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IS THERE A LONG-RUN RELATIONSHIP BETWEEN TOURIST ARRIVALS AND ECONOMIC GROWTH IN NEPAL? AN EMPIRICAL ASSESSMENT BASED ON ARDL BOUNDS TEST APPROACH

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Abstract: The tourism industry has become a significant economic contributor to a number of countries worldwide. Until COVID-19, tourism was the world's largest and fastest-growing business. The importance of tourist arrivals and the examination of their effects has triggered curiosity among different researchers, as tourism helps in balance of payment and boosts the overall GDP of the nation. Thus, this paper aimed to examine the long-run relationship among the number of tourist arrivals per year and economic growth (proxied by GDP). The study used annual secondary data collected from World Development Indicators between 1995 and 2019. Cointegration test (ARDL bounds test) was applied to check the long-run relationship among the variables. The result shows that a 1% increase in tourist arrivals, in the long run, is associated with a 1.15% increase in GDP at a ($p<0.05$) significance level, other things remaining constant. The evidence from ARDL bounds cointegration test confirms that tourist arrivals have a long-run relationship with a significant impact on GDP in Nepal. Thus, this study recommends some policy implications like the allocation of government funds for infrastructure and tourism development is critical since these investments benefit the tourism industry and overall GDP of the country.

Key words: tourism, economic growth, bounds test, ARDL, Nepal

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INTRODUCTION

Worldwide, the tourism industry has a positive effect on long-run economic growth. The tourism industry is therefore one of the most significant industries contributing to a nation's economic growth, especially in economically progressing countries. In terms of foreign economic trade, the tourism industry is a relatively recent entrant. It adds to the international income and household income streams of several countries (Selimi et al., 2017). It also plays a vital role in many countries' economic, cultural, and social growth. In developing nations like Nepal, the development of the tourism industry makes a significant contribution to overcoming the problems related to economic development, such as high unemployment and currency processing (Nepal et al., 2019). Tourism development helps in increasing the economic growth, however, economic growth if not used wisely may sometimes lead to degrade the environment (Khanal, 2021a, 2021b) by increasing tourism activities like hotel stays and the use of transportation facilities which increases energy consumption (Khanal et al., 2021). Nevertheless, energy consumption plays a crucial role in the development of infrastructures, which may attract a lot of tourists (Aydin, 2022). The role of tourism to a nation's economy is influence by country risk measures such as economic, financial and political risk (Muzindutsi et al., 2021). After the 2008 economic and financial crisis, which resulted in a decrease in international tourist arrivals, the international tourism industry has demonstrated sustained development in terms of tourist arrivals and tourism revenues (Muzindutsi et al., 2021). According to the World Travel and Tourism Council (WTTC, 2021), travel and tourism contributed 10.4% to global GDP in 2019. Their economic impact reports note that tourism accounted for 1 in 4 jobs created worldwide, which is 10.6% of all jobs around the globe. Over the last decade, international tourism has developed rapidly in Nepal. However, the rate of growth has varied from year to year. In 2019, tourism directly supported 1034,000 jobs (6.9 percent of total employment) in Nepal. It contributed 6.7 percent of the total economy and 7.5% of its total GDP. In 2019, tourists from neighboring countries India and China, with 17% and 13% respectively, were the biggest cohorts to enter Nepal (WTTC, 2021).

With its many historical, religious, and natural attractions, Nepal has the potential to become one of the world's most popular tourist destinations. Most notably, tourism has influenced all aspects of Nepal's economy. Political stability is a prior condition for tourism development and, by extension, for economic growth. Nepal's tourism industry has been hampered for several years due to bitter political conflict in the region, but it is hoped that it can now propel Nepal into a new economic age (Gautam, 2011). As mentioned above, researchers have studied the relationship between tourism and economic growth in recent years, with evidence pointing to a direct link between the two. It has been widely accepted that it boosts foreign exchange earnings, creates job opportunities, encourages the development of the tourism industry, and thus boosts overall

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economic growth. As a result, tourism growth has become a topic of discussion among policymakers, government officials, and researchers in Nepal. Table 1 below shows the trend of the GDP, tourist arrivals, and exchange rate of Nepal.

Table 1. Showing trend of the variables

Year	GDP	TA	ER
1995	8623849303	363000	51.89033
2000	10899840167	464000	71.0938
2005	12877563075	375000	71.3675
2010	16002656434	603000	73.26236
2015	19774984747	539000	102.4051
2016	19891395830	753000	107.3838
2017	21527164664	940000	104.5119
2018	22969698990	1173000	108.9301
2019	24575559443	1197000	112.6095

Prior to COVID-19, research has shown that tourism had a positive impact on economic growth as it had triggered economic expansion. It was consistently seen as a significant contributor to the economic growth and development of countries (Brida et al., 2020). This has become such an important topic, research into the impact of tourism on economic growth has developed rapidly, specially to regain or recover the tourism momentum (Brida et al., 2020; Pulido-Fernández and Cárdenas-García, 2020). Thus, the main aim and contribution of this paper is to apply ARDL multivariate cointegrated method to test the cointegration relation between tourism development and GDP to determine under what circumstances tourist expansion has a beneficial influence on economic growth in Nepal. Moreover, this research contributes to the current literature by demonstrating that tourist arrival is a major contributor to economic growth.The structured of the paper is as follows: first, introduction. Second is a review of the academic literature on the basis of different countries and of Nepal is provided. Next, is materials and methods followed by results and discussions. Finally, the conclusions section which concludes the obtained results along with the implications of some policy recommendations and future research recommendations.

LITERATURE REVIEW

1. Tourism and Economic growth Nexus

A number of studies have recently focused on tourism and economic development in different countries. For example, Selimi et al. (2017) investigated the impact of tourism on economic growth in the Western Balkan countries from 1998-2014. Using Panel regression econometric techniques, they found that a 1% increase of tourist arrivals increase of GDP per capita by 0.08%. Thus, they concluded that there is a positive and statistically significant relationship between tourism and economic growth. The contribution of tourism to economic growth in Iran's Provinces was conducted by Habibi et al. (2018) using the Growth Decomposition Method (GDM). By using data from the years 2005-2014, the research revealed that tourism has a positive impact on economic growth in Iran's Provinces. Likewise, Pulido-Fernández and Cárdenas-García (2020) examined the relationship between tourism and economic development in 143 countries. In their study, the Confirmatory Factor Analysis (CFA) and Structural Equations Model (SEM) was used to investigate the relationship. The model found that tourism improves economic development, and there is a bidirectional relationship between these properties. In addition, an investigation was conducted by Brida et al. (2020) in 80 developed and developing nations using data from 1995 to 2016. The objective of this study was to examine the nexus between tourism and economic growth. Using a Minimal Spanning Tree (MST) and a Hierarchical Tree with a non-parametric and non-linear approach, the researchers detected a positive relationship between tourism and economic growth.

A recent study by Rasool et al. (2021) examined the nexus between inbound tourism, financial development, and economic growth in Brazil, Russia, India, China and South Africa (BRICS) countries from 1995-2015. A panel cointegration analysis revealed that a 1% rise in international tourism receipts per capita increased 0.31% domestic real income. Thus, the foreign exchange earnings from tourism affect growth performance positively. Tung (2021) investigated the tourism-led growth hypothesis (TLGH) using Johansen-Fisher test and ordinary least square (OLS) in some transition countries. The result indicated that both tourism revenue and tourist arrivals contribute to the growth confirming TLGH.The most recent study of Wu et al. (2022) states that there is strong evidence nexus between international tourism receipts, international tourist arrivals, capital formation, and real gross domestic product variables in the temporal domain.

2. Tourism and Economic growth Nexus in Nepal

Tourism in Nepal is one of the biggest industries and a major source of earnings. Tourism has impacted the economic growth of Nepal, and this has been proved by different researchers with different methodology. Using the Cointegration test and the Granger causality test Gautam in 2011 analysed the impact of tourism on economic growth in Nepal. With 36 years data, the study of Gautam (2011) revealed that bi-directional causality exists between tourism and economic growth, concluding that tourism increases economic development by foreign exchange earnings in both the long-run and the short-run. Similarly, by developing the tourist income multiplier from the Keynesian macroeconomic model, Paudyal (2012) investigated the influence of tourism and other relevant macroeconomic factors on Nepal's economic growth. According to Paudyal (2012), tourism earnings have a bidirectional link with GDP in Nepal Likewise, Karki (2018) studied the dynamic relationship between tourism and the economy using macroeconomic data from 1962-2011 of Nepal. The main objective of the study was to analyse the effect of tourism on economic growth in Nepal. They used ADF and the Engle-Granger cointegration test to determine the relationship among the variables. The results revealed that a 1% increase in tourism resulted in a 3.6% rise in economic growth. There was also a cointegrating relationship between tourist arrivals and real GDP. Another study conducted by Jaiswal (2018) investigated the effect of tourism on economic development in Nepal and found that tourism contributed 3.6% of GDP in 2016 in Nepal.

Likewise, Nepal et al. (2019) examined the long-run and short-run nexus between tourist arrivals and economic development, together with energy consumption and pollutant emissions of a developing nation, Nepal. From the ARDL model and Granger causality tests, the authors judged that a 1% increase in GDP would result in a 1.56% rise in tourism;

the contribution of tourist arrivals to GDP was relatively small at less than 4% and therefore does not significantly contribute to economic growth. Using time series data from 1976 to 2020 using an autoregressive distributed lag (ARDL) technique, Bhattarai and Karmacharya (2022) empirically investigated the influence of tourism on Nepal's economic growth. The result of ARDL model shows that tourism has no significant impact on economic growth of Nepal in both short-run and long-run. This may be due to the year 2020 which was totally dominated by COVID-19 Pandemic and travel restrictions. Thus, our paper used the year 2019 (pre-covid) which will help policy makers, travel and tourism officials and governments to boost and promote tourism demand after the COVID-19 is over as everything will be back to normal soon.

MATERIALS AND METHODS

Oh (2005) recommends the consideration of real exchange effective rate in the discussion of international tourism to manage likely ignored variable issues. Given that the tourism-led growth hypothesis is about contribution of tourism to the economic growth, real GDP is also included to represent the economic growth. Thus, this study uses tourist arrivals (TA), economic development (proxy by GDP (constant 2010 US$)), and real exchange effective rate (ER). The data used in this study are annual time series for the period 1995-2019. All the data are obtained from the World Bank database (World Development Indicator 2021). Following Nepal et al. (2019), we estimate the following equation (Özer et al., 2022):

GDP= f (TA, ER) ……………………………………………………………………….. (1)

Where GDP=Gross Domestic Product, TA=International Tourist Arrivals, and ER=Real effective exchange rate. After the natural logarithm, the given equation for the model is as follow (Özer et al., 2022):

lnGDP= f (lnTA, lnER) ..……………………………………….…………………….. (2)

1. Unit Root Test

The first step for analysing the long-run relationship is to check whether the variables are stationary or non-stationary. A non-stationary variable may lead to spurious regression. Thus, to check the stationarity of the variables, we use the augmented Dickey-Fuller (ADF) test of stationarity (Dickey and Fuller, 1981) and Phillips –Perron (PP) test (Phillips and Perron, 1988). The PP procedures are applied to test for unit roots as an alternative to the ADF unit root test, which computes a residual variance that is robust to auto-correlation. Zivot-Andrews (ZA) (Zivot and Andrews, 1992) is also performed because, in the time series analysis, the power of unit root tests will undoubtedly be unsteady unless there exist structural breaks (Zivot and Andrews, 2002). Consequently, ZA is performed to overcome the unsteady problem of the series.

2. Cointegration tests

After the stationarity test, to investigate a long-term relationship between variables, ARDL bound tests are applied to examine the long-run association between GDP, tourist arrivals, and exchange rate.

3. ARDL bound tests

This study used the ARDL bound tests developed by Pesaran et al. (2001) to analyse the cointegration among the variables. Here, the calculated F-statistics are compared to the upper critical bound (UCB) and lower critical bound (LCB). If the calculated F-statistics are higher than UCB, then the null hypothesis of no cointegration is rejected, otherwise the series are said to be co-integrated.

4. Long-run and short-run estimates

An Autoregressive Distributed Lag (ARDL) approach is applied to examine the impact of tourist arrivals and exchange rate on economic development. The following equations are used to estimate the long-run and short-run.

Long-run estimates (Özer et al., 2022):

$lnGDP = \beta_0 + \sum_{i=1}^{p} \beta_1 \, lnGDP_{t-i} + \sum_{i=1}^{q} \beta_2 \, lnTA_{t-i} + \sum_{i=1}^{r} \beta_3 \, lnER_{t-i} + \varepsilon_t$……………………………….…..... (3)

Short-run estimates (Özer et al., 2022):

$\Delta lnGDP = \alpha_0 + \sum_{i=1}^{p} \alpha_1 \, \Delta lnGDP_{t-i} + \sum_{i=1}^{q} \alpha_2 \, \Delta lnTA_{t-i} + \sum_{i=1}^{r} \alpha_3 \, \Delta lnER_{t-i} + øECM_{t-i} + \varepsilon_t$. …………. (4)

Where, Δ= operator of differentiation, β= coefficient of long-run dynamics, α= coefficient of short-run dynamics. Also, p, q, r = the lag values from AIC criteria. ε_t = disturbance term. ø = speed of the adjustment of the short-run to reach the long-run equilibrium and is the coefficient of error correction term. Furthermore, the rate of adjustment takes place among variables to restore long-run equilibrium in response to short-term disturbances with the help of the error correction model (ECM_{t-i}).

5. Stability of the coefficients

Finally, the cumulative sum (CUSUM) and Cumulative sum of squares (CUSUMQ) are run to check the stability of the coefficients in the short and long run.

RESULTS AND DISCUSSION

In Table 2, the descriptive statistics are shown. The numerical summaries are estimated in natural logarithms. They are found to be normally distributed and not outside a reasonable range. Thus, this will let us designate that the data are not likely to provide spurious findings.

1. ADF & PP Unit root and ZA structural break test

The results from the Augmented Dickey-Fuller (ADF) (Dickey and Fuller, 1981) and Phillips –Perron (PP) (Phillips and Perron, 1988) are given in Table 3. And, the Zivot-Andrews (ZA) (Zivot and Andrews, 1992) is presented in Table 4. The results in Table 3 reveals that the variables are stationary at first differences, i.e., I (1) using ADF and PP. The results of Zivot and Andrews (1992) structural break unit root test given in Table 4 recommended that the null of unit root at a 5% significance level should be rejected. Here the null hypotheses can be rejected as the calculated T-statistics value at the level is below the critical values. The variables are non-stationary at the level. The properties of stationarity for the T-statistics can be seen after the first difference.

Table 2. The descriptive statistics

	lnGDP	lnTA	lnER
Mean	23.37605	13.19695	4.356077
Median	23.34539	13.12236	4.304335
Maximum	23.92502	13.99533	4.723926
Minimum	22.8778	12.52453	3.949132
St. Deviation	.3050991	.3978545	.2112223
Skewness	.107861	.4685053	.19338
Kurtosis	1.901145	2.288023	2.296457
Variance	.0930854	.1582882	.0446149
Observations	25	25	25

Table 3. Unit root test

Tests	lnGDP	lnTA	lnER
ADF(Augmented Dickey-Fuller)			
At level I(0)	1.197	-0.470	-0.616
At first Difference I(1)	-4.293***	-4.239***	-4.263***
PP (Philips and Perron)			
At level I(0)	1.001	0.252	-0.985
At first Difference I(1)	-4.248***	-4.216 ***	-4.248 ***

Note: * is for <0.011, ** for <0.05, *** for <0.1 significance level. AIC criteria was selected for optimal lag.

Table 6. Results of the Bounds test of cointegration

Model	F-statistics	LCB	UCB
lnGDP=f (lnTA, lnER)	5.341**	3.79	4.85

Note: ** is 5% critical value for bound test

Table 4. Zivot-Andrews Structural break trended unit root test

Variable	At level I(0)		At first Difference I(1)	
	T-statistics	Time break	T-statistics	Time break
lnGDP	-2.830 (0)	2002	-5.285(0) **	1993
lnTA	-3.941 (0)	2001	-4.50(0) ***	1989
lnER	-3.440 (0)	2004	-4.886(0) **	1993

Note: Lag order shown in parenthesis. Critical values**: 1%: -5.34**, 5%: -4.80, 10%: -4.58 where ** for <0.05, *** for <0.1 significance level

Table 5. Results of Lag order Selection Criteria

Lag	LL	LR	AIC	HQIC	SBIC
0	26.7766	-	-2.26444	-2.23206	-2.11522
1	108.465	163.38	-9.18717	-9.05764	-8.5903*
2	120.755	24.58	-9.50052	-9.27383	-8.456
3	131.611	21.712*	-9.67727*	-9.35343*	-8.18509
4	139.689	16.156	-9.58944	-9.16845	-7.64962

Note: * Indicates lag order selected at 5% level of significance by the LL: Likelihood, LR: Likelihood Ratio, AIC: Akaike Information Criterion, HQIC: Hannan and Quinn Information Criterion, and SBIC: Schwarz Bayesian Information Criterion.

Table 7. Lags of variables

Lag	0 AIC	1 AIC	2 AIC	3 AIC	4 AIC	Selected lags AIC
lnGDP	0.192294	-5.07792*	-4.98482	-5.01449	-4.98317	1
lnTA	1.11399	-.379016*	-0.295993	-0.233373	-0.175845	1
lnER	-0.587094	-2.83253*	-2.75344	-2.68937	-2.75759	1

Note: Indicates lag order selected by the AIC criterion at 5% level of significance

2. Lag order selection

The Autoregressive Distributed Lag (ARDL) bound test of cointegration examines the cointegration between the factors. To get the bound tests, we selected the Akaike Information Criterion (AIC) to appraise the lag length of factors to inspect the long-run connection between the variables. The result of lag length is given in Table 5. After choosing to lag three from the AIC standard, we utilized this lag to decide the cointegration among the factors, utilizing the ARDL headed test for cointegration.

3. ARDL bounds test

Finally, we estimated the ARDL bounds test of cointegration to identify the long-run relationship between the variables. According to Table 6, the results revealed that the F-statistics value (5.341) is higher than the upper critical bound (4.85), suggesting that the estimated variables does have long-run relationship.

4. Lag length selection

Once the cointegration approach confirms the cointegration among the variables, the lag length of all variables is identified through the Akaike Information Criterion (AIC). Then we estimate the long-run and short-run coefficients using these lags (1 1 1). The lag length selection results are shown in Table 7 to estimate for ARDL approach.

5. ARDL (Long-run and short-run) approach

The long-run equilibrium relationship among the variables is assessed utilising the ARDL (1 1 1) approach using the error correction model, given in Table 8. Results reported for long-run estimated coefficient estimates show that tourist arrival has a positive and significant impact on economic development. The result shows that a 1% increase in tourist arrivals, in the long run, is associated with a 1.15% increase in GDP at a ($p<0.05$) significance level, other things remaining constant. This result is line with Paudyal (2012) who claimed that tourist arrivals show that tourism has impacted positively on the Nepalese economy. Our result is also consistent with the results of Karki (2018), Jaiswal (2018), and Nepal et al. (2019) whereas inconsistent with of Bhattarai and Karmacharya (2022). Tourist arrivals contribute to economic development through the employment opportunity, government income (through taxes), and infrastructure development. The exchange rate does not impact GDP in the long-run. A 1% increase in exchange rate

decreases 0.074% GDP in the long-run but does not have significant impact. The estimated error correction model adjustment term ECM (-1) is negative (-0.0583725). The result from ARDL long-run dynamics supports the long-run equilibrium relationship between tourist arrivals and GDP for Nepal.

The short-run results, independent variables (energy consumption), on the dependent variable, i.e., carbon emissions (CO_2) in Australia, are given in Table 9. The short-run results reveal that the lag value of tourist arrival decrease in GDP in the short-run. The result shows that a 1% increase in tourist arrivals causes a 0.04% decrease in GDP at a 10% significance level. The exchange rate also negatively impacts GDP in the short run.

Table 8. Long-run dynamics using the ARDL approach. ARDL (1 1 1) model coefficients Note: ** represent 5% significance level

Variables	Coeff.	t-stats	Prob.
Constant	.5436385	1.00	0.33
lnTA	1.151753	2.08	0.05**
lnER	-0.0742273	-0.10	0.919
Diagnostic test			
Serial correlation (Breusch-Godfrey LM test for autocorrelation)	27.783 (0.671)	Lagrange-multiplier test	9.9158 (0.35734)
Normality Jarque-Bera; Chi (2)	1.797 (0.4072)	F-statistics	110.21
R^2	0.9093	Adjusted R^2	0.9010

Table 9. Short-run dynamics using the ARDL approach; Note: * Represent 1% significance level and *** Represent 10% significance level

Variables	Coeff.	t-stats	Prob.
ΔlnTA	-0.0445832	-1.91	0.072***
ΔlnER	-0.1240293	-1.88	0.076***
ECM (-1)	-0.0583725	-1.70	0.107

6. Diagnostic test result.

The serial correlation, heteroscedasticity, and normality are tested using the Breusch-Godfrey LM and Lagrange-multiplier test for autocorrelation and Jarque-Bera for normality. The results of diagnostic tests are shown in Table 8. Further, the Breusch-Godfrey LM test and Lagrange-multiplier test present no serial correlation, and Jarque-Bera suggests that the residuals are normally distributed.

7. Stability of short-run model

To assess parameter stability, the cumulative sum of recursive residuals (CUSUM) and the CUSUM of square (CUSUMQ) test are applied (Pesaran and Pesaran 1997). The results for both tests are presented in Figure 1a and 1b. The outcomes show that the CUSUM and CUSUMQ statistics plot falls inside the critical bands of the 5% confidence interval of parameter stability. Thus, there is no instability of the coefficients.

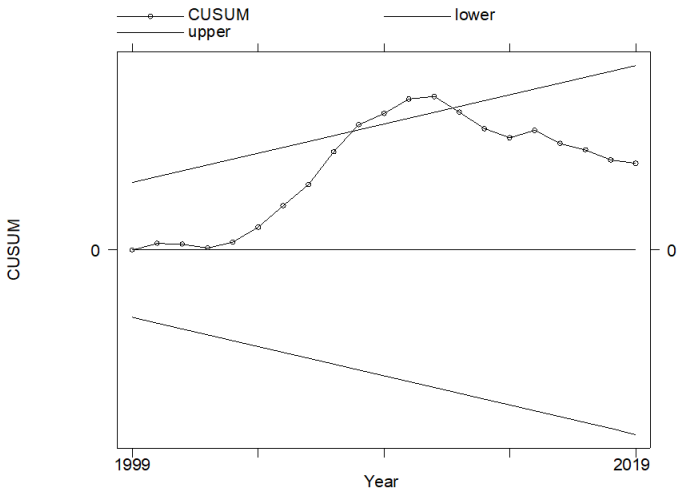

Figure 1a. **CUSUM**

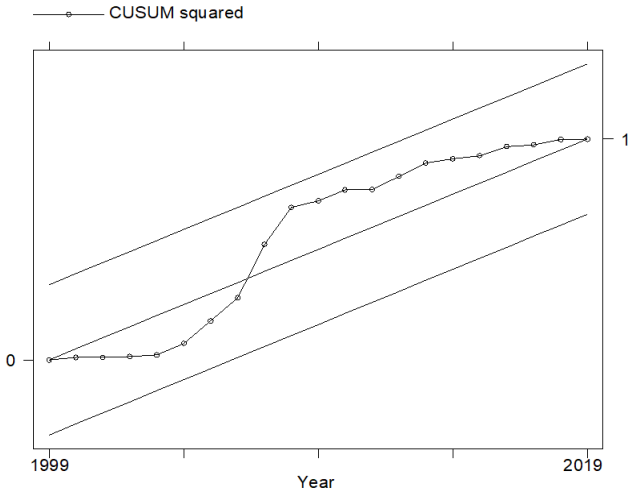

Figure 1b. **CUSUMQ**

CONCLUSION

This study examined the long-run and the short-run dynamics of the economic impact of tourism in the Nepalese context. Using annual time series data for the period 1995-2019, this study examined a series of unit root, cointegration, and ARDL tests to ascertain whether there was a long-run relationship between gross domestic product, tourist arrivals, and real effective exchange rate of Nepal. The variables in this paper are nonstationary and present a unit root, ADF and PP are applied. For the structural break, unit root ZA was applied. ARDL bound tests was used to obtain a cointegrating relationship among the series. The results of this study from cointegration test revealed a long-run nexus between the variables. The long-run and short-run dynamics results using the ARDL approach revealed that tourist arrivals positively and significantly impacted economic development in the long-run and but not in the short-run. A 1% increase in tourist arrivals would result in a 1.15% increase in GDP in the long-run at 5% significance level. However, the exchange rate would not significantly impact GDP both in the long run and the short- run.

Understanding the nexus between tourist arrivals and economic growth may provide knowledge to the researchers, tourism policymakers, and tourism industry sector to evaluate the future planning of the tourism industry. Thus, this study recommends some policy implications like the allocation of government funds for infrastructure and tourism development is critical, since these investments benefit the tourism industry and overall GDP of the country. Moreover, the ease of visa restrictions, airport expansions, and unnecessary political strikes should be stopped to maximise the inbound tourism. The limitation of this study is that it does not study the causal relationship between the variables and may encourage future researchers to use different techniques or models to investigate the relationship with more independent variables.

REFERENCES

Aydin, M. (2022). The impacts of political stability, renewable energy consumption, and economic growth on tourism in Turkey: New evidence from Fourier Bootstrap ARDL approach. *Renewable Energy*, 190, 467-473. https://doi.org/10.1016/j.renene.2022.03.144

Bhattarai, K., & Karmacharya, R. (2022). Impact of tourism on economic growth of Nepal: Is tourism-led growth hypothesis valid for Nepal? *Journal of tourism and hospitality*, 13(1), 93-110. https://doi.org/10.3126/gaze.v13i1.42081

Brida, J.G., Matesanz, Gómez, D., & Segarra, V. (2020). On the empirical relationship between tourism and economic growth. *Tourism Management*, vol. 81. https://doi.org/10.1016/j.tourman.2020.104131

Dickey, D.A., & Fuller, W.A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root', *Econometrica: Journal of the Econometric Society*, 1057-72. https://doi.org/10.2307/1912517

Gautam, B.P. (2011). Tourism and economic growth in Nepal. *NRB Economic Review*, 23, (2), 18-30.

Habibi, F., Rahmati, M., & Karimi, A. (2018). Contribution of tourism to economic growth in Iran's Provinces: GDM approach. *Future Business Journal*, 4(2), 261-71. https://doi.org/10.1016/j.fbj.2018.09.001

Jaiswal, B. (2018). Tourism as a Tool for Economic Development in Nepal. *4th International Conference on Economic Growth and Sustainable Development: Emerging Trends-November 23-24, 2018, Mysuru, India*.

Karki, D. (2018). The Dynamic Relationship between Tourism and Economy-Evidence from Nepal. *The Journal of Business and Management*, V(I), 16-22.

Khanal, A. (2021a). Does energy consumption impact the environment? Evidence from Australia using the JJ Bayer-Hanck Cointegration Technique and the Autoregressive Distributed Lag Test. *International Journal of Energy Economics and Policy*, *11*(4), 185-194. https://doi.org/10.32479/ijeep.11163

Khanal, A. (2021b). The role of ICT and energy consumption on carbon emissions: an Australian evidence using cointegration test and ARDL long-run and short-run methodology. *International Journal of Energy Economics and Policy*, 11(5), 441-449. https://doi.org/10.32479/ijeep.11419

Khanal, A., Rahman, M.M., Khanam, R., & Velayutham, E. (2021). Are Tourism and Energy Consumption Linked? Evidence from Australia. *Sustainability*, 13(19), 10800. https://doi.org/10.3390/su131910800.

Muzindutsi, P.F., Dube, F., & Manaliyo, J.C. (2021). Impact of Economic, Financial and Political Risks on Tourism Performance: A Case of South Africa. *GeoJournal of Tourism and Geosites*, 38(4), 1309-1316. https://doi.org/10.30892/gtg.38439-773.

Nepal, R., Al Irsyad, M.I., & Nepal, S.K. (2019). Tourist arrivals, energy consumption and pollutant emissions in a developing economy–implications for sustainable tourism. *Tourism Management*, 72, 145-54. https://doi.org/10.1016/j.tourman.2018.08.025

Oh, C.O. (2005). The contribution of tourism development to economic growth in the Korean economy. *Tourism Management*, 26(1), 39-44. https://doi.org/10.1016/j.tourman.2003.09.014

Özer, M., Küçüksakarya, S., & Maiti, M. (2022). Nexus of tourism demand, economic growth, and external competitiveness in leading tourist destination countries. Tourism Management Perspectives, 42, 100965. https://doi.org/10.1016/j.tmp.2022.100965.

Paudyal, S. (2012). Does tourism really matter for economic growth? Evidence from Nepal. *NRB Economic Review*, 24(1), 48-66.

Pesaran, M.H., & Pesaran, B. (1997). *Working with Microfit 4.0: Interactive Econometric Analysis*, Oxford University Press, Oxford.

Pesaran, M.H., Shin, Y., & Smith, R.J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289-326. https://doi.org/10.1002/jae.616

Phillips, P.C., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika*, 75(2), 335-46.

Pulido-Fernández, J.I., & Cárdenas-García, P.J. (2020). Analyzing the Bidirectional Relationship between Tourism Growth and Economic Development. *Journal of Travel Research*, 60(3), 583-602. https://doi.org/10.1177/0047287520922316

Rasool, H., Maqbool, S., & Tarique, M. (2021).The relationship between tourism and economic growth among BRICS countries: a panel cointegration analysis. *Future Business Journal*, 7(1). https://doi.org/10.1186/s43093-020-00048-3

Selimi, N., Sadiku, L., & Sadiku, M. (2017). The Impact of Tourism on Economic Growth in the Western Balkan Countries-An Empirical Analysis', *International Journal of Business and Economic Sciences Applied Research*, 10(2), 19-25. https://doi.org/10.25103/ijbesar.102.02

Tung, L.T. (2021). The Tourism-Led Growth Hypothesis In Transition Economies? Empirical Evidence From A Panel Data Analysis. *GeoJournal of Tourism and Geosites*, 38(4), 1076-1082. https://doi.org/10.30892/gtg.38412-746

Wu, T.P., Wu, H.C., Wu, Y.Y., Liu, Y.T., & Wu, S.T. (2022). Causality between tourism and economic growth nexus. *Journal of China Tourism Research*, 18(1), 88-105. https://doi.org/10.1080/19388160.2020.1801545

Zivot, E., & Andrews, D.W.K. (1992). Further evidence on the great crash, the oil-price shock, and the unit-root hypothesis. *Journal of Business and Economic Statistics*, 10(3), 251-70.

Zivot, E., & Andrews, D.W.K. (2002). Further evidence on the great crash, the oil-price shock, and the unit-root hypothesis. *Journal of Business & Economic Statistics*, 20(1), 25-44.

*** World Development Indicator., (2021). The World Bank, USA. https://datacatalog.worldbank.org/dataset/world-development-indicators (accessed 20 April 2021).

*** WTTC. (2021). Economic Impact Reports. World Travel & Tourism Council. https://wttc.org/Research/Economic-Impact. (accessed 20 April 2021).

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