted R-squared	83.98002	S.D. dependent var		0.683718
S.E. of regression	0.530487	Akaike info criterion		1.931651
Sum squared resid	3.376994	Schwarz criterion		2.073261
Log likelihood	-11.48738	Hannan-Quinn criter.		1.930143
F-statistic	5.62794	Durbin-Watson stat		1.898812
Dependent Variable: D(LNX1,2)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.277369	0.059098	4.69337372	0.0554
AR(1)	0.465607	0.141637	3.28732605	0.0223
MA(1)	-0.784546	0.082217	-9.5423817	0.0241
R-squared	82.9008	Mean dependent var		0.248795
Adjusted R-squared	80.96465	S.D. dependent var		0.906893
S.E. of regression	0.862042	Akaike info criterion		2.888625
Sum squared resid	8.174286	Schwarz criterion		3.077439
Log likelihood	-17.66469	Hannan-Quinn criter.		2.886614
F-statistic	1.498232	Durbin-Watson stat		1.993166
Dependent Variable: D(LNX2,2)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.

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C	0.157134	0.032389	4.85146192	0.0341
AR(1)	-0.077192	0.036341	-2.1241023	0.0362
R-squared	73.63176	Mean dependent var		0.156945

Adjusted R-squared	71.82389	S.D. dependent var	0.209221
S.E. of regression	0.225222	Akaike info criterion	0.033797
Sum squared resid	0.608701	Schwarz criterion	0.175407
Log likelihood	2.746521	Hannan-Quinn criter.	0.032289
F-statistic	0.040657	Durbin-Watson stat	2.010797

Dependent Variable: D(LNX3,1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0,201984	0,065759	3,07157956	0.0097
AR(1)	-0,052055	0,022244	-2,3401816	0.0486
R-squared	75.3528	Mean dependent var		0.200817
Adjusted R-squared	74.3282	S.D. dependent var		0.216753
S.E. of regression	0.233795	Akaike info criterion		0.10829
Sum squared resid	0.655919	Schwarz criterion		0.2499
Log likelihood	2.187824	Hannan-Quinn criter.		0.106782
F-statistic	0.01671	Durbin-Watson stat		1.94873

Dependent Variable: D(LNX4,1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0,212563	0,053956	3,93956187	0.0149
AR(1)	-0,203382	0,086333	-2,3557852	0.0365

The determination coefficients, standard errors, F-Fisher, t-Student, Akaike, and Schwarz criteria presented in Figure 3 indicate the statistical significance and adequacy of all the developed models. The calculation results based on these models justify their full applicability for forecasting hotel and tourism indicators in the Khorezm region.

During the study, forecast values of the Khorezm region's hotel and tourism indicators for 2025–2028 were developed. Table 4 presents the forecasted values of the volume of tourism services in Khorezm for 2025–2028, based on an ARIMA (0,1,1) model.

Table 4. Forecasted values of tourism service volume in the Khorezm region based on the ARIMA (0,1,1) Model

Years	Forecasted values (million UZS)	Standard Error	95% Confidence Interval	Growth Rate Compared to the Previous Year (%)
2025	87660,69	1,66	(87579; 87759)	114
2026	101686,39	1,55	(101505; 101745)	115
2027	118957,21	1,61	(118779; 119119)	116
2028	139770,31	1,57	(139539; 139979)	116

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According to the forecast results presented in Table 4, the volume of tourism services in the Khorezm region is expected to reach 139,770.31 million UZS by 2028, nearly doubling compared to 2024. Additionally, using an ARIMA (1,2,1) model, the projected values for the number of hotels and similar accommodation facilities for 2025–2028 were forecasted (Table 5).

Table 5. Forecasted values of the number of hotels and accommodation facilities in the Khorezm region for 2025–2028 based on the ARIMA (1,2,1) model

Years	Forecasted values (million UZS)	Standard Error	95% Confidence Interval	Growth Rate Compared to the Previous Year (%)
2025	277	1,68	(275,77; 280,64)	109
2026	309	1,55	(306,88; 312,57)	108
2027	337	1,60	(334,71; 341,14)	108
2028	368	1,57	(365,39; 372,09)	108

According to the forecast data presented in Table 5, the number of hotels and similar accommodation facilities operating in the Khorezm region is expected to reach 368 by 2028, representing a 1.5-fold increase compared to 2024.

During the research process, based on an ARIMA (1,2,1) model, the projected values of the number of beds in hotels and similar accommodation facilities in the Khorezm region for the period 2025–2028 were forecasted (Table 6

Table 6. Forecasted values of the number of beds in hotels in the Khorezm region for 2025–2028 based on the ARIMA (1,2,1) model

Years	Forecasted values (million UZS)	Standard Error	95% Confidence Interval	Growth Rate Compared to the Previous Year (%)
2025	7875	1.98	(7780.2; 7986.5)	126
2026	8842	1.26	(8650.7; 8970.6)	121
2027	10419	1.44	(10210.5;10650.2)	117
2028	12179	1.61	(11940.1;12430.7)	116

According to the forecast data presented in Table 6, the number of beds in hotels and similar accommodation facilities operating in the Khorezm region is expected to reach 12,179 by 2028, representing a 2.2-fold increase compared to 2024.

Based on an ARIMA (1,1,1) model, the projected values of the number of guests accommodated in hotels in the Khorezm region for the period 2025-2028 were forecasted (Table 7). According to the forecast results, the number of guests accommodated in hotels operating in the Khorezm region is expected to reach 444,079 by 2028, representing a 2.2-fold increase compared to 2024.

Table 7. Forecasted values of the number of guests accommodated in hotels in the Khorezm Region for 2025–2028 based on the ARIMA (1,1,1) model

Years	Forecasted values	Standard Error	95% Confidence Interval	Growth Rate Compared to the Previous Year (%)
2025	240595	1.68	(235640.48; 245653.24)	121
2026	295932	1.82	(293652.06; 295652.38)	122
2027	361039	1.73	(357120.64; 365210.47)	121
2028	444079	1.87	(439540.31; 448960.74)	122

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During the research process, based on an ARIMA (1,1,1) model, the projected values of the number of overnight stays (person-days) in hotels in the Khorezm region for the period 2025–2028 were forecasted (Table 8)

Table 8. Forecasted values of the number of overnight stays (person-days) in hotels in the Khorezm Region for 2025–2028 based on the ARIMA (1,1,1) model

Years	Forecasted values	Standard Error	95% Confidence Interval	Growth Rate Compared to the Previous Year (%)
2025	375955	1.78	(365210,7; 380728,8)	122
2026	462424	1.42	(445655,6; 478652,2)	121
2027	568779	1.60	(552940,3; 583620,7)	121
2028	699599	1.67	(682150,1; 716980,4)	120

According to the forecast results presented in Table 8, the number of overnight stays in hotels in the Khorezm region is expected to reach 699,599 person-days by 2028, representing a 2.3-fold increase compared to 2024.

4.0 CONCLUSION

The results of this study confirm that forecasting tourism and hotel service indicators in the Khorezm region using the ARIMA econometric model provides valuable insights for strategic planning and regional tourism development. Based on historical data for 2013–2024, the econometric analysis revealed a strong relationship between tourism service volume and key accommodation indicators, including the number of hotels, bed capacity, the number of accommodated guests, and the number of overnight stays. The forecasting results indicate a stable upward trend in all major tourism indicators for the period 2025–2028. In particular, the volume of tourism services is expected to increase significantly, while the number of hotels, available beds, and tourist accommodations will continue to expand in response to growing demand.

These results highlight the critical role of accommodation infrastructure in supporting the sustainable development of tourism in the Khorezm region. The expansion of hotel capacity and improvement of service quality will be essential for maintaining competitiveness and meeting the needs of both domestic and international tourists.

To achieve the projected growth targets for 2025–2028, several practical measures should be implemented. First, it is advisable to improve the quality of services provided by hotels and similar accommodation facilities in accordance with international standards. At the same time, affordable and comfortable lodging options should be developed for students, young travelers, and middle-income tourists through the expansion of hostels, family hotels, and campgrounds.

Second, the development of alternative accommodation models such as home-stay facilities should be encouraged in tourism neighborhoods such as Beshmergan in the Shovot district, G‘ovuk in the Khiva district, and the Qalajiq fortress tourism area of the Bog‘ot district. These initiatives would not only increase accommodation capacity but also promote community-based tourism and support local economic development.

Third, it is important to enhance the region’s tourism attractiveness by developing eco-tourism infrastructure. The construction of glamping sites, eco mini-hotels, and campgrounds in the Khorezm National Nature Park located in the districts of Urgench, Khonqa, Khiva, Yangibozor, and Khazorasp would diversify tourism products and attract new visitor segments. In addition, the establishment of traditional yurts and tent accommodations in culturally significant areas such as Eshonravot, Qorako‘l, the Qalajiq tourism complex, and the Ucho‘choq massif could provide authentic tourism experiences while preserving national cultural heritage.

Overall, the study confirms that the development of the tourism sector in the Khorezm region is closely linked to the expansion and modernization of hotel infrastructure. Therefore, strengthening investment policies, encouraging public–private partnerships, and attracting both domestic and foreign investment into the hospitality sector is crucial for achieving sustainable growth.

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Despite its contributions, this study has several limitations. The analysis is based on a relatively limited time series dataset and focuses primarily on traditional econometric forecasting methods. Future research could expand the dataset, incorporate additional explanatory variables such as tourism demand factors, pricing dynamics, and macroeconomic indicators, and apply advanced forecasting techniques such as machine learning or hybrid models to improve prediction accuracy.

In conclusion, the forecasting results obtained in this research can serve as a useful analytical tool for policymakers, tourism authorities, and hotel managers when designing strategic development plans for the tourism and hospitality sector in the Khorezm region.

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5.0 REFERENCES

Akberdina, V., & Pushkareva, L. (2019). Key aspects of technological leadership within the context of the fourth industrial revolution. *Proceedings of the 4th International Conference on Social, Business, and Academic Leadership (ICSBAL 2019)*. Atlantis Press.

Baquero, A., Delgado, B., Escortell, R., & Sapena, J. (2019). The influence of transformational and authentic leadership on the satisfaction of hotel customers in the Canary Islands. *Tourism and Hospitality Research*, 19(4), 1–14. https://doi.org/10.1177/1467358419891458

Baumgarten, L. V. (2021). *Marketing gostinichnogo predpriyatiya: uchebnik dlya vuzov*. Moscow: Yurayt.

Box, G. E. P., & Jenkins, G. M. (1976). *Time series analysis: Forecasting and control*. San Francisco: Holden-Day.

Bril, A. R., Kalinina, O. V., & Ilin, I. V. (2017). Increasing the efficiency of personnel management in municipal organizations through controlling operational risks and fixed costs. *Proceedings of the 30th International Business Information Management Association Conference*, 2972–2980.

Chang, Y., Chen, S., Che, T., & Chu, J. (2019). Analysis on seasonality of accommodation demand for tourist hotels. *International Journal of Trade, Economics and Finance*, 10(6).

De Ruyter, K., Wetzels, M., & Bloyemer, J. (2008). On the relationship between perceived service quality, service loyalty and switching costs. *International Journal of Service Industry Management*, 9(5), 436–453.

Domi, S., Keco, R., Capelleras, J., & Mehmeti, G. (2019). Effects of innovativeness and innovation behavior on tourism SMEs performance: The case of Albania. *Economics and Sociology*, 12(3), 67–85. https://doi.org/10.14254/2071-789X.2019/12-3/5

Fedtsov, V. G. (2008). *Kultura gostinichno-turisticheskogo servisa*. Rostov-on-Don: Feniks.

Hyndman, R. J., & Athanasopoulos, G. (2018). *Forecasting: Principles and practice*. Melbourne: OTexts.

Kazlova, M. A., Klimkina, L. V., & Shvakova, E. I. (2014). Assessment of demand for hotel services considering market segmentation and visitor preferences. *Naukovedenie*, 5(24).

Kotler, P., Bowen, J., & Makens, J. (2002). *Marketing for hospitality and tourism*. New York: Prentice Hall.

Koval, T. S., & Gritsay, M. A. (2019). Tourism industry: Opportunities, priorities, challenges and prospects. *Social and Economic Geography*, 14(1), 294–302.

Kulendran, N., & Witt, S. F. (2003). Forecasting tourism demand: A review of empirical research. *International Journal of Forecasting*, 19(3), 373–391.

Lai, I. K. W. (2019). Hotel image and reputation on building customer loyalty: An empirical study in Macau. *Journal of Hospitality and Tourism Management*, 38, 111–121. https://doi.org/10.1016/j.jhtm.2019.01.003

Lewis, R. C., & Booms, B. H. (2007). The marketing aspects of service quality. In L. Berry, G. Shostack, & G. Upah (Eds.), *Emerging perspectives on services marketing*. Chicago: American Marketing Association.

Lim, C. (1997). Review of international tourism demand models. *Annals of Tourism Research*, 24(4), 835–849.

Meyer, B., & Niezgoda, A. (2018). The impact of the perception of leisure on recreational and tourism spaces in an urban area. *Turyzm*, 28(1), 47–52.

Musayeva, Sh. A. (2022). Development and prospects of the hospitality industry in Uzbekistan. *Science and Innovation International Scientific Journal*, 1(7).

Pardayev, M. Q. (2013). *Mehmonxona xo'jaliklarida samaradorlikni oshirish yo'llari*. Tashkent: Iqtisodiyot.

Petrick, J. F. (2004). The roles of quality, value and satisfaction in predicting cruise passengers' behavioral intentions. *Journal of Travel Research*, 42(4), 397–407.

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Pirogova, O. E., & Rudakova, A. N. (2018). Science and business: Way of development. *Science and Business*, 3(81), 47–52.

Ruziyev, Sh. (2018). Organizational and economic mechanisms of tourism development in Uzbekistan. *Biznes-Ekspert*, 11(131).

Safaeva, S. R., et al. (2020). Organizational and economic aspects of the development of the international tourism and hospitality industry. *Journal of Environmental Management and Tourism*, 11(4), 913–919.

Safarov, B., et al. (2022). Forecasting tourism inflow to Uzbekistan using ARIMA and ARDL models. *Tourism Economics*.

Sato, A.-H. (2013). Detecting demand–supply situations of hotel opportunities: An empirical analysis of Japanese room opportunities data. *COMPLEX 2012*, LNICST 126, 303–315.

Sheresheva, M. Y. (2018). The Russian tourism and hospitality market: New challenges and destinations. *Worldwide Hospitality and Tourism Themes*, 10(4), 400–411.

Song, H., & Witt, S. F. (2000). *Tourism demand modelling and forecasting: Modern econometric approaches*. Oxford: Pergamon.

Song, H., Li, G., Witt, S. F., & Fei, B. (2010). Tourism demand modelling and forecasting: How should demand be measured? *Tourism Economics*, 16(1), 63–81.

Song, H., Qiu, R. T. R., & Park, J. (2019). A review of research on tourism forecasting methods. *Annals of Tourism Research*, 75, 338–362.

Smeral, E. (2010). Impacts of the world recession and economic crisis on tourism. *Journal of Travel Research*, 49(1), 31–38.

Voronova, O. V., Khareva, V. A., & Khnykina, T. S. (2019). Modern information technologies in the hotel business: Development trends and implementation issues. *E3S Web of Conferences*, 164.

Yang, Y., Mao, Z., & Tang, J. (2018). Understanding guest satisfaction with urban hotel location. *Journal of Travel Research*, 57(2), 243–259.

Zeithaml, V. A. (2009). *Services marketing: Integrating customer focus across the firm*. New York: McGraw-Hill.

Zoghbi-Manrique-de-Lara, P., Suárez-Acosta, M. A., & Aguiar-Quintana, T. (2014). Hotel guests' responses to service recovery. *Cornell Hospitality Quarterly*, 55(2), 152–164.

World Tourism Organization (UNWTO). (2024). Tourism statistics. https://www.unwto.org/tourism-statistics

Decree of the President of the Republic of Uzbekistan No. PF-60. (2022). Development Strategy of New Uzbekistan for 2022–2026

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