Acta Univ. Sapientiae, Economics and Business, **10** (2022) 77–90

DOI 10.2478/auseb-2022-0005

The Impact of Tourism Development and Economic Growth on Poverty Reduction in Kazakhstan

Imtiyaz Ahmad SHAH[1]
Imtiyaz ul HAQ[2]
[1] Faculty of Economics, Cluster University Srinagar, Jammu and Kashmir 190008
e-mail: shahimtiyazccas@gmail.com
[2] Faculty of Economics, University of Kashmir, Hazartbal Srinagar 190006
e-mail: imtiyaz786haq@gmail.com

Abstract. The paper examines the long-run relationship between poverty reduction, economic growth, and tourism development in Kazakhstan during the period of 2001–2017. We expand the basic model by including other poverty determinants such as inequality, unemployment, and spending on health. We use the Autoregressive Distributed Lag (ARDL) approach to test the co-integration of variables, as the ARDL bound test of co-integration is less restrictive and provides more reliable coefficients than other time series econometric models. The ARDL bound test results show that there exists a long-run relationship between the said variables. The coefficients of all variables have the expected signs in the long run.

Keywords: growth, tourism, poverty, ARDL, Kazakhstan

JEL Classification: F2, F29, F43

1. Introduction

The tourism sector is a top priority in the Republic of Kazakhstan. The country has a rich and diverse tourism that offers unique opportunities for related cognitive visits to various cultural and historical sites. The country is blessed with numerous national parks. It has about 900 historical sites and more than 100 water clinics. The government of Kazakhstan is developing the tourism industry to make it highly competitive and efficient and to integrate it with the global tourism market. The tourism development programme was launched in the period of 2003–2005, and after successfully completing it, a new tourism programme was launched in 2011. In 2000, tourism receipts amounted to 403 million US dollars, and they

increased to about 2.65 billion US dollars in 2018. Within 18 years, the number of tourists had increased from 1.68 million to 8.79 million in 2018. Also, per capita, tourism receipts have increased from 239 dollars in 2017 to 302 dollars. Therefore, Kazakhstan has a high potential to utilize its tourism sector for the country's economic growth.

One of the United Nation's MDGs (Millennium Development Goals) is to eliminate hunger and poverty among people living below the poverty line. To fulfil this goal, the UNWTO (United Nations World Tourism Organization) launched the ST–EP (Sustainable Tourism – Eliminating Poverty) initiative (Kim et al., 2016). Tourism is used as one of the strategies to reduce poverty and improve the economic conditions in developing countries. About 80% of 56 countries adopt tourism as a strategy for poverty reduction coupled with other policies that focus on the labour market and human resource development (Hawkins and Mann, 2007; Saayman et al., 2012). The main reason behind this is the tourism-led growth hypothesis. According to this hypothesis, there is empirical evidence of a strong correlation between GDP growth and the country's tourism development. Tourism is regarded as a synonym for exports since it acts as a source of foreign exchange receipts and increases consumption in the recipient country. Foreign exchange earnings obtained through tourism facilitate the import of capital goods, contributing to capital goods that can be used in the country's production process and that pay for the other imports to maintain the country's balance of payment (McKinnon, 1964).

Jamieson et al. (2004) used the term pro-poor tourism to explain how tourism generates net benefits for the poor. Tourism is pro-poor as it provides opportunities by creating part-time or full-time employment and development of small and medium-scale enterprises through sales to the tourism sector. It also offers other livelihood benefits such as access to drinking water and the development of roads, which leads to improved education, health, and easy access to the market. Njoya and Seetaram (2018) include four channels for the pro-poor tourism hypothesis. These are income, price, tax, and risk channels. Tourism brings income to poor people through their direct or indirect participation. It increases the tax base for state and central governments, and additional revenue can be used for social infrastructure development. Also, tourism development leads to an increase in demand for domestic goods and services, increasing the local price level. The impact of an increase in local price levels on the poor depends on the amount of these goods purchased by the poor (Blake et al., 2008). The fourth channel describes the risk and other dynamic impacts of tourism. The dynamic impact may have either positive effects, such as allocation of resources towards preserving cultural, historical, and natural resources, or negatively impacting environmental resources such as air, noise, and water pollution.

Furthermore, income elasticity associated with the tourism sector is generally higher relative to the conventional exports of developing countries. It can also develop initially on low-skilled labour, and it is even more labour-intensive than

other sectors. Some countries with insignificant international trade may be an alternative export option available (Roe et al., 2004).

In their multivariate analysis of tourism development, poverty reduction, and economic growth in Nicaragua, Vanegas and Croes (2007) used the co-integration approach and found a significant positive impact of tourism on poverty reduction. According to this study, tourism helps eradicate poverty by increasing income, infrastructure development, and skill level. Using the Autoregressive Distributed Lag (ARDL) model, Vanegas (2012) also found a positive impact of tourism development on poverty reduction in a group of developing countries. Wasudawan and Rahim (2017) found the positive impact of entrepreneurial tourism activity, economic growth, and tourism employment generation on Sarawak's poverty alleviation. Dongguk et al. (2016) examine the relationship between poverty reduction, tourism, and economic growth among 56 developing countries from 1995 to 2012. By applying panel models of pooled regression analysis, fixed effect, and random effect, the authors found an insignificant impact of tourism development on poverty reduction. However, through the interaction of tourism with the country's economic growth, the authors found a significant impact on poverty reduction.

Zhao and Ritchie (2007) stated that very few studies had examined the empirical relationship between tourism development and poverty reduction. In addition, the debate on the relationship between the contribution of tourism development and economic growth to poverty reduction continues (Namhyun et al., 2016). The present study contributes to the debate on poverty reduction, tourism development, and economic growth using available time series data for the largest Central Asian region, Kazakhstan. We employed the more robust technique of the ARDL model for establishing the said relationship. Also, the Error Correction Model (ECM) is used to estimate the short-run and long-run coefficients.

The paper is structured as follows. Section 2 deals with the economic model. Section 3 provides the various econometric techniques used. Section 4 provides results and discussion. Lastly, Section 5 presents the conclusions.

2. Economic Model

HakJun and Pyun (2016) applied the following time series regression to examine the effect of tourism and economic growth on the poverty ratio:

$$Pov_t = \beta_0 + \beta_1 Tor_t + \beta_2 Gro_t + \mu_t, \tag{1}$$

where Pov_t is the poverty headcount ratio, and β_0 is a constant term. *Tor* denotes tourism receipts per arrival, *Gro* is the GDP growth, and μ_t is the error term.

We augment the equation (1) by including the other macroeconomic determinants of poverty reduction based on various literature studies. The augmented equation of poverty reduction is:

$$Pov_t = \alpha_0 + \alpha_1 Tor_t + \alpha_2 Gro_t + \alpha_3 Un_t + \alpha_4 Health_t + \alpha_5 Gini_t + \in_t, \quad (2)$$

where Un_t is the unemployment rate, $Health_t$ is the health sector, and $Gini_t$ is the country's inequality. $\in_t$ is the error term. Other variables are the same as discussed in equation (1).

Inequality is having both positive and negative impacts on poverty reduction in economic theory. The positive relationship is based on the assumption that wage inequality provides an incentive for higher skill and education, and it generates more entrepreneurial activity and innovations (Galor and Tsiddon 1997; Hills et al., 2019). A positive relationship is also supported by Kaldor's (1957) theory of economic growth. According to this theory, inequality generates more savings, and savings positively impact economic growth through saving-induced investment (Hills et al., 2019). However, economists such as Stiglitz (2016) believe in the attitude of the rich to invest their earnings in non-productive commodities and assets. Also, unequal access to education due to inequality leads to sub-optimal investments in human capital and negative economic growth (Galor and Zeira 1993). Therefore, inequality is an essential variable in determining the poverty reduction of the country.

The link between poverty reduction and employment is that an increase in employment can reduce poverty by increasing wage employment, real wages, self-employment, the productivity of self-employment, and the exchange of self-employment output (Khan, 1976). Health and poverty are interrelated. When disease or illness hits the poor, they are unable to earn money for themselves. Therefore, the study incorporates the effects of these variables on poverty reduction. The descriptions of the variables used in the present study are shown in *Table 1*.

Table 1. *Description of variables*

Variable	Description	Notation	Data sources
Poverty	Poverty headcount ratio at $3.20 a day (2011 PPP) (% of population)	Pov	worldbank.org
Growth	GDP growth (annual %)	Gro	worldbank.org
Tourism	International tourism, receipts (% of total exports)	Tor	worldbank.org
Inequality	Gini index (World Bank estimate)	Gini	worldbank.org
Unemployment	Unemployment, total (% of total labour force) (national estimate)	Un	ILOSTAT database
Health	Domestic general government health expenditure per capita (current US$)	Health	worldbank.org

Source: calculated by the authors

i. **Poverty.** Poverty is the dependent variable of the present study. There are various measures of poverty. The present study uses "Poverty headcount ratio at $3.20 a day (2011 PPP) (% of the population)". It is the percentage of the population living on less than $3.20 a day at 2011 international prices. The time series data of poverty are obtained from the World Bank database.

ii. **Economic Growth.** Economic growth is measured by the annual percentage growth rate in Gross Domestic Product (GDP). The expected sign of economic growth is negative, i.e. an increase in the country's economic growth leads to a decrease in poverty. The World Bank database provides the annual time series data of annual growth rate.

iii. **Tourism.** International tourism receipts as a percentage of total exports are used as a proxy of a country's tourism development. Tourism is expected negatively on poverty. The data on tourism is obtained from the World Bank database.

iv. **Inequality.** The distribution of income in a country is an important dimension of welfare and plays a vital role in reducing poverty. Various measures define the inequality within the country. The present study uses the Gini index as a proxy of inequality. The Gini coefficient shows the deviations of income among persons/individuals from equal distribution. The expected sign of inequality is positive, implying that greater inequality leads to greater poverty. The time series data of inequality are obtained from the World Bank database.

v. **Unemployment.** The definition of unemployment and labour force varies from country to country. The present paper uses the definition of the International Labour Organization (ILO), which defines unemployment as a share of the total labour force that is without work but is available for and seeking employment. The expected sign of unemployment is positive. High and substantial unemployment leads to resource inefficiency and high poverty. The annual data of unemployment are obtained from the ILOSTAT database.

vi. **Health Development.** The proxy used for health development is total government expenditure as a percentage of GDP. The expected sign of human development is negative. The annual data series of human development is the World Bank database.

3. Econometric Technique

Various econometric approaches can be applied to examine Equation (2). These include numerous co-integration tests such as that of Engle and Granger (1987), Johansen and Juselius (1990), or Johansen (1998). The weaknesses of these models are that they are sensitive to sample size and stationarity of data. To overcome these problems, we applied the ARDL approach of co-integration. The ARDL approach has various advantages over other methods. It performs better both with

non-stationary and mixed orders of integration. It takes p and q optimum lags of dependent and independent variables to generate data processing from general to specific. Also, it provides robust and super-consistent estimators (Pesaran and Shin, 1999). However, it underperforms when data is of order two, i.e. I (2). The general form of the ARDL (p, q) model used in the present study has the following form:

$$Pov_t = \alpha_0 + \sum_{i=1}^{p} \beta_1 \Delta Pov_{t-i} + \sum_{i=1}^{q} \beta_2 \Delta Tor_{t-i} + \sum_{i=1}^{q} \beta_3 \Delta Gro_{t-i} + \sum_{i=1}^{q} \beta_4 \Delta Gini_{t-i} + \sum_{i=1}^{q} \beta_5 \Delta Un_{t-i} + \sum_{i=1}^{q} \beta_6 \Delta Health_{t-i} + \alpha_1 Pov_{t-1} + \alpha_2 Tor_{t-1} + \alpha_3 Gro_{t-1} + \alpha_4 Gini_{t-1} + \alpha_5 Un_{t-1} + \alpha_6 Health_{t-1} + e_t, \quad (3)$$

where Δ is the first difference operator, and p, q are the optimal lag operators. The first step in the ARDL bounds testing from Equation (3) is to examine the existence of long-run relationship among variables by conducting the F-test for joint significance, that is, the null hypothesis, H_0: $\beta_1 = \beta_2 = \beta_3 = 0$, against the alternative hypothesis, H_0: $\beta_1 \neq \beta_2 \neq \beta_3 \neq 0$. Two sets of critical values (lower bound and upper bound critical values) are generated by Pesaran et al. (2001). If the computed F-statistic lies above the upper bound critical value, the null hypothesis is rejected, implying that long-run co-integration exists among variables. After determining the co-integration of variables, the next step is to determine the long-run ARDL for poverty ratio by selecting the orders of ARDL (p, q) model using AIC (Akaike Information Criterion) as shown below:

$$\Delta Pov_t = \alpha_0 + \sum_{i=1}^{p} \beta_1 \Delta Pov_{t-i} + \sum_{i=1}^{q} \beta_2 \Delta Tor_{t-i} + \sum_{i=1}^{q} \beta_3 \Delta Gro_{t-i} + \sum_{i=1}^{q} \beta_4 \Delta Gini_{t-i} + \sum_{i=1}^{q} \beta_5 \Delta Un_{t-i} + \sum_{i=1}^{q} \beta_6 \Delta Health_{t-i} + e_t. \quad (4)$$

In the final step, we estimate the short-run coefficients by estimating an error correction model associated with long-run coefficients as shown below:

$$\Delta Pov_t = \alpha_0 + \sum_{i=1}^{p} \beta_1 \Delta Pov_{t-i} + \sum_{i=1}^{q} \beta_2 \Delta Tor_{t-i} + \sum_{i=1}^{q} \beta_3 \Delta Gro_{t-i} + \sum_{i=1}^{q} \beta_4 \Delta Gini_{t-i} + \sum_{i=1}^{q} \beta_5 \Delta Un_{t-i} + \sum_{i=1}^{q} \beta_6 \Delta Health_{t-i} + \emptyset ECM_{t-1} + e_t, \quad (5)$$

where *ECM* is the error correction term derived from the estimated equilibrium relation from Equation (3), ∅ is the speed of adjustment parameter, and β_1, β_2, β_3, β_4, β_5, β_6, are the short-run coefficients of the model's convergence to equilibrium.

4. Empirical Results and Discussion

Before using the application of the ARDL model to assess the relationship between poverty, tourism development, economic growth, and other determinants of poverty reduction in Kazakhstan during the period from 2001 to 2017, the first step is to present an overview of the variables. Accordingly, we began our analysis by examining the descriptive properties of the variables under consideration, which are given in *Table 2*.

Table 2. *Descriptive statistics*

	Gini	Gro	Health	Pov	Tor	Un
Mean	3.40	1.65	4.81	0.69	1.08	1.87
Median	3.33	1.98	5.12	0.53	0.95	1.87
Maximum	3.68	2.61	5.54	3.38	1.78	2.34
Minimum	3.28	0.09	3.36	-1.61	0.49	1.58
Std. Dev.	0.11	0.81	0.72	1.81	0.39	0.25
Skewness	1.09	-0.94	-0.96	0.25	0.22	0.33
Kurtosis	3.04	2.61	2.57	1.61	1.89	1.69
Jarque–Bera	3.38 (0.18)	2.64 (0.26)	2.75 (0.25)	1.55 (0.45)	1.01 (0.61)	1.52 (0.46)
Sum	57.81	28.05	81.85	11.76	18.47	31.93

Source: calculated by the authors using EViews 10

Note: Values in brackets show the p-value of the Jarque–Bera test.

Table 2 shows the mean of variables is greater than the standard deviation. Therefore, all variables under consideration have stable variation over the period. The p-value of the Jarque–Bera test of normality confirms that all variables are normal. Following descriptive statistics, the next section presents the correlation/covariance among variables.

Table 3. *Correlation matrix*

	Gini	Gro	Health	Pov	Tor	Un
Gini	1					
Gro	0.63	1				
Health	-0.81	-0.56	1			
Pov	0.91	0.58	-0.91	1		
Tor	0.35	-0.01	-0.65	0.35	1	
Un	0.86	0.64	-0.91	0.96	0.32	1

Source: calculated by the authors using EViews 10

Correlation provides the information for detecting multicollinearity between the variables of interest. According to *Table 3*, the correlation between the variables is less than one. However, the correlation between variables does not imply causation. After determining the correlation, the next step is to check whether the data is stationary to avoid spurious regression. The standard Augmented Dickey–Fuller (ADF) test is carried out both at the level and first difference to examine whether the data has a unit root or not. The results of the ADF test are given in *Table 4*.

Table 4. *Unit root test*

Variables	ADF statistics	Probability	Durbin Watson	Decision rule
Pov	-1.02	0.717	1.93	Non-stationary
Tor	-1.31	0.591	2.25	Non-stationary
Gro	-2.22	0.206	1.71	Non-stationary
Un	-2.59	0.114	1.89	Non-stationary
Gini	-1.44	0.531	2.21	Non-stationary
Health	1.64	0.96	1.22	Non-stationary
D(Pov)	-3.52**	0.02	1.96	Stationary
D(Tor)	-5.17***	0.00	1.67	Stationary
D(Gro)	-4.25***	0.00	2.001	Stationary
D(Un)	-3.28**	0.03	2.05	Stationary
D(Gini)	-6.83***	0.00	2.25	Stationary
D(health)	-2.19**	0.03	1.99	Stationary

Source: calculated by the authors using EViews 10

*Notes: *** significant at 1%, ** significant at 5%.*

In *Table 4*, all the variables under consideration have a unit root level. However, they become stationary at first difference. Therefore, data is a I (1) order that provides precise application for ARDL modelling and bound testing. Before applying ARDL testing, the next step is to examine the presence of co-integration

among variables of interest. *Table 4* reports the results of the F-test on the joint significance of long-run coefficients under the null hypothesis, indicating that there is no long-run co-integration among variables against the alternative hypothesis that there is long-run co-integration.

Table 5. *Co-integration test*

F-Bounds Test		**Null Hypothesis: No levels relationship**		
Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n = 1,000		
F-statistic	5.22	10%	2.08	3
		5%	2.39	3.38
		2.5%	2.70	3.73
		1%	3.06	4.15

Source: calculated by the authors using EViews 10

It can be seen from *Table 5* that F-statistic is higher than I (1) critical values at all levels of significance. It rejects the null hypothesis that there is no long-run co-integration. Therefore, we conclude that the variables under consideration have a long-run relationship. After examining the long-run relationship, we estimated the long-run and short-run responses of poverty to tourism and economic growth in Kazakhstan. *Table 6* presents the long-run coefficients.

Table 6. *Long-run estimates*

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
GRO	-0.74**	0.181	-4.132	0.014
UN	1.51	1.197	1.268	0.273
GINI	6.34**	1.591	3.992	0.016
TOR	-2.21**	0.541	-4.106	0.014
HEALTH	-2.36**	0.567	-4.165	0.014
EC = POV - (-0.7440*GRO + 1.5196*UN + 6.3484*GINI -2.2176*TOR -2.3624 *HEALTH)				

Source: calculated by the authors using EViews 10

*Notes: Maximum dependent lags: 1 (automatic selection); model selection method: Akaike Info Criterion (AIC); White (HC0) heteroscedasticity consistent standard errors and covariance; ** significant at 5%.*

From *Table 6*, the chosen model is based on the Akaike Info Criterion (AIC) with automatic lag selection. We have also reported white (HCO) heteroscedasticity consistent standard errors and covariance rather than ordinary errors. *Table 6* reveals that the variables have an expected sign. Economic growth, tourism receipts,

and spending on health have a significant negative impact on poverty reduction in the long run. Therefore, poverty has an inverse relation with economic growth, tourism receipts, and spending on health in the long run. The long-run elasticity of poverty reduction with economic growth is -0.77, which implies that a one per cent increase in economic growth leads to a 0.77% decrease in poverty. The significant negative relationship between poverty and economic growth is also empirically supported by Mulok et al. (2012) and Richard (2003).

The long-run elasticity of poverty reduction with tourism is -2.21, indicating that a one per cent increase in tourism leads to a 2.21% decrease in poverty in the long run. The negative impact of tourism on poverty reduction is empirically validated by Croes (2014), who found the coefficient of tourism to be -1.23 in the case of Nicaragua. The coefficient of government spending on health is -2.36, what indicates that a one per cent increase in government spending on health leads to a decrease of 2.36 per cent in poverty. The negative impact of government expenditure on poverty is empirically supported by Fan et al. (2000).

Other variables of model unemployment and inequality are showing a positive long-run impact. One per cent increase in unemployment and inequality leads to an increase of 1.51 and 6.34 per cent increase in poverty, respectively. However, the unemployment coefficient is insignificant in the long run. The reason may be the inclusion of other variables in the model. The positive impact of unemployment and inequality is supported empirically by Akinbobola and Saibu (2004). A decrease in unemployment and inequality improves human development and therefore reduces poverty.

Table 7. *Short-run coefficient estimates*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-10.23***	1.13	-9.04	0.001
D(GRO)	-0.27***	0.05	-4.75	0.009
D(UN)	6.18***	1.22	5.06	0.007
D(GINI)	5.26***	0.41	12.92	0.001
D(TOR)	-1.64***	0.28	-5.73	0.004
D(HEALTH)	-1.741***	0.25	-6.83	0.002
ECM(-1)	-1.19***	0.13	-8.98	0.001

Source: calculated by the authors using EViews 10

*Note: *** significant at 1%.*

The short-run coefficient estimates are presented in *Table 7*. The error correction model (ECM) is negative and statistically significant at 1%, and it reflects that 119% disequilibrium is corrected in the next period after a shock to the system. The variables in the short run are showing the same sign as in the long run. One

per cent increase in economic growth, tourism development, and spending on health lead to a 0.27, 1.64, and 1.74 per cent decrease in poverty in the short run. In comparison, a 1 per cent increase in unemployment and inequality leads to a 6.18 and 5.24 per cent increase in poverty in the short run.

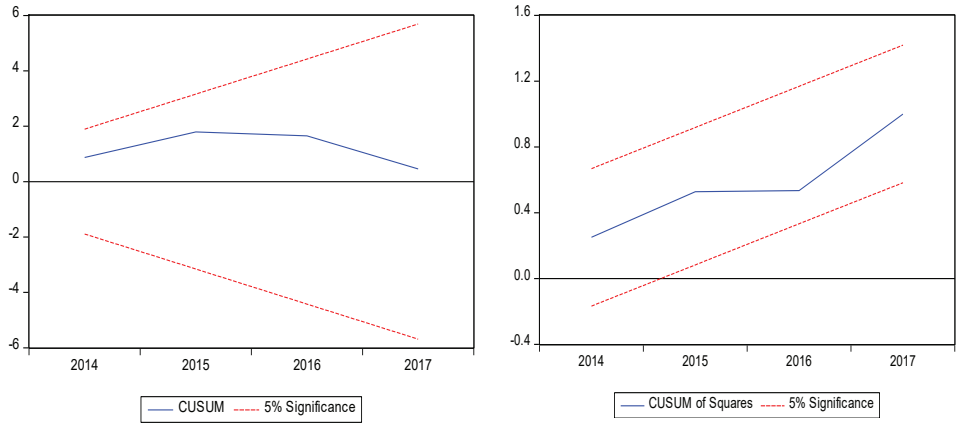
However, these results may appear to be influenced by the variance, covariance, and independence of the residual term. Therefore, it is customary to perform various types of residual diagnostic testing. The various types of residual testing are shown in *Table 8*.

Table 8. *Residual diagnostic testing*

Test	F-statistics	Prob
Breusch–Godfrey Serial Correlation LM Test	0.608	0.62
Heteroscedasticity Test: Breusch–Pagan–Godfrey	1.189	0.47
Heteroscedasticity Test: ARCH	0.522	0.48
Heteroscedasticity Test: Harvey	0.731	0.69

Source: calculated by the authors using EViews 10

Table 8 presents the residual diagnostic test of heteroscedasticity and serial correlation. The Breusch–Godfrey Serial Correlation LM Test is based on the null hypothesis that residuals are serially uncorrelated. Similarly, the Breusch–Pagan–Godfrey, the ARCH, and the White tests of heteroscedasticity are based on the null hypothesis that there is no heteroscedasticity. According to *Table 5*, the reported p-value associated with F-statistic is above the critical values. Therefore, we conclude that residuals are homoscedastic and are serially uncorrelated. The graphical presentation of the stability test is shown in *Figure 1*.



Source: calculated by the authors using EViews 10

Figure 1. *Stability test*

The CUSUM (cumulative sum of residuals) and CUSUM of a square shown in panels 1 and 2 of *Figure 1* confirm that residuals lie within the critical range. Therefore, parameters are stable over the said period. Overall, *Table 8* and *Figure 1* indicate that the model has desirable statistical properties and can be used for policy analysis.

5. Conclusions

Kazakhstan is the largest Central Asian country. Therefore, the findings of the paper will apply to Kazakhstan, other Central Asian countries, and other developing countries with macroeconomic characteristics similar to those of Kazakhstan. The findings of the study indicate that poverty reduction, economic growth, tourism development, inequality, spending on health, and unemployment in the country are co-integrated in the long run. The error correction model (ECM) is negative and statistically significant at 1% and reflects that 119% disequilibrium is corrected in the next period after a shock to the system. The residual diagnostic testing indicates that the model has desirable properties and can be used for policy analysis.

The elasticity of poverty reduction with respect to economic growth is -0.27 in the short run and -0.74 in the long run. Sound macroeconomic policies are essential for reducing poverty. These policies operate mainly through their impact on the economic growth of the country. Countries with better macroeconomic policies grow faster, and this faster growth eventually reduces poverty. The elasticity of poverty reduction with respect to tourism receipt is -1.64 in the short run and -2.21 in the long run. The result suggests that tourism matters for the poor. The government should frame various policies for developing the tourism sector by developing airports, railways, roads, and other infrastructure. Tourism will help poor people by empowering local people in planning and decision making regarding tourism policies. The elasticity of poverty reduction with respect to inequality is 5.26 in the short run and 6.34 in the long run. Therefore, the government should manage inequality through proper income distribution through social securities and an appropriate tax system. Another policy variable of interest is unemployment. The elasticity of poverty reduction with unemployment is 6.18 in the short run and 1.51 in the long run. Therefore, the government should have economic regimes that help in the creation of more jobs. Also, incentives should provide for more labour-intensive techniques. Another variable of policy implication is spending on health. It has a significant impact on reducing the poverty in Kazakhstan. The elasticity of poverty reduction with respect to government spending on health is -1.74 in the short run and -2.36 in the long run. The government should direct more financial support by providing universal healthcare for the poor.

However, poverty is a multi-factor problem. Further research could include non-economic determinants. Also, different types of international tourism can impact poverty reduction and, therefore, be a further research topic. Another research method can be using a direct measurement of poverty rather than a proxy variable as done in the present study.

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