Research Paper

Determinants of Tourism Demand in Iraq: An Empirical Analysis of Economic and Noneconomic Factors

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Abstract

The critical role of tourism as a principal economic engine is well known as an employment creator and foreign exchange earner. Resource-rich countries such as Iraq possess considerable tourism potential that can contribute to reducing dependence on oil revenues and promoting sustainable economic growth. However, the tourism sector in Iraq has been adversely affected by political instability, macroeconomic fluctuations, and recurrent external shocks. This study empirically investigates the determinants of tourism demand in Iraq over the period 2000–2022 by examining the relationship between tourism demand and selected macroeconomic variables. The explanatory variables include Gross Domestic Product (GDP), the Real Exchange Rate (RER), and the Consumer Price Index (CPI), in addition to two dummy variables representing the effects of the COVID-19 pandemic (2020–2021) and the ISIS conflict (2014–2017). The study employs the Autoregressive Distributed Lag (ARDL) approach to analyse both short-run and long-run dynamics and to test for cointegration among the variables. The empirical findings reveal the existence of a stable long-run equilibrium relationship between tourism demand and the selected macroeconomic indicators. In the short run, GDP and the real exchange rate exert significant positive effects on tourist arrivals. Long-run estimates similarly confirm that economic growth and exchange rate improvements enhance tourism demand. The study concludes that strengthening macroeconomic stability, accelerating economic growth, and encouraging private sector investment are essential for enhancing tourism demand in Iraq. These measures can contribute to diversifying the Iraqi economy, reducing excessive reliance on oil revenues, and creating a more attractive environment for both domestic and international tourists.

Keywords:

Tourism Demand, Gross Domestic Product, Real Exchange Rate, ARDL model

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ورقة بحثية

محددات الطلب السياحي في العراق: تحليل تجريبي للعوامل الاقتصادية وغير الاقتصادية

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المستخلص

يعد قطاع السياحة من القطاعات الحيوية الداعمة للنمو الاقتصادي لما يوفره من فرص عمل وعوائد من النقد الأجنبي، كما تمتلك الدول الغنية بالموارد الطبيعية، ومنها العراق، إمكانات سياحية كبيرة يمكن أن تسهم في تقليل الاعتماد على الإيرادات النفطية وتعزيز النمو الاقتصادي المستدام. إلا أن القطاع السياحي في العراق تأثر بصورة سلبية بحالة عدم الاستقرار السياسي والتقلبات الاقتصادية والصدمات الخارجية المتكررة. تهدف هذه الدراسة إلى تحليل محددات الطلب السياحي في العراق خلال المدة (2000–2022) من خلال دراسة العلاقة بين الطلب السياحي وعدد من المتغيرات الاقتصادية الكلية. وقد شملت المتغيرات التفسيرية الناتج المحلي الإجمالي (GDP)، وسعر الصرف الحقيقي(RER) ، والرقم القياسي لأسعار المستهلك(CPI) ، فضلاً عن متغيرين وهميين يمثلان تأثير جائحة كوفيد–19 خلال المدة (2020–2021) وأزمة تنظيم داعش خلال المدة (2014–2017). اعتمدت الدراسة نموذج الانحدار الذاتي للإبطاء الموزع (ARDL) لتحليل العلاقات قصيرة الأجل وطويلة الأجل واختبار التكامل المشترك بين المتغيرات. وأظهرت النتائج وجود علاقة توازنية طويلة الأجل بين الطلب السياحي والمتغيرات الاقتصادية المختارة، كما بيّنت النتائج أن الناتج المحلي الإجمالي وسعر الصرف الحقيقي يؤثران إيجابياً في أعداد السياح الوافدين على المديين القصير والطويل. وتوصلت الدراسة إلى أن تعزيز الاستقرار الاقتصادي الكلي، وتسريع النمو الاقتصادي، وتشجيع استثمارات القطاع الخاص تُعد من العوامل الأساسية لتنشيط الطلب السياحي في العراق. كما يمكن أن تسهم هذه الإجراءات في تنويع الاقتصاد العراقي وتقليل الاعتماد المفرط على الإيرادات النفطية، فضلاً عن خلق بيئة أكثر جذباً للسياح المحليين والدوليين.

الكلمات الرئيسة:

الطلب السياحي، الناتج المحلي الإجمالي ، سعر الصرف الحقيقي، نموذجARDL .

مجلة

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1. Introduction

Tourism as a broadly acclaimed stimulus of economic development, job creation and foreign currency inflows, for countries with abundant natural resource. Iraq, like any country, could develop its tourism sector to diversify its income and reduce its dependence on oil resources. However, the industry's growth has been chalanged by many obstacles such as political unstabilty, economic ups and downs, security concerns, world crises of all kinds have combined against the growth and impact tourism could have on the Iraqi economy.

Considering the factors that drive tourism demand is essential for developing economic policies that support sustainable growth in Iraq. An empirical results from Iraqi tourists Perspective acquisition of knowledge that leads to understanding the list of what stimulates tourism demand is important to design appropriate policies aiming at sustaining Iraq's growth. It is also well recognized from previous study that macroeconomic factors such as GDP, exchange rate, and price level are important determinants of tourism demand. There have also been external shocks, such as political instability and global health crises that are important contributors. Two major events have especially disrupted tourism in Iraq: the conflict against ISIS (2014–2017), which cost the Iraqi economy billions of dollars and caused a lot of insecurity and investor, while the COVID-19 pandemic resulted in travel restrictions, as well as health safety concerns to international and domestic tourists.

The main purpose of the study is to explore the determinants of tourism demand in Iraq from 2000-2022 by examining the association between tourist arrivals and selected macroeconomic and structural variables. The Autoregressive Distributed Lag (ARDL) method is applied in this paper to analyze both short-run and long-run effects by taking cointegration between the variables into consideration. In addition, diagnostic tests are carried out to check the model's reliability and robustness, since all above-mentioned issues namely multicollinearity, heteroskedasticity, autocorrelation non-normality and model mis-specification could become problematic.

Providing empirical evidence on the impact of economic basics and external shocks on tourism demand, this study contributes to understandings of sectoral dynamics in Iraq. As a result, it provides actionable insights for policymakers intent on strengthening the resilience and competitiveness of their tourism sector, in line with efforts to diversify the economy.

2. Methods

This study empirically examines the determinants of tourism demand in Iraq for the period 2000 to 2022, focusing on a relationship between tourism and selected macroeconomic variables. A set of explanatory variables, (GDP), (RER) and (CPI), are considered with two dummy variables introduced to account for disruptive effects in both 2020–2021, due to the COVID-19 pandemic, and from 2014–2017 as a result of ISIS conflict. The Autoregressive Distributed Lag (ARDL) approach is applied to examine the short and long-run dynamics and whether cointegration exists.

2.1 Research Problem Statement

Iraq's economy is vurnable due to its dependency on oil revenues, and while the country has extensive cultural and historical riches, its tourism sector is largely unrealized and exposed. The tourism sector in Iraq has been perennially challenged by political instability, wars and global crises including war against ISIS (2014-2017) and the COViD-19 pandemic that hit the world economy during (2020-2021). However, there is limited research on the role of economic and political factors as determinants of tourism demand in Iraq during 1990–2022. Understanding the dynamics related to these factors is important in development of policy measures for fostering the resilience and sustainability of the tourism industry, including the latter's role in economic diversification as well as reducing insight into dependence on oil.

2.2. The Objectives of Reaserch

The main objective of this research is to investigate the determinants of tourism demand in Iraq by analysing economic and noneconomic factors. The particular objectives are addressed as follows;

This study initially investigates the impact of macroeconomic variables, envolving (GDP), (RER) and (CPI) on the number of tourists visiting Iraq for the period between 2000 to 2022. Subsequently, it will investigate the effect of political instability and external shocks such as terrorist attacks (2014-2017) and the COVID-19 epidemic (2020-2021) on tourism demand. Using the Autoregressive Distributed Lag (ARDL) modelling technique, this study attempts to examine the short- and long-run relationships between tourism demand and the determined economic and political variables. Finally, the results of the study will guide proposed policies to enhancing sustainability and resilience of Iraq's tourism sector as one contribution toward economic diversification.

2.3 Significance of the Study

This study investigates the nature of tourism demand in oil-exporting countries with a special reference to Iraq. It considers both economic and non-economic factors like GDP, CPI, and REXR and also incorporates significant stucture shocks like ISIS war and COVID-19 pandemic in analyzing tourism flows into unstable economy.

The present study identifies an important determinants of tourism demand and count the negative impact of exogenous shocks while providing policy suggestions based on enhancing the flexibility with respect to infrastructure development and advancement in tourism services. These visions emphasize the potential of sustainable tourism development as a tool in achieving economic diversification in Iraq and minimizing its relevance to oil revenue, given its great cultural, historical, and religious assets.

The study identifies main determinants of tourism demand and assesses the negative impact of external shocks, which contributes to evidence-based decision making on increasing resilience for the sector, boosting infrastructure development, and addressing services in tourism.

3. Literature Review

3.1. Theoretical literature

Tourism demand in its wider framework in most neo-classical theories, tourism demand refers to an individual's willingness and ability to travel to a particular country or place; usually measured by tourist arrivals or tourism revenue. The determinants of demand are well established, including income, pricing regimes, destination attractiveness and ease of access; it is widely recognised to be highly reactive to external shocks – such as political instability, armed conflict and public health (Lim & McAleer, 2000; Kulendran & Witt, 2001; Dritsakis, 2004). Empirical evidences show, that tourist arrivals is a proxy to measure the level of tourism activity while revenues from tourism represent its economic impact; and external shocks explain the underlying fluctuations so as to constitute these three variables as essential for explaining tourism demand especially in areas like Iraq where security and political events play an important role (Omer, 2020; Hma, 2025).

3.2 Empirical Literature

Tourism demand, as conceptualised in their theoretical models, includes the desire and ability of an individual to travel to a destination, commonly captured by indicators such as tourist arrivals and tourism revenues. It is also informed that demand in the long run is influenced by factors such as income levels, pricing strategy of a destination, attractiveness and accessibility of destinations; further, that it is sensitive to external shocks as a result of political instability as well as armed conflicts and/or outbreaks of public health concerns (Lim & McAleer, 2000; Kulendran & Witt, 2001; Dritsakis, 2004).

Empirically, it has been proven that for regions such as Iraq where political and security conditions are main determinant of tourism demand (3 variables), thus a proxy variable is required to measure how many external shocks may influence the observed fluctuations in these three variables and hence validate those three as being important in understanding tourist arrivals (volume of tourism which is a proxy for measuring how much tourism activity occurred) and/or tourism receipts (domestic output if what happens to the economy's revenue) whereby they are both consequences of terrorism; Consequently, income, prices affect both foreign and domestic demand for tourists' activities in developed countries(Hma, 2025). The papers by Lim (1999) and Song & Li (2008) find that the the tourism demand in OECD countries has quite responsive to income changes which means that international travel is a luxury. Likewise, Divisekera (2010) and Brida & Risso (2009) show that greater disposable income invariably results in higher levels of tourism.

Price competitiveness and exchange rates matter too. Crouch (1994) and Dritsakis (2004) have shown that tourists from developed countries are affected by exchange rate changes, and they frequently engage in substitution towards less expensive destinations. In developing and transition countries, political stability, security and institutional considerations are especially important. On the one hand, Neumayer (2004) does register that political instability significantly depresses tourism

in fragile states; Salem (2014) and Sönmez (1998) do demonstrate that conflict and terrorism precipitously reduce arrivals in MENA region. In the case of Iraq, Omer (2020) estimates impact of wars and magazine belonging to ISIS on tourism demand in Kurdistan Region where tourist arrivals were employed as dependent variable after controlling macroeconomic variables; real GDP, exchange rate, etc through ARDL/cointegration technique. The paper shows that political shocks affect prominently short-and long-run tourism elasticity, thus, Iraqi tourism is sensitive to security events. The COVID-19 outbreak, along with other global crises and incidents, has brought into focus the high degree of vulnerability that tourism demand is subject to in the face of external crisis. As Gossling, Scott, and Hall (2020) observed, although the burden of tourism fell in developed and developing countries, recovery varied depending on the level of health care and economic support offered by different countries. Studies that consider this effect for emerging countries also confirm the anecdote, the other research is done by Zhang et al. (2021) who utilized ARDL-ECM methods to estimate the arrival in COVID-19 of number of visitors using GDP, exchange rate and a p ademic indicator for short run and long run effects. On the same line, Song (2022) reports that worse pandemic situations being as it were a brake on tourism demand, both after controlling for economic matters. Comparisons to Mauritius Rookayyah (2024) finds in the context of Mauritius that exchange rates level and volatility are important to inbound arrivals and that COVID-19 was an exogenous shock to demand.

Taken together, a distinctive pattern appears between developing economies and Iraq in essence: demand for tourism is determined by using GDP (income), exchange rate, inflation also some external shocks such as COVID-19 impact and the ISIS conflicts. These variables have been included in ARDL, VAR and ECM to account for slow moving nature of tourism indicating policy measures should be effective to promote economic stability and security simultaneously in order to achieve constant growth on the tourism sector.

In sum, the empirical results indicate that different macroeconomic variables (GDP, exchange rate, inflation) in addition to the external shocks such as COVID-19 pandemic and ISIS conflict are the factors driving Iraq's tourism demand. The findings of this paper emphasize the importance of stability in the economic and security context as a factor that would enhance resilience from external (national) and internal (local) shocks so as to achieve a sustained growth on tourism arrivals and revenues.

3.3. Trend of tourist arrivals and tourism revenue in Iraq (2000–2022)

Tourism is an vital component of the economic structure in Iraq and changes in visitors or tourism demand simply reflect its socioeconomic and security status. It is critical to consider these trends when designing policy in order to promote sustainable sectoral growth.

As can be seen from the Figure 1, data reveals a highly fluctuating, but overall rising,trend over the long run of tourist arrivals as well as tourism revenues in Iraq during (2000-2022). It implies country's high dependency on political instability,

security situation and external shocks. In the early years of the 2000s (2000–2006), demand for tourism was weak and unstable; tourist arrivals were relatively low and tourism revenues moderate.

This was a time of considerable political instability and post-conflict variables, greatly hindering international tourism prospects and the sector's fiscal contributions. An increase in volume of this sector is noticeable from 2007, especially between 2010 and 2013, at a time the tourist revenues (as well as the number of tourists) had shown a more or less steady trend as it shown in figures (1). This stimulation could be attributed to a relative security stability, improved regional travel and the growing importance of religious tourism, one of the main sources of tourism demand for Iraq. Notably revenue from tourism expanded at a faster pace than the number of tourists during this period reflecting increased per capita spending on tourism and partially enhanced quality of tourism services.

It can be realized that tourism revenues revealed high volatility from 2014 to 2018. Then tourism revenue increased rapidly from 2014 to 2015, the decline in tourist numbers hinting at a basic disunion of volume of demand and revenue extraction. This rise may be due to changes in the profile of visitors, an increase in average per capita spending by tourists, inflations trends, and exchange rate differences. In addition, the effect of security-related incidents that kept mass tourism away without entirely blocking more lucrative religious or official visits could have been a factor.

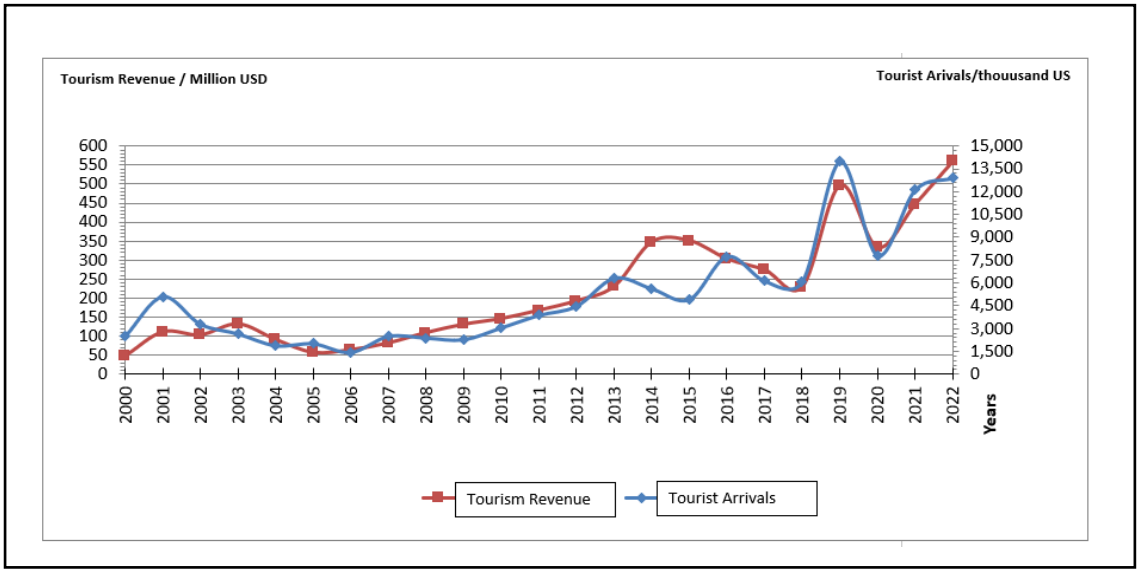

Figure (1).Trends in tourism revenue (left axis) and tourist arrivals (right axis) in base year (2015=100) in Iraq from 2000 to 2022

Sources: The data used in this study were compiled by the author from multiple sources, including:
-https://unctadstat.unctad.org/datacentre/
-The Ministry of Planning –
-Central Statistical Organization (CSO)

There was a significant structural transformation in 2019, with record numbers for tourism revenues and arrivals. This can be attributed to increased levels of security, some travel restrictions and increased regional tourism. Likewise, the sharp decline for 2020 is revealing of the dramatic impact of the COVID-19 pandemic worldwide, which heavily restricted international travel and lead to a massive decrease in both arrivals and revenues, reflecting global tourism trends.

In the post-pandemic reflection phase (2021-2022), there is a robust reflection as tourism revenues and arrivals exceed their pre-crisis levels in 2022. The faster rebound in revenues compared to arrivals suggests a behavioural change in tourism demand, potentially reflecting higher per-visitor spending, better targeting of pricing policies or changes in the profile of visitors. Such observation implies that tourism demand for Iraq does not only rely on intensity but also becomes more of revenue productivity and spending profile.

In conclusion, the evidence suggests that tourism demand in Iraq is very sensitive to external events, shows structural focus, and is revenue-elastic rather than merely arrival elastic. These results highlight the necessity of implementing policies designed to stabilise the tourism sector, broaden the range of tourism offerings beyond religious tourism, and augment value-added services to ensure sustained revenue growth, irrespective of fluctuations in visitor numbers.

4. Data and Model Specification

4.1 Data sources

Annual data for the period 2000 – 2022 are applied for the analysis. Given the nature of the Iraqi economy and its past experiences, it is difficult to find a complete data set for the respective variables from a single source. Subsequently, data are collected from different sources. All variables are computed as real values using the consumer price index with 2015 as the base year. The data for this study are taken from annual statistics of the Iraqi central bureau of Statistics, World Bank data center, Iinternational Monetary Found, International Financial Statistics (IFC) and economic survey of Iraq, (Federal Reserve Economic Data) FRED and United Nation Conference on Trade and Development (UNCTAD).

4.2 Model specification

Following the above studies, the current study utilizes develop the demand tourism model to suit Iraqi economy, in line with the objective of taking the main determinants of tourism demand in context Iraq.

Where the variables included in the ARDL model are as follows:

Yi : (NT), Number of tourists visiting Iraq, Dependent variable / proxy for tourism demand

X1: (RGDP), Real Gross Domestic Product, Independent variable / proxy for economic activity

X2: (CPI), Consumer Price Index, Independent variable / proxy for inflation rate

X3: (REXR), Real Exchange Rate, Independent variable / captures international price competitiveness

DUM1, Dummy variable capturing the COVID-19 pandemic period (1 = COVID-19 period, 0 = otherwise), Independent variable / control for pandemic-related shocks

DUM2, Dummy variable capturing the ISIS war period (1 = ISIS war period, 0 = otherwise), Independent variable / control for conflict-related shocks.

Table (1). Description of variables with predictable signs of the coefficients

Variables	Description	expected signs	Type / Role	Supporting Studies
X1(NT)	Number of tourists visiting Iraq	–	Proxy for tourism demand	Lim (1999); Song & Li (2008); Divisekera (2010); Tang (2011); Zhang et al. (2021)
X2(RGDP)	Real Gross Domestic Product	+	Proxy for economic activity; higher income generally increases tourism demand	Divisekera (2010); Seetanah (2011); Song et al. (2012)
X3(CPI)	Consumer Price Index	+	Proxy for inflation; can reflect higher domestic activity or improved service quality, potentially increasing tourism revenues	Seetanah (2011); Tang (2011); Rookayyah (2024)
X4(REXR)	Real Exchange Rate	+	Captures international price competitiveness; depreciation makes Iraq cheaper for foreign tourists	Zhang et al. (2021); Song (2022) and Gosling et al. (2020)
DUM1	Dummy variable capturing the COVID-19 pandemic period (1 = COVID-19 period, 0 = otherwise)	–	Controls for pandemic-related shocks, which reduce tourist arrivals	Omer (2020); Salem (2014); Sönmez (1998)

DUM2	Dummy variable capturing the ISIS war period (1 = ISIS war period, 0 = otherwise)	–	Controls for conflict-related shocks, which reduce tourism demand	
μt,	Error term		captures unobserved factors affecting tourism demand	

Key variables included in the model of this study are: Number of Tourists (NT) (dependent variable)), used as a proxy for tourism demand; Real Gross Domestic Product (GDP); Consumer Price Index (CPI), used as a proxy for the inflation rate; and Real Exchange Rate (REXR), which represents international price competitiveness. Two dummy variables are also taken: DUM1 variable captures the COVID-19 pandemic period, and DUM2 variable captures the ISIS war period or political instability in Iraq, as these events substantially influence local investment and tourism flows. Each dummy variable takes the value of one during the relevant period and zero otherwise.

The present study employs a log-linear functional form to model tourism demand, and the mathematical specification is expressed as follows in Equation (1).

$$Y = \beta_0 + \beta_1(X1) + \beta_2(X2) + \beta_3(X3) + \beta_4(DUM1) + + \beta_5(DUM2)\,\mu_t \quad \ldots\ldots (1)$$

Following empirical studies on tourism demand modeling (e.g., Lim, 1999; Omer, 2020; Zhang et al., 2021), a double-log functional method is assessed for equation (1), which allows the coefficients to be taken as elasticities. The log-linear specification is given as in equation (2).

$$L(Y) = \beta_0 + \beta_1 L(X1) + \beta_2 L(X2) + \beta_3 L(X3) + \beta_4(DUM1) + \beta_5(DUM2) + \mu_t \quad \ldots\ldots (2)$$

Where L is the log of the respective variables, β_0Is the intercept, β_1 to β_6The estimated coefficients of each parameter can be interpreted as a long-run elasticity, μ_t is Error term.

The bounds testing approach was employed to estimate the presence of cointegration between the dependent variable and the explanatory variables. Specifically, the ARDL (Autoregressive Distributed Lag) model was used to estimate the relationship between the number of visitors to Iraq, representing tourism demand (dependent variable), and the factors influencing it in both the short and long term

(explanatory variables). The analysis was conducted using EViews 12 statistical software.

$$\Delta \ln Y_t = \ln C + \lambda_0 \ln Y_{t-1} + \lambda_1 \ln X_{1,t-1} + \lambda_2 \ln X_{2,t-1} + \lambda_3 \ln X_{3,t-1} + \lambda_4 DUM_{1,t-1} + \lambda_5 DUM_{2,t-1} + \sum_{i=1}^{p-1} a_{0i} \Delta \ln Y_{t-i} + \sum_{i=0}^{q-1} a_{1i} \Delta \ln X_{1,t-i} + \sum_{i=0}^{q-1} a_{2i} \Delta \ln X_{2,t-i} + \sum_{i=0}^{q-1} a_{3i} \Delta \ln X_{3,t-i} + \sum_{i=0}^{q-1} a_{4i} \Delta DUM_{1,t-i} + \sum_{i=0}^{q-1} a_{5i} \Delta DUM_{2,t-i} + u_t \quad (3)$$

According to Lawrenceson and Chai (2003) ARDL approach is particularly useful on the basis that it permits one to select an optimal lag structure in context of limited sample size. This supports the production of precise estimates about both short and long relations. Additionally, the ARDL analysis is considered to be suitable for a mixture of I(0) and I(1) variables, where this kind of model was employed in order to investigate tourism demand in light of Iraq's various economic, political and external factors.

5. Results and Discussion

5.1 Test for stationarity

To perform empirical economic analysis, the reliability of time series data is essential. A time series is supposed to be stationary if its variance, mean and autocovariance remain constant over time. Stationarity is important for the validity of statistical inference that may permit the estimation of meaningful economic relationships. On the other hand, non-stationary time series are often characterized by unit roots which may lead to spurious regression results and misleading statistical inferences if not properly handled (Granger & Newbold, 1974; Enders, 2015).

Thus, before estimating model, it should be investigate stationarity behavior of the variables. Unit root tests are commonly used in investigating this homogenous assumption, where the Augmented Dickey–Fuller (ADF) and the Phillips–Perron (PP) tests are among the more popular ones in empirical studies. They test for a unit root against the alternative of stationarity and are particularly relevant in the analysis of time series data with potential autocorrelation and heteroskedasticity (Dickey & Fuller, 1979; Phillips & Perron, 1988; Griffiths, Hill & Lim, 2008).

The stability of the selected economic variables was checked using unit root tests such as Augmented Dickey-Fuller (ADF) and PhillipsPerron (PP). The findings show that almost all the variables are non-stationary in their level series, except only for Consumer Price Index (CPI), which is stationary at level only after using Phillips-Perron (PP) test as indicated in table 2. In contrast the first differencing process resulted in a stationary state for all variables, meaning that they were I(1). This result implies that even though these series may at first be of stochastic or arbitrary nature,

their first differences contain persistent dynamics which again justify their use for further cointegration analysis.

Table (2). The Results of Unit Roots (Augmented Dickey Fuller and Phillips Perron) Tests

SERIES	ADF constant without trend		ADF constant with trend		P-P constant without trend		P- P constant with trend	
	Level	First Differences	Level	First Differences	Level	First Differences	Level	First Differences
NT	0.9508	0.0072**	0.8606	0.0231**	0.9508	0.0001**	0.8357	0.0001**
GDP	0.7618	**0**.0005**	0.8375	0.0039**	0.8285	0.0108**	0.2586	0.0489 *
CPI	0.2736	0.0096**	0.1179	0.0003**	0.0054	0.0093 **	0.8951	0.0139**
REXR	0.0198**	0.0001**	0.1857	0.0117**	0.4638	0.0001**	0.1857	0.0001**

* and ** implies the null hypothesis can be rejected at 5% and 1%, demonstrating non-stationarity or stochasticity in the time series.

Since the unit root tests (ADF and PP) showed that the variables had a mixed integration order some of them being non-stationary at level I(0) whereas others needed to be differenced once for stationarity, I(1), the Johansen cointegration procedure is not applicable. This is because the Johansen method requires all variables to be integrated of the same order, that which specifically I(1). Therefore, to confirm the long and short-run relationships among the variables, taking their mixed orders of integration into account, ARDL method is a suitable analytical technique. The ARDL approach proposed by Pesaran and Shin (1999) is particularly applicable where the mixture of I(0) and I(1), not I(2) series, extends the robustness of inferences when working with small samples.

5.2. Outcomes of the estimation of the ADRL model

The Autoregressive Distributed Lag (ARDL) results in Table 3 show significant, positive and adjusted long-run relationship between tourist arrivals and the explanatory variables. This model shows strong explanation, its adjusted R2 is 0.99 and there are economic and noneconomic variables included which explain most of the differences in tourism demand. The R^2 and adjusted R^2 are essentially the same which indicates that we have a pretty parsimonous model that is not over-parameterized.

The F-statistic is also statistically significant at 5%, implying that the null hypothesis of joint insignificance of the regressors is rejected. This validates that the combined effect of explanatory variables is statistically significant on tourism demand. In general, the ARDL test findings endorse the significance of the chosen determinants in explaining long-run behaviour of tourism demand for Iraq and offer a strong support toward empirical status interpretations and policy considerations.

Table (3). Estimation Results of the ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNT(-2)	0.307181	0.097542	3.149214	0.0198
LGDPP	1.240469	0.201024	6.170736	0.0008
LCPI	-8.338814	0.630522	-13.22526	0.0000
LRER	2.308904	0.278739	8.283376	0.0002
D1(-1)	-0.536289	0.127871	-4.193997	0.0057
D2(-1)	-0.247529	0.130097	-1.902648	0.1058
C	-20.76235	3.174040	-6.541300	0.0006
R-squared	0.991464	Mean dependent var		8.383993
Adjusted R-squared	0.971547	S.D. dependent var		0.664255
S.E. of regression	0.112046	Akaike info criterion		-1.364010
Sum squared resid	0.075326	Schwarz criterion		-0.617922
Log likelihood	29.32210	Hannan-Quinn criter.		-1.202090
F-statistic	49.78038	Durbin-Watson stat		2.558214
Prob(F-statistic)	0.000050			

Source: Prepared by the author using EViews 12.

5.3. Autoregressive Distributed Lag (ARDL) Test for Cointegration

The ARDL bounds testing methodology provides a powerful framework for the long-run equilibrium relationships, mainly in empirical states wherein regressors possess mixed orders of combination, namely I(0) as well as I(1). It allows to identify a unchanging long-run connection between tourism determinants and its demand when the calculated F-statistic is exceeds a certain thresholds. even in the case of structural changes.

As indicated in Table 4 the calculated F-statistic of 16.023 is greater than the upper bound threshold at these levels 1%, 5% and the 10% of significance which contradicts the null hypothesis of no cointegration. This finding is powerful support for the existence of a long-run cointegrating relationship between tourism demand and the determinants. Crucially, the model also incorporates dummy variables capturing leading structural shocksو—the ISIS crisis and COVID-19 pandemicthus enabling it to reflect periods of enhanced instability and global destabilisation. The fact that cointegration is stationary in the presence of these shocks indicates that the long-run relationship between tourism economic/non-economic and its demand determinants still persists, even though short-run adjustments might be affected by those crises.

Table (4). F-Bounds Test Test

F-Bounds Test				
Null Hypothesis: No levels relationship				
I(1)	I(0)	Signif.	Value	Test Stat.
3.79	2.75	0.1	16.023	F-stat.
4.25	3.12	0.05	5	K
4.67	3.49	0.025		
5.23	3.93	0.01		

Source: Prepared by the author using EViews 12.

5.4 ARDL Cointegration Test Results

5.4.1 Short-Run Dynamics of the ARDL Model

The short-run connection between tourism determinants and its demand is explored through employing ARDL estimates by the error correction model (ECM) with results shown in Table 5. In addition, the estimated error-correction term, ECM(−1), is both statistically significant and negative at the level of 5 % with a coefficient of −1.51, indicating that there is a stable long-run cointegrating relationship among tourism demand and its determinants.

The large error-correction co efficient implies a fast rate of fine-tuning towards the long-run balance after short term deviations. More specifically, an absolute value above one for the coefficient of current or lagged unit root indicating short run overshooting pattern where tourism demand reacts more than proportionately to shocks before returning to its long-run trend. This adjustment mechanism is also typical of tourism demand models for countries affected by political instability, security risks or external crises that are characterized by reactions and overreaction at time t, to a shock like conflicts or pandemic diseases such as SARS before eventually reaching their new equilibrium (Lim 1999; Drirakis 2004).

Table (5). Results for the Dynamics Short-Run of the Error Correction Model Between Tourism Demand and Explanatory Variables

ARDL Error Correction Regression				
ECM Regression				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-20.76235	6.980479	-2.974344	0.0248
LGDPP(-1)	2.135166	0.612392	3.486597	0.0130
LCPI(-1)	-2.493273	0.451109	-5.526984	0.0015
LRER(-1)	3.718962	0.820620	4.531894	0.0040
D1(-1)	-0.415634	0.101671	-4.088049	0.0064

D(D2(-1))	-0.705343	0.253035	-2.787536	0.0317
ECM(-1)*	-1.507885	0.249303	-6.048415	0.0009

Source: Prepared by the author using EViews 12.

The short-run ARDL estimates show that the demand for tourism in Iraq is significantly influenced by macroeconomic factors and external disturbance. More precisely, a 1% increase in GDP increases tourism demand by 2.135%, which indicates that better domestic economic situation leads to higher level of activities related to tourism. Also, an increase around 1% in the real exchange rate is shown to raise tourist arrivals by 3.718%, indicating how sensitive tourist flows are over short time periods with respect to exchange rate fluctuations. These results emphasize the susceptibility of the tourism industry to macroeconomic changes and are in line with previous empirical evidences (Kulendran & Witt, 2001; Dritsakis, 2004).

By contrast, inflation (measured as the CPI) has a negative effect and significant on demand for tourism. It can be found that a 1% increase in CPI is related to a 2.49% decrease in tourist numbers, which confirms the argument that when the price levels rise, it not only makes travelling more costly but also curtail tourists' purchasing power in real terms. This result is consistent with the existing literature, which has suggested the deleterious impact of inflation on tourism demand (Meo et al., 2018; Shafiullah et al., 2019).

Tourism demand is highly constrained by exogenous shocks (COVID-19 and the ISIS crisis). This result translates to a decrease of tourist arrivals by approximately 0.41% for COVID-19 and 0.71% for ISIS attacks and so forth. These eff ects are consistent with the general tourism literature which highlights how health crises, political instability and security incidents have changed travel attitudes and reduced the arrivals of the tourist (Hall et al. 2020; Zhang et al).

In combination, these results suggest that Iraq's tourism sector is cahllanged by economic instability and security-related developments. They call for interventions that strengthen sector resilience, stabilise prices, build emergency preparedness and help to shield the economy from future economic and geopolitical shocks.

5.4.2 Estimation of Long-Run for the ARDL Model

The outcomes of the long-run ARDL results in Table 6 reveal that the independent variables exert significant and constant impacts on tourism demand. Consistent with short-run, which also found tourism positively related and demand significantly to GDP and real exchange rate in the long-run. An increase of 1% in the GDP is connected with a 1.42% convergence reflected by tourist arrivals which imply the requirement for on going economic development to attain long run growth level of tourism industry. This result is consistent with the works of, among others, Muñoz (2006) and Dritsakis (2004), that note macroeconomic activity as an auxiliar in the promotion of tourism.

Similarly, the RXR indicates a long-run significant impact and positive on tourist inflows. For an increase of 1% in RXR, tourism demand increases to 2.47%, which indicates that improved purchasing power and currency conditions have an attractive impact on a country's ability to serve as tourist destination. These observations are consistent with the report of Shafiullah et al. (2019) and Sharma and Pal (2020), thus highlighting the significance of macroeconomic fundamentals to sustainable tourism development.

Interestingly, the dummy variable for ISIS conflict has a positive and significant long-run coefficient so that demand will rise by 0.46% whenever there is an escalation of hostilities. This finding is counterintuitive, but it probably shows some structure of the data rather than being an increase in leisure tourism. The above-mentioned categories of non-leisure travel, especially business travel, humanitarian work, reconstruction missions and diaspora visits may have been the main determinants of tourist flow during the period of conflict. As a result, it is possible that the compound "tourist arrivals" may include categories of visitors which grew in number during the conflict, explaining his positive long-run connection.

The long run results confirm stable balance relationships among the selected variables. The GDP and the RXR are exhibited to be statistically significant and to be positive, which implies that long-run tourism development depends positively on economic growth as well as on currency conditions. On the downside, inflation persisting as a dampener of tourist demand underscores the fundamental importance of preserving price stability for long-term developments in tourism.

However, structural shocks have mixed effects on tourism demand. In addition the dummy variable COVID-19 pandemic causing a substantial decrease in tourism demand. While, the positive influnce of ISIS conflict has found on tourism demad, it seems to indicate that non-leisure components play a larger role during periods of unrest. Overall, these findings indicate that, macroeconomic situation and external shocks are the significant determinants of tourism demand so as to give some policy implication for governments' efforts toward sustainable tourism industry in a market competitive environment.

Table (6). Estimated Long Run Dynamics of the Long Run Coefficients (ARDL) Model

The Coefficients of the Long Run (ARDL)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LGDPP	1.416000	0.215362	6.574971	0.0006
LCPI	-1.653490	0.097249	-17.00265	0.0000
LRER	2.466343	0.266605	9.250916	0.0001
D1	-0.275641	0.035065	-7.860931	0.0002
D2	0.457422	0.100339	4.558745	0.0039
EC = LNT – (1.4160*LGDPP -1.6535*LCPI + 2.4663*LRER -0.2756*D1 + 0.4574*D2)				

Source: Prepared by the author using EViews 12.

5.4.3 Diagnostic Tests

The diagnostic test results for the estimated model are presented in the following;

5.4.3.1.The Problem of Multicollinearity

Table 7 presents the Variance Inflation Factor (VIF) test results, which evaluate the potential for multicollinearity among the independent variables. The diagnostic test illustrations that all the values VIF are less than the common the 10 threshold, which means multicollinearity is not an issue in our estimated model. Thus, this result also upholds the robustness and stability of the coefficient estimates and guarantees that effect in both intervariable effects do not distort the influence of other variables, in such a way as keep those variable at their estimated level despite an increase in their high correlations.

Table (7). Test for the Problem of Multicollinearity

Variance Inflation Factors		**Sample: 2000 2022**	
Included observations are 21			
Variable	**Coefficient Variance**	**Uncentered VIF**	**Centered VIF**
LNT(-2)	0.018895	477.4202	2.207644
LGDPP(-1)	0.258448	6529.874	2.978527
LCPI(-1)	0.090168	601.7441	7.200340
LRER	0.667035	11870.98	8.478910
D1	0.027752	1.946684	1.575887
D2	0.047348	2.490939	2.135091
C	21.87792	8056.918	NA

Source: Prepared by the author using EViews 12.

5.4.3.2 The Problem of Heteroskedasticity

The heteroskedasticity diagnosis results are given in Table 8, based on Breusch–Pagan–Godfrey (BPG) approach. The tests show that the statistic is not significant in all of the mentioned formats. Or more accurately as the F-statistic (2.188) exceeds to critical value at 0.05, but not 0.01 it will tell us that this test is not statistically significant at either a 5% or a 1%. Thus, the null hypothesis is confirmed, indicating no heteroskedasticity in this model. In other words, variance of the error term is uniform for each observation.

Table (8). The Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
Null hypothesis: Homoskedasticity			
F-statistic	2.187962	Prob. F(14,6)	0.8648
Obs R-squared	10.97126	Prob. Chi-Square(14)	0.6600
Scaled explained SS	0.797958	Prob. Chi-Square(14)	1.0000

Source: Prepared by the author using EViews 12.

5.4.3.3 Serial Correlation Lagrange Multiplier Test

In table 9 the results are presented, point to the outcomes of the autocorrelation assessment, by employing the test of the LM test. At the significance threshold of 5%, the F-statistic recorded as 2.188, hence supporting the receiving of the null hypothesis. Subsequently, this result advocates that autocorrelation is not present within the error terms of the model under consideration.

Table (9). Serial Correlation the Lagrange Multiplier (LM) Test

Breusch-Godfrey Serial Correlation the Lagrange Multiplier (LM) Test:			
Null theory: Up to 2 lag there are no serial correlation			
F-statistic	2.187962	Prob. F(2,4)	0.2281
Obs*R-squared	10.97126	Prob. Chi-Square(2)	0.0041

Source: Prepared by the author using EViews 12.

5.4.3.4 Assessment of Model Misspecification (Specification Error Test)

The Ramsey RESET test results specify that the p-values for all test statistics correspond over 0.05, indicating of the absence of specification errors. This approves that the predictable model lacks from misspecification issues.

Table (10). Model Diagnostic Test

Ramsey RESET Test			
Equation: UNTITLED			
Omitted Variables: Squares of fitted values			
Specification: LNT LNT (-1) LNT (-2) LGDPP LGDPP (-1) LCPI LCPI (-1)			
LRER LRER (-1) D1 D1(-1) D2 D2(-1) D2(-2) C @TREND			
	Value	df	Probability
t-statistic	1.972264	5	0.1056
F-statistic	3.889825	(1, 5)	0.1056
Likelihood ratio	12.08486	1	0.0005

Source: Prepared by the author using EViews 12.

5.4.3.5 Problem of Non-Normality of Residuals

The Jarque-Bera (JB) test statisticis presented in Figure 2, is 0.220, which is substantial at the 5% level. Therefor, this specifies that the null hypothesis is not excluded and alternative hypothesis is not accepted, and. This suggests that the residuals from the estimated model a distribution is normal, with a mean of null and a standard deviation of 0.0613.

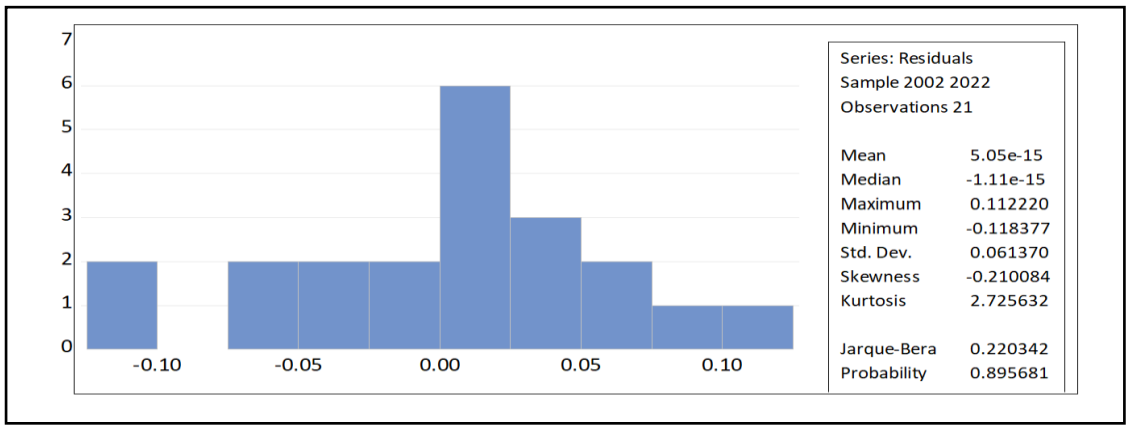

Figure (2) . Test for Non-Normality of Residuals

5.4.3.6 Model Stability Test

To check the constancy of the projected model, we used the Cumulative Sum of esiduals test and the Cumulative Sum of the Residual Squares (CUSUM of Squares) test. These tests are widely used to evaluate the stability of a model.

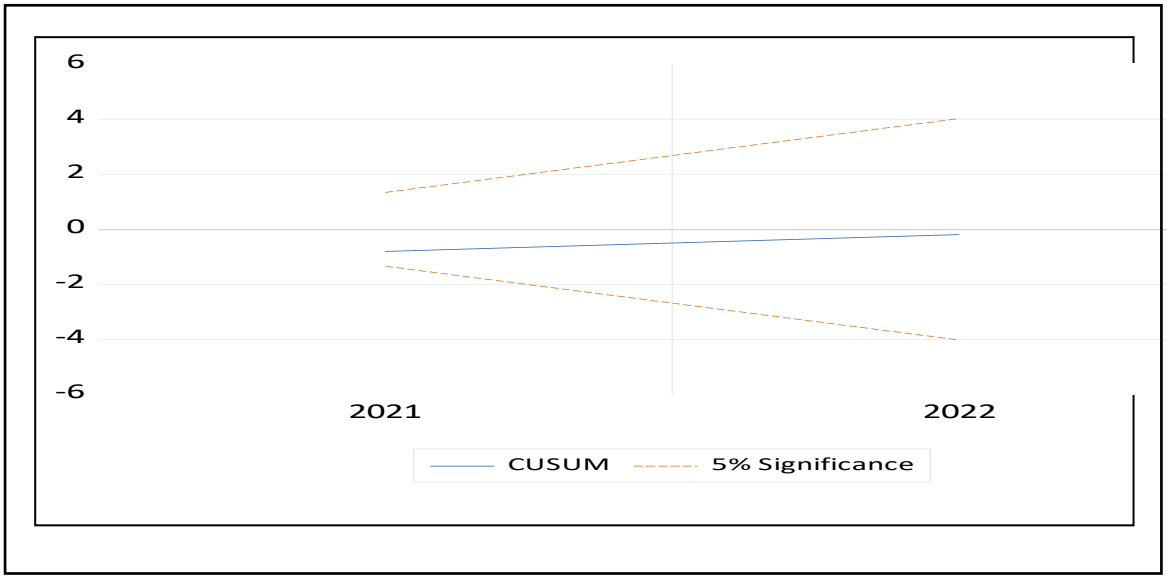

Figure (3). Cumulative Sum of Residuals (CUSUM)

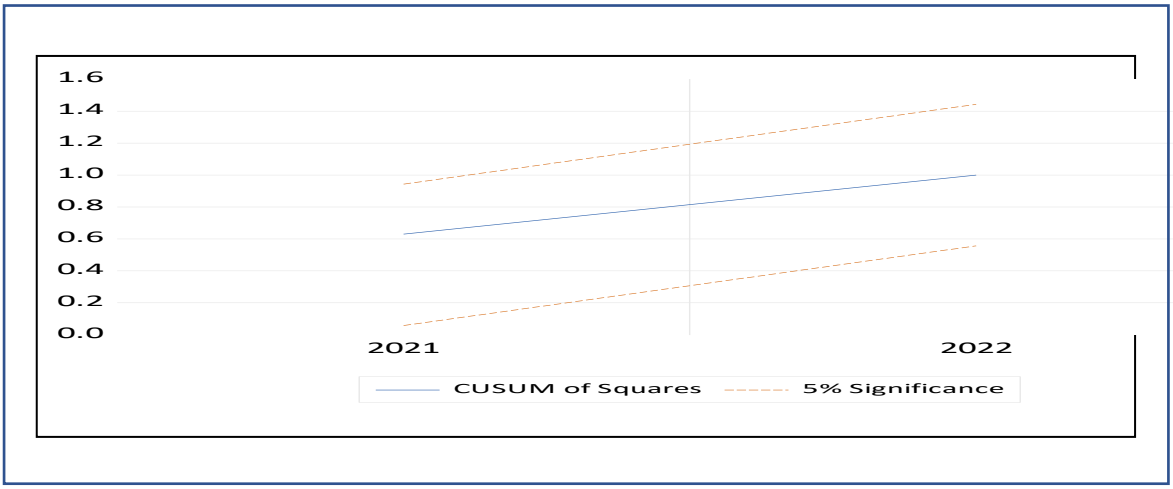

Figure (4). Cumulative Sum of Squares of Residuals (CUSUMSQ)

The results of CUSUM and CUSUM of Squares tests are shown in Figures 3, 4. It is evident that the calibrated model is stable, when the lines are within these critical limits. This indicates that there exists no structural break in the data employed for the model significance at the level of 5%, and hence confirms the stability of the model over short-run and long-run.

5.4.3.7 Assessment of the Forecasting Performance of the Calibrated Model

Forecasting and estimating the predictive performance of the estimated model is a crucial part of econometric analysis. The next section summarises the outcomes of assessing the model's predictions.

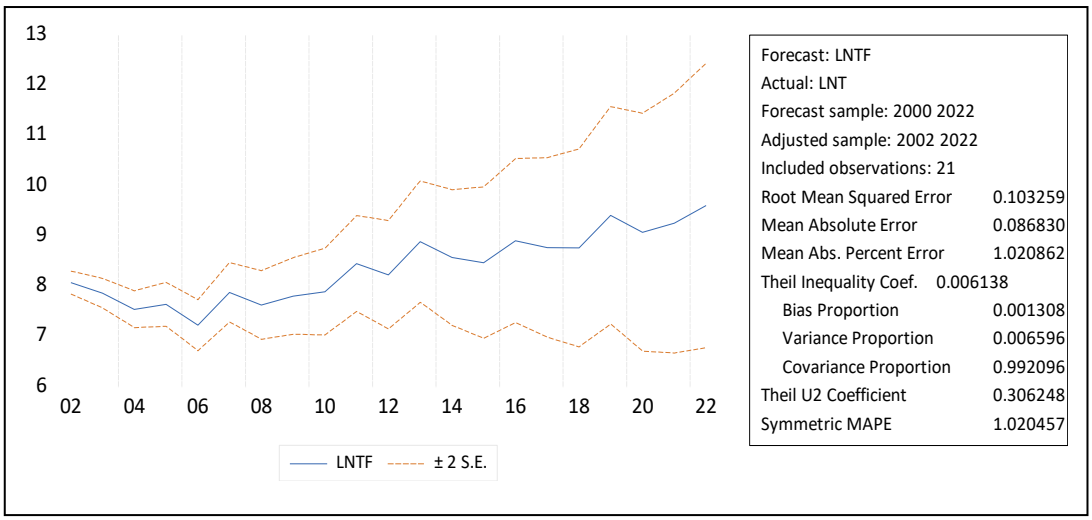

Figure (5). Actual and Forecasting Values of the Estimated Model

The Theil inequality coefficient, show in Figure 5, records a low value of 0.0061, which is less than one and close to zero. This finding further indicates a good predictive power in the estimated model. Hence, this result provides supportive evidence on the forecasting performance of the model. Based on this consideration, the estimated models developed based upon Iraq-related data of all relevant variables from 2000 until 2022 possess a high prediction accuracy over the entire study period and can thus be suitable for analysis, policy evaluation and forecasting.

6. **Conclusion of the study and Policy Implications**

This aticle explores the determinants of tourist demand in Iraq, using both ARDL and an the model of the error-correction to check both run, short and long, dynamics. The empirical results show that tourism demand is determined by macroeconomic variables in the form of GDP, the inflationa and real exchange rate as well as other major external disturbances such as C-19 pandemic and ISIS war. This method enables both run, short and long, equilibrium relationship to be studied in detail so as to have a complete picture of the determinants that affect inflow/outflow of tourism from/to Iraq.

The findings show that the real exchange rate and GDP positively affect tourist arrivals in the bot short run as well as in long run also, underlining the importance of continuous economic growth and favorable currency devaluation to appeal to international visitors. On the contrary, inflation has a persistent negative impact, demonstrating that price stability does improve the affordability of destinations.

External shocks including the COVID-19 pandemic and confict disruptions cause a significant reduction in tourist arrivals, highlighting the fashion in which the sector is vulnerable to geopolitical as well as healthcrises. In contrast, the positive long-run effect of the ISIS conflict dummy probably captures other non-leisure travel components such as business, humanitarian or diaspora related trips. Taken together, these findings suggest that a mix of stable macroeconomic situation and crisis-readiness as well strategic interventions are important for shaping resilient and competitive tourism. According to the findings of this study, Some policy implications recommended as follows to enhance tourism in Iraq as well:

1. Establishing macroeconomic stability, in the both short and long path, might be essential for encouraging continued GDP growth through improved infrastructure basics, enhanced public services, and private sector engagement to generate an attractive environment for tourists.
2. Maintaining a stable exchange rate is significant to expand tourism demand. To achieve this the government should apply implement policies to mitigate excessive currency volatility and foster financial confidence, thereby supporting international tourism inflows.
3. In the long term, to control inflation and alleviate pressure on living costs that had an adverse effect is essential for tourism demand production. Strengthen monetary

constraint and market supervision, dedicate in price stable in tourism industry (the transports, hotels and stores which were directly affected by travelers) are also supposed to be considered.

4. To begin with, crisis-resilient tourism strategies should focus on applying robust risk-management frameworks, increasing tourism contributions and strengthening digital platforms to ensure visibility, accessibility both in times of crises and during post-crisis recovery from incidents such as COVID-19 and security disputes.
5. Facilitating security and restoration for global outreach to be rebuilt because of the international confidence that Iraq is a safe place to visit.
6. Expand quality tourism infrastructures with sustainable development. That means investing in airports, roadways and hotels, protecting historic sites and enhancing digital services to compete on the world stage.
7. Diversify core tourism product to decrease deliance on oil. This requires leveling other form of the tourism for example religious, social, ecotourism and tradition tourism to support local tour companies and promote international partnership of the industry to widen the economic aspect of tourist trade.
8. Strengthen institutional capacity and governance. Establish a dedicated tourism authority, enhance coordination among ministries, and formulate national tourism plans that would be overarching and assure policy coherence to foster long-term development of the sector.

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- **Author contributions**

The author conceived and designed the study, performed the experimental and analytical work, interpreted the results, and prepared, reviewed, and approved the final manuscript.

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- **Data availability**

Data will be provided upon receiving a valid request.

- **Author Declarations**

- **Conflict of interest**
The authors declare that there is no conflict of interest.

- **Ethical Approval and Consent to Participate**
Not applicable.

- **Consent for Publication**
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