Original Article

DOES TOURISM DEVELOPMENT IMPROVE QUALITY OF LIFE IN KAZAKHSTAN?

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Abstract

This article examines whether tourism development improves life quality and boosts Kazakhstan's economy. To investigate this, we employed time series analysis, specifically cointegration and Granger non-causality tests, to variables representing Kazakhstan's quality of life, tourism development, and economic growth. The results show that quality of life and tourist development in Kazakhstan are cointegrated. Moreover, the analysis identifies univocal links extending from quality of life to tourism development, indicating a Granger causality between quality of life and tourism development but not vice versa. Kazakhstan's economic expansion does not affect tourism or quality of life.

Keywords: Quality of life, Tourism receipts, Economic growth, Co-integration, Granger causality, Error correction, Kazakhstan

Introduction. The tourism industry contributes significantly to the economic development of both developed and developing countries. It creates job opportunities, improves tourism infrastructure, advances technology, and helps alleviate poverty, leading to better health, social, environmental, and cultural well-being (Andereck & Nyaupane, 2011; Fu et al., 2020; Khan et al., 2020; Nopiyani & Wirawan, 2021; Rivera, 2016). The relationship between quality of life (QoL), tourism development (TD), and economic growth (EG) is a central issue in academic research (Croes, 2012; Croes et al., 2018; Genç, 2012; Kim et al., 2013; Nopiyani & Wirawan, 2021; Uysal et al., 2012, 2016). Governments aim to drive tourism development to improve the well-being of residents in a destination, which is evaluated not only by job opportunities and income but also by contentment, happiness, leisure, travel, and other factors (Uysal et al., 2012). Subjective and objective QoL indicators influence the living standards of the population (Ridderstaat et al., 2016a; Uysal et al., 2016). While many studies have analyzed the interaction between subjective QoL and tourism, only a few have incorporated objective QoL indicators (Croes et al., 2018, 2021; Fu et al., 2020; Ridderstaat et al., 2016a; Rivera, 2016). However, researchers have found that tourism has a positive impact on QoL through the mediation of economic growth (Croes et al., 2021; Khan et al., 2020; Perles-Ribes et al., 2017; Ridderstaat et al., 2014, 2016a).

This study seeks to examine three relationships between i) the quality of life and tourism development, ii) the quality of life and economic growth, and iii) tourism development and economic growth using time series analysis such as cointegration, Granger causality and error correction approaches are carried out. This study takes the first step to analyze precisely the unidirectional or bidirectional relationship between tourism development, quality of life and economic growth in Kazakhstan. The findings will contribute to the tourism literature and update the implications of tourism policy in Kazakhstan.

1. Literature Review

Tourism is a significant industry that contributes to sustainable development and has a great impact on various economic factors. Sustainable tourism takes into account the present and future economic, social, and environmental effects, while meeting the needs of travelers, host communities, economic activities, and ecological development (UNWTO, 2005). Supporting local communities is crucial in sustainable tourism, which can be achieved through providing employment opportunities, poverty alleviation, and preservation of cultural heritage and traditions.

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1.1. QoL and TD

Tourism development (TD) impacts the community's quality of life via job creation, income boost and improved goods/services (Fu et al., 2020; Khan et al., 2021; Nopiyani & Wirawan, 2021). Quality of life (QoL) has objective and subjective aspects. Objective QoL covers economic, environmental, social, health and political well-being. Subjective QoL focuses on self-satisfaction with social life, family, job, community, and overall happiness (Kim et al. 2015; Khan et al. 2020; Fu et al. 2020).

Qualitative studies have investigated subjective indicators of the relationship between TD and QoL (Dolnicar et al. 2012; Kim et al. 2015; Obradović et al. 2021), while only a few have examined objective QoL indicators such as education, healthcare, income, employment, environment, safety, and security. Ridderstaat et al. (2016a), Rivera (2016), and Croes (2012) have used regional-level objective QoL indicators like human well-being (education, health, income), economic growth, and TD.

The literature identifies three potential relationships between tourism development (TD) and quality of life (QoL). The first relationship suggests a unidirectional influence from QoL to TD (QoL→TD), indicating that improving human well-being could lead to the growth of the tourism sector. Rivera (2016) provides empirical evidence of this relationship using cointegration techniques and Granger causality methods in Ecuador, showing a long-run equilibrium relationship between human well-being, tourism, and economic growth. Similarly, Ridderstaat et al. (2016a) find a direct effect of QoL on TD in the case of Aruba Island. This relationship may be explained by various factors, such as tourism seasonality, political instability, crime, and environmental impact (Croes, 2012; Kim et al., 2013; Rivera, 2016).

In contrast, the second relationship suggests a unidirectional influence from TD to QoL (TD→QoL), indicating that tourism development could benefit residents' living standards. Ridderstaat et al. (2016a) find a nonlinear and reciprocal relationship between TD and QoL in Aruba island, suggesting that TD causes a short-term impact on QoL. Supporting this result, Croes et al. (2018) emphasize that TD enriches residents' QoL in Malta in the short term. Ridderstaat et al. (2016b) also find that TD tends to improve the QoL dimension regarding new job prospects and income in Aruba island.

Finally, the third relationship suggests a bidirectional influence between TD and QoL (TD ↔ QoL). Croes (2012) tests the bilateral relationship between TD and QoL in Nicaragua and Costa Rica, applying a cointegration approach. The outcome reveals that TD and QoL are directly and indirectly connected in the case of Nicaragua, as TD expands people's QoL directly by way of education, health, and material welfare, and QoL causes an expansion of the tourism sector by way of improving the quality of services. However, in the case of Costa Rica, the study finds only a unilateral relationship running from QoL to TD (Croes, 2012).

1.2. Tourism Development and Economic Growth

Tourism is a potential economic driver of many developing and developed countries.

The significance of the tourism-led growth hypothesis (TLGH) is directly associated with the confirmation of the export-led growth hypothesis, which postulates that tourism development leads to economic growth through the number of jobs created, human capital development and tourism services exports (Perles-Ribes et al., 2017; Fonseca & Sánchez Rivero, 2020).

Moreover, a growing body of literature has identified unidirectional (Gričar et al., 2021) and bidirectional (Cortes-Jimenez & Pulina, 2010; Gounder, 2021; Kim et al., 2006) causality running from TD to economic growth. Specifically, applying the Granger causality approach for annual time series from 1989 to 2018, Kyara et al. (2021) analyze the TLGH in Tanzania, and their findings confirm the existence of unidirectional causality running from TD to economic growth. This suggests that Tanzania's economic growth is

highly associated with TD for improving residents' livelihoods.

Pablo-Romero & Molina (2013) conducted a systematic literature review, including 87 studies that address the relationship between tourism and economic growth. The authors conclude that 55 of the studies support the existence of a unidirectional connection running from tourism to economic growth, 16 of them determine a bi-directional connection, nine identify a unilateral relationship from economic growth to tourism, and finally, four studies do not identify any relationship (Pablo-Romero & Molina, 2013).

Furthermore, in contrast to cross-country studies, many researchers have shown a huge interest in panel data-based TLGH. Eyuboglu & Eyuboglu (2020) apply the panel Granger causality approach to examine the symmetric and asymmetric causalities between TD and economic growth for nine emerging countries with data from 1995-2016. The result shows that there is unidirectional and positive causality running from TD to economic growth in Argentina and Turkey. Tang & Jang (2009) and Dogru & Bulut (2018) have evidenced that economic growth can be a direct channel leading to an expansion of tourism in a country. Besides, Pulido-Fernández & Cárdenas-García (2021) have found a bidirectional causality between TD and economic growth. A bidirectional causality exists between TD and economic growth in the majority of countries where tourism is well developed at the international level in terms of tourism infrastructures, tourism resources, tourism competitiveness, and promotions in goods and services.

1.3. Conceptual framework

Based on the reviewed literature, the proposed conceptual framework of this empirical study is presented in Figure 1.

Figure 1 presents the possible direct and indirect relationships between TD, QoL and EG. In total, six hypotheses (H_1,.., H_6) have been developed and are defined as follows:

H_1 = Does tourism development drive the quality of life in Kazakhstan?

H_2 = Does the quality of life drive tourism development in Kazakhstan?

H_3 = Does tourism development drive economic growth in Kazakhstan?

H_4 = Does economic growth drive tourism development in Kazakhstan?

H_5 = Does economic growth drive the quality of life in Kazakhstan?

H_6 = Does the quality of life drive economic growth in Kazakhstan?

1.4. The Case of Study of Kazakhstan

This study applies a proposed conceptual framework (Figure 1) to the case study of Kazakhstan for three reasons:

- it is a prominent tourist destination in Central Asia;
- the dataset used in the analysis has no missed observations and is readily available;
- there is considerable international interest in visiting Kazakhstan.

Kazakhstan is an emerging country in Central Asia, ranked 80th in the global travel and tourism competitiveness index (TTCR, 2019). According to the United Nations World Tourism Organization (UNWTO, 2021), the number of international tourists visiting Kazakhstan increased dramatically from 202,000 in 1996 to over 8.5 million in 2019, resulting in substantial economic benefits. In 2019, the inbound tourism receipts in Kazakhstan amounted to US$ 2.922 million, equivalent to 4.4% of total exports, compared to only US$ 155 million in 1995 (see Figure 2).

[Insert Figure 2]

The number of hotels and similar establishments increased by over 18 times, from 195 in 2002 to 3,592 in 2019 (UNWTO, 2021). The total contribution of travel and tourism to Kazakhstan's GDP increased by 5.2%, generating 443.2 thousand jobs in 2019 (WTTC, 2021). These statistics represent a possible strong linkage between TD and QoL in Kazakhstan. The United Nations Development Program (UNDP, 2019) reports a significant improvement in human development in Kazakhstan over the past three decades, with the country's human development index rising from 0.66 in 1995 to 0.82 in 2019, representing a remarkable 24% increase (UNDP, 2019) (see Figure 3).

Kazakhstan is the largest country in Central Asia in terms of its area and also the strongest in terms of its economic performance.t. The country's GDP has recovered steadily after the downturn in 2015, standing at 181.7 billion in 2019 (see Figure 4). The country has the largest supply of crude oil and natural gas, holding 15th and 12th places respectively in terms of global oil and natural gas reserves, thus attracting international investors from the US, Europe, Russian Federation and China. Therefore, apart from the tourism sector, the economy of Kazakhstan is highly reliant

on other key sectors such as trade (17.3%), mining, including crude oil and gas production (16.3%), manufacturing (12.7%), transport and communication (10.8%), construction (5.9), agriculture and fishing (4.5) and others **(**Deloitte CIS Research Center, 2019).

The economic advancement of Kazakhstan has improved the country's position in the global economy. It has become a vital strategic country on the the Silk Road, promoting several markets and improving people's quality of life.

A summary of an extensive literature review reveals that few researchers have addressed the question of identifying the connection between tourism development, quality of life and economic growth in Kazakhstan. Existing studies primarily focus on inbound tourism demand and economic factors influencing tourist arrivals in Central Asian countries, including Kazakhstan. For example, Kuralbayev et al. (2017) analyzed the impact of exchange rates, transport costs, and living expenses on international tourist arrivals to Kazakhstan. Meanwhile, Ibragimov et al. (2021) explored the effects of economic factors on international tourist arrivals to Central Asian countries. Qualitative studies, such as those conducted by Kantarci and colleagues (2007a, 2007b; Kantarci et al., 2015), have explored the perceptions of Turkish tourists visiting Central Asian countries, including Kazakhstan. However, few studies have examined the connection between tourism development, quality of life, and economic growth in Kazakhstan.

This study constitutes a first attempt to determine the unidirectional or bidirectional relationship between tourism, quality of life and economic growth in Kazakhstan and contributes to the knowledge and tourism literature.

2. Data description

This section covers variables for analyzing the relationships between TD(tourism development), QoL(quality of life), and EG (economic growth) from 1995-2019.

2.1. Tourism Development (TD)

Tourism receipts are used as a proxy for TD for two main reasons: readability and accessibility (Croes, 2012; Croes et al., 2018; Khan et al., 2020; Ridderstaat et al., 2016a). Besiedes, tourism receipts contribute to poverty reduction and economic well-being in developing countries (Clancy, 1999; Croes & Vanegas, 2008). Tourism receipts represent the spending of international tourists in a destination country and are measured in US$ million (WTO, 2021). According to recent studies, tourism receipts are mostly used to reflect the TD in the analysis of TLGH and tourism-led quality of life (Kyara et al., 2021; Perles-Ribes et al., 2017; Ridderstaat et al., 2014, 2016a). The dataset was obtained from the World Tourism Organization statistics e-library (WTO, 2021).

2.2. Quality of Life (QoL)

Following recent studies, we have used the Human Development Index (HDI) to represent QoL (Croes et al., 2021; Khan et al., 2021; Ridderstaat et al., 2016a, 2016b; Rivera, 2016; Uysal et al., 2016). According to the United Nations Development Program (UNDP), HDI defines the achievements in a specific country through three main dimensions of human development: a long and healthy life, access to knowledge, and a decent standard of living (UNDP, 2019). Each dimension is measured through appropriate indicators. Specifically, healthy life is calculated by the life expectancy at birth (years). Access to knowledge is identified by the adult literacy and average years of schooling. Finally, the gross domestic product per capita calculates a decent standard of living. As proposed by the United Nations Organization, each component of HDI is calculated by transforming it into a free-unit index falling on a scale from 0 to 1. The proposed formula to calculate each dimension of HDI can be expressed as follows:

$$C_{INDEX} = \frac{C_{actual\ value} - C_{minimum\ value}}{C_{value} - C_{minimum\ value}} \quad (1)$$

where *C* indicates the value of the individual dimension of the HDI for Kazakhstan; $C_{actual\ value}$ shows the real value; $C_{minimum\ value}$ and $C_{maximum\ value}$ denote the minimum and maximum values of each dimension of the HDI. The computation of each dimension of the HDI enables us to estimate a yearly HDI index through the weighted sum of each dimension: life expectancy, adult literacy, and GDP per capita (UNDP, 2019), and can be expressed as:

$$HDI = \frac{(C_{life\ expectancy} * C_{literacy} * C_{GDP\ per\ capita})}{3} \quad (2)$$

Moreover, the main reason for not using the subjective QoL in this study is because it considers the qualitative behaviour of a resident (i. e. self-satisfaction, quality of a person, family, social interaction) and cannot be observed directly or applied to the quantitative analysis (Croes, 2012; Uysal et al., 2016). Thus, the HDI indicator is widely employed in empirical research, representing the QoL in a specific country (Croes et al., 2021; Fu et al., 2020). The HDI index dataset is published annually for 189 countries and is available from the United Nations Development Program dataset (UNDP, 2020).

2.3. Economic Growth (EG)

In explaining TLGH, the annual gross domestic product (GDP) is widely used as a proxy for economic growth to capture a country's economic development (Brida et al., 2016; Lee, 2012; Lee & Brahmasrene, 2013; Lorde et al., 2011; Tang & Abosedra, 2012). GDP is measured in U.S. dollars and obtained from the World Bank Development Indicators database. GDP is calculated in US dollars using World Bank's Development Indicators database data.

Table 1 summarises the descriptive statistics of each variable used in this study. Each variable's average value, standard deviation, and minimum and maximum values are considered (using their logs for TD and EG).

[Insert Table 1]

3. Methodology

In line with the study aims, the methodology has four phases: i) testing the order of integration of the variables analyzed; ii) exploring cointegration between the variables to identify the existence of long-run equilibrium relationship among TD, QoL and EG; iii) estimating an error correction model (ECM) for integrating the short-run relationship between variables; iv) testing for Granger non-causality between the three factors TD, QoL and EG.

3.1. Unit root tests

The initial step of the methodology involves testing the stationarity of the variables under analysis. Stationarity ensures the efficiency and consistency of cointegration estimation and mitigates the risk of spurious regression (Song et al., 2008; Wooldridge, 2015). The Augmented Dickey-Fuller (ADF) test (Dickey & Fuller, 1979, 1981), Phillips and Perron (PP) unit root tests (Phillips & Perron, 1988), and the KPSS-Kwiatkowski-Phillips-Schmidt-Shin unit root tests (Kwiatkowski et al., 1992) are employed to do cross check the outcome and determine the stationarity of the series. Following the technical explanation by the authors (Perles-Ribes et al., 2017; Wooldridge, 2015), the augmented Dickey-Fuller (ADF) tests for a specific series consists in estimating the following equation:

$$\Delta Y_t = \beta_1 + \beta_2 t + \gamma Y_{t-1} + \sum_{i=1}^{n} \alpha_i \Delta Y_{t-i} + \mu_t \quad (1)$$

where Δ indicates the first difference operator of the Y_t time series and t is a time or stochastic trend. β_1 is a drift or constant and n denotes the number of lags. ΔY_{t-i} is the lagged value of the Y_t time series and μ_t represents a white noise error term. The ADF model is estimated using the Ordinary Least Squares (OLS) method. The optimal number of lag lengths (n) is identified using the Akaike Information Criteria (AIC) and the Schwartz Bayesian Information Criteria (SBIC) for an appropriate model selection criterion. The null hypothesis considers that, if γ=0, the time series has a unit root or is non-stationary. The alternative hypothesis stipulates that if γ<0, the time series has no unit root or is stationary (Dickey & Fuller, 1979; Gujarati, 2004, p.815; Perles-Ribes et al., 2016). In addition, the Phillips-Perron (PP) unit root test has also been applied to test the series for stationarity. The PP unit root test uses a nonparametric estimation technique to deal with possible serial correlation in the residual and establish a robust estimation (Phillips & Perron, 1988). KPSS, the abbreviated form for Kwiatkowski-Phillips-Schmidt-Shin is considered to be another type of unit root test that is commonly used to check the null hypothesis of stationarity against the alternative of a unit root, as proposed by (Kwiatkowski et al., 1992). The functional form of KPSS can be written as:

$$Y_t = \beta_t + r_t + \varepsilon_t$$

Where: $r_t = r_{t-1} + \mu_t$ indicates a random walk; μ_t is the independent identically distributed $(0, \sigma_u^2)$. t is a time indicator. ε_t shows the stationary process. The KPSS test formulates null and alternative hypotheses as follows. The null hypothesis of stationarity would not rejected if the KPSS test statistic is smaller than the critical value. In contrast, the alternative hypothesis of non-stationary is accepted if the KPSS test statistic is greater than the critical value calculated by Kwiatowski et. al (1992). If the KPSS test statistic is less than the critical value, then the null hypothesis of stationarity is not rejected. In contrast, the non-stationary alternative hypothesis is accepted if the KPSS test statistic exceeds the critical value calculated by Kwiatowski et al (1992).

3.2. Cointegration analysis

The second step in the methodology involves testing for cointegration between the variables. The Engle and Granger cointegration test, proposed by Engle & Granger (1987), is used in this study to test for the existence of a long-run relationship between TD, QoL and EG. The test involves performing a unit root test on the residuals obtained from a regression model. If the residual is stationary, the two variables are considered to be cointegrated, indicating the presence of a long-run equilibrium relationship between them (Perles-Ribes et al., 2017).

In accordance with the objective of the study, three long-run regression models are carried out as follows:

The first long-run regression equation for the relationship between QoL and TD is

$$QoL_t = \alpha_1 + \beta_1 lnTD_t + \mu_{1t} \quad (2)$$

The second long-run regression equation for the relationship between QoL and EG is

$$QoL_t = \alpha_2 + \beta_2 lnEG_t + \mu_{2t} \quad (3)$$

The third long-run regression equation for the relationship between EG and TD is

$$lnEG_t = \alpha_3 + \beta_3 lnTD_t + \mu_{3t} \quad (4)$$

where α_1, α_2, α_3 are constant intercepts, and β_1, β_2, β_3 are the long-run coefficients. μ_t is a well-behaved error term. The next procedure is to estimate the residuals (μ_t) for each of the above regressions and test them for unit root. If the residuals are stationary in I(0) then the residuals do not have a unit root, which is a stationary process. This shows that two variables are considered to be co-integrated, presenting the existence of a long-run equilibrium relationship between variables.

3.3. Error Correction Model (ECM)

The third step of the methodology involves estimating the error correction model (ECM) to examine the short-run and long-run dynamics between TD, QoL and EG, and to determine the speed of adjustment towards the long-run equilibrium as proposed by Mukherjee et al. (2013) and Rivera (2016). In line with the study aims, three single ECM equations are estimated as follows:

$$\Delta QoL_t = \theta_1 + \gamma_1 \Delta lnTD_t + \delta_1 ect_{t-1} + \mu_{1t} \quad (5)$$

$$\Delta QoL_t = \theta_2 + \gamma_2 \Delta lnEG_t + \delta_2 ect_{t-1} + \mu_{2t} \quad (6)$$

$$\Delta lnEG_t = \theta_3 + \gamma_3 \Delta lnTD_t + \delta_3 ect_{t-1} + \mu_{3t} \quad (7)$$

Where ln represents the natural logarithm form. ΔQoL_t, $\Delta lnTD_t$, $\Delta lnEG_t$ refer respectively to quality of life, tourism development and economic growth in the first difference operator. ect_{t-1} indicates the error correction term, and is drawn from the lagged residual of the cointegration equation. $\delta_1, \delta_2, \delta_3$ refer to the estimated coefficient of error correction terms mentioned in equations 5, 6 and 7 . These coefficients specify the speed of adjustment towards the long-run equilibrium. Equation (5) indicates the relationship between tourism development and quality of life. Equation (6) shows the relationship between quality of life and economic growth. Equation (7) represents the relationship between economic growth and tourism development.

3.4. Granger Causality test

The final stage of the methodology involves the Granger causality test, which is used to determine the direction of causality between the variables. The Granger causality test determines whether one variable is causing another variable based on their past values. The test is performed by estimating the Vector Autoregression (VAR) model, which is commonly used to estimate the Granger causality between multiple variables (Granger, 1969, 1988) as follows:

$$Y_t = \beta_0 + \beta_1 Y_{t-1} + \ldots + \beta_k Y_{t-k} + \alpha_1 X_{t-1} + \ldots + \alpha_k X_{t-k} + \mu_t \quad (8)$$

$$X_t = \delta_0 + \delta_1 X_{t-1} + \ldots + \delta_k X_{t-k} + \gamma_1 Y_{t-1} + \ldots + \gamma_k Y_{t-k} + \varepsilon_t \quad (9)$$

In VAR equation (8) and (9), null and alternative hypotheses can be formulated as follows:

Acceptance of $H_0 = \alpha_1 = \alpha_1 = \ldots = \alpha_k = 0$, indicate that X_t does not Granger-cause Y_t

Acceptance of $Ha = \alpha_1 = \alpha_1 = \ldots = \alpha_k \neq 0$, indicate that X_t does Granger-cause Y_t

Acceptance of $H_0 = \gamma_1 = \gamma_1 = \ldots = \gamma_k = 0$, indicate that Y_t does not Granger-cause X_t

Acceptance of $Ha = \gamma_1 = \gamma_1 = \ldots = \gamma_k \neq 0$, indicate that Y_t does Granger-cause X_t

This study utilized the augmented-lag VAR procedure proposed by Toda and Yamamoto (1995) to test the presence of Granger causality between the variables. The procedure involves determining the order of integration, selecting the optimal lag length, estimating the VAR model with p additional lags for each variable, and conducting a Wald test to examine the non-Granger causality hypothesis only on the first lags. The presence of Granger causality is established if the null hypothesis is rejected in the Wald test result (Perles-Ribes et al., 2017).

4. Results

The results section presents the findings and interpretations of the study. Starting with the outcomes of the unit root test, followed by the Engle and Granger two-step cointegration tests, the error correction model, and the Granger causality test. The estimated results were obtained using EViews 10 software, with the optimal lag length determined using AIC, SBIC, and HQ information criteria. The AIC criterion showed the lowest critical value, and lag 2 was found to be the optimal lag. The results of the unit root tests (ADF, KPSS, and PP) are presented in Table 2.

The ADF and KPSS results indicate that TD, EG, and QoL are all statistically significant at the 1% and 5% levels,

demonstrating that they are stationary in the first difference and integrated in the same order of 1. The study then proceeded to verify the presence of cointegration between the variables by employing the Engle and Granger cointegration test. Three equations were estimated using OLS method (Table 3), and the residuals from OLS were subjected to unit root tests (Table 4), in accordance with the Engle and Granger test instructions (Engle & Granger, 1987).

According to the results of Table 3, the three regressions show the outcomes of the three relations which are: QoL and lnTD ($QOL_t = \alpha_1 + \beta_1 lnTD_t + \mu_t$), QoL and lnEG ($QOL_t = \alpha_2 + \beta_2 lnEG_t + \mu_t$), lnEG and lnTD ($lnEG_t = \alpha_3 + \beta_3 lnTD_t + \mu_t$). Before discussing these regression results, the obtained OLS residuals for stationarity must be tested.

The ADF unit root test technique is used to test the residuals obtained from the three OLS regressions and their outcomes are reported in Table 4. Each residual is tested for a unit root at level without drift. The ADF has confirmed that the residuals hold stationarity at level. It concludes that the residual is stationary in I(0) and this validates the existence of the long-run relationship between QoL and lnTD; QoL and lnEG; lnEG and lnTD.

After confirming the presence of cointegration in the variables, the single error correction model (ECM) is estimated to determine the short-run and long-run dynamic relationships and the speed of the equilibrium effect. Table 5 reports the outcomes of the three single ECM estimations. The first model refers to the short-run dynamic relationship between quality of life (QoL) and tourism development (TD). The $\delta_1 ect_{t-1}$ (the error correction term also called the speed of adjustment parameter) is statistically significant at the 10% level and has a negative expected sign. The error correction term coefficient equals -0.135, suggesting that long-run effects correct its previous period disequilibrium at a speed of 13.5% each year. It also indicates the sizable speed of adjustment of disequilibrium correction for reaching a long-run equilibrium steady-state position. Moreover, tourism development ($\Delta lnTD_t$) is not statistically significant, implying that tourism development does not produce a short-term effect on the quality of life in Kazakhstan.

The second model presents the short-run dynamic relationship between quality of life and economic growth (EG). The error correction term is not statistically significant, and its coefficient value falls out of the proper range from -1 to 0. On the other hand, economic growth ($\Delta lnEG_t$) is not statistically significant, meaning that economic growth does not produce a short-term effect on the quality of life in Kazakhstan. The third model is related to the relationship between economic growth and tourism development. The error correction term has a negative expected sign and is statistically significant at the 10% level. This means that the mechanism corrects its past period disequilibrium at a speed of 18.7% each year and shows the speed of adjustment of disequilibrium correction for achieving a long-run equilibrium steady position. In addition, tourism development is statistically significant at the 5% level and has a positive short-term effect on economic growth in Kazakhstan. Tourism growth could trigger economic advancement in Kazakhstan through the channel of employment and inflows of foreign currencies in the short term.

It must be noted that cointegration tests evidence the movement of the variables together in the long run. Furthermore, the error correction model establishes the short-run dynamics relationship between variables and the measurement of the speed of adjustment parameter. However, this does not respond to the current research hypothesis (e.g., does tourism development cause the quality of life or vice-versa?). Therefore, the Granger causality tests have been performed to check the causality between variables used in this study. The results of the Granger causality test are presented in Table 6. The Granger causality result based on optimal lag 2 reveals that the null hypothesis for "Quality of life does not drive tourism development in Kazakhstan'' is statistically significant at the 5% level and rejects H_2, concluding that the quality-of-life Granger causes tourism development in Kazakhstan. In other words, there is only a unidirectional relationship running from the quality of life towards tourism development in Kazakhstan, indicating that tourism development does not lead to a better quality of life in Kazakhstan. Moreover, H_1, H_3, H_4, H_5, and H_6 are not statistically significant and do not reject the null hypothesis of non-causality existing among the variables.

Thus, This study did not find evidence of Granger causality between tourism development and quality of life in Kazakhstan, which could be attributed to the dominant economic activities in the country, such as crude oil and gas extraction. As Kazakhstan is the world's largest supplier of crude oil and natural gas, trade, manufacturing, construction, and agriculture are the main sources of income for its residents, which play a significant role in improving their quality of life and well-being (Kalyuzhnova & Nygaard-Christensen, 2019). This, in turn, attracts international tourists and increases tourism receipts in the country.

5. Conclusions and policy recommendations

The quality of life of citizens has become one of the main objectives of tourism policy competitiveness. This study analyzes first the relationship between tourism development, quality of life and economic growth, second the directions of the relationships between them, and third the short and long-run relationships between these variables. The results reveal the presence of cointegration between the variables used, and this indicates the existence of a long-run relationship between QoL and TD, QoL and EG, and EG and TD. The findings highlight interesting assumptions about the relationship between quality of life, tourism development and economic growth.

The study's findings reveal a unidirectional causal relationship from quality of life to tourism development in Kazakhstan. This implies that enhancing residents' quality of life could promote tourism expansion in the country. The main reason for this outcome is that the residents' economic welfare and living standards are strongly linked to other economic activities, such as crude oil and natural gas exports, manufacturing, construction, and agriculture. While tourism does generate employment and income, it accounts for only a small proportion of total employment in the country. Thus, tourism growth is not the primary contributor to human development in Kazakhstan, as found in previous studies on Ecuador, Costa Rica, and Aruba. (Rivera, 2016; Croes, 2012; Vanegas et al., 2015; Ridderstaat et al., 2016a).

A good quality of life in a country would be related to a better living standard, increasing life expectancy. In turn, this leads to a safe and peaceful environment that would attract more tourists and stimulate business activities in communities, giving rise to the country's socio-economic development. Moreover, the government institutions and policymakers should continue to create policies to increase the population literacy rate, involving international investment in educational programs, scholarship and youth education and enhancing tourism-specialized job positions in Kazakhstan.

The second objective is determining the relationship between economic growth and tourism development (EG→TD). The findings show that tourism development has a positive short-term effect on economic growth through inflows of foreign currencies, job creation and exports of tourism products. A 1% increase in tourism receipts tends to increase economic growth by 0.5%. However, tourism development does not Granger cause economic growth. The tourism sector accounts for only 5.2% of GDP in Kazakhstan, which is a small contribution compared to the country's main economic activity (export of crude oil, natural gas, manufacturing, construction). Katircioglu (2009) reports similar outcomes, finding no causality relationship between tourism and economic growth in the case of Turkey during the period 1960 - 2006.

The third objective of the study is to identify the relationship between quality of life and economic growth (QoL→EG). The error correction model shows a positive short-term effect between EG and QoL. Economic growth does not Granger cause the quality of life in Kazakhstan. This suggests that the main economic activities such as exports of crude oil, natural gas, agriculture and manufacturing would improve the material well-being of the residents. However, they are not fully responsible for improving educational well-being (e.g. literacy rate) or health welfare (e.g. life expectancy). Ridderstaat et al. (2016a) and Rivera (2016) find a similar result, whereby the quality of life does not Granger cause economic growth in the case of Aruba and Ecuador respectively.

Moreover, this result urges tourism leaders and government policymakers to improve and update existing tourism policies. Specifically, the government should upgrade the policies involving capital investments in the expansion of tourism sector such as creating new tourism products, preserving heritage sites, improving the tourism image of the country, promoting eco-friendliness, sustainable hotels, improving the road infrastructure and air and road transport modes and establishing safe and secure travel for tourists.

Finally, The limitations of this study include a small sample size, a lack of consideration for social, cultural, and environmental factors, and the inability to generalize the results beyond Kazakhstan. Similar data constraints are common in emerging countries (Perles-Ribes et al., 2017). Further research is needed to investigate the relationship between tourism development and quality of life in all Central Asian countries, including Tajikistan, Turkmenistan, Kyrgyzstan, and Uzbekistan. Additionally, including mediating determinants would provide more accurate results (Mukherjee et al., 2013).

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