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Botswana Institute for Development Policy Analysis

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Johane Motsatsi was a Research Fellow I in the Macroeconomics and Development Unit of the Botswana Institute for Development Policy Analysis. He passed away prior to the publishing of this paper. However, the paper was completed prior to his passing.

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ABSTRACT

The tourism sector has gained much attention to be a strategic sector for Botswana's economic diversification in the past few years, given the country's lack of economic diversification. Therefore, this study aims to estimate the impact of tourism on economic growth and assess its potential to promote economic diversification. The study employs an Autoregressive Distributed Lag (ARDL) model with annual time series data for the period 1974-2023. The estimated results show that tourism arrivals have a positive impact on real Gross Domestic Product (GDP) per capita both in the short-run (SR) and log-run (LR). The findings indicate that a percentage increase in the number of tourism arrivals would increase real GDP per capita by 0.06 and 0.56 percent in the SR and LR, respectively. This indicates that tourism has the potential to promote economic and export diversification. However, Botswana's tourism sector is not competitive compared to other regional countries (e.g. Seychelles and Mauritius), despite the country's comparative advantage, abundance of wildlife and being peaceful in nature. To achieve the national objectives of export and economic diversification, policies intended to promote tourism development need to be strengthened. Upgrading tourism infrastructure, promoting hospitality skills, product diversification and clear market strategy will ensure the sector is competitive in the global market. Further, since tourism is labour intensive, it will provide immediate employment opportunities, particularly for young people and those living in rural areas, which as a result will address unemployment challenges the country is experiencing.

1. Introduction and Background

Tourism is considered as one of the strongest emerging sectors in developing countries, in terms of its contribution to employment, exports and economic growth (World Travel & Tourism Council, 2012; Manzoor et al., 2019; Rasool et al., 2021; Van der Schyff, Meyer & Ferreira, 2019). Other countries have intensified efforts to promote tourism development because they consider it an integral part of their development plans and strategies, in terms of enhancing economic and export growth as well as curbing unemployment and poverty. The importance of targeted policies that ensure a conducive environment for tourism investment is globally acknowledged in the literature (UNWTO, 2014). Botswana like other countries, has shown commitment to encourage tourism development, given the country's lack of economic diversification.

As outlined in Vision 2036, National Transformation Strategy 2023-2030, and Second Transitional National Development Plan (April 2023 to March 2025), the Government has identified tourism as one of the key priority sectors to diversify the economy and reach high income status by 2036. Botswana attained middle-income status in 1986 and advanced to upper-middle income status in 2005, due to the discovery of diamonds in the early 1970s. Despite the remarkable economic performance, the country has experienced a prolonged stay in the middle-income status due to lack of economic diversification. The country's dependency on one single product (diamond exports) which makes it fragile to external economic shocks reflects slow economic progression and lack of diversification (Throup, 2011; Phiri et al., 2022).

Botswana's slow economic progression has resulted in high rates of unemployment, estimated at 27.1 percent (18 and above) in the first quarter of 2024 (Quarterly Multi-Topic Survey, 2024) and poverty which stood at 14.5 percent (national head count ratio) in the fourth quarter of 2022 (Botswana Multi Topic Household Survey, 2015/16). These socio-economic challenges have been persistent in Botswana, more especially among the youth and people in rural areas (Molokwane & Motsu, 2021; Diraditsile, 2021). The government is committed to address these challenges through tourism development since it is labour intensive. Therefore, it will provide immediate employment opportunities and source of income, leading to a reduction in high rates of unemployment and poverty. For this reason, tourism remains an integral part of Botswana's economic transformation and diversification.

Promoting tourism development is considered as a key strategy that can lead to economic upliftment, export diversification and employment creation, further leading to poverty reduction (Stone, Stone & Mbaiwa, 2017; Masvingise & Taruvinga, 2024; Badimo & Zhao, 2023). More interestingly, Botswana has a diverse and abundance of wildlife and natural resources, which present the country's comparative advantage. Game reserves and national parks in Botswana have abundance of wildlife and wetlands, suitable for

making the country a major tourist destination. Further, Botswana is viewed as a peaceful and less corrupt country (Gokovali and Bahar, 2006; Richardson, 2010; Jaswal, 2014). According to Global Peace Index (2024), Botswana is ranked 50 as a peaceful nation out of 163 countries in the world, and third in Sub-Saharan Africa after Mauritius and Madagascar. This further presents an opportunity for the country to be an attractive tourist destination.

Despite Botswana's comparative advantage and government's long commitment to promote tourism development, studies modelling tourism led growth hypothesis (TLGH) in the country are limited. The exceptions are Badimo & Zhao (2023) and Masvingise & Taruvinga (2024) who estimated TLGH for the period 1988-2019 and 1995-2019, respectively. This study contributes to the existing empirical research in terms of methodological approach (estimation of elasticities and selection of tourism indicator). Our proposed approach involves the demonstration of how to derive short-run (SR) and long-run (LR) elasticities from estimated ARDL model, a key information that is missing from much existing empirical research (Cuddington and Dagher (2011). In addition, the range of observations used in this study (1974-2023) is an improvement from that of previous studies to improve statistical inference.

Therefore, the objective of this study is to estimate the impact of tourism on economic growth. Since tourism has for the past few years gained much attention to be a strategic sector for Botswana's economic diversification, the findings of this study will be important for enhancing tourism development plans, policies and investment strategies. The rest of this paper is organised as follows: Section 2 provides an overview of Botswana's tourism sector, Section 3 reviews the literature, Section 4 outlines the methods of analysis and data, Section 5 provides discussion of the results and Section 6 covers the conclusion and policy implications.

2. Overview of Tourism Industry

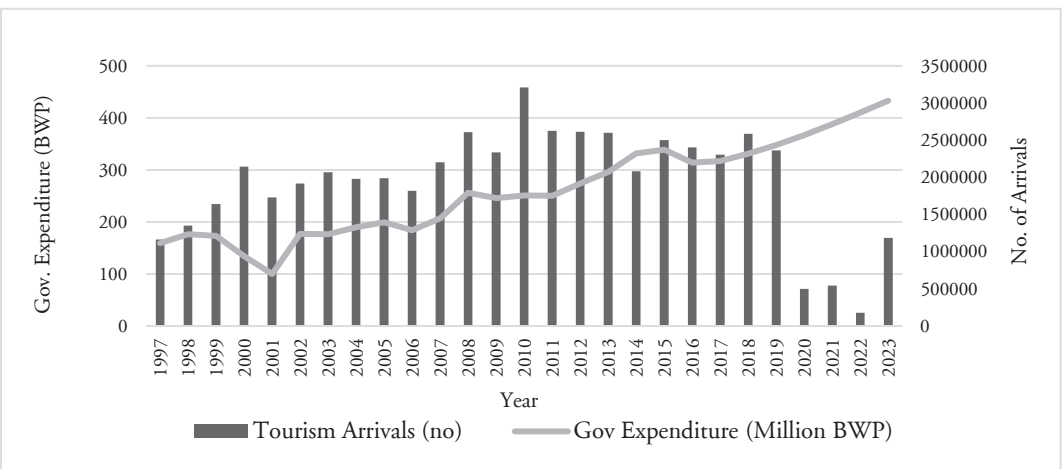
2.1 Economic Contribution

This section examines the potential of tourism sector in influencing economic development in Botswana, based on the sector's contribution to employment, exports, and GDP. Due to shortage of data on other indicators such as government investment and tourism income/receipts, the assessment on economic contribution of tourism will only cover the period 1997-2023.

2.1.1 Tourism Investment

Figure 1 reveals an upward trend of government expenditure on tourism, indicating a sustained government commitment in promoting the sector's development. Government spending on tourism stood at an average of BWP260.26 million during the period 1997-2023 (World Travel and Tourism Council, 2023). It exhibited a downward trend from 1998 to 2001, thereafter, showed an upward trend until 2023.

Figure 1: Tourism Expenditure and Arrivals



Source: World Travel and Tourism Council (WTTC)

2.1.2 Tourism Arrivals

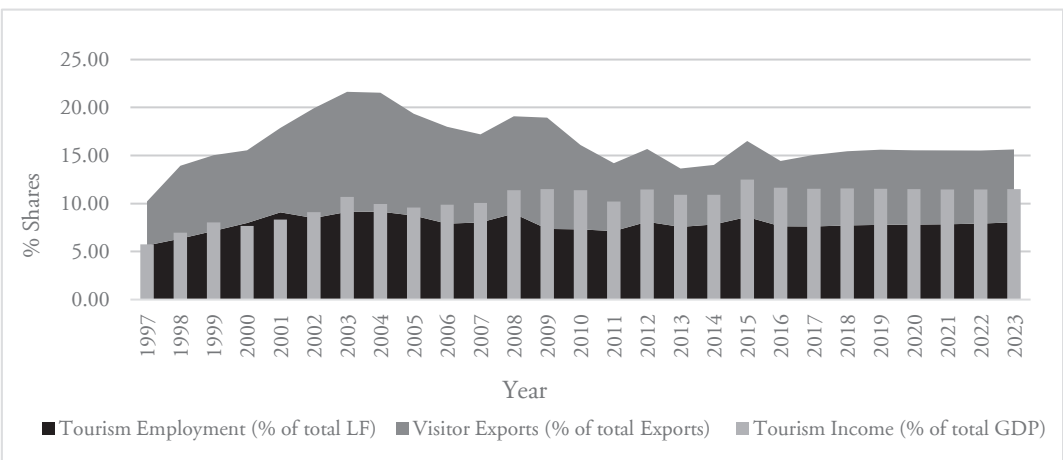
In response to a sustained tourism investment, tourism arrivals have increased from 607 000 in 1997 to 2 101 000 in 2008 as shown in Figure 1. The increment could be as a result of high value-low volume nature-based tourism in the northern part of the country (Molefe, 2021). Thereafter, it declined to 1 721 000 in 2009 which could be attributed to 2009 Global Recession. Significant declines were also experienced in 2020 (500 434 tourists), 2021 (543 938 tourists)

and 2022 (175 669 tourists) due to the impact of Covid 19 travel restrictions (World Travel and Tourism Council, 2023). Generally, tourism arrivals show an increasing trend due to sustained investment in the sector.

2.1.3 Tourism Employment

Investment in tourism sector has proved to be an important step in stimulating employment generation. As illustrated in Figure 2, tourism's contribution to total labour force was estimated at 7.56 percent in 2013, a decline from 8.09 percent in 2012. During 2014, 2015, 2016 and 2017, tourism employed about 7.81, 8.59, 7,62 and 7.60 percent of total labour force, respectively. During 2018, its share was estimated at 7.71 percent, compared to 7.77 percent in 2019, 7.80 percent in 2020, and 8.04 percent in 2023. For the period 1997-2023, the contribution of tourism sector to total labour force was estimated at an average of 7.87 percent (World Travel and Tourism Council, 2023), reflecting the importance of tourism in job creation.

Figure 2: Tourism GDP, Exports and Employment



Source: World Travel and Tourism Council (WTTC)

2.1.4 Tourism Exports

The share of visitors' exports to total exports represented in Figure 2 indicates that in 2013 it was estimated at 5.53 percent, a decrease from 7.96 percent in 2012. In 2015, it stood at 7.44 percent which is an increase from 5.58 percent in 2014, while in 2016, 2017 and 2019 it was estimated at 6.14, 7.85 and 7.76 percent, respectively. A significant decline was experienced in 2020 where it stood at 4.51 percent. The decline was due to travel restrictions because of the occurrence of Covid-19 towards the end of 2019 and started to recover in 2023. During the period 1997-2023, the sector's contribution to total exports

was estimated at an average of 8.46 percent (World Travel and Tourism Council, 2023), suggesting that the sector is critical for exports diversification and growth.

2.1.5 Tourism GDP

Figure 2 also demonstrates the share of tourism income to total Gross Domestic Product (GDP). As illustrated, tourism income as a percentage of total GDP declined from 11.45 percent in 2012 to 10.90 percent in 2014. Then it rose to 11.59 percent in 2018 and declined again to 11.46 percent in 2022 due to the impact of Covid 19. For the period under review, the contribution of tourism to GDP remained at 10.31 percent (World Travel and Tourism Council, 2024), indicating that tourism can play a meaningful role in economic diversification. Overall, tourism has played an integral part in Botswana's economy, in terms of its contribution to employment, exports, and GDP.

Despite tourism showing the potential to diversify the economy, there has not been progress to diversify the economy from minerals. Some of the contributing factors could be lack of diversification, which has been a challenge in all the sectors in Botswana. Another contributing factor is insufficient investment in the sector, which has led to the sector being uncompetitive in the global market. Other regional countries, including Seychelles and Mauritius, have made significant investments in tourism which has resulted in the sector contributing immensely to economic growth. For example, during the period 1997-2015, Seychelles allocated 34.4 percent of its export revenue to tourism capital investment, a huge investment in its tourism sector (compared to 5.8 percent in Botswana for the same period). The investment made the tourism sector of Seychelles to contribute 39.3 percent of total exports, 58.6 percent of total employment, and 58.8 percent of total GDP during the same period (Motsatsi, 2018).

Therefore, these are some of the constraints limiting tourism in Botswana to be competitive in the global market, which requires the government to commit more resources to tourism investment to increase its contribution to the economy. Service quality needs to be encouraged in Botswana's tourism sector. Factors such as quality of the infrastructure including housing, beds, internet connection, roads and other factors can make tourism to be competitive if they are of high standard.

Therefore, if the objective of government is to promote economic diversification through tourism, the policy should strengthen and commit more resources to tourism development in order to expand the sector and increase demand for its products. Providing a more conducive environment for tourism investment

will enable the government to achieve its objective of economic growth and export diversification. Further, other strategic policies intended to expand tourism should focus on hospitality skills development, product diversification, environmental conservation, reduce tourism leakages, and empower citizen to encourage their active participation in the sector's development.

2.2 Policy Landscape

Since the enactment of Tourism Policy in 1990 (Republic of Botswana, 1990), several policies and legislation aimed at respectively growing and regulating the industry have been introduced. These include amongst others: Tourism Act (Republic of Botswana, 1992); Botswana Tourism Master Plan (BTMP) (Republic of Botswana, 2000); Botswana National Ecotourism Strategy (Republic of Botswana, 2002); Community Based Natural Resources Management Policy (2007); Tourism Regulations, (1996 & 2010); National Tourism Strategy and Master Plan, 2023-2033, and the recent Community-Based Natural Resources Management (CBNRM) Bill, 2025.

The review of tourism policies demonstrate that Government has produced a range of sound policy frameworks that have assisted in guiding tourism development. Generally, their main strategic developments are based on promoting; rural development, citizen participation, product diversification, ecotourism, tourism marketing, private/public partnership, training and skills development, ecological/economic sustainability, cultural tourism, historical and event tourism, foreign exchange earnings, conservation and environmental protection. Further, after the review of low volume/high price approach, high volume/mixed price was adopted as a suitable approach to encourage more tourism activities. (Republic of Botswana, 1990 & 2000)

The overarching strategy of National Tourism Strategy and Master Plan (2023-2033) like the previous policies puts more emphasis on; citizen and local community involvement; market diversification; product diversification; domestic leisure market; natural resource protection and cultural conservation, amongst others. It also encourages citizens to actively participate in tourism development, which is reinforced by principles of citizen economic empowerment, job creation and income generation. Generally, the policy is focused on six major areas of impact: event tourism, cluster tourism, cultural tourism, community project development, dams' tourism, and community projects. (National Tourism Strategy and Master Plan, 2022)

The review of policies indicate that progress has been made on the policy front, however, the government has not been able to position Botswana as the most attractive tourism destination in the world, despite the country's comparative advantage. Nonetheless, the country is doing well in terms of environmental management and conservation, despite few challenges such as drought, land degradation, and climate change. In addition, improving service quality of the tourism sector will surely attract more tourists in the

country and encourage tourism growth. In conclusion, harmonization of the tourism policy landscape is needed to make the tourism sector to be more responsive to the needs of tourists. Additionally, formulations of tourism policies are housed under different ministries and departments, leading to duplication of efforts and complexity of coordination. (Hall and Jenkins, 1995).

3. Brief Review of Literature

3.1 Determinants of Tourism Demand

The evaluation of the determinants of tourism demand is critical when identifying factors that contribute to tourism growth (Sheferahu, 2016; Motsatsi, 2018). Past studies conducted in Botswana indicate that tourism is influenced by GDP per capita or GDP per capita growth rate, trade openness, and real exchange rate (Masvingise & Taruvinga, 2024; and Badimo & Zhao, 2023). In Africa, it is driven by income (proxied by country's GDP), exchange rate, inflation, quality and cost of transportation and accommodation (Onder, Candemir & Kumrai, 2009, and Sheldon, 1993). Naude & Saayman (2005) highlighted that government investment in tourism, quality of infrastructure, telephone connectivity, access to internet, trade openness, political unrest and corruption have been the main factors determining tourism arrivals in Africa.

Globally, countries around the world have made significant strides to determine drivers of tourism demand. In Europe, studies conducted by Daniel & Ramos (2002) in Portugal asserted that tourism demand is influenced by GDP, exchange rate, inflation, and cost of road and air transport. From the Asian region, Chao et al. (2005) revealed that tourism is determined by GDP, exchange rate, inflation, and relative prices of tourism products in Hong Kong. Other factors are government investment on tourism, quality of infrastructure, cost of accommodation, school enrolment, gross fixed capital formation, telephone connectivity, cost of transport, consumption expenditure, access to internet, trade openness, political unrest, and corruption. Political unrest and corruption on the other hand have been identified as some of impediment factors to tourism arrivals in Malaysia (Giap, Goplan & Ye, 2016).

3.2 Tourism-Led Growth Hypothesis (TLGH)

The TLGH postulates that the expansion of tourism stimulates or spurs economic growth (Balaguer and Cantavella-Jordá, 2002; Brida et al. (2016). Tourism promotes investment in human capital and infrastructure leading to efficiency among local firms due to increased competition. Since it encourages infrastructure and human capital development, it lowers cost of production which as a result leads to economic expansion. However, other studies suggest a reverse hypothesis or growth-led tourism hypothesis (GLTH), arguing that it is economic growth that causes tourism growth. For example, Odhiambo & Nyasha (2020) suggested that broad economic development in sectors

such as construction, retail and restaurants, transport and communication lead to tourism development, since they have strong linkages.

Some studies have also theorised a neutral hypothesis, that there is no causal relationship between economic growth and tourism, indicating that they are completely independent. This hypothesis suggests that investment efforts made to promote tourism development will not have direct impact on the economy's growth, and vice versa (Oh, 2005; Sokhanvar et al., 2018; Pisa, 2018). Meanwhile Wu & Wu (2019) has theorised a feedback hypothesis (bidirectional causation or feedback loop), which states that the relationship between tourism and economic growth is dynamic, arguing that both economic growth and tourism will propel one another

Badimo & Zhao (2023) and Masvingise & Taruvinga (2024) estimated TLGH in Botswana for the period 1988-2019 and 1995-2019, respectively. Badimo and Zhao (2023) used ECM-ARDL approach to estimate the relationship between inbound tourism (percentage of tourism revenue to GDP) and annual change of GDP/capita in US dollars. They used real effective exchange rate and 2009 global financial crisis as control variables. Their findings supported TLGH both in the long and short run and suggested that tourism development needs to be strengthened to diversify tourism products as a means of promoting tourism growth. Masvingise & Taruvinga (2024), on the other hand, used ECM-based Multivariate Granger-causality test to investigate the casual relationship between GDP/capita, PPP (constant 2017 International US$) and international tourism receipts (in current US$). Trade as a percentage of GDP and annual percentage growth in the exports of goods and services were used as control variables. The findings did not support TLGH and argued that development efforts should be directed to the overall economy rather than tourism to create an environment conducive for tourism growth.

According to Badulescu et. al. (2021), TLGH is one of the most comprehensively researched and defended theory in the literature. Despite, TLGH empirical findings have been inconsistent, other studies suggesting GLTH, it has been highlighted that the inconsistency of the TLGH could have been attributed to, among others; the country's economic structure, level of economic development, methodological differences, variable selection, type of data and scope (Medina-Smith., 2001; Kyophilavong et. al., 2018; Wu & Wu., 2019).

The results from the investigations by Garrod et. al. (2023) in Madeira (Portugal) which focused in establishing the relationship between tourism arrivals and GDP supported TLGH. This study used Asymmetric Nonlinear Autoregressive Distributed Lag model, with annual data from 1976 to 2019, and the findings suggested that development efforts made to promote tourism development will encourage economic growth. TLGH was also confirmed by Jiranyakul (2019) in Thailand, who estimated the impact of inbound tourism on economic growth. The study used ECM model with

quarterly data for the period 2006-2017 and found that tourism income causes real GDP growth.

Studies by Kibara et al. (2012) utilizing an ARDL-bounds test approach in Kenya, Akinboade and Braimoh (2010) employing VECM (Johansen)-Granger causality in South Africa, and Nyoni et al. (2021) using ARDL-bound approach in Zimbabwe confirmed TLGH both in the long and short run. TLGH was also validated by Muzekenyi, Nheta & Tshipala (2018) in South Africa, Ahiawodzi (2015) in Ghana, Masvingise, Taruvinga & Gwala (2023) in Madagascar, Nene & Taivan (2017) in Sub Saharan Africa, and Bouzahzah & Menyari (2013) in Morocco and Tunisia.

Another study by Cortes-Jimenez and Pulina (2010) in Italy and Spain which was conducted to find whether tourism and exports influence economic development showed mixed results. The study applied both cointegration techniques and a multivariate granger causality test and found that TLGH is only supported in Spain in the long run. Mixed results were also established by Wu & Wu (2019) in eight Chinese provinces. TLGH was only confirmed in Shanxi, Jiangxi, and Henan provinces, while reciprocal causal relationship was found in Jilin, Anhui, and Hubei, and neutrality hypothesis was established in Heilongjiang provinces.

A feedback mechanism was verified by Nyasha, Odhiambo and Simplice (2020) in South Africa using data for the period 1995 to 2016. The findings of this study viewed tourism and economic development as strongly related and complementing each other. The implication of the results was that encouraging investment in either one of them will directly impact another. A neutral hypothesis was found by Pisa (2018) using data for the period 1995-2015. The findings suggested that efforts made to grow tourism will not have direct impact on economic expansion.

4 Methodology and Data

4.1 Model Specification

This study adopts an ARDL framework proposed by Rasool et al. (2021) to estimate the impacts of tourism arrivals on economic growth (real GDP per capita) in Botswana. The proposed model specified by equation 1 is a representation of ARDL (M, P, Q, R) model and regress real GDP per capita on M lags of itself, P lags of tourism arrivals, Q lags of exchange rate, and R lags of inflation rate (log of CPI).

$$InY_t = \beta_0 + \sum_{m=1}^{M} \beta_{ym} lnY_{t-m} + \sum_{p=0}^{P} \beta_{np} lnN_{t-p} + \sum_{q=0}^{Q} \beta_{eq} lnE_{t-q} + \sum_{r=0}^{R} \beta_{pr} lnP_{t-r} + \psi_D D_t + \varepsilon_t \qquad 1$$

where, Y represents real Gross Domestic Product per capita (in Million Pula) used as a measure of economic growth, N denotes the number of tourism arrivals, E is bilateral US dollar per Pula exchange rate. Due to shortage of time series data on real effective exchange rate, a bilateral exchange rate between the US dollar and Pula was preferred to capture the country's competitiveness in the international market, P is inflation rate (consumer price index) capturing the cost of goods and services, D is a dummy for Covid-19 outbreak (D_t = 1 during Covid and D_t = 0) otherwise), βs and ψ are fixed parameters to be estimated, ε is the error term, t represents time (year), and ln is the natural logarithm. To make lag interval explicit, the model can be presented as ARDL (1-M, 0-P, 0-Q, 0-R, 0-S), implying 1 to M, 0 to P, 0 to Q, 0 to R, and 0 to S lags of real GDP per capita (Y), tourism arrivals (N), exchange rate (E), and inflation (P), respectively.

A priori expectations of coefficient are as follows. The number of tourist arrivals is expected to carry a positive sign. An increase in tourism arrivals is expected to have a positive impact on tourism income/receipts, which will further stimulate economic growth (real GDP per capita). Exchange rates determine how much currency is worth in terms of another, which affects the cost of goods and services across borders. A stronger exchange rate will make exports expensive and imports cheaper, reducing aggregate demand and depressing economic growth. Hence tourism is mainly to export tourism services, depreciation of local currency is expected to increase tourism demand, further leading to economic growth, implying that E is expected to have a negative sign. Low inflation is expected to reduce the cost of goods and services which will then lead to an increase in aggregate demand, and consequently economic growth, indicating a negative sign. The outbreak of Covid restricts tourists travel and limit the arrival of tourists. Low arrivals are expected to negatively affect tourism receipts/income, further leading to reduction in economic growth, suggests a negative sign.

4.2 Elasticity Calculation

Following Cuddington and Dagher (2011), the short-run (SR) and long-run (LR) income elasticities with respect to tourism arrivals can be derived using equation 2 and 3, respectively. Assuming $\eta(y,n,k)$ is cumulative percentage response of real GDP per capita (Y) to a percentage point change in tourism arrivals (N) after k periods. The SR elasticity is simply the coefficient on the first term of tourism arrivals, as shown in equation 2 below:

$$\eta(y,n,k) \equiv \frac{dY_t}{dN_t} = \beta_{n0} \quad 2$$

Assuming stability, the LR elasticity can be derived by setting Y in all time periods equal to $\bar{Y}$ and all tourism terms equal to $\bar{N}$, to calculate the total derivative as shown in equation 3:

$$\eta(y,n,\infty) \equiv \frac{d\,\bar{Y}}{d\bar{N}} = \frac{\sum_{p=0}^{P}\beta_{np}}{1-\sum_{m=1}^{M}\beta_{ym}} \quad 3$$

Note that stability of the model requires the denominator to be positive, thus $1 - \sum_{m=1}^{M}\beta_{ym} > 0$. The same approach is applied when calculating SR and LR elasticities across other variables. For example, the corresponding SR and LR elasticities with respect to exchange rate can be derived using equation 4 and 5, respectively (Cuddington and Dagher, 2011).

$$\eta(y,e,k) \equiv \frac{dY_t}{dE_t} = \beta_{e0} \quad 4$$

$$\eta(y,e,\infty) \equiv \frac{d\,\bar{Y}}{d\bar{E}} = \frac{\sum_{q=0}^{Q}\beta_{eq}}{1-\sum_{m=1}^{M}\beta_{ym}} \quad 5$$

4.3 Data and Sources

Annual data for the period 1974-2023 was used to estimate the ARDL model. The real Gross Domestic Product per capita (GDP/capita) in 2006 constant prices expressed in million Pula was collected from World Development Indicators, together with consumer price index (CPI, 2010=100) and US dollar per Pula bilateral exchange rate (World Bank, 2024). The number of tourism arrivals was collected from different Statistical Bulletin and Tourism Statistics reports published by Statistics Botswana (Statistics Botswana, various reports). The 2009 recession dummy and Covid-19 dummy was based on the outbreak of Covid pandemic in 2019, respectively.

5 Results and Findings

5.1 Stationarity Test

Prior to model estimation, Dicky-Fuller test was employed to determine the time series properties of the data. The results presented in Table 1 shows that the natural log of real GDP per capita and the log of consumer price index (inflation), were stationary in their levels. The log of number of tourism arrivals and US dollar/Pula exchange rate were stationary in their first difference. The unit root test indicates a combination of I (0) and I (1) variables, which requires or suggest a co-integration test to determine the existence of long run relation among them.

Table 1: Dicky fuller tests for unit root

	Level		First difference	
Variables	Intercept	Intercept and trend	Intercept	Integration Order
ln Y_t		-3.77 ** (0.03)		I (0)
ln N_t			-7.56 *** (0.00)	I (1)
ln P_t	-2.87 * (0.06)			I (0)
ln E_t			-5.07 *** (0.00)	I (0)

5.2 Co-integration Test

An ARDL Long Run Form and Bounds Test was performed to determine the presence of long run relationship among the variables, as suggested by the unit root test. The rule of thumb is that the null hypothesis stating that there is no long run relationship cannot be rejected if the F-test statistic is less than the I (1) bound critical value. The F-test statistic (8.55) presented in Table 2 is evidently more than the I (1) bound critical value (4.37) at 1% level of significance, implying that variables are jointly co-integrated and have a long run relationship. A combination of I (0) and I (1) variables with a long run relationship amongst themselves suggest that ARDL model is an appropriate estimation model for the data (Pesaran *et al.*, 2001).

Table 2: Bounds test for cointegration

Level of significance	F-statistic	Critical F-values	
	8.55	I (0)	I (1)
10%		2.22	3.09
5%		2.56	3.49
1%		3.29	4.37

5.3 ARDL Estimates

Table 3 presents estimate of ARDL model (1, 3, 0, 2) executed using equation 1. The model fits the data reasonably well, as explained by the R-squared (0.903) and adjusted R-squared (0.841). Almost 90 % of the variation in real GDP per capita is explained by the independent variables. Further, diagnostic tests were performed to determine the robustness of the estimated results (Table A1, Appendix). There were no serial correlation and heteroscedasticity detected in the model, while the residuals were found to be normally distributed. In addition, all the estimated coefficients were statistically significant at 1 percent, except for the second lag of tourism arrivals, exchange rate and first lag of inflation, which were all significant at 10 percent. All coefficients yielded theoretically expected signs, except for first and second lags of tourism arrivals and inflation.

Table 3: Estimates of ARDL Model

Dependent variable is $\ln Y_t$: ARDL (1, 3, 0, 2)			
Variable	Coefficient	t-ratio	Probability
$\ln Y_{t-1}$	0.926***	32.20	0.000
$\ln N_t$	0.055***	3.146	0.003
$\ln N_{t-1}$	-0.084***	-3.603	0.001
$\ln N_{t-2}$	-0.061*	-1.970	0.056
$\ln N_{t-3}$	0.131***	3.997	0.000
$\ln E_t$	-0.009*	-1.861	0.071
$\ln P_t$	-0.009***	-3.209	0.003
$\ln P_{t-1}$	0.006*	1.919	0.063
$\ln P_{t-2}$	-0.008***	-2.634	0.012
D_t	-0.123**	2.350	0.024
Constant	0.601	3.323	0.021
Statistical measures			
Observations	47		
R^2	0.903		
$Adj.R^2$	0.841		

Note: p-values for Z(t) are reported in parenthesis.
***: Rejects nonstationary at the 1% critical value.
**: Rejects nonstationary at the 5% critical value.
*: Rejects nonstationary at the 10% critical value.

The summary of SR and LR elasticities depicted in Table 4 were calculated using equations 2 to 5. An elasticity of real GDP per capita with respect to tourism arrivals

is 0.06 in the SR and 0.56 in the LR. The results suggests that a percentage increase in the number of tourism arrivals would increase real GDP per capita by 0.06 and 0.56 percent in the SR and LR, respectively. The elasticity of real GDP/capita with respect to exchange rate is estimated at -0.01 percent both in the short and long run. This indicates that depreciation of the Pula by 1 precent will increase real GDP/capita by 0.01. The estimated SR elasticity of GDP/capita with respect to inflation (-0.01) indicates that a percentage decline in consumer prices will lead to 0.01 percent increase in real GDP per capita in the SR, while LR elasticity of -0.14 indicates that real GDP will increase by 0.14 percent in the LR.

Table 4: Summary of SR and LR Elasticities

Variable	Short-Run	Long-Run
Tourism Arrivals	0.06	0.56
Exchange Rate	-0.01	-0.01
Consumer Prices (Inflation)	-0.01	-0.14

The results are consistent with the findings obtained by Badimo & Zhao (2023), who confirmed the existence of TLGH in the economy of Botswana. In the African region our findings are consistent with studies conducted by Kibara et al. (2012) in Kenya, Nyoni et al. (2021) in Zimbabwe, Ahiawodzi (2015) in Ghana, Masvingise, Taruvinga & Gwala (2023) in Madagascar, Akinboade and Braimoh (2010) and Muzekenyi, Nheta & Tshipala (2018) both in South Africa and Bouzahzah & Menyari (2013) in Morocco and Tunisia, which supported TLGH. Therefore, policies aimed at promoting tourism development would stimulate economic development both in the long run and short run.

6 CONCLUSIONS AND POLICY IMPLICATIONS

The tourism sector has experienced impressive performance in Botswana's economy, in terms of its contribution to employment, exports, and overall economic growth (GDP). During the period 1997-2023, the shares of tourism to total GDP, exports and employment were respectively estimated at averages of 10.31, 8.46 and 7.87 percent. This indicates that the sector has the potential to play a more meaningful role in economic transformation and diversification. Further, the findings conducted with ARDL model using annual data for the period 1974-2023 reveal that increase in tourism arrivals stimulates economic growth. The estimated elasticities of real GDP per capita with respect to tourism arrivals both in the long-run (0.56) and short-run (0.06) suggest that a percentage increase in tourism arrivals will increase real GDP/capita by 0.56 and 0.06 percent in the long and short-run, respectively.

However, Botswana's tourism sector is still not competitive compared to other regional countries, despite the country's comparative advantage. Countries such as Seychelles had made huge investment in the sector, and as a result, their tourism sector had made immense contribution to the country's economic development. Therefore, for Botswana's tourism to have a significant impact on economic and export diversification, it requires a government willpower to implement policies and investment that can influence the sector's growth. Such policies and investment strategies should focus on upgrading infrastructure, promoting hospitality skills (from semi-skilled to highly skilled management levels), promoting product diversification and developing clear market strategy to ensure the sector is competitive in the global market. Other policies should focus on encouraging citizens to participate actively in the sector's development, reduce tourism leakages, promote environmental conservation, and create a conducive environment for private investment.

Promoting tourism development is critical to achieving economic and export diversification since the country is well suited to be an attractive tourist destination. Further, it will also provide immediate employment opportunities, particularly for young people and those living in rural areas because it is labor intensive. Tourism also has strong economic linkages with other sectors, therefore, its development will also benefit other sectors, for example, local service providers such as food, internet, accommodation, transport and others.

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7 APPENDIX

Table A2: Diagnostic Tests

Test	P-value
Jarque Bera (H_0: Normality)	0.198
Breusch-Godfrey (H_0: No serial correlation)	0.220
White (H_0: Homoskedasticity)	0.433
Breusch-Pagan/Cook-Weisberg (H_0: Homoskedasticity)	0.667

Notes. $^{***}p<0.01$, $^{**}p<0.05$, $^{*}p<0.10$.
†: 1%, 5% and 10% critical values are 1.143, 0.948 and 0.850, respectively.
‡: 1%, 5% and 10% critical values are 1.628, 1.358 and 1.224, respectively.

Source: Authors own work

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