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INVESTIGATING THE EFFECT OF TOURISM, FINANCIAL DEVELOPMENT, AND GLOBALIZATION ON ECOLOGICAL FOOTPRINT IN THE CONTEXT OF PAKISTAN

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Abstract
The purpose of this study to contribute to the existing literature by investigating at the impact of Globalization, Tourism, and Financial Development on Ecological footprint in the Pakistan over the period from 1995 to 2023. The theoretical and statistical framework has been developed to investigate the results. For this purpose, Time series data has been used and analyzed through E-views software by using Regression technique. Data was collected from authentic sources such as the World Bank, Global Footprint Network, and Globalization index. The Environmental Kuznets curve theory were used to explain the purpose of the study. The results of this study indicate significant and positive relationship exists between Ecological Footprint, Financial Development, Globalization, and Tourism. Policy makers should promote sustainable tourism and financial practices while applying regulations to reduce ecological impact. They should also encourage globalization strategies that support ecological protection.

1.1 Introduction

The objective of this research is to examine the impact of globalization, tourism, financial development on the ecological footprint in the context of Pakistan based on the outcomes of the study effective measures will be taken by the policymakers. Pakistan is facing a Challenging trade-off: how to retain its economy growing without causing long-term harm to the environment. In current years, the country has made significant progresses in areas like financial development, international trade, and tourism. These areas have helped increase economic activity, attract foreign direct investment, and generate employments opportunities for many people. However, this progress also increases environmental damage. The key challenge now is to determine an appropriate strategy for future progress that sustains both ecological protection and economic growth (Haseeb et al.,2018). The concept of an ecological footprint helps to clarify this issue. It measures how many natural resources a country uses and whether its ecosystem is capable of regenerating those resources (Global Footprint Network, 2023). Unfortunately, Pakistan's ecological footprint is increasing over time. Growing energy demands, industrial activities, and the expansion of tourism activities are putting pressure on land, water, and ecosystems. This could lead the country to rapidly decrease its natural resources, which may not be replenished over time. (World Bank, 2022).

In worldwide terms, the ecological footprint has surged around 190% because of population growth, movement of goods and services, prosperity, and changing demand patterns, over the few decades ((Akadiri et al., 2020). Increasing utilization of natural resources and rising levels of contamination have caused environmental issues, and the environmental picture can reflect many of these concerns. Globally, Environmental footprint can be applied to analyze the distribution and limitation of natural assets. (Borucke et al., 2013). It is measured in global hectares, worldwide comparable standardized hectares with global average productivity., which reflects the bio-productive areas, and it was established due to insufficient financial measurement to deplete natural reserves. ((Figge et al., 2017).

There has been a substantial growth in Pakistan's financial sector, which has supported significant increase and easier access to loans. Though this supports development, it often leads to higher industrialization, construction, and energy use—which are closely related to environmental damage (State Bank of Pakistan, 2023). Financial development plays an important role in allocating reserves and assets to productive activities, improving financial efficiency, and supporting economic growth. It also increases access to investment, encourages technological advancement, and promotes profitable investments for individuals and industries. However, financial development can also affect the environment by increasing energy consumption, industrial pollution, and environmental degradation. Therefore, policymakers should design strategies that promote financial development while minimizing environmental problems and enhancing the positive environmental effects of economic growth. Meanwhile, globally increased economic connectivity has opened new markets and boosted trade. While this has increased exports and foreign investment, it has also increased consumption, carbon emissions, and environmental pollution (Shahbaz et al., 2020). Tourism has also become a significant part of the economy. Northern areas such as Hunza, Swat and Skardu, now attract a significant number of tourist's arrival in each year. This growth provides financial assistances but also places severe pressure on the domestic environment, comprising waste disposal, habitat degradation and traffic congestion, (UNWTO, 2022). As Pakistan continues to strive for economic growth through financial growth, globalization, and tourism, it faces an urgent issue: increasing environmental degradation. Financial development has made loans and investments more accessible, leading to increases in industries, construction, and energy use. Although these changes support the economy, they often come with higher carbon emissions and greater demand for natural resources (Nasir & Rehman, 2020). The country's ecological footprint is growing, indicating that natural resources are being used up faster than they can be replenished (Global Footprint Network, 2023). This trend poses significant risks to long-term sustainability, but understanding of the underlying causes of these ecological pressures remains limited. Financial development has made loans and investments more available, leading to increased industrialization, construction, and energy consumption. While these developments support the economy, they often translate into higher carbon di oxide emissions and higher use of natural resources (Nasir and Rehman, 2020). Globalization helps countries grow by increasing trade, improving efficiency, and creating investment opportunities (Shahbaz et al., 2017). However, it can also harm the environment as ecological issues continue to rise. At the same time, globalization can improve government efficiency, promote technology, and reduce pressure on ecosystems through education and information (Rudolph & Figge, 2017). Likewise, globalization has connected Pakistan more with international markets. Imports, exports, and foreign investment have increased, but at the same time, there has been a rise in energy use, pollution, and waste generation (Lee & Ozturk, 2020). Tourism has also grown rapidly, especially in the northern areas. While it provides employment and income for domestic communities, it causes excessive use of fragile natural areas, poor waste management, and distraction of local ecosystems (UNWTO, 2022). These changes directly contribute to an increasing ecological footprint; however, they are usually ignored in development framework. The problem becomes more complicated because of these three factors —financial development, globalization, and tourism—are usually studied separately. There is little

research that examines how they work together to shape environmental outcomes in Pakistan. This creates a gap in our understanding and makes it harder for policymakers to respond effectively (Shahbaz et al., 2017). (Rahman et al., 2019) explain that in recent decades, researchers have focused on understanding the causes and consequences of climate change and global warming. Studies in energy economics indicate that environmental degradation rises with higher energy consumption and economic development. Environmental problems are worsening due to increased reliance on fossil fuels and the intensive use of natural resources during industrialization. A major challenge in global environmental discussions is that rising CO_2 emissions are often viewed as an inevitable cost of economic growth and energy use. With environmental challenges such as deforestation, water shortages, and rising air pollution already affecting millions of people, Pakistan must consider the environmental impact of its development plans (WWF Pakistan, 2022). If current trends continue unchecked, the country could face severe ecological damage that threatens both its economy and the well-being of future generations. This study focuses on exploring how these three key factors affect Pakistan's ecological footprint. The findings will help identify where changes are needed and deliver a clear picture of how Pakistan can move toward more sustainable growth. Although each of these factors—financial development, globalization, and tourism—has been studied separately, there is very little research that looks at their combined effect on Pakistan's ecological footprint. Without knowing how these forces work together, it's challenging to develop effective strategies for environmental development. This purpose of this study is to fill that gap by analyzing how financial development, globalization, and tourism combined affect Pakistan's ecological footprint. The purpose is to provide suggestions for better guidance, more balanced policies and strategies—ones that support economic growth without damaging the environment. As Pakistan works toward meeting its climate and sustainability objectives, this study can deliver helpful insights for the way forward. This research is significant because it looks at the combined effects of financial development, globalization, and tourism on Pakistan's environment— an area not yet fully studied. By understanding how these three factors contribute to the country's ecological footprint, this research can help decision-makers design smarter strategies that support both economic growth and ecological protection (Lorente et al.,2020). It also shows ways Pakistan can coordinate its development strategies with global sustainability goals, like the United Nations Sustainable Development Goals (United Nations, 2015). The results of this study could also be useful for future researchers, ecological planners, and development agencies. As Pakistan faces increasing environmental challenges, this research provides timely information to support more balanced and sustainable growth.

1.2 Research Objective:

The objective of this research is to examine the impact of tourism, financial development, and globalization on the ecological footprint in the case of Pakistan. To fulfill the objective of this study the data has been taken for the study from authentic sources such as the world bank, International Monetary Fund, KOF globalization index, and the global footprint network.

1.3 Research Questions:

The goal of this study is to find the answers to the following questions:

RQ1: What is the impact of tourism on the ecological footprint in the case of Pakistan?

RQ2: What is the impact of financial development on the ecological footprint in the case of Pakistan?

RQ3: What is the impact of globalization on the ecological footprint in the case of Pakistan?

2.Literature Review

2.0 Introduction:

This study investigates the most influencing factors that contribute to enhance environmental quality. This chapter contains a summary of previously done studies on the subject mentioned earlier and intended to support the scholars and other readers to get comprehensive evidence about the discussed topic and also analyze theories to support the study hypothesis. Next, it reviews and the relevant literature on the most influential factors (tourism, financial development, globalization) that

have a relationship to ecological footprint. The proposed theoretical framework and hypothetical concepts are discussed on the basis of literature.

2.1. Underpinning Theory of the Study:

Environmental degradation is the result of different individuals' activities such as depletion of natural resources, species expansion, climate variability, and deforestation. In recent times, environmental deprivation has emerged as a major area of educational research. Therefore, ecological theories and experiments have widely discussed and debated nowadays. We have found Environment Kuznets Curve (EKC) theory for different previous pieces of literature that support our variables. Many previous studies explained the relationship between ecological deterioration and economic development. The outcomes have remained changed from context to context which has aroused the interest of researchers to observe it in different ways. The EKC elucidates that environmental deprivation rises during the initial stages of economic development, but after reaching a certain level of development, society starts improving its relationship with the environment. By extending the classical work of Simon Kuznets, several researchers such as Godil et al. (2020) have further examined this concept, that as a country's financial growth activities increase, income per capita will also rise. This concludes that financial development will cause harm to the environment. However, as financial development activities reach the optimum level, Environmental degradation may decrease as per capita income increases. Tourism is a social, cultural, and economic phenomenon that involves the movement of people to places outside their usual environment for business or personal purposes. This sector is believed to have constant growth, which concludes in the development of services and incomes (Ozturk et al., 2016). Globalization can improve the effectiveness of government institutions, enhance technological progress, and reduce human pressure on the ecosystem through the provision of training, guidance, and information (Danish et al., 2018) Globalization has a major contribution to a country's economic growth. As a result, Globalization increases environmental issues in some countries and vice versa for others (Katircioglu, 2014). In this framework, the world's races and natural environments interact in a coordinated way. Strategies, decisions and activities impact ecological quality, but also natural environments impact the behavior of individuals, quality of life, and health.

2.2. Empirical studies:

Ahmed et al. (2019) studied Malaysia (1971–2014) and found that globalization helps reduce the ecological carbon footprint but has an insignificant effect on the overall ecological footprint. Population density and energy consumption increase ecological footprint, while financial development reduces it by supporting green technologies. The study suggests managing population density and promoting sustainable finance to lower environmental impact. Ibrahiem and Hanafy (2020) analyzed Egypt (1971–2016) and reported that fossil fuel consumption and real income worsen the ecological footprint, while globalization and population have minor effects. A unidirectional causal link exists between ecological footprint, globalization, population, and fossil fuel use, while a bidirectional relationship is observed with real income. The study highlights that globalization can reduce ecological footprint, supporting policies for sustainable energy and environmentally friendly economic growth. During the last few decades, many studies have been shown to explore the relationship between tourism and environmental pollution. (Akadiri et al. 2020). Tourism is considered as one of the factors to environmental degradation, as it demands high energy consumption for various activities such as food services, transportation, accommodation, and the management of tourism facilities (Eluwole et al. 2020). These activities tend to increase carbon dioxide (CO_2) emissions and lead to environmental deterioration (Alola et al. 2019). In previous studies, carbon dioxide emissions were considered one of the most significant factors contributing to environmental pollution. Brahmasrene (2013) examined the effect of tourism on economic growth and carbon dioxide (CO_2) emissions by using data from European Union countries and analyzed that tourism increases carbon dioxide emissions. Similarly, Katircioğlu (2015) examined the impact of tourism development on CO_2 emissions in Singapore using the EKC hypothesis and found a

negative relationship. Solarin (2014) studied tourism and macroeconomic factors on CO_2 emissions and observed a long-run relationship between these constructs. Katircioğlu (2018) examined tourism and environmental quality in ten economies, confirming that tourism growth follows the EKC hypothesis and negatively affects the ecological footprint. Ozturk et al. (2016) found an insignificant relationship between tourism growth and ecological footprint in high- and upper-middle-income states. Saenz-de-Miera and Rosselló (2019) assessed the effect of tourism on environmental externalities in the context of Mallorca, the city of Spain. The objective of this study is to examine the effect of tourism on ecological externalities, particularly climate change. To assess the impact of TOUR on air pollution from a combined perspective, this study examines the relationship between average concentrations of PM10 and the number of tourist arrivals in Mallorca. The findings of this study reveal that tourism is pondered as one of the major elements of environmental degradation as it needs high energy levels for various tasks such as "supply of food, transportation accommodations, management of tourist attractions". From the use of a general additive model in its semi-parametric arrangement, the researcher analyzed a 0.45% increase in concentration level by a 1% increase in tourist arrival. The implication of this study for TOUR-based economies, mainly concerning how the evaluation of air contamination externalities might help institutions to assess the advancement of TOUR and to use tariffs to adjust the pressure of tourism from a worldview. Habibullah et al. (2016) studied tourism's impact on biodiversity in 141 countries, showing that increased tourist arrivals threaten biodiversity, while higher per capita income decreases biodiversity loss. Lin et al. (2018) emphasized that tourism increases traffic, land use, shopping pattern, and ecological footprint in urban areas, creating sustainability issues. The occurrence of validated Environmental Kuznets Curve confirms that economic growth encourages ecological deprivation and also tourism has been found significant environmental externalities and vice versa for globalization. Depend on the result of this research, an inclusive policy substructure has been recommended, on which the Chinese economy would be able to obtain the reasons for Supportable Development aims by promoting eco-tourism. Jovicic (2019) recommended rethinking tourism strategies with public-private collaboration, virtual tourism, and knowledge-based methods rather than conventional tourism. Arnaut, M. (2022) examines the moderating role of institutional quality in the relationship between financial development and environmental quality in Malaysia. The results show that financial development, improve environmental quality in the short run and vice versa in the long run. The interaction between institutions and financial development complements environmental quality in the short run but shows a substitutive effect in the long run. The study highlights the importance of institutional quality in managing the financial development–environment link and provides policy insights for reducing environmental degradation in Malaysia and other developing countries. Financial development boosts economic efficiency, increases investment opportunities, and fosters the implementation of new technologies. However, FDEV can also harm the environment. Studies have shown mixed results: some found FDEV increases environmental degradation, while others found FDEV reduces ecological footprints. Baloch et al., (2020) explained that financial development can also deteriorate environmental difficulties, yet technological advancement and research can help lessen these effects. Mazhar et al. (2020) analyze the environmental effects of financial development by using the ecological footprint for a sample of 131 countries. The results indicate that different indicators of financial development, particularly domestic credit to the private sector, contribute to improving environmental quality by lowering the ecological footprint. The study also provides support for the pollution haven hypothesis and highlights that the financial sector can play an important role in global environmental protection, although the outcomes may vary across countries. Furthermore, Ari and Ozcan (2017) confirm the bi-directional relationship between nuclear energy consumption and economic growth in the case of Organization for Economic Co-operation and Development countries. In addition, Molali and Osama (2015) investigate the influence of financial development and carbon dioxide emissions in 130

countries from 1980 to 2011. Their findings reveal that these variables are cointegrated with each other. However, financial development shows a negative impact on the environment in both the long run and short run, while the remaining determinants are identified as major contributors to ecological degradation. According to the results, the examined countries should promote investments and provide bank credit facilities for projects that support renewable energy and clean technology in order to reduce the ecological deficit in both the short and long run. Jalil and Feridun (2019) aims to examine the effect of financial development in China from 1954 – 2006 in long run by using the procedure of the ARDL test and outcomes of this study clearly show that financial growth is helpful to reduce environmental degradation in China because the Chinese economy is promoting those industries and businesses that are eco-friendly and also confirm the presence of EKC in China. Hoang Ngoc, B. (2022) investigates the impact of globalization, tourism, and economic growth on the ecological footprint in the Regional Comprehensive Economic Partnership (RCEP) nations. Using a panel non-linear autoregressive distributed lag (panel NARDL) approach, the findings indicate that tourism exhibits a long-term disequilibrium but short-term equilibrium. Specifically, the study shows that positive changes in tourism have a negligible effect, whereas negative changes significantly increase the ecological footprint over the long run. Moreover, the results suggest that GDP has a positive influence on EF, while globalization exerts a significant negative impact. Based on these insights, the study recommends actionable policies for RCEP policymakers to promote tourism while mitigating ecological scarcity. The UNWTO emphasizes tourism's role in achieving the 2030 SDGs. A study on the 10 most visited countries (1995–2016) found that tourism arrivals and globalization increase ecological footprint, harming long-term environmental quality, while higher income and biocapacity improve it. Granger causality exists from tourism and income to ecological footprint, and from globalization with feedback. The study also proposed policies to support sustainable development (Alola et al., 2021). Globalization has also examined mixed environmental effects. While it promotes economic, political, and social linkages among countries, it can increase energy use, industrialization, and environmental degradation. Studies show both positive and negative effects of GLOB on CO_2 emissions and EFP. Trade liberalization increases environmental degradation, while Xu (2018) reported a reverse effect in 15 countries. Rudolph and Figge (2018) confirmed that globalization positively affects EFP in 171 countries, while Sabir and Gorus (2020) showed that FDI, trade liberalization, and KOF index increase EFP in South Asia. Ahmed et al. (2019) found globalization has little effect on EFP but significantly increases the ecological carbon footprint (Dada et al.,2022). Ansari et al. (2021) also analyzed the adverse relationship between globalization, urbanization, renewable energy and environmental quality and positive effect of economic development and non-renewable energy has been reported. Overall, previous studies examined tourism, financial development, and globalization on the environment, but rarely considered their effects at different levels of ecological footprint. The current study addresses this gap by analyzing the influence of tourism, globalization and financial development on EFP at high, moderate, and low levels.

3.Research Methodology

3.1 Research Approach:

There are three main research approaches: qualitative, quantitative, and mixed methods. This study uses the quantitative research approach because the analysis is based on numerical data. The data used in this research are secondary data, and statistical techniques are applied to analyze the relationship between the variables. The quantitative approach helps the researcher examine the impact of independent variables on the dependent variable using statistical analysis. It also provides more reliable and unbiassed results because the conclusions are based on data analysis rather than personal opinions. This research follows a deductive approach. In the deductive method, the researcher develops hypotheses based on existing theories and previous studies. These hypotheses are then tested using empirical data. In this study, this process moves from theory to data to examine the

relationship between globalization, financial development, tourism, and ecological footprint.

3.2 Research Purpose:

Research purpose can generally be divided into three types: exploratory, descriptive, and explanatory research. This study follows the explanatory research purpose because it aims to explain the relationship between the variables. The main objective is to examine how globalization, financial development, tourism, influence ecological footprint. Explanatory research helps to test existing theories and findings from previous studies. It also helps in understanding how changes in independent variables affect the dependent variable.

3.3 Research Design:

This research uses a correlational research design. Correlational analysis is used to identify the relationship between different variables. The relationship between variables can be positive, negative, or insignificant. In this study, the relationship between globalization, financial development, tourism, and ecological footprint is examined. The research focuses on understanding how these economic factors affect environmental sustainability.

3.4 Data Collection:

This research is based on secondary data. The data have been collected from reliable sources. The study covers the period 1995 to 2023. The variables used in this research include ecological footprint, globalization, financial development and tourism.

3.5 Research Model:

To examine the relationship between ecological footprint and the selected economic variables, the following regression model is used:

$$EFP_t = \alpha t + \beta 1\ t\ (KOFGI) + \beta 2\ t\ (FD) + \beta 3\ t\ (TOU) + \varepsilon t$$

Whereas, α stands for constant term, (EFP) stands for Ecological Footprint, (KOFGI) Globalization, (FD) Stands for Financial development, (TOU) stands for Tourism receipts and εt is an error term.

3.6 Model Hypotheses:

The following hypotheses are developed on the bases of previous literature to test the relationship between the variables:

H1: Globalization has a significant impact on ecological footprint.

H2: Financial development has a significant impact on ecological footprint.

H3: Tourism has a significant impact on ecological footprint.

These hypotheses help to examine whether the independent variables influence dependent variables.

3.7 Statistical Technique:

This study uses EViews statistical software to analyze the data and test the hypotheses. The main statistical technique used in this research is regression analysis. Regression analysis helps to measure the relationship between the dependent variable and independent variables. Through regression analysis, the study assesses how globalization, financial development, tourism effect on ecological footprint. The results of the regression model help to assess the variables have a significant impact on ecological footprint.

3.9. Variable Description and Measurements:

Ecological Footprint: Measures the demand on natural resources per person, using global hectares (gha), assesses the natural resources required to sustain populations and economic activity (Global Footprint Network).

Financial Development: Measures the extent of credit available to the private sector as a percentage of GDP. It reflects how developed and accessible a country's financial system is for businesses and individuals. Data is expressed as a percentage of GDP (World Bank).

Globalization: Represents the increasing global interconnection of economies, cultures, and politics. Measured by the KOF Globalization Index, which includes economic, social, and political dimensions (KOF Swiss Index)

Tourism: Measures the total income a country earns from international visitors in a year, recorded in current US dollars. Data is from the World Bank (World Bank).

4.Data Analysis

4.0 Introduction:

Data analysis is a process that is used to evaluate data by applying different statistical techniques and draw a better conclusion about the relationship of study variables and their impacts. In this chapter, we can analyze how much exogenous variables predicting the endogenous variables. In this study, we are using four variables such as Tourism, Globalization, Ecological Footprint, and Financial Development to analyze the environmental quality of Pakistan during the period 1995 to 2023 and used ecological footprint as a proxy of environmental measure. For this purpose, different statistical techniques were used in this study such as Descriptive analysis, unit root test and Regression analysis.

4.1. Descriptive Statistics:

Descriptive analysis is used to report the basic features of the data. It is widely used in quantitative analysis to represent large data in a convenient form. The results of the descriptive statistics are mentioned below:

Table 4.0 reports the results of descriptive statistics of the study variables incorporated in the current study.

Table 4.0 Descriptive Statistics and Correlation Matrix

	EFP	KOFGI	FD	TOU
Mean	0.408342	56.60724	18.63785	8.899083
Median	0.403570	56.76000	16.63235	8.937016
Maximum	0.472133	59.88000	25.47432	9.051924
Minimum	0.348994	50.17000	13.87767	8.691965
Std. Dev.	0.031427	2.295817	4.072835	0.107857
Observations	29	29	29	29
Correlation Matrix				
	EFP	**FD**	**KOFGI**	**TOUR**
EFP	1.000			
FD	0.4833	1.0000		
KOFGI	0.6629	0.4398	1.0000	
TOUR	0.7962	0.2146	0.4254	1.0000

Descriptive statistics are used to summarize the main features of the data and provide a clear understanding of the study variables. Table 4.0 shows the descriptive analysis of 29 observations of four constructs used in this study, including Ecological Footprint (EFP), Globalization (KOFGI), Financial Development (FD), and Tourism (TOU).

The mean values show that the average EFP is 0.408, KOFGI is 56.61, FD is 18.64, and TOU is 8.90. The median values, which represent the middle point of the data, are 0.404 for EFP, 56.76 for KOFGI, 16.63 for FD, and 8.94 for TOU. The maximum and minimum numbers of the data indicate the range of data, with EFP ranging from 0.349 to 0.472, KOFGI

from 50.17 to 59.88, FD from 13.88 to 25.47, and TOU from 8.69 to 9.05. The standard deviation, which measures the spread of the data from the mean, is 0.031 for EFP, 2.30 for KOFGI, 4.07 for FD, and 0.108 for TOU, showing moderate variation among the variables. The consequences of the descriptive statistics confirmed that there is a non-linear relationship exist between the variables. (Batool et al., 2019); (Godil et al., 2020). The correlation matrix shows a positive relationship between financial development (FD) and tourism receipts (TOU). Likewise, financial development is positively correlated with ecological footprint (EFP) and globalization. Tourism also shows a positive correlation with ecological footprint and globalization. On the other hand, some relationships, like between tourism and globalization, show relatively lower correlation, indicating a weaker association. (Baloch et al., 2019); (Pata & Yilanci, 2020).

4.2. Stationary Properties:

To examine the stationary properties of all variables, we use the unit root test. This test helps determine whether a data series is stationary or non-stationary. If a series is non-stationary, regression results may be spurious—meaning the model could be overfitted or predictions may be unreliable. This happens because the beta coefficients do not accurately reflect the true relationship between variables due to underlying trends in the data. In contrast, if the series is stationary, the beta coefficients genuinely represent the relationships, as these relationships remain consistent over time. A p-value less than 0.05 indicates rejection of the null hypothesis, suggesting that a trend exists in the data.Non- stationary data means trend exists in the data and Stationary data means trend does not exist in the data.

Decisions on the basis of T-statistics or P-value of the variables.

Criteria of null hypothesis acceptance:

P – Value greater than 0.05 means trend exists in series.

T-statistics if the value of T-statistics is less than 0.05 means trend exist.

Table 4.1. Stationary analysis

Stationary Test Results				
Variables	(Im, Pesaran and Shin)			
	level		First difference	
	t-statistics	Prob	-	-
Ecological Footprint	4.6888	0.0000	-	-
Financial development	4.3350	0.0124	-	-
Globalization	5.7394	0.0000	-	-
Tourism	0.7451	0.243	3.6740	0.0000

Table 4.1 shows the results of the Unit root test. The outcomes of the I'm, Pesaran, and Shin show whether data is stationary or not. In this study, tourism are not stationary at the level because the p-value of the variables is greater than 0.05 the same as t-statistics results if the t value of the variable are less than 0.05 means series has trend, it means at level relationship of the variable is not constant means the beta value of the variable is not a true representor of dependent variable but are stationary at the first difference while Ecological Footprint, Financial development and Globalization are stationary at the

level because the variables P-value is less than 0.05 at a level.

4.3. Regression Analysis:

Regression Analysis is used to identify the relationship between two or more variables. The coefficient value shows how much increase of 1 unit of dependent variables change will increase or decrease the dependent variable. The Prob. value defines the significance of independent variable to dependent variable. While Adjusted R-Square value define the overall impact of all independent variables to dependent variables. F-Stats. (Prob.) value defines the overall significance of model.

Table 4.1
Regression Analysis

Variable	Coefficient	T-Statistic	Prob.
C	1.806151	6.581621	0.0000
KOFGI	0.002965	2.174179	0.0394
FD	0.002342	2.823494	0.0092
TOU	0.180834	6.277831	0.0000
Adjusted R-squared	**0.776138**		
Prob(F-statistic)	0.0000		

Discussion:

The above table of regression analysis shows that the constant value is 1.806, which indicates the other factors' effect on the dependent variable that is not considered in our study. The coefficient of globalization (KOFGI) **is** 0.002965, and its probability value is 0.0394**,** which is less than 0.05. This shows that globalization has a positive and statistically significant impact on ecological footprint. It means that an increase in globalization leads to an increase in ecological footprint (Pata & Yilanci, 2020).

Similarly, the coefficient of financial development (FD) **is** 0.002342, with a probability value of 0.0092, which is also less than 0.05. This indicates that financial development has a positive and significant relationship with ecological footprint. It suggests that higher financial development increases ecological footprint (Godil et al., 2020).

The coefficient of tourism (TOU) is 0.180834, and the probability value is 0.0000, which shows a highly significant positive relationship with ecological footprint. This means that an increase in tourism activities leads to an increase in ecological footprint (Işik et al., 2020).

The Adjusted R-squared value is 0.776, which indicates that the model is reliable after adjusting for the number of variables.

The F-statistic value is 33.35 with a probability value of 0.0000, it means all independent constructs have a combined significant effect on the dependent. The model is fit for further estimation. Overall, the regression results show that globalization, financial development, and tourism have a positive and significant impact on ecological footprint, highlighting that economic and tourism activities impact environmental sustainability.

4.2 Hypothesis Summary

H1	Globalization has a significant effect on ecological footprint.	**Supported**
H2	Financial development has a significant effect on ecological footprint.	**Supported**
H3	Tourism has a significant effect on ecological footprint.	**Supported**

5.Conclusion

5.0 Conclusion:

The purpose of this study is to investigate the impact of globalization, tourism, and financial development on ecological footprint in the context of Pakistan. Pakistan is considered a major developing country that has experienced economic growth, increasing globalization, and expansion of tourism activities in

recent decades. These factors play an important role in affecting the environmental stability and exploitation of natural resources in the country. For this purpose, we performed Regression analysis to get authentic and reliable outcomes. While, hoping to take part by utilizing comprehensive indicator for globalization to the literature. The data was collected from authentic sources such as the world bank, Global footprint network, and KOF globalization index. To check the normality and stationary properties of the data we used Descriptive statistics and unit root test. By unit root test we have found that our variables integrated of different order. The findings of the study indicate that globalization has a positive and significant impact on ecological footprint in Pakistan, which suggests that increased economic integration and international activities may increase environmental sustainability. Likewise, financial development also shows a positive and significant relationship with ecological footprint, indicating that development in financial activities may increase resource consumption and ecological degradation. In addition, tourism activities also have a positive and significant effect on ecological footprint, meaning that the growth of tourism activities can increase ecological pressure through transportation, infrastructure development, and higher energy consumption. These consequences are also supported by previous studies which show that tourism development, economic growth, and trade-related activities may increase country's ecological footprint. Based on these findings, the study suggests that policymakers in Pakistan should focus on implementing strategies that promote green technology, sustainable tourism, and environmentally friendly financial and economic policies. Such policies can help decrease ecological footprint while maintaining economic development. Furthermore, increasing awareness about sustainable resource management and environmental protection can help improve environmental quality in Pakistan.

5.1 Future Implications:

The outcomes of the research give different policy suggestions. First, based on the outcomes of this research we determined that financial growth has a significant positive impact on ecological footprint. Ecological footprint increases due to increasing financial development, globalization and tourism activities in Pakistan. To better the condition of environment, the significant impact of financial growth on the ecological footprint need to be proper integrated and utilized more efficiently in strategies.

In addition, extra funding should be owed for research and development spending on eco-friendly projects, increase in productivity, promote cleaner technology in Pakistan, and the financial sector should support ecological policies. Furthermore, investment in eco- friendly projects and funded initiatives through the financial sector can help increase individual's environmental awareness.

Environmental system provides a wide range of beneficial facilities that improve the quality of life and human well-being. Their effective management is a major concern to avoid subsequent loss of natural habitat and surroundings. Leading institutions, investors and policy makers focusing on the strategies of biodiversity to ensure the societal and financial progress of a particular region and the common progress of all countries. Therefore, the need to evaluate the services provided by the ecological system becomes more and more obvious. Be alert to control the natural capital and services provided by the earth, and directly promote the local and global economic and social sustainable development (Jebril & Nikolova, 2019). Second, to be more precise, the tourism sector capitalizes in activities that may be valuable to both the sector itself and the atmosphere.

Third globalization contribute to economic growth, they may also increase environmental pressure if proper environmental policies are not applied. Therefore, it is important for policymakers in Pakistan to encourage sustainable development policies, support green technology, and encourage eco-friendly tourism practices in order to reduce ecological footprint and improve environmental sustainability.

5.2 Future Recommendations:

This research provides new opportunities for future researchers. Future studies can be conducted in the same way for other developing or emerging countries. This research only considers the total per capita ecological footprint as a measure of environmental quality. Future research may examine

the impact of tourism, globalization, and financial development on the different components of ecological footprint such as built-up land, forest land, grazing land, cropland, fishing grounds, and carbon footprint separately. Moreover, future studies can also analyze the effects of different dimensions of globalization individually in the context of Pakistan. This will help to identify which dimension of globalization is more effective in reducing environmental degradation.

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