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The Effect of Tourism, Economic Growth and Environment in Developing Countries

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ABSTRACT

The primary purpose of this study is to identify a link concerning tourism, economic growth, and environmental protection in developing countries. The current research looks at the overall state of emerging economies. The study employs the 3SLS technique. Tourism is attracted by economic prosperity, and tourism will increase economic growth. According to the findings, economic growth hurts the environment. At the same time, environmental degradation decreases economic growth. As income activity accelerates, environmental emissions have a detrimental impact on economic growth. Further findings imply that tourism adversely affects the environment, increasing tourism and causing a depreciation of the ecosystem. The environment impacts tourism, as most people travel to other countries for business and religious reasons. In all models, the other variables, like political instability, has a negative effect on tourism, while trade has a favorable effect. According to the study, GDP is boosted by the literacy rate and gross capital formation and population increase, urbanization, and energy use all have a favorable impact on CO2 emissions. According to the findings, host nations should encourage tourism and guarantee that the environment is not harmed; therefore, eco-friendly must be pushed to maintain a seamless and sustainable development process.

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1. Introduction

Tourism is considered one of the central components in the economic building and accomplishment in the endurance in fiscal expansion. It is requisite support in getting justifiable development and in the digitalization of economic growth. It can bring technological enhancement, tentative growth, and the tower of the national income (Algieri & Aquino, 2008). Tourism arouses pecuniary evolution by engendering revenue, occupation, speculation plus disseminates. On the other hand, it likewise stimulates valuable twist-off succors, conserving ancestral heritage, enriched organization, and indigenous municipal conveniences. It partakes materialized as one of the prominent service productions in the inclusive bargain in topical epochs (Basu & Marg, 2010; Bhattacharya & Basu, 2010). Monetary tides produced by intercontinental sight-seeing have converted vital aspects in pecuniary progression and intercontinental economic kindred in many mounting nations. Thus, the tourism sector has gradually developed an imperative industry to innumerable evolving countries as a foundation of income and work.

It ornamental effectiveness complete competition amongst indigenous multinationals and the ones analogous to other intercontinental sightseer destinations, and secondly, smoothing the mistreatment of parsimonies of gauge in local multinationals (Cerina, 2007). The extension of the sightseeing areas encompasses diverse actors vacillating from régimes which stimulus its progress through procedure interference, prearrangement lopment and trials to significant troupes in the sequestered division. It can subsidize the enlargement of the craft ingresses and disseminate of a country, including in the direct and incidental of the developed, services, and progress segments. Different metrics that give a tourist satellite account are used to measure the tourism industry (TSA). The TSA is a new statistical instrument that is being developed to measure these goods and services according to global standards of conception, classification, and definition, allowing for valid comparisons with other sectors and, ultimately, with nations (Cortés-Jiménez & Pulina, 2006). Other internationally recognized economic data will be similar to these metrics. The Tourism Statistics Agency (TSA) offers the following tourism measures. Tourist as a percent of GDP is referred to as tourism contribution to GDP.

The primary objective of this study is to look at the relationship between tourism, economic expansion, and the environment in emerging economies. Make a policy to improve tourism, economic growth, and environmental interdependence.

1.1 Scope of the Study

The research concentrates on tourism's positive significant role in economic growth in emerging economies and the relationship between tourism development and economic growth and the environment. The study goes on to compare countries based on their income levels. The current research looks at panel data and uses the 3SLS estimate approach to evaluate the outcomes.

2. Literature Review

Tourism is a widely employed idea in developing economies to stimulate economic growth. Tourism enters a recipient country for various causes and via numerous avenues. The environment is critical in enticing tourists to the host country (De Vita & Abbott, 2004). The previous research looked into how the environment attracts tourism inflows and converges nations on a development path. Job expansion and the environment: tourism as a growth trigger was studied. The study goal is to determine whether a tourism-based economy can achieve long-term growth while ensuring that its natural resources are not exploited (Dhariwal, 2005) responsibly.

Marsiglio (2015) tourist preferences significantly impact the long-term outcome, as green choices raise economic and environmental growth rates, while grey preferences and crowded aversion characteristics diminish them. As a result, if tourist specialty is to lead to growth, green tourism must also be developed (Dritsakis, 2012).

Hilmi, Safa, Teisserenc, and Peridy (2015) investigated the sustainability of tourism in MENA nations. If ecotourism may be a viable and long-term development strategy for Mediterranean countries. GDP growth was a dependent variable: tourism, trade openness, and innovation; government spending, total agricultural exports, and specialization exports. Data from a focus group. The data was analyzed using a panel fixed effect model. Tourism has a positive and insignificant impact on economic growth, while trade liberalization, innovative thinking, agricultural production export, and specialization export positively impact economic growth. Finally, tourism is critical for the growth of the Mediterranean area as a whole, as well as the MENA countries in particular. However, tourism has negative environmental, financial, and social ramifications (Ehmer, Heymann, Just, Fuchs-Sobolew, & Walter, 2008).

J. W. Lee and Brahmasrene (2016) As a result, a long-term tourist plan should be implemented, with ecotourism as a viable and investigated the impact of tourism on the ecology and economic viability in Sub-Saharan Africa. This research aimed to look at the consequences of tourism on the ecology and the economic viability of Sub-Saharan Africa. The study included GDP growth, CO2, tourism, and energy use. Global development

indicator data was used to create a panel. Counteraction was fine-tuned using the Johnson counteraction and Granger causality tests. The findings reveal that tourist and electricity usage have a significant direct impact on economic growth. Tourism, energy use, and economic growth have a significant beneficial effect on carbon emissions (Chen & Devereux, 1999; Nawaz, Ahmad, Hussain, & Bhatti, 2020; Nawaz, Azam, & Bhatti, 2019).

Nevertheless, there is compelling evidence that CO2 emissions in oil-producing countries are directly influenced by energy usage and economic growth rather than tourism (J. W. Lee & Brahmasrene, 2016). Labor force, total capital investment development, and tourism were independent variables, with GDP dependent. The data for the panel was gathered from the published annual reports. The study findings suggest that developing-country governments should concentrate on economic policies that promote tourism as a possible source of economic growth.

Ekanayake and Long (2012) aimed to look at the long-term association between economic growth and tourist development using a multivariate model with real tourism receipts per capita as the dependent variable, GDP growth as the dependent variable, and tourism and exchange rate as the independent variables. World development indicator and world tourism origination panel data were collected from 1980 to 2007. The data was analyzed using Fully Modified Ordinary Least Squares (FMOLS). According to the findings, tourism and currency rates had a favorable and significant impact on all countries except Turkey. This study looked into whether tourism advantages have a different and more important impact on economic development in the destination country and whether regional effects should be considered a product of geographical groups. In comparison to past research, this work is unique (Dritsakis, 2012; Fazal, Gillani, Amjad, & Haider, 2020).

In terms of globalization, it is preferable to compare tourist and economic activity between groupings of countries rather than within a single country (Samimi, Sadeghi, & Sadeghi, 2011). In other words, the geographical effects are taken into account and decided inside the model's capabilities. To sum up, there is significant proof of panels counter force relationships between tourism development and GDP in the seven Mediterranean nations studied. Given these findings, all authorities should make a commitment to assisting their tourism industries in expanding as much as feasible. Previous research discovered that tourism impacts economic growth and the environment. However, the study of the relationship between tourism, economic expansion, and the climate is still incomplete (Bakhtyar, Kacemi, & Nawaz, 2017; Hazbun, 2006).

Previous research has also discovered long-run unidirectional or bidirectional causality from tourist to growth in the economy and the environment (C.-C. Lee & Chang, 2008; Schubert, Brida, & Risso, 2011). Our study looked at the interdependence of tourism, economic development, and the environment in developing countries. We discovered whether tourism influences economic growth or economic growth affects tourism, whether tourism impacts or the environment significantly interfere with tourism, whether income activity impacts the environment or the environment influences economic growth, and how they are linked (Chien et al., 2021; Holden, 2009).

3. Methodology

The current study focuses on the confluence of theoretical analysis into econometrics approaches and empirical data analysis to determine the role of the environment and create a link between tourism and economic growth in this region. It is based on panel data from 45 developing countries over 20 years. The information is collected to see how the environment affects the attraction of tourists and the growth of developing economies.

Use the dynamic panel method to estimate the model for the study, as panel data has several advantages over time series and cross-section data in utilizing all available data. Panel data controls for entity heterogeneity, whereas time series and cross-section data do not, resulting in the danger of skewed conclusions. In addition, panel data may be able to find and measure effects that are difficult to detect in pure time-series or cross-section data (Ahn & Schmidt, 1997).

The enormous number of data points is one of the benefits of panel data. This improves the efficiency of econometric estimates by increasing the degree of freedom and reducing co-linearity among explanatory variables. We have annual data for a total of 21 years. There are 45 developing economies in our study, which are included for the analysis because statistics on tourism, economic growth, the environment, and control variables are consistently available for the specified period. Due to a lack of data, certain emerging countries are not included in this study.

3.1 Model Specification

$$TOUR_{it} = \alpha_1 + \alpha_2 GDP_{it} + \alpha_3 ENV_{it} + \alpha_4 POLI_{it} + \alpha_5 ER_{it} + \alpha_6 TRADE_{it} + \mu_{it} \quad (1)$$

$$GDP_{it} = \alpha_1 + \alpha_2 logTOUR_{it} + \alpha_3 ENV_{it} + \alpha_4 GFCF_{it} + \alpha_5 LIT_{it} + \mu_{it} \quad (2)$$

$$ENV_{it} = \alpha_{1it} + \alpha_2 GDP_{it} + \alpha_3 IND_{it} + \alpha_4 POP_{it} + \alpha_5 TOUR_{it} + \alpha_6 ENERGY_{it} + \mu_{it} \quad (3)$$

3.2 Durbin–Wu–Hausman test

The Hausman (also known as the Hausman specification test) detects endogenous repressors (predictor variables) in a statistical model. Hausman (1978) introduced the Durbin-Wu-Hausman test, which was then explained by Chmelarova (2007).

Table 1
Results of Durbin–Wu–Hausman test

Dependent variable	Coefficient	Std-Error	t-statistic	Prob
Tourism	0.1999	0.0252	7.9145	0.0000***
GDP	1.3724	0.7531	1.8221	0.0688***
Environment	-0.7941	0.1388	-5.7187	0.0000***

Table 2
Results of covariance Matrix

	C02KG	GDPG	LNTTT
C02KG	1.000000	0.047379	-0.769310
GDPG	0.047379	1.000000	-0.353407
LNTTT	-0.769310	-0.353407	1.000000

3.3 Trends of Endogenous Variable

We plotted the graph to observe the trend across developing economies for all three-endogenous variables based on cross-section data.

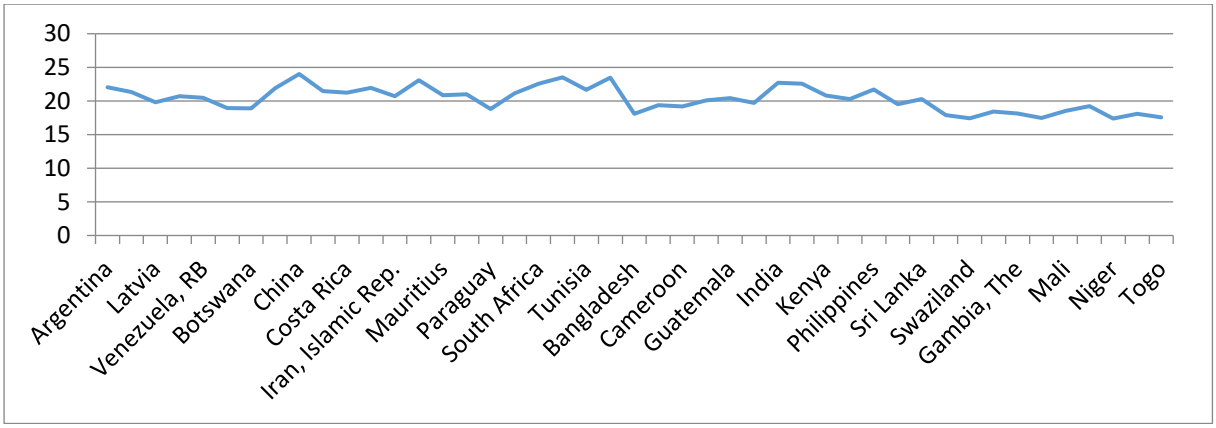

Figure 1: Trend of Tourism in Developing Economies

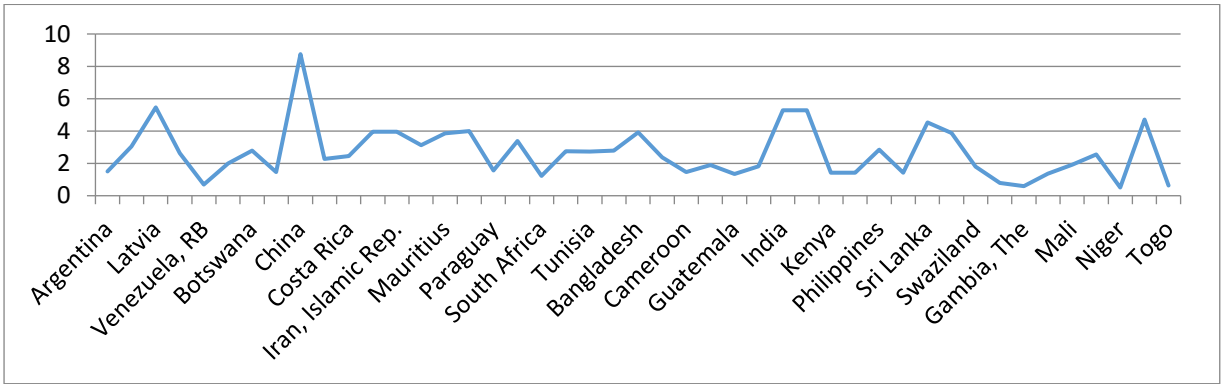

Figure 2: Trend of Economic Growth in Developing Economies

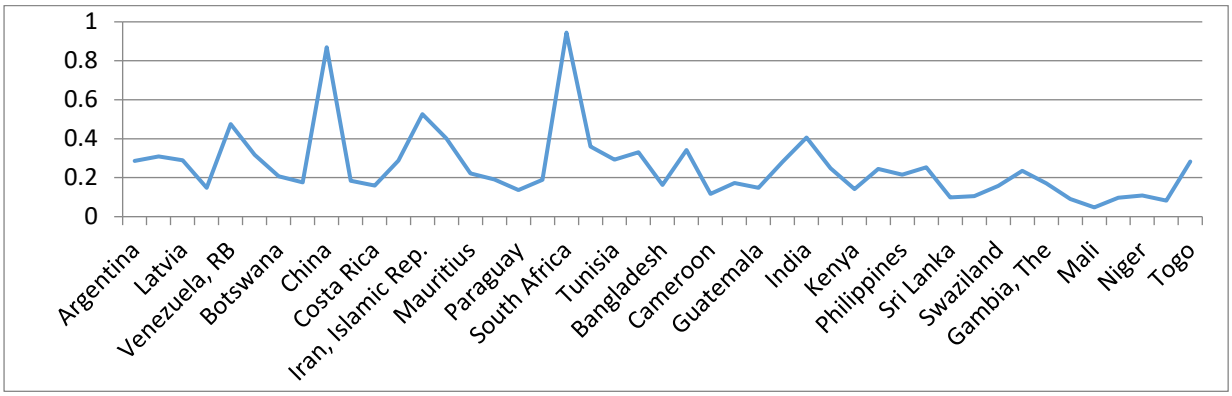

Figure 3: Trend of CO2 Emission in Developing Economies

3.4 Time-wise fluctuations

We plotted the graph of tourism, economic growth, and environment across time in developing economies to get a more comprehensive picture.

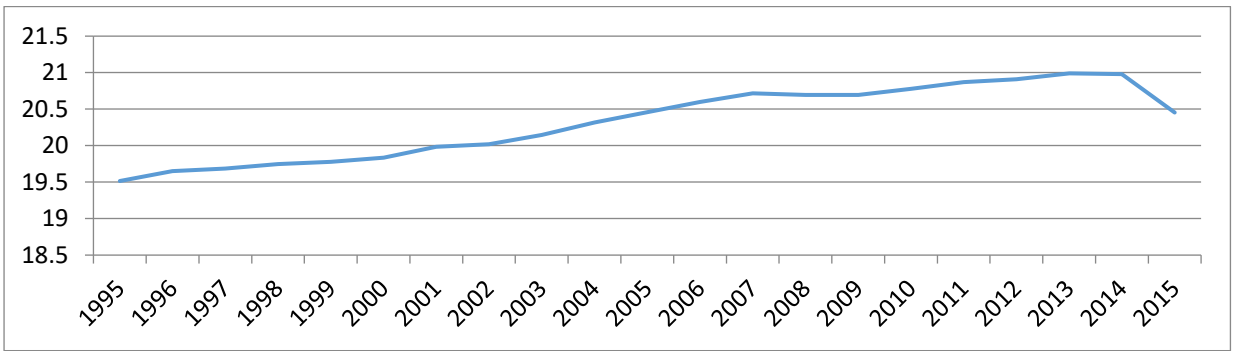

Figure 4: Tourism Fluctuation in Developing Economies

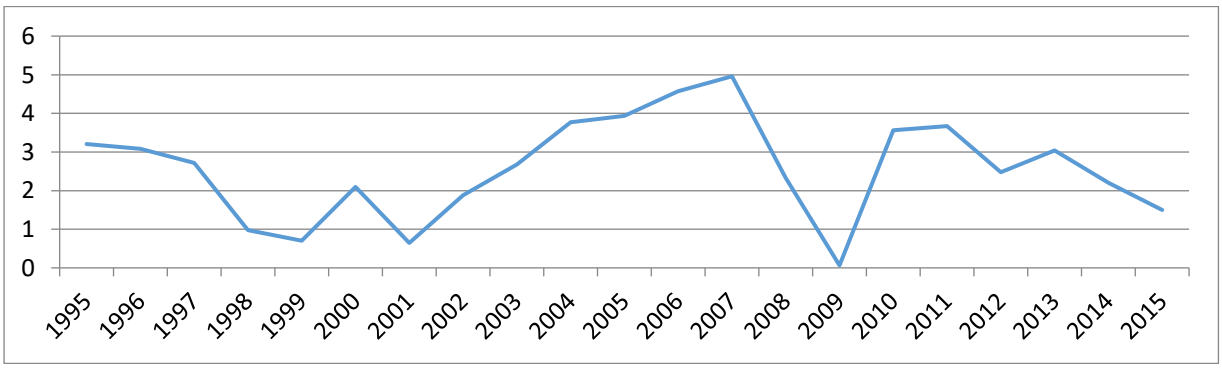

Figure 5: Economic growth Fluctuation in Developing Economies

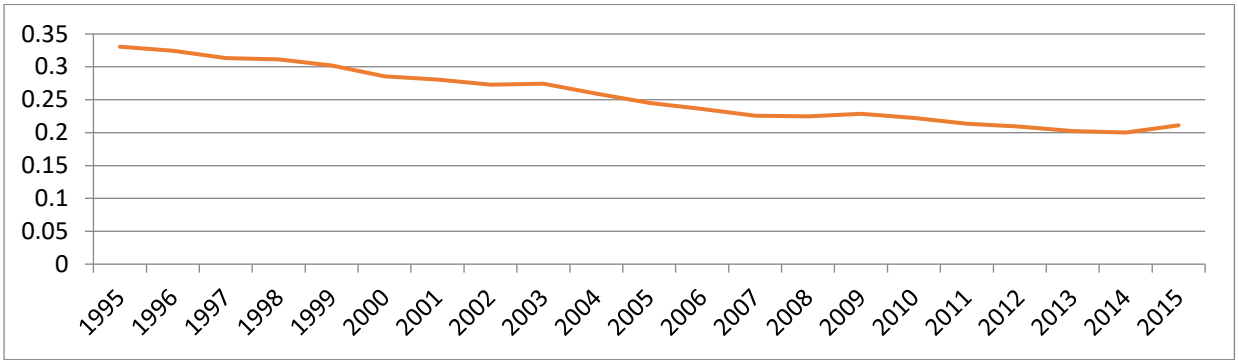

Figure 6: Environment emission Fluctuation in Developing Economies

In above figure 4, we take the time-period from 1995-2015 on the x-axis and tourism development on the y-axis. This graph shows that tourism increased with time, but in 2013 tourism decreased due to terrorism. Figure 5 clearly shows the fluctuation of economic growth in overall developing economies. In figure 6, CO2 emission decreases with time.

Table 3 shows the full names of all variables and their measurements that are used in this study.

Table 3
Variables and their Units of Measurement

Variable	Full name	Unit of measurement	Sources of data
logTOUR	Tourism	International tourism, receipts (current US$)	World Development Indicator (WDI)[1]
GDP	Gross Domestic Product	GDP per capita growth (annual %)	
ENV	Environment	CO_2 emissions (kg per PPP $ of GDP)	(WDI)
EXR	Exchange rate	Official exchange rate (LCU per US$)	(WDI)
TRADE	Trade openness	Exports + Imports/GDP Trade (% GDP)	(WDI)
POLI	Political instability	Violence/Terrorism: Estimate	(WGI)[2]
LIT	Literacy rate	Adult literacy rate, population 15+ years, both sexes (%)	The Global Economy[3]
GFCF	Gross fixed capital formation	Gross fixed capital formation (annual % growth	(WDI)
IND	Industrialization	Industry, value added (annual % growth)/	(WDI)
Energy	Energy consumption	Electric power consumption (kWh per capita)	(WDI)
POP	Population	Annual growth %	(WDI)

4. Results and Discussions

The current study's primary goal is to fine-tune the interdependence of economic growth, tourism, and the environment in developing economies. For estimating the parameters, the 3SLS methodology is used.

Table 4 summarizes all variables summary statistics, including total observations, standard deviation, mean value, and lowest and maximum values for all variables utilized in data analysis. For all variables in developing nations, there are 945 observations in total.

[1] https://dateworldbank.org/data-catalog/world-developmentindicator, Accessed on May, 15, 2016.
[2] https://worldwide-governance.indicator, Accessed on 10 June, 2016.
[3] The Global Economy, Accessed on 20 May, 2016.

Table 4
Summarize the descriptive statistics of variables

Variable	Obs.	Mean	Std. Dev	Min	Max
TOUR	945	3.27e+09	7.32e+09	2000000	5.93e+10
GDP	945	2.617159	3.613903	-14.35101	37.12759
ENV	945	0.255852	0.1901947	0.301765	1.474086
EXR	945	659.2131	2248.491	0.0458451	29011.26
POLI	945	0.482064	0.833851	-2.80633	1.127082
TRADE	945	67.6717	34.4189	14.7724	220.4073
LIT	945	76.463	20.84565	13.37604	99.90789
GFCF	945	6.747905	13.32427	-46.172	85.7849
POP	945	1.69312	0.9625972	-2.081405	7.988684
INDV	945	259721.8	798456.8	-20606.53	2.45e08
ENERGY	945	1126.269	1123.585	12.677	5061.2

4.1 Regression Analysis

The result of table 5 shows that environment and GDP positively impact tourism, which means GDP and environment increase tourism. The coefficient of the control variable exchange rate is positive. The result of political instability negatively impacts tourism, and trade openness positively impacts tourism. As trade increases, tourism will also increase, and as political instability increases, tourism decreases (De Vita & Abbott, 2004; Dritsakis, 2012; Ehmer et al., 2008; Ekanayake & Long, 2012; C.-C. Lee & Chang, 2008; Zhuang et al., 2021).

Table 5
***Regression results for Model 1,* Dependent Variable Tourism**

Variable	Obs.	Coef.	Prob.
ENV	945	3.3619	0.000***
GDP	945	0.0764	0.000***
POLI	945	-0.1602	0.003***
ER	945	0.00023	0.000***
TRADE	945	0.0008	0.738
C	945	7.30	0.000***
R-sq. = 0.19			

Table 6
***Regression results for Model 2,* Dependent Variable GDP**

Variable	Obs.	Coef.	Prob.
ENV	945	-1.0717	0.566
GFCF	945	0.09704	0.000***
LITERACY	945	0.0065	0.548
TOUR	945	1.6522	0.000***
C	945	-12.5101	0.000***
R-sq. = 0.23			

Table 7
***Regression results for Model 3,* Dependent Variable Environment**

Variable	Obs.	Coef.	Prob.
GDP	945	0.0086	0.010***
IND	945	0.0001	0.042**
POP	945	0.0394	0.000***
TOUR	945	0.01191	0.274
ENERGY	945	0.0003	0.000***
C	945	- 0.1115	0.191
R-sq. = -0.21			

In table 6, the result shows that CO2 emission negatively affects GDP and tourism positively affects GDP. This finding indicates that CO2 emissions reduce the GDP, and the tourism industry increases GDP. Literacy rate and gross fixed capital are positive effects on GDP. That means an increase in human and physical capital will improve the economic growth in developing countries (Basu & Marg, 2010; Bhattacharya & Basu, 2010; Cerina, 2007; Chen & Devereux, 1999; Nawaz et al., 2021). In table 7, The findings reveal that GDP and tourism have a favorable impact on CO2. As CO2 levels rise, so do GDP growth and tourism. Industrial development is a non-essential component of economic

development, and it is a significant contributor to environmental degradation. Tourism has a negative impact on CO2. Tourism facilities (hotels, golf courses, restaurants, and water sports) require a lot of energy, including water, which devalues the environment (Holden, 2009; C.-C. Lee & Chang, 2008; J. W. Lee & Brahmasrene, 2016; Marsiglio, 2015; Samimi et al., 2011; Shair et al., 2021). The split nature of development also leads to serious environmental issues. It lowers the quality of life for both inhabitants and visitors and may eventually jeopardize the tourist industry's profitability. CO2 levels increased due to increased industrialization, population, and energy usage(J. W. Lee & Brahmasrene, 2016).

5. Conclusion

The study describes the interdependence between tourism, economic growth, and the environment in developing economies. The result has shown that tourism, economic growth are interrelated and interdependent in developing economies.

The result of the 1st equation overall economies shows that GDP growth positively impacts tourism. An increase in economic growth will also increase tourism. Economic growth improved all infrastructure related to the tourism industry, which attracted more tourists. The result of the 2nd equation shows that CO2 emissions negatively affect GDP, as emission increases, GDP growth decreases. The result shows that tourism is a positive impact on GDP. An increase in the number of tourists will also increase in GDP. The result of the 3rd equation shows that GDP growth and tourism positively affect CO_2. Industrial development, energy consumption, and fertilizer use in the agriculture sector are essential for economic growth but have a major cause of environmental devaluation.

Trade openness has a positive effect on tourism fined in overall economies. An increase in trade also increases tourism. Trade and tourism have a positive impact on economic growth. Political instability has a negative impact on tourism. Gross fixed capital formation and literacy positively impact GDP per capita. An increase in human and physical capital also increases GDP growth. When people's education increased, then technology changed and also they efficient labor now they use best possible way of resources and economic growth increase.

5.1 Policy Recommendation

Our findings are likely to offer an expectation to outline some policy suggestions. The regression results define that tourism is positively related to GDP, and GDP also positively impacts tourism in developing economies, and the environment negatively impacts GDP. Hence, the establishment should thoroughly give attention to the environment for the attenuation in tourism to increase the GDP growth rate. The governments of developing countries should focus on economic policies to allocate more resources to the travel and tourism industry to promote tourism as a potential source of economic growth.

The governments of developing countries should promote domestic tourism and local participation and ensure that the environment is not degraded, so the green-tourism needs to be promoted to ensure that the development process will be smooth and sustainable. Tourism policymakers should not apply "one size fits all" strategies to counter changes in exchange rates, so the policymaker set a relatively stable exchange rate to attract tourist arrivals.

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