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DO RELIGIOUS TOURISM AND INSTITUTIONAL QUALITY MATTER FOR THE THRIVING ECONOMY? EMPIRICAL EVIDENCE IN THE CONTEXT OF SAUDI ARABIA'S VISION 2030

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Abstract

Economic development is fueled by tourism through partnerships with other governments. The revolutionary potential of Vision 2030 is further increased by religious tourism, a gift for Saudi Arabia's economic growth. Better institutional qualities are what drive increased growth. Thus, evaluating the association between financial growth and Saudi Arabia's formal quality as well as the effect of religious tourism on the latter constitute the study's two key objectives. An ARDL approach, the Granger causality test, the panel cointegration approach, government consumption, savings, trade liberalization, political instability index, and religious tourism (Muslims travelling to perform the hajj and umrah) are applied to analyze the complex affiliation between these factors and financial growth from 2002 to 2019. The analysis's result identified numerous short- and long-term consequences. The paper's findings demonstrate a robust and favorable relationship between economic development and institutional quality, government saving and consumption, and both domestic and international travel. Nonetheless, both in the short and long terms, political stability is irrelevant. The study highlights the potential for developing Islamic travel itineraries that would uphold Islamic traditions at the destination.

Introduction

Saudi Arabia has set ambitious goals and ambitions to transform the country and put it at the centre of international trade through its National Transformation Program 2020 (NTP) and Vision 2030. The goals are outlined in Vision 2030, which has three pillars: building a prosperous economy, a lively society, and ambitious nations (Saudi Vision 2030, 2016). The National Transformation Plan (NTP) 2020 also highlighted religious tourism to develop the national heritage aspects of Hajj and Umrah (Abrar et al., 2021). The NTP aims to market the Kingdom of Saudi Arabia (KSA) globally through infrastructure development, policies, and institutional building capacities and prioritize religious tourism, which is listed in the developmental plans of Vision 2030. Religious tourism is developed through the pilgrimage to Makkah, an example of Muslim unity, diversity, and international community-building. The KSA government has successfully retained responsibilities to meet with rising expectations and necessities of a new generation in the transformation of a thriving economy – that focuses on the skills and competencies of the generation by providing equal opportunities. Due to their ability to boost exports, innovate, and generate jobs, small and medium-sized enterprises (SMEs) are among the foremost forces behind financial growth. SMEs in the Kingdom do not yet make up a significant portion of the GDP, particularly when contrasted with developed nations (Adil, Ghafoor, Shafqat, Munir, & Murtaza, 2023).

Religious tourism is one of the leading and quickly growing businesses in the West; it generates income and jobs in many nations. Particularly revered locations offer a rare chance for the tourism industry to expand responsibly and sustainably. In this sense, Mecca and Madinah, along with other holy and historical sites, are unique to Saudi Arabia (Ahmad, Boubakar, et al., 2022). Nonetheless, prior studies have focused less on the financial implications of the Hajj pilgrimage (Ahmad, Cherif, et al., 2022). Therefore, Vision 2030 aims to give Saudi nationals enough job opportunities by encouraging SME entrepreneurship, privatization, and investments in emerging industries. Reducing unemployment from 11.6% to 7%, increasing the GDP contribution of SMEs from 20% to 35%, and growing ladies' labour force involvement from 22% to 30% are all part of a successful economic strategy (Ahmad, Cherif, et al., 2022). The wealthy economy seeks to optimize investment opportunities by forming partnerships with major international companies and cutting-edge technologies (Ahmad, Boubakar, et al., 2022). It will ensure that Saudi Arabia becomes a competitive innovator in asset, finance, and investment management as well as a market leader in a few specialist areas. Some of the factors that contribute to a thriving economy include moving up from its existing ranking of 25 to the top 10 countries on the Worldwide Keenness Index, localizing the oil and gas businesses from 40% to 75%, and increasing foreign straight speculation from 3.8% to the global level of 5.7% of GDP (Vision 2030, 2018) (Ahmad, Ijaz, et al., 2022).

The Kingdom will enhance investment instruments to realize Vision 2030 and so unlock potential economic sectors, diversify the economy, and create job opportunities. In addition, the economy may expand and service quality can improve by luring the greatest people and investment from outside, enhancing the business climate, privatizing certain public services, and making the most of its strategic location at the crossroads of three continents. Because of the limited availability of fossil fuels, several oil-rich nations, including Saudi Arabia, may face market volatility. Non-oil sector variables, on the other hand, can be readily monitored and managed since they are driven mostly by internal forces (Ahmad, Manzoor, Naseer, Ghaffar, & Hussein, 2021). The travel zone of Saudi Arabia, for instance, generates inexhaustible income thanks to the Hajj

and Umrah performed by Muslims at the country's sacred sites (Ahmad, Manzoor, et al., 2022). While oil revenues cause inflation by increasing the cost of regional goods, they also contribute to economic stability, particularly in the natural resources sector. On the other hand, tourism increases the usage of foreign currency, attracts foreign capital, and creates jobs. Economic, social, and religious motives all play a role in this subset of tourism (Haq & Yin Wong, 2010). The growth of the Muslim tourist industry has had a significant impact on the worldwide tourism industry. Saudi Arabia predicts that it will need to increase GDP from sources other than oil by the year 2030. In 2016, the petroleum industry contributed about 86% of budget revenues, 41% of GDP, and 91% of export profits. More than 230 million Muslims are predicted to travel domestically and internationally by 2026, and the Muslim travel sector is forecast to contribute US$300 billion to the global economy, according to data from the Global Muslim Travel Index (2019) (H. Ali et al., 2022). In 2011, Saudi Arabia welcomed almost 17 million international and religious tourists, far surpassing the previous records set by Dubai (8 million) and Egypt (10 million) (Ali, Khan, & Naseer, 2022). According to the World Tourism Organization (2012). The major purpose of this essay is to provide fresh perspectives on the impact of official quality and tourism on Saudi Arabia's economic development (Arsalan, Burhan, Naseer, & Rehman, 2022).

This analysis considers the tourist sector in addition to political stability, trade openness, government spending and saving characteristics, and economic development in oil export-dependent nations like Saudi Arabia. To the best of our knowledge, this is the first research to examine the robustness of Saudi Arabia's fast-developing economy using an ARDL and pairwise Granger causality approach (Arshad et al., 2023). It also serves as a benchmark for the Saudi Arabian economy's transition and adds to the practical investigation of the tourism-led growth idea. By suggesting that politicians and other government authorities make a sizable investment in the religious tourism industry—perhaps by enacting the necessary financial and strategic plans and improving the industry's performance—the study's findings provide new opportunities. For the rest of this essay, the structure is as follows. The literature review is presented in Section 2, while the data and model are described in Section 3. The analysis findings are reported in Section 4, and the summary and conclusions are given in Section 5.

Research Question:

The following research questions are used in the current investigation.

1. What effect does Islamic tourism have on the booming budget of Saudi Arabia?
2. Does the strong economy of the Kingdom of Saudi Arabia depend on institutional quality?
3. What impact does trade openness have on Saudi Arabia's booming economy?
4. Does Saudi Arabia's robust economy benefit from political stability?
5. How do government consumption and savings affect Saudi Arabia's booming economy?

Literature Review:

The majority of people concur that tourism stimulates the economy in a number of ways. According to a growing body of significant research on the subject (Katircioglu, 2009), a focus on tourism is associated with faster growth (Nunkoo, Seetanah, Jaffur, Moraghen, & Sannassee, 2020). Along with income and government revenues, other ways that aid in achieving this goal include creating jobs, attracting foreign investment, raising tax collections, and attracting foreign money. Nonetheless, tourism boosts industries like trade, hospitality, and transportation, having a multiplier effect on the economy as a whole (Mayer & Vogt, 2016) (Benkirane et al., 2023). The export-led growth (ELG) theory is the foundation for the majority of research on the tourism-led growth (TLG) hypothesis (Brida, Cortes-Jimenez, & Pulina, 2016). Since the theory of tourism is

predicated on the idea of transferring customers rather than commodities (non-traded objects), it is viewed as a viable approach to economic growth. While a great deal of research has been done on export-led development (Kim, Wu, & Lin, 2018), less has been done on the TLG theory (Bokhari et al., 2022). Most of the world's most popular tourist sites, regardless of their socioeconomic status, prioritize policies that support tourism as a way to stimulate economic development. (Brida, Gómez, & Segarra, 2020) conducted a quantitative study of 80 nations from 1995 to 2016 to find out more about the economic impact of tourism. Their contribution to the TLG literature, in particular, focuses on the issue of whether or not countries would adopt a single theory explaining how tourism and economic development are related (Muhammad Ehsan Malik, Muhammad Mudasar Ghafoor, & Salmen Naseer, 2011).

Specifically, they add to the TLG literature by examining the viability of determining whether or not countries would embrace a single model that combines the dynamics of economic growth with tourism. It is found that tourism and economic development go hand in hand by Dogru and Bulut (2018) as well as Ridderstaat, Croes, and Nijkamp (2014), among other researchers. Studies indicate that additional factors influence the relationship, including institutional consistency and characteristics associated with basic income. Studies have utilized GDP, GDP per capita, real GDP, and real GDP per capita to gauge economic growth (Faouri et al., 2022). Studies that are similar to this one (Kong, Peng, Ni, Jiang, & Wang, 2021) confirm that different quantitative and geographical characteristics and proxies exist for gauging the expansion of the tourism industry and economy(Ishfaq et al., 2022a).

On the other hand, over the last two decades, scholars and policymakers have placed more emphasis on the role that institutions have played in economic growth. Using the Institutional quality index created using principal component analysis, (Asghar, Qureshi, & Nadeem, 2020)were able to explain the relationship between institutional quality and economic development in 13 rising Asian countries from 1990 to 2013 (Ghafoor, Nawaz, Munir, & Saleem, 2022).

Similarly, (Maruta, Banerjee, & Cavoli, 2020) examined how, between 1980 and 2016, the economic performance of seventy-four developing nations in South America, Asia, and Africa was impacted by sector-specific foreign aid and institutional quality (Ishfaq et al., 2022a). After classifying bilateral help into three categories—education, health, and agriculture—they conclude that beneficiaries of aid would be better off allocating their funds to education. The outcome depends on the institutional consistency norm that was in place at the time and is highly context- and period-specific (Ishfaq et al., 2022b). The marginal effects of agricultural, health, and educational services will differ more as institutional quality rises (Jabeen, Zia, & Naseer, 2021).

Zhou (2018) suggests that systematic approaches to human resource production have been associated with higher levels of administrative efficiency, which has accelerated economic growth in numerous sectors. Research on the relationship between Pakistan's institutional and human resource quality and economic growth from 1984 to 2018 is conducted by Farooq et al. (2020). The Auto-Regressive Distributed Lag (ARDL) model and variance decomposition analysis have been applied (Kaur et al., 2022). The study's findings indicate that the buildup of human capital increases productivity and that robust institutions are necessary to sustain economic growth. Furthermore, state that nations seeking to advance economically should give top priority to structural efficiency-enhancing and macroeconomy-maintaining changes (Khalid, Imtiaz, & Naseer, 2016). With this approach, money is gathered for staff training as well as infrastructure. The study conducted by (Ogbuabor, Orji, Manasseh, & Anthony-Orji, 2020) examined the impact of the region's institutional quality on economic growth after the Great Recession's impact on West

Africa. For this study, a panel dataset of 13 nations in the region was used. Apart from the typical institutional characteristics listed in the Worldwide Governance Indicators, a variable from the Freedom House database is also included in this analysis (Khan et al., 2023). Traditional factors include things like political stability, the effectiveness of the government in preventing corruption, the importance of the rule of law, the quality of regulations, citizen engagement and accountability, and the absence of violent extremism (Muhammad Ehsan Malik, Muhammad Mudasar Ghafoor, & Salman Naseer, 2011). The study's conclusions suggest that to draw in more investment and foster long-term economic growth and development, the institutional framework of the area may need to be reinforced (Naseer, 2021).

The scholarly literature also emphasizes how crucial political stability is to fostering economic progress. studied financial liberalization, political stability, and economic drivers in their research of Kenya's actual economic development (Naseer & Chaudhry, 2011). The researchers examined time series data spanning from 1970 to 2016 for this investigation. According to the authors, quintile regression analysis was used to forecast quadratic and interaction models (Naseer, Ghafoor, bin Khalid Alvi, & ul Islam, 2022). The cointegration analysis's findings indicate that while political stability has the power to spur economic growth, financial advancement and capital account transparency hinder Kenya's actual economic development (Naseer, Ghafoor, et al., 2021).

Recent research by indicates that trade openness can significantly increase the effectiveness of economic development over the long and short terms (Naseer, Ghafoor, bin Khalid Alvi, Zafar, & Murtaza, 2023). A method for automatic adjustment needs to be implemented when there is a difference between the volatility of the short term and the long term to maintain stable economic growth. High regional heterogeneity and nonlinear threshold features highlighted the benefits of trade openness and proved the effectiveness of economic growth (Naseer et al., 2012). The impact of trade openness on GDP growth is examined by (Chandrashekar, Sakthivel, Sampath, & CHITTEDI, 2018) using a panel data set comprising five developing market nations. This analysis covers the years 1993 through 2016. We find empirical support, through panel estimate methodologies, for the premise that trade openness, technological advancement, labour force participation, financial stability, and economic growth are causally related. Conversely, long-run elasticities indicate that trade openness and economic growth are positively and statistically significantly correlated. The study's conclusions also demonstrate how trade openness has a significant impact on the economic development and growth of the five developing market countries. A recent study by Raghutla revealed a substantial correlation between the level of trade openness in India and its economic growth (Naseer, Liu, & Sarkar, 2019).

The potential implications of government savings and expenditure on Saudi Arabia's economy have been examined in several scholarly papers. In the Western African States, between 2005 and 2017, (Olaoye, Eluwole, Ayesha, & Afolabi, 2020) discovered unbalanced trends in the relationship between government spending and economic growth. Studies have demonstrated that expansionary government budget shocks have positive and statistically significant effects on economic growth (Naseer et al., 2018). However, it is frequently demonstrated that cutting government spending has a statistically significant detrimental effect on economic growth. There is growing evidence to suggest that government spending and economic growth are not always positively correlated (Naseer et al., 2017). The potential for a non-linear relationship between public spending and economic development has been examined in several publications, which have also presented empirical results. Several explanations have been put out to account for the nonlinear relationship between economic activity and government spending (Naseer, Liu, Sarkar,

Shafiq, & Choi, 2021). Systemic faults and macroeconomic swings are just two possible variables impacting the link. One structural element that might have an impact on how the two macroeconomic variables relate to one another is institutional infrastructure.

Most of the above-mentioned studies indicate that tourism supports both high-quality institutions and long-term economic growth. This finding supports the inclusion of the tourism industry in models of economic growth (Naseer & Mahmood, 2015). This essay examines the impacts of two realistic and sustainable measures for Saudi Arabia's economic development: strengthening institutions and promoting greater Islamic travel (Sandhu, Haider, Naseer, & Ateeb, 2011b).

Data:

The current study used a large sample size of 216 observations, as opposed to merely relying on 18 yearly data points, by using monthly data converted from annual time series ranging from 2002 to 2019. Topics include personal savings rates, GDP per capita, political stability, institutional excellence, the attractiveness of Islamic tourism, and overall government spending. The majority of the study's statistics came from the World Bank, while the specifics on Islamic tourism came from the Saudi Arabia General Authority of Statistics. The fundamental objective of the study was assessed by looking at the correlation between GDP per capita and the number of Hajj pilgrims as a surrogate for Islamic tourism (Sandhu, Haider, Naseer, & Ateeb, 2011a). A weighted average of the two most important measures of global governance, "rule of law" and "control of corruption," is determined. The index values are then normalized using a minimum-maximum scale to rank institutions from best to worst (Satti et al.). We also utilize the following four economic indicators as explanatory variables: trade openness, government spending, savings, and the political stability index. The majority of Muslims who travel each year do so to visit Medina and Mecca as part of their religious obligations (Shahzad et al., 2021). This country was chosen to be a bellwether for our study. A large number of Muslims from all over the globe visit the Kingdom each year to perform the holy pilgrimage known as Hajj and the smaller pilgrimage known as Umrah. Authorities in Saudi Arabia have just unveiled a strategy to increase tourism and develop the country's Red Sea shoreline (Shaukat, Ghafoor, Khalid, & Naseer). The year 2017 marked the beginning of this program. The word "brule" is used in a slang sense. The growth of the Saudi economy and the rise of Islamic tourism were studied using a variety of research methods. In the first stage of data analysis, descriptive statistics are used to learn more about the data by providing crucial summary measures such as the mean, standard deviation, minimum, and maximum values for the variables in question (Velusamy et al., 2021). Also, the study used ARDL analysis, which included limit tests and the Johansen cointegration test, to look at how the research variables interact over time and whether or not they have reached a stable equilibrium (Zaman-ul-Haq et al., 2022). Once the cointegration test is confirmed, the ARDL method is used to investigate the complex relationship between variables by combining the long-term and short-term estimates. Finally, the Granger causality approach was utilized to determine the relationships between many factors—such as Islamic tourism, institutional efficiency, political stability, trade openness, government consumption, and savings—that all lead to a thriving economy. In order to conduct a regression analysis of an exogenous variable on the independent variables, this method makes use of a particular structure and ideal lag lengths (Naseer, Saleem, et al., 2023). Instead of depending on merely 18 annual values, the current study uses monthly data transformed from an annual time series ranging from 2002 to 2019 to contain a large sample size of 216 observations. Topics include personal savings rates, GDP per capita, political stability, institutional excellence, the attractiveness of Islamic tourism, and overall government spending. The majority of the study's

statistics came from the World Bank, but the study's focus on Islamic tourism required some additional information kindly provided by the Saudi Arabia General Authority of Statistics. The fundamental objective of the study was assessed by looking at the correlation between GDP per capita and the number of Hajj pilgrims as a surrogate for Islamic tourism. There is an accumulation of data on the "rule of law" and the "control of corruption," the two most important indicators of global governance (Riaz et al., 2022). The index values are then normalized using a minimum-maximum method to rank institutions from best to worst. We also utilize the following four economic indicators as explanatory variables: trade openness, government spending, savings, and the political stability index. The majority of Muslims who travel each year do so to visit Medina and Mecca as part of their religious obligations. This country was chosen to be a bellwether for our study. A large number of Muslims from all over the globe go to the Kingdom each year to perform the holy pilgrimage of Hajj or the smaller pilgrimage of Umrah. Millions of dollars are spent by these pilgrims throughout their stay, making a significant contribution to the local economy. The government of Saudi Arabia has unveiled a strategy to increase tourism and develop the country's Red Sea shoreline. It's 2017 now. The word "brule" is a slang term for surprise or amazement. Several research methods were used to examine the link between Saudi Arabia's booming economy and the increase in Islamic tourism. By providing measurements of central tendency (mean), variability (standard deviation), and range of values (minimum and maximum), descriptive statistics are used during the exploratory phase to identify the nature of the data. In addition, Autoregressive Distributed Lag (ARDL) analysis was used to look at how the study's variables were linked across time and how stable their equilibrium was in the long run. The Johansen cointegration test and limit tests were also a part of this investigation. Once the cointegration test is confirmed, the complex relationship between variables, taking into account both long-term and short-term estimations, may be investigated using the ARDL method. Many factors, such as Islamic tourism, institutional efficiency, political stability, trade openness, government consumption, and savings, all contribute to a thriving economy, and the Granger causality approach was utilized to determine the relationships between them in the final phase. To conduct a regression study in which one independent variable is regressed on other independent variables, this approach makes use of a novel structure and appropriate lag lengths.

Table 1. Variables and Description

Variables	Symbols	Explanation with units	Sources
Thriving Economy	LNGDP	GDP per capita (current US$).	WDI
Islamic Tourism	LNTR	Total domestic and foreign pilgrims (total numbers).	GAS
Institutional Quality	LNINS	The Index value was calculated by taking the average rule of law and control of corruption (WGI), and then rearranging 0-1 using min-max normalization (index).	WDI
Political Stability	LNPS	Political Stability Index (index value).	WDI

Trade Openness	LNTO	Trade percentage of GDP (%).	WDI
Govt. Consumption	LNCOM	General Govt. consumption percentage of GDP (%).	WDI
Govt. Savings	LNSAV	Government savings percentage of GDP (%).	WDI

WDI-world development indicators by World Bank, GAS-Saudi Arabia General Authority for Statistics.

Empirical Methodology:

We propose the following model to measure the association between the Saudi economy and regressors.

$$GDP_t = f(TR_t, INS_t, PS_t, TO_t, COM_t, SAV_t) \quad (1)$$

Equation 1 presents a simple, functional form of our regressed and all regressors of the study. Where GDP denotes GDP per capita, TR is a symbol for total religious tourism, INS represent institutional quality, PS is a short symbol for political stability, TO denotes trade openness, COM is a government general consumption percentage of GDP, and SAV signifies the government saving percentage of GDP. Alternatively, Eq. 1 can be written as follows:

$$GDP_t = \beta_0 + \beta_1 TR_t + \beta_2 INS_t + \beta_3 PS_t + \beta_4 TO_t + \beta_5 COM_t + \beta_6 SAV_t + \varepsilon_t \quad (2)$$

The following is the description of the log-log linear model:

$$LNGDP_t = \beta_0 + \beta_1 LNTR_t + \beta_2 LNINS_t + \beta_3 LNPS_t + LNTO_t + \beta_5 LNCOM_t + \beta_6 LNSAV_t + \varepsilon_t \quad (3)$$

The logarithmic form of all study variables is presented in Equation 3, and t is donated for the time dimension. The epsilon ε denotes for error term, β_0 represent the constant term and coefficient $\beta_1, \beta_2 \dots \dots \beta_6$ exhibit the elasticity of regressors, respectively.

It is essential to understand the time series variables' integration order before beginning a thorough analysis. Hence, we employed the traditional unit root ADF and PP test, which were put forth by The vulnerability of ADF and PP tests to heteroscedasticity and serial correlation in error terms is the main distinction between them. The following are the PP and ADF equations:

ADF test

$$\Delta Y_t = \beta' D_t + \pi Y_{t-1} + \sum_{j-1}^{p} \sigma_j \Delta Y_{t-j} + \varepsilon_t \quad (4)$$

The deterministic term vector is expressed by D_t, while the error term is represented by ε_t.

PP test

$$\Delta Y_t = \beta' D_t + \pi Y_{t-1} + \mu_t \quad (5)$$

The PP test ignores serial correlation and heteroscedasticity in the error terms.

The ARDL limits test has numerous advantages over the more common cointegration approach. It works well even with small samples, rapidly eliminates autocorrelation, and may be used when the order of integration of the research variables is uncertain. The ARDL limits test compares the F-statistic to the statistics at the extremes. The variables in the research exhibit a long-term link if the F-statistics value is larger than the upper and lower limit statistics. Equation 6 displays the model of ARDL restrictions.

$$\Delta LNGDP_t = \theta_0 + \sum_{i=1}^{t} \theta_1 \Delta LNGDP_{t-1} + \sum_{i=1}^{t} \theta_2 \Delta LNTR_{t-i} + \sum_{i=1}^{t} \theta_3 \Delta LNINS_{t-i} + \sum_{i=1}^{t} \theta_4 \Delta PS_{2t-i} + \sum_{i=1}^{t} \theta_5 \Delta TO_{t-i} + \sum_{i=1}^{t} \theta_6 \Delta COM_{t-i} + + \sum_{i=1}^{t} \theta_7 \Delta SAV_{t-i} + \beta_1 LNGDP_{t-1} + \beta_2 LNTR_{t-1} + \beta_3 LNINS_{t-1} + \beta_4 LNPS_{t-1} + \beta_5 LNTO_{t-1} + \beta_6 LNCOM_{t-1} + \beta_7 LNSAV_{t-1} + \varepsilon_t \quad (6)$$

The alternative hypothesis states that there is evidence of cointegration between time series variables, refuting the null hypothesis, which states that there is no evidence of cointegration. The ARDL limits test hypotheses are mentioned in Eqs. 7 and 8, respectively.

$$H_0 = \vartheta_1 = \vartheta_2 = \vartheta_3 = \vartheta_4 = \vartheta_5 = \vartheta_6 \quad (7)$$

$$H_a \neq \vartheta_1 \neq \vartheta_2 \neq \vartheta_3 \neq \vartheta_4 \neq \vartheta_5 \neq \vartheta_6 \quad (8)$$

Where H_0 represent the null and H_a symbolized for the alternative hypothesis.

The ARDL-based ECM derives the short-run connection between variables after first analyzing their long-term associations. By way of illustration, let's use Eq. 9 to get the ARDL short-run parameter for ECM.

$$\Delta LNGDP_t = \theta_0 + \sum_{i=1}^{t} \theta_1 \Delta LNGDP_{t-1} + \sum_{i=1}^{t} \theta_2 \Delta LNTR_{t-i} + \sum_{i=1}^{t} \theta_3 \Delta LNINS_{t-i} + \sum_{i=1}^{t} \theta_4 \Delta PS_{2t-i} + \sum_{i=1}^{t} \theta_5 \Delta TO_{t-i} + \sum_{i=1}^{t} \theta_6 \Delta COM_{t-i} + + \sum_{i=1}^{t} \theta_7 \Delta SAV_{t-i} + \beta_1 LNGDP_{t-1} + \beta_2 LNTR_{t-1} + \beta_3 LNINS_{t-1} + \beta_4 LNPS_{t-1} + \beta_5 LNTO_{t-1} + \beta_6 LNCOM_{t-1} + \beta_7 LNSAV_{t-1} + \omega ECT_{t-i} + \varepsilon_t \quad (9)$$

Where, $\theta_0, \theta_1 \ldots\ldots \theta_7$ are represent the short-run coefficients, $\beta_1, \beta_2, \ldots\ldots \beta_7$ are donated for long-run coefficients, ε is the symbol for the error term at time t, ECT_{t-i} is represents the error correction term, and ω is a symbol of coefficients of ECT, which should be negative and significant.

The Granger causality test has been employed to examine the causal relationship between the time series variables in the study, as established . To estimate the value of Y variables, it integrates the past values of X variables. In the meantime, the method needs to measure equations 10 and 11 at the same time.

$$\Delta X_t = a_x + \sum_{i=1}^{k} \beta_{x,i} \Delta X_{t-1} + \sum_{i=1}^{k} \gamma_{x,i} \Delta Y_{t-1} + \varepsilon_{x,t}; \qquad and \quad (10)$$

$$\Delta Y_t = a_y + \sum_{i=1}^{k} \beta_{y,i} \Delta Y_{t-1} + \sum_{i=1}^{k} \gamma_{y,i} \Delta X_{t-1} + \varepsilon_{y,t} \quad (11)$$

Where Δ denotes the first difference of the variable of X_t and Y_t at current time t and previous $t-1$; $a, \beta, and\ \gamma$ are the symbols for the coefficient of the regression which are tested, and ε_t Represent the random error term.

Empirical Findings and Discussions:

The descriptive analysis of the variables is shown in Table 2. According to Kaur and Stoltzfus (2018), the mean value is used in descriptive statistics to indicate whether or not the data are evenly distributed, skewed, or otherwise not typical. Descriptive statistics contain mean and standard deviation figures as well as minimum and maximum values for each variable in Table 2. Our system provides 216 data points for each of the seven variables. The average increase in GDP per person is 9.789969, with a standard deviation of 0.322925. There is a range of 9.044246–10.14256 for GDP per capita. There is a mean of 27.74704 visits by Muslims and a standard deviation of 0.326328. The lowest value of Islamic tourism is 27.20376, while the highest value is 28.62087. The average INS value is -1.022439, with a standard deviation of 0.930057. Trade openness has a standard deviation of 0.142078 and a mean value of 4.343585. Trade openness ranges from a maximum of 4.581055 to a minimum of 4.096033. The mean values of government consumption and savings are 3.127497 and 3.644033, respectively, with a standard deviation of 0.127248 and 0.240357.

Economic growth is linked to Islamic tourism, high-quality institutions, political stability, free commerce, and effective governance. The distribution of the sample's observations is less irregular and unequal, as seen by consumption and savings patterns. The results in Table 2 demonstrate that the distribution of the data or all of the observations is not skewed.

Table 2: Descriptive Statistics

	LNGDP	LNTR	LNINS	LNPS	LNTO	LNCOM	LNSAV
Mean	9.789969	27.74704	-1.022439	-0.382778	4.343585	3.127497	3.644033
Median	9.901139	27.71480	-0.727701	-0.458310	4.398440	3.123424	3.681894
Maximum	10.14256	28.62087	-0.084073	0.308831	4.581055	3.412376	3.998739
Minimum	9.044246	27.20376	-4.147239	-0.724699	4.096033	2.854123	3.145303
Std. Dev.	0.322925	0.326328	0.930057	0.237584	0.142078	0.127248	0.240357
Skewness	-0.937437	0.882578	-2.072989	1.488170	-0.204027	0.057224	-0.309598
Kurtosis	2.753798	3.439939	7.459934	4.788815	1.834488	2.713824	1.749146
Jarque-Bera	32.18194	29.78392	333.7213	108.5261	13.72435	0.854959	17.53236
Probability	0.000000	0.000000	0.000000	0.000000	0.001047	0.652151	0.000156
Sum	2114.633	5993.360	-220.8469	-82.68000	938.2143	675.5393	787.1110
Sum Sq. Dev.	22.42033	22.89531	185.9764	12.13593	4.340003	3.481302	12.42090
Observations	216	216	216	216	216	216	216

None of the variables are integrated, as shown by the results of the two experiments. The results of the unit root test are shown in Table 3. At a 1% level of confidence, the findings of the 3.35-unit root test indicate that Islamic tourism is important. At the same 1% level of certainty, scores of 7.10 and 6.54 for institutional quality and political stability, respectively, are similarly

significant. However, with a -2.81 value at the 5% level of confidence, trade openness occurs, and with a 1% level of confidence, government expenditure and savings are considerable. This suggests that all three are integrated at the level of the first difference.

Table 3: Unit Root Tests

Variables	Level		1st Difference		
	Intercept	Intercept and Trend	Intercept	Intercept and Trend	Order
			ADF		
LNGDP	-2.837928**	-1.559327	-3.355485***	-4.861825***	Mixed
LNTR	-1.979339	-2.005854	-3.945016***	-3.951978***	I (1)
LNINS	-2.767253*	-3.164030*	-7.102218***	-7.107954***	Mixed
LNPS	-4.091003***	-3.557231**	-6.544968***	-6.893843***	I (0)
LNTO	-2.199080	-2.116309	-2.814109**	-2.959799*	I (1)
LNCOM	-1.745833	-2.046584	-4.646774***	-4.691191***	I (1)
LNSAV	-1.449745	-2.576034	-3.673612***	-4.085187***	I (1)
			PP		
LNGDP	-2.428184	-1.415293	-10.59813***	-10.94761***	I (1)
LNTR	-2.097570	-2.094880	-11.47602***	-11.45569***	I (1)
LNINS	-2.934994**	-3.344318**	-14.56869***	-14.54729***	Mixed
LNPS	-2.776534*	-2.815626	-11.52994***	-11.53770***	Mixed
LNTO	-0.832097	-0.623786	-6.339643***	-6.610973***	I (1)
LNCOM	-1.896156	-2.166807	-10.99669***	-11.01937***	I (1)
LNSAV	-1.915214	-2.550927	-9.763305***	-10.31854***	I (1)

The signs depict (*) Significant at 10%; (**) Significant at 5%; and (***) Significant at 1%. And (no) Not Significant.

Using bounds tests to cointegrate at the 10%, 5%, 2.5%, and 1% significant levels displaying values of 2.12, 2.45, 2.75, and 3.15, respectively, the ARDL analysis was used to assess the connection between variables and study the long-run equilibrium. Table 4 displays an F-statistic value of 6.054, which is much higher than the cutoff value. All of the projected coefficients in the table are positive and statistically significant at the 1% level. This empirical evidence shows that all the elements under examination positively affect Saudi Arabia's economic development

over the long run. Its econometric validity has been confirmed by diagnostic tests, and we found that all estimated values are appropriately small and their P values are large enough. Therefore, the model passed all diagnostic tests. Table 5 displays the outcome of the Johansen cointegration test (Johansen and Juselius, 1990). The cointegration test shows the interconnectedness of GDP with other variables including institutional strength, Islamic tourism, political stability, trade liberalization, public savings, and consumer spending. The findings show that the variables are stable because of their long-term connection.

Table 4: ARDL Bounds Test to Cointegration

Test Statistic	Value	K
F-Statistic	6.054	6
Critical value bounds	I(0) bound	I(1) bound
By 10%	2.12	3.23
By 5%	2.45	3.61
By 2.5%	2.75	3.99
By 1%	3.15	4.43

Table 5: Results of the Johansen Cointegration tests

Null hypothesis	Maximum Eigenvalue	p-value	Null hypothesis	Trace test statistic	p-value
r = 0	197.8469	0.60157	r = 0	302.0374	0.60157
r<= 1	51.1502	0.21172	r<= 1	104.1905	0.21172
r<= 2	30.7113	0.13311	r<= 2	53.0403	0.13311
r<= 3	12.9425	0.05842	r<= 3	22.3290	0.05842
r<= 4	6.2224	0.02853	r<= 4	9.3865	0.02852
r<= 5	2.1306	0.00986	r<= 5	3.1641	0.00987
r<= 6	1.0335	0.00479	r<= 6	1.0335	0.00479

r denotes the number of cointegrating equation

Expansion of the economy, Islamic tourism, high-quality institutions, political stability, free and open commerce, low government consumption, and high savings are only a few of the short-term and long-term outcomes shown in Table 6. When a cointegration test returns positive findings, the ARDL technique is utilized to perform both long- and short-term estimates to further probe the complex relationship between the variables. The total number of pilgrims (both domestic and foreign) has a positive coefficient value of.0071466 with a P-value of 0.034, as seen in Table 6 of the ARDL data. Trade liberalization, institutional quality, and political stability all have P-values that are within the acceptable range as well (0.038, 0.149, and 0.019, respectively). Long-

term national savings and total consumption are positively related (LNSAV = 1.6424, LNCOM = 0.69287). Each variable with a short-term relationship has an extremely high P-value according to the ARDL analysis. Table 6 shows statistically significant correlations at the 0.040, 0.065, and 0.189 levels between institutional quality (.2483), political stability (.4919), and the total number of pilgrims (both domestic and foreign). The P-value is 0.000, yet the coefficients for government spending and trade openness are also negative (-.34727 and -.37550, respectively).

In contrast, the variable "government savings" showed a positive correlation with a coefficient of.44214 and a significant P-value of 0.000. There was a statistically significant correlation between each indicator and Saudi Arabia's GDP. The increasing number of pilgrims and the total amount they spend have become crucial to the Kingdom's economy. Managing the reception of visitors requires careful attention to institutional quality and political instability (Ghalia, T., Fidrmuc, J., Samargandi, N., & Sohag, 2019). Dwyer, L., & Forsyth, P. (1993) argue that a country's tourism industry may benefit from well-timed changes to trade liberalization, government consumption, and savings programs.

When looking at dynamic data, GDP per capita is shown to have the largest connection of all components in the short run, while political stability is shown to have minimal impact in the long term. To this goal, we used a string variable, institutional quality, that is correlated with the dependent variable and has a statistically significant P-value. Strong institutions in Saudi Arabia are made up of specialist groups and the public as a whole to preserve the status quo (Albassam, B.A., 2015), which is ruled by a monarchy with an authoritarian attitude. To protect the common good, politicians avoid delving into issues that have nothing to do with politics but a significant impact on the economy.

Table 6: ARDL Estimated results of long-run and short-run

Variables	Coefficient	t-Statistic	Probability
Long-Run Estimation			
LNTR	.0071466	.20949	0.034
LNINS	.014161	.87422	0.038
LNPS	.089622	1.4485	0.149
LNTO	.23769	2.3555	0.019
LNCOM	.69287	5.6777	0.000
LNSAV	1.6424	6.8371	0.000
TREND	.0051493	16.8364	0.000
Short-Run Estimation			
LNTR	.2483E-3	.20267	0.040
LNINS	.4919E-3	.90734	0.065
LNPS	.0031134	1.3168	0.189
LNTO	-.34727	-3.9812	0.000
LNCOM	-.37550	-5.4948	0.000
LNSAV	.44214	9.3769	0.000
TREND	.1789E-3	3.9761	0.000
ECT(-1)	-.034739	-3.9640	0.000

Diagnostic tests

R^2	0.90514
Adjusted- R^2	0.90049
D-W	1.8997
$\chi 2$ ARCH	4.1381 (0.110)
$\chi 2$ RESET	2.5681 (0.109)
$\chi 2$ Normality	5.3508 (0.295)
$\chi 2$ LM	0.1662 (0.733)

The study used Granger causality to establish the interrelationships among economic development, Islamic tourism, institutional efficiency, political stability, trade openness, government consumption, and savings. In this particular approach, the exogenous variable of interest is subjected to regression analysis with the original independent variables, using a unique formulation and optimal lag durations. Table 7 presents the results of the paired Granger causality test, revealing a statistically significant positive association between GDP per capita and trade openness. In addition, the F-value of 4.525 suggests that there exists a unidirectional causal association only between institutional quality and GDP per capita. The results demonstrate a statistically significant and causal relationship between GDP, political stability, and government expenditure, with significance seen at both the 1% and 5% levels. Nevertheless, based on a significance threshold of 5%, there exists a statistically significant positive correlation between Gross Domestic Product (GDP) and government savings. Table 7 provides further evidence supporting the existence of a positive connection between trade openness and institutional quality. This relationship is statistically significant, as shown by the F-statistics value of 6.075 at a 5% level of significance. At a significance level of 5%, the F-statistic of 4.623, which measures the link between government savings and institutional quality, suggests the presence of a unidirectional causal relationship. There was a statistically significant positive link at the 5% significance level between government savings, trade openness, and political stability. However, it is evident from the following table that the other variables exhibit bidirectional associations.

Table 7: Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.	Decision
LNTR does Granger Cause not LNGDP	215	13.6343***	0.0003	Reject Ho
LNGDP does Granger Cause not LNTR		0.95078	0.3306	Do Not Dismiss Ho
LNINS does Granger Cause not LNGDP	215	4.52536**	0.0346	Reject Ho
LNGDP does Granger Cause not LNINS		0.71998	0.3971	Do Not Dismiss Ho
LNPS does Granger Cause not LNGDP	215	2.11285	0.1475	Do Not Dismiss Ho
LNGDP does Granger Cause not LNPS		0.06847	0.7938	Do Not Dismiss Ho
LNCOM does Granger Cause not LNGDP	215	9.62585***	0.0022	Reject Ho
LNGDP does Granger Cause not LNCOM		10.0355***	0.0018	Reject Ho
LNSAV does Granger Cause not LNGDP	215	8.28469**	0.0044	Reject Ho
LNGDP does Granger Cause not LNSAV		35.3076	1.E-08	Do Not Dismiss Ho
LNTO does Granger Cause not LNGDP	215	0.00176	0.9665	Do Not Dismiss Ho
LNGDP does Granger Cause not LNTO		1.58129	0.2100	Do Not Dismiss Ho
LNINS does Granger Cause not LNTR	215	6.07501**	0.0145	Reject Ho
LNTR does Granger Cause not LNINS		1.02142	0.3133	Do Not Dismiss Ho
LNPS does Granger Cause not LNTR	215	0.05296	0.8182	Do Not Dismiss Ho

LNTR does Granger Cause not LNPS		0.03006	0.8625	Do Not Dismiss Ho
LNCOM does Granger Cause not LNTR	215	0.78935	0.3753	Do Not Dismiss Ho
LNTR does Granger Cause not LNCOM		0.22554	0.6353	Do Not Dismiss Ho
LNSAV does Granger Cause not LNTR	215	0.05607	0.8131	Do Not Dismiss Ho
LNTR does Granger Cause not LNSAV		1.21183	0.2722	Do Not Dismiss Ho
LNTO does Granger Cause not LNTR	215	0.00648	0.9359	Do Not Dismiss Ho
LNTR does Granger Cause not LNTO		0.67536	0.4121	Do Not Dismiss Ho
LNPS does Granger Cause not LNINS	215	0.68079	0.4102	Do Not Dismiss Ho
LNINS does Granger Cause not LNPS		0.56065	0.4548	Do Not Dismiss Ho
LNCOM does Granger Cause not LNINS	215	1.63783	0.2020	Do Not Dismiss Ho
LNINS does Granger Cause not LNCOM		1.81324	0.1796	Do Not Dismiss Ho
LNSAV does Granger Cause not LNINS	215	2.07614	0.1511	Do Not Dismiss Ho
LNINS does Granger Cause not LNSAV		4.62300**	0.0327	Reject Ho
LNTO does Granger Cause not LNINS	215	0.45612	0.5002	Do Not Dismiss Ho
LNINS does Granger Cause not LNTO		5.47746**	0.0202	Reject Ho
LNCOM does Granger Cause not LNPS	215	0.00980	0.9212	Do Not Dismiss Ho
LNPS does Granger Cause not LNCOM		0.00822	0.9278	Do Not Dismiss Ho
LNSAV does Granger Cause not LNPS	215	0.82124	0.3658	Do Not Dismiss Ho
LNPS does Granger Cause not LNSAV		5.55663**	0.0193	Reject Ho
LNTO does Granger Cause not LNPS	215	0.21106	0.6464	Do Not Dismiss Ho
LNPS does Granger Cause not LNTO		6.29938**	0.0128	Reject Ho
LNSAV does Granger Cause not LNCOM	215	8.07448**	0.0049	Reject Ho
LNCOM does Granger Cause not LNSAV		7.08735**	0.0084	Reject Ho
LNTO does Granger Cause not LNCOM	215	3.13087**	0.0483	Reject Ho
LNCOM does Granger Cause not LNTO		18.3591	3.E-05	Do Not Dismiss Ho
LNTO does Granger Cause not LNSAV	215	4.30411**	0.0392	Reject Ho
LNSAV does Granger Cause not LNTO		42.4911	5.E-10	Do Not Dismiss Ho

*** and ** show the rejection of the null hypothesis at 1% and 5% significance level

Lastly, the CUSUM and CUSUMSQ graphs for the ARDL-Error Correction Model are provided in Figures 1 and 2 so that you may analyse the stability of both the short- and long-term movements. Assume that the CUSUM graphs and CUSUMSQ statistics remain below the 5% level of significance acceptable range. The null hypothesis of the supplied regression, which claims that all of the coefficients are stable and cannot be rejected, is true in that situation.

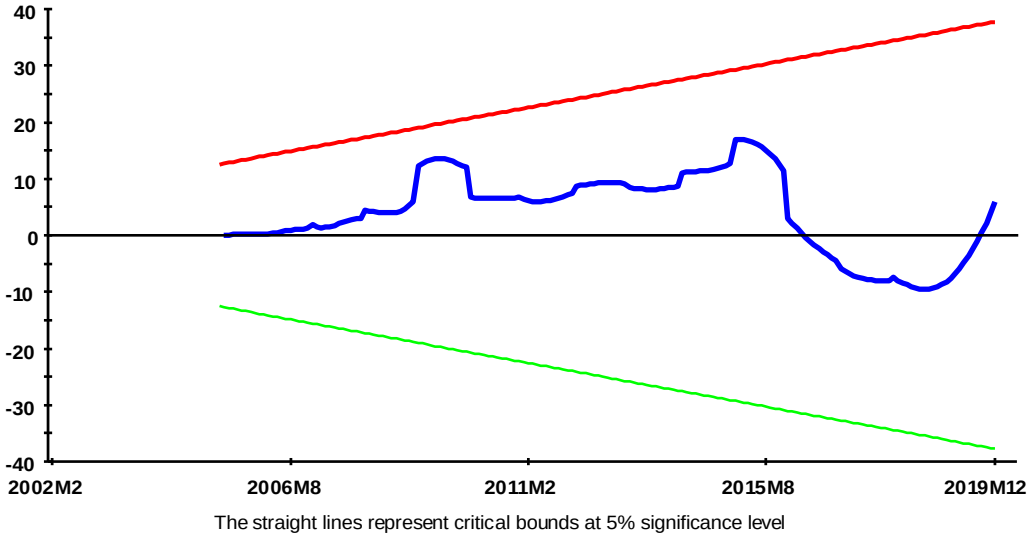

Fig. 1. CUSUM

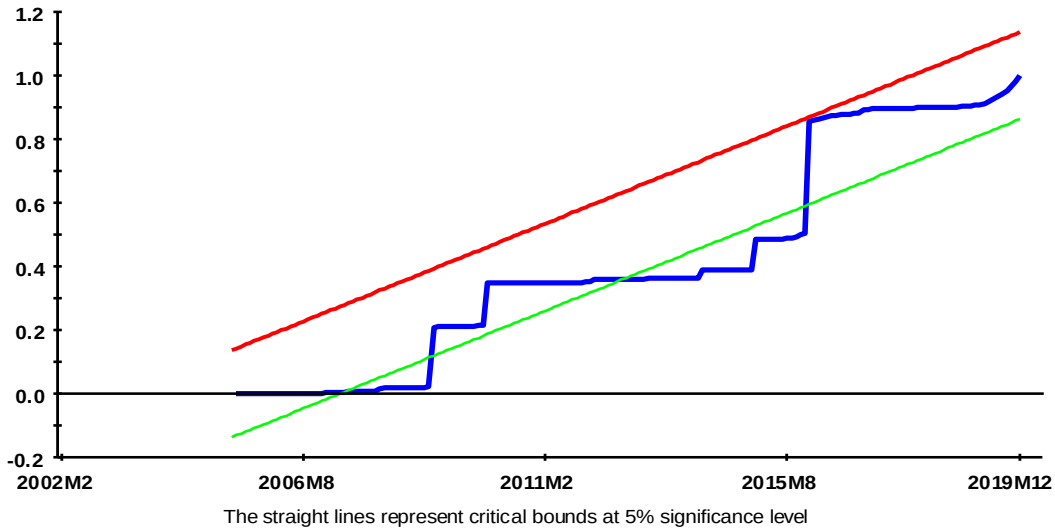

Fig. 2. CUSUM of Square

Plots in Figures 1 and 2 demonstrate that CUSUM and CUSUMSQ statistics are well under the 5% critical bounds, indicating that the ARDL-Error Correction Model's short- and long-run coefficients are stable.

Conclusion:

The impact of Islamic tourism, institutional quality, trade openness, government savings and consumption, and political stability on Saudi Arabia's economic progress were examined using time series data from 2002-2019 using the Autoregressive Distributed Lag (ARDL) bounds testing method. We utilized the Phillips-Perron unit root test and the Generalized Dickey-Fuller Least

Squares (DF-GLS) to make sure that the data was stationary. In sum, our results demonstrate that all elements are related to Saudi Arabia's GDP both in the long and short terms. It has been shown that trade liberalization, Islamic tourism, government expenditure, and government savings have all contributed to the growth of Saudi Arabia's economy. However, the data suggests that there is little to no connection between political stability and economic growth. Likely, the political system in Saudi Arabia is not administered in an authoritarian manner, even though the strong institutions that make up professional organizations and a country are accountable for sustaining and regulating the system under an authoritarian government. Therefore, many topics unrelated to politics but connected to economic input get little to no benefit from political engagement.

Despite the autocratic character of the Saudi regime, the country's human rights record and alleged historical engagement in the growth of fundamentalist Islam might have an instant negative impact on the country's image. Despite the outbreak of civil unrest in Bahrain in early 2011 and the country's subsequent involvement in the Arab Spring, the Kingdom of Saudi Arabia has remained a crucial ally for the West. For the sake of economic growth and national harmony, as well as the safety of tourists, the government should emphasize diplomatic solutions. Thus, the Kingdom has been slowly allowing more people to go on pilgrimages, which has diminished the economic contribution due to the greater number of people travelling and their higher expenditure. This essay is important for both academics and practitioners alike. According to Iniesta, the study can identify and highlight the potential role of Islamic tourism as a crucial future factor in determining economic growth in Saudi Arabia by using Islamic tourism as a component of economic growth. Our findings may help policymakers, especially in the Saudi government, decide which industries to invest in moving forward to maintain the country's steady economic growth. If governments are serious about promoting Islamic tourism as a development driver, they should provide support to the travel and tourism industry. For this reason, it is essential to take steps like simplifying the visa application process and building the required infrastructure to support a larger number of pilgrims for the Hajj and Umrah programs. The fundamental takeaway from the research is that robust institutional support is a key factor in Saudi Arabia's booming economy. According to the available literature, the region's problems with violence, illiteracy, social and economic isolation, corruption, and difficult politics need attention to corruption control, the rule of law, and political stability. To foster a corporate environment that promotes good governance and other long-term economic advantages, the Saudi Arabian government should prioritize the efficient application of taxes, healthcare, education, infrastructure, and capacity development.

References

Abrar, U., Yousaf, A., Jaffri, N. R., Rehman, A. U., Ahmad, A., Gardezi, A. A., . . . Choi, J.-G. (2021). Analysis of Complex Solid-Gas Flow under the Influence of Gravity through Inclined Channel and Comparison with Real-Time Dual-Sensor System. *Electronics, 10*(22), 2849.

Adil, M., Ghafoor, M. M., Shafqat, M. M., Munir, Y., & Murtaza, G. (2023). Exploring the Relationship Between Board structure and Firm Performance using Meta-Analysis: Moderating Role of Firm Age and Firm Size. *Journal of Applied Research and Multidisciplinary Studies, 4*(1), 285-314.

Ahmad, S., Boubakar, H., Naseer, S., Alim, M. E., Sheikh, Y. A., Ghaffar, A., . . . Parchin, N. O. (2022). Design of a Tri-Band Wearable Antenna for Millimeter-Wave 5G Applications. *Sensors, 22*(20), 8012.

Ahmad, S., Cherif, N., Naseer, S., Ijaz, U., Faouri, Y. S., Ghaffar, A., & Hussein, M. (2022). A wideband circularly polarized CPW-fed substrate integrated waveguide based antenna array for ISM band applications. *Heliyon, 8*(8).

Ahmad, S., Ijaz, U., Naseer, S., Ghaffar, A., Qasim, M. A., Abrar, F., . . . Abd-Alhameed, R. (2022). A jug-shaped CPW-fed ultra-wideband printed monopole antenna for wireless communications networks. *Applied Sciences, 12*(2), 821.

Ahmad, S., Manzoor, B., Naseer, S., Ghaffar, A., & Hussein, M. (2021). A Flexible Broadband CPW-Fed Circularly Polarized Biomedical Implantable Antenna With Enhanced Axial Ratio Bandwidth.

Ahmad, S., Manzoor, B., Naseer, S., Santos-Valdivia, N., Ghaffar, A., & Abbasi, M. I. (2022). X-shaped slotted patch biomedical implantable Antenna for wireless communication networks. *Wireless Communications and Mobile Computing, 2022*, 1-11.

Ali, H., Batool, K., Yousaf, M., Islam Satti, M., Naseer, S., Zahid, S., . . . Choi, J.-G. (2022). Security Hardened and Privacy Preserved Android Malware Detection Using Fuzzy Hash of Reverse Engineered Source Code. *Security & Communication Networks*.

Ali, N., Khan, K. I., & Naseer, S. (2022). Islamic Bank: A Bank of Ethics in Compliance with Corporate Social Responsibility. *Sustainable Business and Society in Emerging Economies, 4*(2), 295-302.

Arsalan, A., Burhan, M., Naseer, S., & Rehman, R. A. (2022). *Efficient Interest Packet Forwarding Solution for NDN enabled Internet of Underwater Things.* Paper presented at the 2022 17th International Conference on Emerging Technologies (ICET).

Arshad, M., Karim, A., Naseer, S., Ahmad, S., Alqahtani, M., Gardezi, A. A., . . . Choi, J.-G. (2023). Detecting Android Botnet Applications Using Convolution Neural Network. *Computers, Materials & Continua, 77*(2).

Asghar, N., Qureshi, D. S., & Nadeem, M. (2020). Institutional quality and economic growth: Panel ARDL analysis for selected developing economies of Asia. *South Asian Studies, 30*(2).

Benkirane, S., Guezzaz, A., Azrour, M., Gardezi, A. A., Ahmad, S., Sayed, A. E., . . . Shafiq, M. (2023). Adapted Speed System in a Road Bend Situation in VANET Environment. *CMC-COMPUTERS MATERIALS & CONTINUA, 74*(2), 3781-3794.

Bokhari, S. A., Saqib, Z., Amir, S., Naseer, S., Shafiq, M., Ali, A., . . . Hamam, H. (2022). Assessing land cover transformation for urban environmental sustainability through satellite sensing. *Sustainability, 14*(5), 2810.

Brida, J. G., Cortes-Jimenez, I., & Pulina, M. (2016). Has the tourism-led growth hypothesis been validated? A literature review. *Current Issues in Tourism*, *19*(5), 394-430.

Brida, J. G., Gómez, D. M., & Segarra, V. (2020). On the empirical relationship between tourism and economic growth. *Tourism Management*, *81*, 104131.

Chandrashekar, R., Sakthivel, P., Sampath, T., & CHITTEDI, K. R. (2018). Macroeconomic variables and stock prices in emerging economies: A panel analysis. *Theoretical & Applied Economics*, *25*(3).

Faouri, Y., Ahmad, S., Naseer, S., Alhammami, K., Awad, N., Ghaffar, A., & Hussein, M. I. (2022). Compact Super Wideband Frequency Diversity Hexagonal Shaped Monopole Antenna with Switchable Rejection Band. *IEEE Access*, *10*, 42321-42333.

Ghafoor, M. M., Nawaz, S., Munir, A., & Saleem, R. (2022). Lifestyle of Youth in Pakistan: Impact of Lifestyle Factors on the Depressive Behavior of Youth. *Journal of Management and Administrative Sciences (JMAS)*, *2*(2), 30-44.

Haq, F., & Yin Wong, H. (2010). Is spiritual tourism a new strategy for marketing Islam? *Journal of Islamic Marketing*, *1*(2), 136-148.

Ishfaq, U., Shabbir, D., Khan, J., Khan, H. U., Naseer, S., Irshad, A., . . . Hamam, H. (2022a). Empirical Analysis of Machine Learning Algorithms for Multiclass Prediction. *Wireless Communications and Mobile Computing*, *2022*.

Ishfaq, U., Shabbir, D., Khan, J., Khan, H. U., Naseer, S., Irshad, A., . . . Hamam, H. (2022b). Research Article Empirical Analysis of Machine Learning Algorithms for Multiclass Prediction.

Jabeen, T., Zia, M. H., & Naseer, S. (2021). Right of Privacy: The Lacuna in Pakistan and Indian legal Framework.

Katircioglu, S. T. (2009). Revisiting the tourism-led-growth hypothesis for Turkey using the bounds test and Johansen approach for cointegration. *Tourism Management*, *30*(1), 17-20.

Kaur, P., Nand, P., Naseer, S., Gardezi, A. A., Alassery, F., Hamam, H., . . . Shafiq, M. (2022). Ontology-Based Semantic Search Framework for Disparate Datasets. *Intell. Autom. Soft Comput*, *32*, 1717-1728.

Khalid, F., Imtiaz, S., & Naseer, S. (2016). PERFORMANCE EVALUATION OF OPENSTACKBLOCK STORAGEIN DISASTER MANAGEMENT & RECOVERY. *International Journal of Computer Science and Information Security*, *14*(12), 992.

Khan, M., Ali, I., Khurram, S., Naseer, S., Ahmad, S., Soliman, A.-T., . . . Choi, J.-G. (2023). ETL Maturity Model for Data Warehouse Systems: A CMMI Compliant Framework. *Computers, Materials \& Continua*, *74*(2), 3849--3863. Retrieved from http://www.techscience.com/cmc/v74n2/50194

Kim, D.-H., Wu, Y.-C., & Lin, S.-C. (2018). Heterogeneity in the effects of government size and governance on economic growth. *Economic Modelling*, *68*, 205-216.

Kong, Q., Peng, D., Ni, Y., Jiang, X., & Wang, Z. (2021). Trade openness and economic growth quality of China: Empirical analysis using ARDL model. *Finance Research Letters*, *38*, 101488.

Malik, M. E., Ghafoor, M. M., & Naseer, S. (2011). Organizational effectiveness, a telecommunication and banking sector of Pakistan, Far East. *Journal Of Psychology and Business*, *2*, 33-76.

Malik, M. E., Ghafoor, M. M., & Naseer, S. (2011). Organizational effectiveness: A case study of telecommunication and banking sector of Pakistan. *Far east journal of psychology and business*, *2*(1), 37-48.

Maruta, A. A., Banerjee, R., & Cavoli, T. (2020). Foreign aid, institutional quality and economic growth: Evidence from the developing world. *Economic Modelling, 89*, 444-463.

Mayer, M., & Vogt, L. (2016). Economic effects of tourism and its influencing factors: An overview focusing on the spending determinants of visitors. *Zeitschrift für Tourismuswissenschaft, 8*(2), 169-198.

Naseer, S. (2021). *Vehicle Assisted Energy-Efficient Data Dissemination Framework.* Auckland University of Technology,

Naseer, S., & Chaudhry, S. (2011). Lr-wpan formation topologies using ieee 802.15. 4. *International Journal of Computer Science Issues (IJCSI), 8*(6), 39.

Naseer, S., Ghafoor, M., bin Khalid Alvi, S., & ul Islam, H. S. (2022). Denial of Services (DoS) Attack: Implementation in Wireless LAN and Countermeasures. *Pakistan Journal of Multidisciplinary Research, 3*(2), 1-13.

Naseer, S., Ghafoor, M. M., bin Khalid Alvi, S., Kiran, A., Rahmand, S. U., Murtazae, G., & Murtaza, G. (2021). Named Entity Recognition (NER) in NLP Techniques, Tools Accuracy and Performance. *Pakistan Journal of Multidisciplinary Research, 2*(2), 293-308.

Naseer, S., Ghafoor, M. M., bin Khalid Alvi, S., Zafar, I., & Murtaza, G. (2023). Wrapper Extraction and Integration using GNN. *Pakistan Journal of Multidisciplinary Research, 4*(1), 66-92.

Naseer, S., Hussain, S., Raza, I., Chaudry, S., Mirza, J., & Raza, M. (2012). Mobile ad-hoc network routing protocols: A simulation and performance analysis using multimedia traffic. *Journal of Basic and Applied Scientific Research, 2*(10), 9925-9930.

Naseer, S., Liu, W., & Sarkar, N. I. (2019). Energy-efficient massive data dissemination through vehicle mobility in smart cities. *Sensors, 19*(21), 4735.

Naseer, S., Liu, W., Sarkar, N. I., Chong, P. H. J., Lai, E., Ma, M., . . . Qadir, J. (2018). *A sustainable marriage of telcos and transp in the era of big data: Are we ready?* Paper presented at the International Conference on Smart Grid Inspired Future Technologies.

Naseer, S., Liu, W., Sarkar, N. I., Chong, P. H. J., Lai, E., & Prasad, R. V. (2017). *A sustainable vehicular based energy efficient data dissemination approach.* Paper presented at the 2017 27th international telecommunication networks and applications conference (ITNAC).

Naseer, S., Liu, W., Sarkar, N. I., Shafiq, M., & Choi, J.-G. (2021). Smart city taxi trajectory coverage and capacity evaluation model for vehicular sensor networks. *Sustainability, 13*(19), 10907.

Naseer, S., & Mahmood, R. (2015). Intrusion detection techniques in mobile adhoc networks: A review. *Lecture Notes on Information Theory Vol, 3*(1), 52-55.

Naseer, S., Saleem, R., Ghafoor, M.-M., Khurram, S., Ahmad, S., Sayed, A.-E., . . . Choi, J.-G. (2023). Temporal Preferences-Based Utility Control for Smart Homes. *Intelligent Automation \& Soft Computing, 36*(2), 1699--1714. Retrieved from http://www.techscience.com/iasc/v36n2/51161

Nunkoo, R., Seetanah, B., Jaffur, Z. R. K., Moraghen, P. G. W., & Sannassee, R. V. (2020). Tourism and economic growth: A meta-regression analysis. *Journal of Travel Research, 59*(3), 404-423.

Ogbuabor, J. E., Orji, A., Manasseh, C. O., & Anthony-Orji, O. I. (2020). Institutional quality and growth in West Africa: what happened after the great recession? *International Advances in Economic Research, 26*(4), 343-361.

Olaoye, O. O., Eluwole, O. O., Ayesha, A., & Afolabi, O. O. (2020). Government spending and economic growth in ECOWAS: An asymmetric analysis. *The Journal of Economic Asymmetries, 22*, e00180.

Riaz, A. R., Gilani, S. M. M., Naseer, S., Alshmrany, S., Shafiq, M., & Choi, J.-G. (2022). Applying Adaptive Security Techniques for Risk Analysis of Internet of Things (IoT)-Based Smart Agriculture. *Sustainability, 14*(17), 10964.

Sandhu, U. A., Haider, S., Naseer, S., & Ateeb, O. U. (2011a). A study of the novel approaches used in intrusion detection and prevention systems. *International Journal of Information and Education Technology, 1*(5), 426.

Sandhu, U. A., Haider, S., Naseer, S., & Ateeb, O. U. (2011b). *A survey of intrusion detection & prevention techniques.* Paper presented at the 2011 International Conference on Information Communication and Management, IPCSIT.

Satti, M. I., Ahmed, J., Muslim, H. S. M., Gardezi, A. A., Ahmad, S., Sayed, A. E., . . . Shafiq, M. Ontology-Based News Linking for Semantic Temporal Queries.

Shahzad, M. A., Paracha, K. N., Naseer, S., Ahmad, S., Malik, M., Farhan, M., . . . Sharif, A. B. (2021). An Artificial Magnetic Conductor-Backed Compact Wearable Antenna for Smart Watch IoT Applications. *Electronics, 10*(23), 2908.

Shaukat, H. S., Ghafoor, M. M., Khalid, A., & Naseer, S. Impact of social media activities on emotional attachment: An evidence from the hospitality industry of Pakistan.

Velusamy, P., Rajendran, S., Mahendran, R. K., Naseer, S., Shafiq, M., & Choi, J.-G. (2021). Unmanned Aerial Vehicles (UAV) in precision agriculture: applications and challenges. *Energies, 15*(1), 217.

Zaman-ul-Haq, M., Saqib, Z., Kanwal, A., Naseer, S., Shafiq, M., Akhtar, N., . . . Hamam, H. (2022). The Trajectories, Trends, and Opportunities for Assessing Urban Ecosystem Services: A Systematic Review of Geospatial Methods. *Sustainability, 14*(3), 1471.