Examining the impact of tourism on economic growth in the Republic of South Africa

Examinando o impacto do turismo no crescimento econômico da República da África do Sul

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Abstract
Examining the impact of tourism on economic growth in the Republic of South Africa (1995–2020) is the subject of this thesis. Tourism is widely recognized as one of the factors that contributes to a country's long-term economic development and helps to raise average income per person across the board. In this regard, international tourism makes a lot of positive contributions to economic growth in a variety of ways. One of the most fundamental reasons why tourism is so important is that money from tourism helps cover the country's need for foreign currency and, as a result, contributes to the reduction of the balance of payment deficit. Argue that, in addition to the information previously stated, the tourism industry contributes to economic development in a number of different ways. For example, tourism profits can be invested in fixed assets; tourism promotes a competitive market and investments in new facilities; tourism stimulates other sectors of the economy through direct, indirect, and induced effects; tourism creates job opportunities; and tourism promotes foreign travel and exchange

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rates. The ARDL model and the Granger causality test were utilized in this thesis to determine the connection between the dependent and independent variables. The findings suggest that tourism has a beneficial influence on South African economic development, but exports and exchange rates have a negative impact. Given that there is a causal link between tourism and economic development, our evidence of reliance may support the deployment of these strategies. All of this was done by using the Eviews statistical software. Also, when tourism is promoted and it is discovered that growth rates are interdependent, it may be acceptable to impose tourist laws since these rules take into consideration the degree of tail dependency that occurs between growth rates over time.

**Keywords:** Tourism. Economic Growth. Exchange Rate. Export. Investment.

**Resumo**

A análise do impacto do turismo no crescimento econômico da República da África do Sul (1995-2020) é o tema desta tese. O turismo é amplamente reconhecido como um dos fatores que contribuem para o desenvolvimento econômico a longo prazo de um país e ajuda a aumentar o rendimento médio por pessoa em todos os setores. A este respeito, o turismo internacional contribui, de diversas formas, de forma muito positiva para o crescimento econômico. Uma das razões mais fundamentais para a importância do turismo é o fato de o dinheiro do turismo ajudar a cobrir as necessidades do país em moeda estrangeira e, consequentemente, contribuir para a redução do défice da balança de pagamentos. Argumentam que, para além das informações anteriormente referidas, a indústria do turismo contribui para o desenvolvimento econômico de diversas formas. Por exemplo, os lucros do turismo podem ser investidos em ativos fixos; o turismo promove um mercado competitivo e investimentos em novas instalações; o turismo estimula outros setores da economia através de efeitos diretos, indiretos e induzidos; o turismo cria oportunidades de emprego; e o turismo promove viagens ao estrangeiro e taxas de câmbio. O modelo ARDL e o teste de causalidade de Granger foram utilizados nesta tese para determinar a conexão entre as variáveis dependentes e independentes. As conclusões sugerem que o turismo tem uma influência benéfica no desenvolvimento econômico da África do Sul, mas as exportações e as taxas de câmbio têm um impacto negativo. Dado que existe uma relação causal entre o turismo e o desenvolvimento econômico, a nossa confiança pode apoiar a implementação destas estratégias. Tudo isso foi feito usando o software estatístico Eviews. Além disso, quando o turismo é promovido e se descobre que as taxas de crescimento são interdependentes, pode

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Introduction

It is well acknowledged that tourism is one of the long-term economic development factors that helps to raise per capital income across nations. In this regard, international tourism contributes positively to the development of the economy in a variety of different ways. One of the most significant is the fact that revenue from tourism helps cover the country's need for foreign currency and, as a result, contributes to the narrowing of the gap in the country's balance of payments. According to Brida & Pulina (2010), there are a number of additional ways in which the tourism industry helps to the expansion of the economy. Tourism not only creates jobs but also stimulates other areas of the economy in a variety of ways, including directly, indirectly, and inducedly (for instance, by increasing industrial and agricultural output to match the growing tourist market, as well as by increasing international travel and exchange rates). Tourism also has an impact on the value of currencies. Profits from tourism can be reinvested in productive assets; tourism is instrumental in the interest of fostering competition and encouraging investments in brand new infrastructure; tourism stimulates other economic sectors via direct, indirect, and induced effects; In addition, it plays a big part in getting technical information out there, encouraging research and development, and building human capital. It is generally accepted that tourism-related activities are one of the main drivers of economic expansion around the world. It is a mechanism that provides income and employment as well as the earnings from the sale of foreign exchange. In many countries, a better balance of payments as a result of tourism expenditures and gains from foreign currency earned has functioned as a substitute for exports of other types of goods. It directly and indirectly generates revenues for the government. The usage of multiplier effects, an increase in the balance of payments, and the performance of government programs aimed at increasing tourism have all contributed to the accomplishment of this goal. Because of this, many people have thought that the growth of tourism was a good thing for the growth of the economy (Dristakis, 2004). The tourism industry has seen continuous growth and
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diversification over the last six decades, propelling it to the position of being one of the biggest and most rapidly expanding economic sectors on a world wide scale.

**Theoretical Framework**

Tourism is an industry that contributes the most to global GDP and accounts for around 9% of total exports, making it the most important one in the service sector in terms of global commerce (UNWTO, 2013). The tourism industry is significant because it is a labor-intensive industry that has the ability to offer employment for individuals with lower levels of education and training. This makes the tourism industry an important economic sector. South Africa brought in a total of $9,944 million in revenue from tourism, which represented 0.92 percent of total global earnings. Over the course of the past several years, the importance of the sector to the economy of South Africa has expanded. After the sanctions were lifted, this portion of GDP climbed to 3.6%, and its contribution to the economy reached 4.9% in 2003. During the post-sanction period, this figure reached an average of 3.6% of GDP. After the imposition of sanctions in 1994, the average contribution of tourism receipts to GDP climbed to 3.6% from the previous average of 2.1%. Prior to that year, the average contribution of tourism receipts to GDP was 2.1%. On the African continent, the market share that belongs to South Africa is the largest, which is equal to 30% of the total market.

The structural transformation model recommends that countries still in the process of economic development concentrate their efforts on high-productivity industries such as tourism and financial services (Mihajlovi, 2014). The World Tourism Organization (WTO), which has experienced an increase in the number of tourism activities in developing nations over the course of the last decade, has also provided evidence that lends credence to this assertion (WTO, 2019a). Authorities at all levels of government have praised tourism for the increased economic diversity it has brought to their countries (Kum et al., 2018). According to Zhuang et al. (2019), government authorities have come to the conclusion that an important contributor to the generation of positive externalities is now the tourism industry due to the fact that its significance can be seen in the development of infrastructure, the creation of job opportunities, and the reduction of poverty. The contribution made by the tourism sector to overall economic development is finally converted into this form. For instance, the travel and tourism business is responsible for more than 10% of the expansion of the world economy (WTO, 2019). This discovery is consistent with findings made in additional nations in southern Africa, such as the Seychelles, Mauritius, South Africa, and Tanzania (World Travel &
Tourism, 2019). There is a lot riding on the answer to the question of whether or not tourism has a positive impact on economic development. This issue has a multifaceted response, which may be broken down into two categories: the complementing perspective and the substitutive view. The other point of view is based on the idea that tourism brings in foreign cash, which is counted as income from what tourists buy (Chulaphan & Barahona, 2018).

The acquisition of capital goods from other nations, the usage of foreign currency makes this possible and helps the economy grow. The supplementary point of view goes on to say that Tourism increases investment, which aids in economic progress and income from infrastructure investment. This is said to be one of the ways that tourism contributes to economic growth. This is stated in greater detail in the following sentence (Kum et al., 2018). There is stylized data that supports the argument that the expansion of infrastructure results in multiplier effects by producing employment, It ultimately leads to a rise in the amount of money that households have available for spending, which in turn leads to an expansion of the economy (Adebayo & Iweka, 2014). The complementary plan adheres, in the same manner, to the concept that tourism offers advising services to local small businesses (Shi et.al, 2012). Local businesses are able to benefit from sales cost savings, which allows them to expand their operations while simultaneously lowering their overall production costs. On the other hand, the substitutive approach agrees with the idea that the money spent by visitors from other countries has an effect on the purchasing habits of local consumers, which might have an inflationary effect (Kum et al., 2018).

South Africans are well aware that their nation's economic growth has been stagnant for the past several years, ranging between 0.7% in 2018 and around 1.5% in 2019, after being 1.3% in 2017 and 0.7% in 2018. In 2019, the growth rate is expected to be roughly 1.5%. (South Africa Reserve Bank, 2020). Researchers have expressed alarm about this particular issue.

According to projections (StatsSA, 2019a), South Africa's GDP is predicted to increase at a 1.5 percent annual rate in 2019. However, the economy is only growing at a rate of 1.5 percent each year, which is not enough to support South Africa's massive population. In spite of this, and assuming that everything else stays the same, because the National Treasury (2019a) has categorized the tourist industry as one that is immune to the effects of major economic shocks, it is anticipated that the tourism industry would be the engine that accelerates economic expansion. The few studies that sought to investigate the link focused their attention on a time-series analysis and made use of variables such as tourist expenditures
and visitor counts to evaluate tourism (Bandula, 2015; Yusuff & Akinde, 2015; Alhowaish, 2016; Kum et al., 2018).

The results of this research are important because there are few studies examining tourism and economy relations in South Africa. As a result of a review dating back to 1995, it was determined that there were not many studies on the subject, the findings obtained from the studies were not strong enough and there was not enough evidence to prove how important tourism is for the country's economy. Tourism businesses in South Africa support tens of thousands of households. Therefore, the results of the research are considered important in terms of presenting a clearer picture of the current state of the tourism industry in South Africa, as well as the impact of the sector on the expansion of the economy.

The main purpose of the research to investigate the effects of the tourism industry on the South African economy. For this purpose, the relationship of tourism with economic growth and general economic development in South Africa has been revealed and it has been evaluated which strategies and policies can be applied within the scope of development and sustainability of tourism.

### Research Model and Hypothesis

The model and hypotheses of the research are below.

![Figure 1: Research Model and Hypothesis](Source: Authors creation)

The research hypotheses created according to the model are as follows.

H1: There is a relationship between tourism and economic growth in South Africa

H2: There is a relationship between exchange rate and economic growth in South Africa
H3: There is a relationship between export and economic growth in South Africa

Methodology

4.1 Analyses of Data

While Economic Growth (GDP) rate variable is used as the dependent variable in the econometric model, Tourism (T), Real Effective Exchange Rate and Export of Goods and Services (EX) variables are used as independent variables of the equation. For the econometric analysis period, the World Bank's annual data from 1995 to 2020 were used. While most of the data is presented in forms that cannot be used to achieve the purpose of the research, few of the variables are presented in formats that can be used to achieve the objectives of the research.

The ARDL Boundary Test approach was used in the study and the Granger causality test was preferred to determine the causality relationship between the variables. ARDL model is a superior model compared to others in terms of capturing the short- and long-term effects of independence factors of output, which is based on the goals of the research. The ARDL method, which employs the ordinary least squares (OLS) method for cointegration across variables, is appropriate for simultaneously calculating short-run and long-run elasticity of demand for a small sample size (Daura, 2007). To determine the link between dependent and independent factors, a model was created as follows.

\[
\text{In}\text{GDP}_t = \text{In}\text{IT}_t + \text{In}\text{REER}_t + \text{In}\text{EX}_t + \text{EC}_t
\]

\(1\)

GDP is for real gross domestic product, ITR stands for global tourist revenues, EXP stands for exports, and REER stands for real effective exchange rate; mt and ET stand for white noise error processes, and m, n, p, and q stand for the number of variables that are suspended.

Regression analysis also includes the capacity to predict the value of one variable and the value of another variable based on the values of both variables. This ability is based on the relationship between variables.

Regression analysis gives researchers the ability to formulate a formula for the relationship between the dependent and independent variables (GDP), which is the variable to be estimated, and the independent variables, which are the factors that the researcher...
believes are related. independent variable (GDP) (exchange rate, tourism and exports). The equations below show how the independent variables relate to GDP. Graphs of these relationships are shown below.

\[
\text{GDP} = f(\beta_0 + \beta_1 \text{(ITR)} + \beta_2 \text{(REER)} + \beta_3 \text{(EXP)} + \epsilon_t) \tag{2}
\]

Findings

Below are the test results conducted within the scope of the research.

5.1 ADF Unit Root Test

In the context of models, the unit root inclusion status of the series is questioned within the framework of the following hypotheses.

\[
\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \delta_1 \Delta y_{t-1} + \cdots + \delta_{p-1} \Delta y_{t-p+1} + \epsilon_t \tag{3}
\]

H0 : \( \gamma = 0 \) (p = 1) The series contains a unit root.
H1 : \( \gamma < 0 \) (p < 1) The series does not contain a unit root.

As a result of the ADF formulation taking into account postpones of order p, higher-order autoregressive processes are not excluded from being a possibility. In order to accurately apply this test to the data, it is essential that the time period of the lag p be established beforehand. The results of the trend unit root test were used as a basis for conducting the ADF test, which was then utilized to demonstrate stationarity at the level and first difference, as was previously noted in the table. This was done to demonstrate that there is stationarity both at the level and at the first difference. By doing a unit root computation on the data, we are able to arrive at the conclusion that tourism is advantageous to the economy of South Africa.

ADF Unit Root test results are shown in Table 1.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Level</th>
<th>1st Difference</th>
<th>Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>0.1810</td>
<td>0.0002</td>
<td>(I)</td>
</tr>
<tr>
<td>ITR</td>
<td>0.008</td>
<td>-0-</td>
<td>(0)</td>
</tr>
<tr>
<td>REER</td>
<td>0.0243</td>
<td>-0-</td>
<td>(0)</td>
</tr>
<tr>
<td>EX</td>
<td>0.9618</td>
<td>0.0220</td>
<td>(I)</td>
</tr>
</tbody>
</table>

Table 1: ADF Unit Root Test Results
Source: Authors creation
We can say that GDP and export are stationary at the first difference with the p value of 0.0002 and 0.0220, respectively, and that international tourist receipts and real effective exchange rate are stationary at the same level with the p value of 0.008 and 0.0243, respectively; therefore, the two are in order (0), which is I (0), and order (1), which is I (1).

5.2 ARDL Bound Test

Haug (2002) asserts that the ARDL limit testing technique is more suited to, and gives better findings with, a smaller sample size than it does with a larger sample size. It can be observed that an ARDL model is being applied here. To phrase it another way, the ARDL model is static at all of the various levels. It is capable of explaining the cointegration relations that exist between series that have varying amounts of a unit root. Peseran, et al., (2001) ARDL model consists of I (0) in the level values of the variables, I (1) in the first differences, and the level values themselves. It describes the short-run as well as the long-run links that exist between them in scenarios involving the value–first difference. Variables are lengthy. The following is an expression of the period conditions based on the model that was calculated while working within the scope of the error correction mechanism. This is due to the fact that both the short-run and long-run parameters are estimated concurrently, which results in a more accurate procedure. The following equation illustrates how tourism and economic expansion are related.

\[
GDP = f (\beta_0 + \beta_1(ITR) + \beta_2(EXP) + \beta_3(REER) + \varepsilon t)
\]

ARDL Bound test results are shown in Table 2.

<table>
<thead>
<tr>
<th>Model</th>
<th>Lag.</th>
<th>F-Statistics</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP, ITR, REER, EX,</td>
<td>(3, 2, 4, 4,)</td>
<td>5.676576***</td>
<td>Co-Integration Exist</td>
</tr>
<tr>
<td>Bond Critical Value</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sign.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10%</td>
<td></td>
<td>1 (0)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>5%</td>
<td></td>
<td>2.01</td>
<td>3.1</td>
</tr>
<tr>
<td>2.5%</td>
<td></td>
<td>2.45</td>
<td>3.63</td>
</tr>
<tr>
<td>1%</td>
<td></td>
<td>2.87</td>
<td>4.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.42</td>
<td>4.84</td>
</tr>
</tbody>
</table>

Table 2: ARDL Bound Test Results

***at a 1% level of relevance **at a 5% level of significance *at a 10% level of significance Akaike Information Criteria (AIC) Pesaran et al. (2001) propose critical value boundaries.

Source: Authors creation
In the course of this inquiry, a bound test was constructed with the ARDL model as its base in order to determine whether or not the data set in question exhibited co-integration. This was done in order to find out if the data set in issue demonstrated co-integration or not. If the F-statistic is lower than the minimum value of the distribution (the critical values for I(0)), then it is not possible to exclude the possibility that the null hypothesis could be an alternative explanation. To put it another way, this is the situation in which I((0) crucial values)'s are satisfied. If the statistic is greater than I(1), then the null hypothesis that there is no co-integration can be rejected because it is inferred that there is co-integration. Instead, the idea is discredited due to the fact that it displays co-integration (1). In the event that the test statistic lies anywhere inside the realm of probabilities connected to the statistical approach, the test statistic is regarded as being inconclusive. When we take a look at the F-statistic, we can see that there is a relationship that persists over time between the independent factors and the variable that is being studied at the 1% level with the F-statistic value. This conclusion is based on the fact that the F-statistic value is (7.616126).

### 5.3 ARDL Short Run Test

ARDL Short Run test results are shown in Table 3.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Probability value</th>
</tr>
</thead>
<tbody>
<tr>
<td>D (ITR)</td>
<td>1.0</td>
<td>0.0001</td>
</tr>
<tr>
<td>D (EX (-3))</td>
<td>-0.35</td>
<td>0.0001</td>
</tr>
<tr>
<td>D(REER)</td>
<td>-0.121</td>
<td>0.0154</td>
</tr>
<tr>
<td>ECM (-1)</td>
<td>-0.3519</td>
<td>0.0015</td>
</tr>
</tbody>
</table>

**Table 3 ARDL Short Run Test Results**

**at a 1% level of relevance** **at a 5% level of significance** **at a 10% level of significance** Akaike Information Criteria (AIC) Pesaran et al. (2001) propose critical value boundaries.

This location exemplifies the effort that the tourism business has made for the economy of South Africa. According to the findings, the probability of D (GDP (-2)) is 0.0400 per cent, and the influence of ITR reaction on the South African economy is statistically significant at a rate of 5 per cent. The alternative hypothesis, which stated that there was no co-integration, has been shown to be incorrect as a direct result of this, which has led us to the conclusion that the variables in question are connected in the short term. This was reached as a direct result of the fact that the alternative hypothesis stated that there was no co-integration. When assessed at the 5% level, ITR is likewise statistically significant, with a probability of 0.0001 when compared to the null hypothesis. Consequently, the null hypothesis of co-
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integration sometimes referred to as the alternative hypothesis of co-integration, is shown to be false, and it is concluded that there is a correlation between variables over a short period of time or that there is an impact between variables over a short period of time. In other words, the conclusion is that in the short run, there is a beneficial influence between factors. ECM is an abbreviation for the effective short-to-long rate, which describes the rate at which the adjustment is made. Within the context of this specific scenario, the rate of adjustment is 35%.

**5.4 ARDL Long Run Test**

ARDL long run test results are shown in Table 4.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(ITR)</td>
<td>1.08</td>
<td>0.001</td>
</tr>
<tr>
<td>D(REER)</td>
<td>-0.12</td>
<td>0.092</td>
</tr>
<tr>
<td>D(EX (-1))</td>
<td>-0.44</td>
<td>0.262</td>
</tr>
<tr>
<td>C</td>
<td>9.09</td>
<td>0.475</td>
</tr>
</tbody>
</table>

Table 4: ARDL Long Run Test Results

***at a 1% level of relevance **at a 5% level of significance *at a 10% level of significance Akaike Information Criteria (AIC) Pesaran et al. (2001) propose critical value boundaries.

Source: Authors creation

According to the findings, the potential of a tourism reaction from the economy of South Africa is statistically significant over the long term with a likelihood of (0.001). In the long term, this level of significance equates to a likelihood of (0.001). The findings indicate that, in addition to all of the independent factors, there is a substantial long-term association between the gross domestic product (GDP) and tourism.

**5.5 Residual Diagnostic Tests**

In addition to the diagnostic tests that were mentioned before, this research is also used other diagnostic tests in order to test the model’s dependability. Examples of these tests are the White (heteroscedasticity) test, the residual normality test (series correlation test), and the cointegration test. The degree of autocorrelation in the dataset should be regulated by displaying the residual results against the anticipated quantities. Additionally, the value of the standardized residual values should be displayed against the relationship with the future, in addition to the value of the residual’s values. This will ensure that the degree of autocorrelation in the dataset is controlled. As a direct result of the F-statistics, it is possible
for us to draw the conclusion that the model has heteroscedasticity. Residual diagnostic test results are shown in Table 5.

<table>
<thead>
<tr>
<th>Name of the Test</th>
<th>The Null Hypothesis Result</th>
<th>Statistics Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Correlation Test</td>
<td>There is no serial correlation at up to two lags</td>
<td>0.2978</td>
<td>0.5669</td>
</tr>
<tr>
<td>Jarque-Bera (JB) Examination</td>
<td>Normally, residuals are normally dispersed at 5% level</td>
<td>0.2525</td>
<td>0.881357</td>
</tr>
<tr>
<td>White (CH-sq) Test</td>
<td>No conditional heteroskedasticity at 5%</td>
<td>1.228723</td>
<td>0.3050</td>
</tr>
</tbody>
</table>

Table 5: Residual Diagnostic Tests

***at a 1% level of relevance **at a 5% level of significance *at a 10% level of significance

Akaike Information Criteria (AIC) Pesaran et al. (2001) propose critical value boundaries.

Source: Authors creation

As seen in the table above, the hypothesis predicts a normal distribution and no serial correlation or conditional varying variance. The results of this discovery are in line with the situation predicted by the hypothesis. However, while the alternative hypotheses imply something different, the null hypothesis suggests that the model does not actually contain serial correlations. To make things even more confusing, the probability of this happening is 0.5669, which is much more than the 0.05% threshold and is 2x higher. In this particular example, it is decided that the null hypothesis should be accepted as true, and any idea that the model may exhibit serial correlation is rejected. One consequence of the null hypothesis is that the model does not exhibit varying variance at the 5% significance level. This is the case because the significance level is 5. Once tried, this model does not get stuck at the 5% barrier and continues to stall. If the probability value of 0.3050 is higher than the 0.05 percent threshold, this indicates that the situation is more serious than originally anticipated. Since the null hypothesis with a 5% significance level will not be rejected, it is seen that there is no heteroscedasticity at this level in the model. When the null hypothesis is accepted, the data set should show a normal distribution somewhere in the range, between 5 percent and 10 percent. The frequency distribution for residuals is typically 5% of the total. The Jarque-Bera probability cannot be said to be significant because the 0.881357 probability is statistically higher than the 0.05 percent threshold. This means that the probability cannot be said to be significant. If the null hypothesis about cointegration is true, it can be said that the residuals follow a normal distribution at the 5% level.
5.6 Granger Causality Test

Granger Causality test results are shown in Table 6.

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Obs.</th>
<th>F-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX does not Granger Cause GDP.</td>
<td>24</td>
<td>5.30948</td>
<td>0.0147**</td>
</tr>
<tr>
<td>GDP does not Granger Cause EX</td>
<td></td>
<td>0.71192</td>
<td>0.5033</td>
</tr>
<tr>
<td>ITR does not Granger Causes GDP</td>
<td>24</td>
<td>2.73232</td>
<td>0.0906</td>
</tr>
<tr>
<td>GDP does not Granger cause ITR</td>
<td></td>
<td>0.21012</td>
<td>0.8123</td>
</tr>
<tr>
<td>REER does not Granger Cause GDP</td>
<td>24</td>
<td>1.44973</td>
<td>0.2594</td>
</tr>
<tr>
<td>GDP does not Granger Cause REER</td>
<td></td>
<td>0.01840</td>
<td>0.9818</td>
</tr>
<tr>
<td>ITR does not Granger Cause EX</td>
<td>24</td>
<td>3.18081</td>
<td>0.0643</td>
</tr>
<tr>
<td>EX does not Granger Cause ITR</td>
<td></td>
<td>0.34095</td>
<td>0.7154</td>
</tr>
<tr>
<td>REER does not Granger Cause EX</td>
<td>24</td>
<td>0.01560</td>
<td>0.9845</td>
</tr>
<tr>
<td>EX does not Granger Cause REER</td>
<td></td>
<td>2.03854</td>
<td>0.6052</td>
</tr>
<tr>
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<td>0.8715</td>
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<tr>
<td>ITR does not Granger Cause REER</td>
<td></td>
<td>2.03854</td>
<td>0.1577</td>
</tr>
</tbody>
</table>

Table 6: Granger Causality Test Results

***at a 1% level of relevance **at a 5% level of significance *at a 10% level of significance Akaike Information Criteria (AIC) Pesaran et al. (2001) propose critical value boundaries.

Source: Authors creation

The Granger Causality test reveals unidirectional causal connections between different variables. Therefore, the null hypothesis of Granger Causality implies that we should come to the conclusion that there is no causality between the variables when the p value is more than 5%. This suggests that we should not draw any conclusions about the relationship between the variables. On the other hand, we should conclude that there is causation between the variables when the p value is less than 5%. It suggests that exports have a general causal relationship with the economy of South Africa at a significance level of 5%. Additionally, the granger causality between real GDP and REER is statistically significant at the 1% level, but the granger causality between exports and REER is statistically significant at the 5% level. These two levels both have statistical significance.

5.7 Stability Test

CUSUM test results are shown in Figure 2.
The assumption behind the hypothesis is that, within a certain range of confidence and accounting for a margin of error of 5%, none of the error correction coefficients that are included in the error correction model would experience a change (Bahmani et al., 2002). At a level of significance of 5%, it is reasonable to draw the conclusion that the null hypothesis of consistent coefficients cannot be sustained if any of the lines are shown to have been crossed. In order for the value of the foreign direct investment coefficient to stay the same over time, the plot of CUSUM and CUSUMQ data must stay within the important limits shown in the figure on the right.

The results of the trials suggest that the red line establishes the boundaries within which the blue line may be detected, and as a consequence, the blue line is restricted to those boundaries. In order to get an extra benefit, as the picture indicates, we have chosen to think that the residual variances are stable rather than unstable in order to achieve this goal. As a result, the hypothesis that the null hypothesis is true is the one that we choose to accept, whereas the hypothesis that the alternative hypothesis is correct is the one that we choose to reject. On the other hand, contrary to what one may assume based on the data, the residual variance is not changing. This is a stable finding. CUSUM of Square test results are shown in Figure 3.
Although there is a theory known as the null hypothesis, which states that the parameters are constant, the alternative premise is not supported by any evidence. The test shows that the blue line cannot extend beyond the restrictions shown by the red line. Because we want to believe that residual variances are stable rather than unstable, we will accept the null hypothesis while simultaneously rejecting the alternative hypothesis. This will make the situation even more difficult. In addition, we have reached the conclusion that the residual variance is stable as opposed to unstable. Finally, the cumulative sum of recursive residuals (CUSUM) and cumulative sums of squares (CUSUMQ) were employed to assess the long-term stability of the ARDL model's long-term coefficient in relation to the short-term dynamics of the foreign direct investment and economic growth variables. Both of these methods are referred to as cumulative sums. According to the null hypothesis, there is no deviation in any of the error correction coefficients that are included in the error correction model within a confidence range of 5%. (Bahmani et al., 2002). At a level of significance of 5%, if any of the lines are demonstrated to have been crossed, then the null hypothesis of consistent coefficients can be dismissed as a viable alternative. The plot of CUSUM and CUSUMQ data must stay within the essential boundaries shown in the graphic above. This will ensure that the international direct investment coefficient remains constant throughout time.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Result</th>
</tr>
</thead>
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<td>H1: There is a relationship between tourism and economic growth in South Africa</td>
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</tr>
<tr>
<td>H2: There is a relationship between exchange rate and economic growth in South Africa</td>
<td>Accepted</td>
</tr>
<tr>
<td>H3: There is a relationship between export and economic growth in South Africa</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

Table 7: Hypothesis Test Results
Source: Authors creation
Conclusion

According to the results, the influence of ITR reaction on the South African economy is significant. In addition, tourists from other countries contribute to the expansion of cultural life in the nation that hosts them by bringing their unique perspectives and perspectives from their home countries. As a direct result of this, the alternative hypothesis, which stated that there was no co-integration, has been shown to be incorrect, which has led us to the conclusion that the variables in question are connected in the short term. This conclusion was arrived at as a direct consequence of the fact that the alternative hypothesis said there was no co-integration in the data. Because of this, it is shown that the null hypothesis of co-integration, also known as the alternative hypothesis of co-integration, is false, and it is concluded either that there is a positive relationship between variables in the short run or that variables have a positive influence on each other in the short run.

Both of these conclusions are based on the finding that the alternative hypothesis of co-integration is shown to be false. In other words, the conclusion is that there is a positive influence between elements in the short run. This influence is helpful. This can also be stated as "in the near run." The rate at which the adjustment is made is referred to as the effective short-to-long rate, and its abbreviation, ECM, is an acronym for that rate. The rate of adjustment is 35% within the parameters of this particular case, and in addition to that the possibility of a tourist response from the economy of South Africa is statistically significant in the long run at significance in the long run. This level of significance is equivalent to a one in a thousand-probability during the course of the study. We have come to the conclusion that, in addition to all of the independent variables, the gross domestic product (GDP) and tourism have a strong, long-term relationship.

These results should be considered by those who determine policy. According to the findings of our study, the primary consequence is that it is essential for South Africa to gain advantages from the acceleration of tourist development. A rise in tourism may stimulate economic expansion because the tourist sector contributes only a very small proportion of the total value contributed to GDP, a rise in tourism may stimulate economic expansion.

As a consequence of this, the findings of our study imply that South Africa would benefit from an economic development strategy that places a greater emphasis on the country's tourist industry.

Our results of dependence can justify the deployment of these interventions because of the strength and direction of the link between growth rates. Our evidence of reliance can
support the implementation of public policies that concentrate on a more effective distribution of public resources given that there is a causal relationship between tourism and economic growth. Also, when tourism is encouraged and it is found that growth rates depend on each other, it may be okay to put in place tourist rules because these rules consider into consideration the degree to which growth rates throughout time are dependent on one another in terms of tail dependence.

On the basis of the findings, nations like South Africa should make efforts to ensure the long-term health of their tourist sector and make use of tourism as a tool to advance regional development by (re)distributing the positive effects of tourism throughout the economy. In addition, South Africa needs to provide financial incentives to companies in the tourism industry so that they will reinvest their revenues. It is also important to emphasize that all of South Africa should further regulate its tourism industries and move forward with systematic inspections in an effort to reduce the number of instances of tourist exploitation, overpricing, insecurity, and fraud. This point should be emphasized throughout South Africa. In conclusion, the significance of these fresh discoveries for researchers lies in the fact that they demonstrate that this body of study should get a greater share of their focus.

References


Examining the impact of tourism on economic growth in the Republic of South Africa


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