

# Investigating the Effects of Remittance Inflow and Tourism on Trade in Nigeria

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**ABSTRACT:** The importance of trade in stimulating overall production of goods and services cannot be overemphasized. The tourism sector and remittance inflow have been found to be relevant factors in explaining the dynamics of trade in Nigeria. To this end, the focus of this research is to investigate the effects of tourism and remittance inflow on trade in Nigeria. The present research is different from the existing studies in two ways. First, this research employed ordinary least squares technique for the period 1981–2021. Second, our research adopted personal remittances and percentage of GDP as a measure of remittance inflow and trade respectively. The research revealed that tourism and remittance inflow are positive and have a significant impact on trade in Nigeria. This study suggests that tourism and remittance inflow offer important channels in encouraging trade. Hence, the policy recommendations from this research are based on our findings.

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**JEL classification:** E51, G51, R20, C21, N17.

**Keywords:** Remittance Inflow, Tourism, Trade, Nigeria.

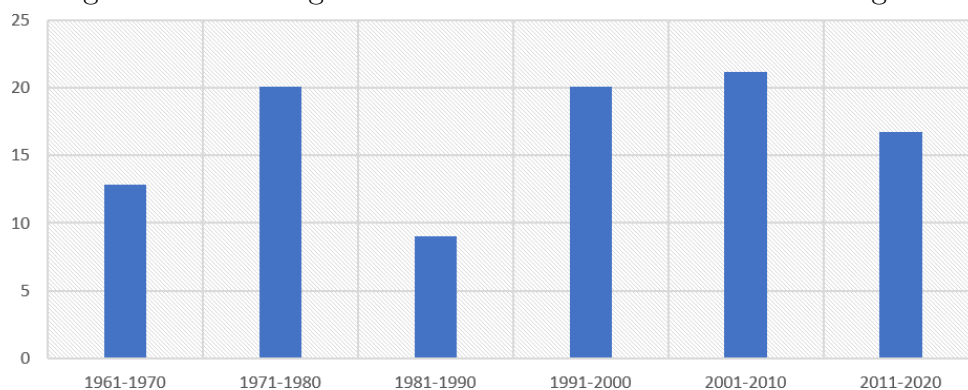
## 1 Introduction

Trade has been identified as one of the important means of income generation in most economies all over the world. Apart from the fact that trade can generate income, it can also be a channel in stimulating overall growth in an economy through bilateral relationships (Nyong and Inyang, 2018) including improvement for consumption pattern

(Maleki et al., 2020). The influence of trade in promoting overall business of a country is well acknowledged by some recent studies in an emerging literature (Nchofoung and Asongu, 2022; Jiya et al., 2020). These studies believed that trade can renew and unveil a remarkable turnaround in the fortunes of Nigerian economy from those described by capital dissemination and technological retardation to those described by capital accumulation and technological growth. According to Ho and Iyke (2021), trade enhances the improvement for employment creation and income generation in an economy.

In contrary, a report from World Development Indicators (WDI, 2022) revealed that trade in Nigeria is low and is less than 25% for more than six decades (see Figure 1) despite the fact that Nigeria is blessed with both human and natural endowments relative to other low-income countries of the world. This low level of trade associated with Nigerian economy over such period designates that the Nigerian economy is yet to get the full potentials of its trade performance in spite of the huge human and natural resources found in the country. However, Nigeria's share of trade has remained unattractive compared to other developing countries of the world. This is because Nigeria is characterized by weak institutions (Ojonta and Ogbuabor, 2024b), low-income level (Ojonta, 2023) and high rate of dependency ratio (Obiefuna et al., 2023). These impediments motivate this study.

Figure 1: Percentage decile share of trade distribution in Nigeria

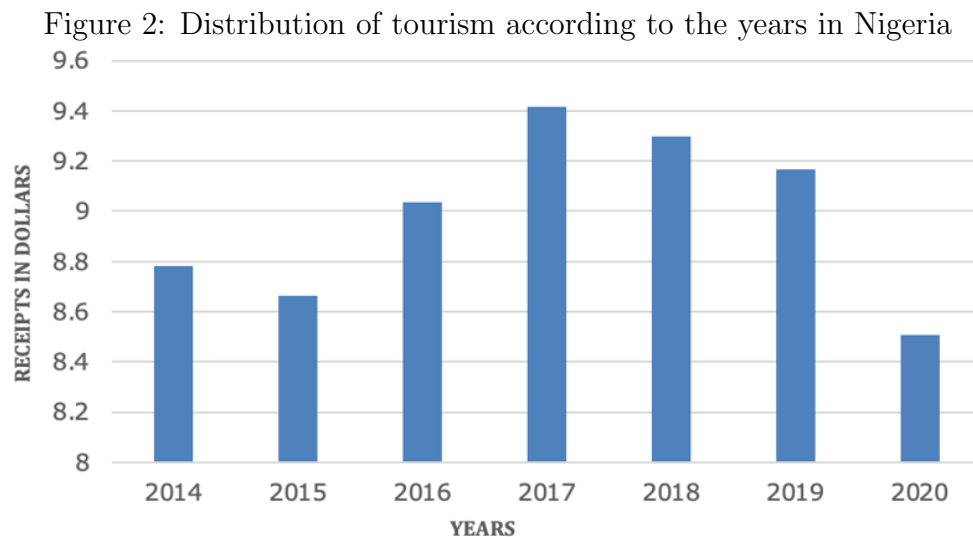


Source: Author's compilation using data from World Development Indicators.

Apart from the contributions of trade in the economy in terms of job creation and income generation, it is also established in the literature that tourism and remittance can be important in elucidating the progress of trade performance in Nigeria. For example, few current studies have showcased that the tourism industry is an essential macroeconomic variable that can contribute to the improvement of trade in various perspectives (Adeola et al., 2020; Al-Hallaq et al., 2020). These studies explained that countries can greatly achieve a potential trade and make significant profits through tourism sectors. According to Zahra and Ryan (2007), tourism sector is an important channel for job creation and more investment, which in turn helps in promoting trade in an economy. Some economic researchers have also explained that tourism sector can be strategically exploited to stimulate trade performance through international collaboration (Akkemik,

2012; Algieri, 2006).

The historical report from World Development Indicators as provided in Figure 2 revealed the trend of tourism from 2014 to 2020 in Nigeria. The report designates that for more than a decade, tourism industries in Nigeria have not experienced steady growth. This issue of incompatibility of tourism with steady growth has been a serious impediment to trade in Nigeria. This however, constitutes another motivation for this study.



Source: Research conceptualisation using data from World Development Indicators.

It is also revealed that remittance inflow in the economy can also influence trade. Based on the research developed by Makhoul (2012) remittance inflow is generally useful in revitalizing the general growth of an economy, especially in established environment, with significant increase in investment and job opportunities. According to Alegre and Garau (2009), remittance inflow in the economy can be of great influence to appreciate exchange rate, which may enhance the trade value and national integration through global markets.

As a follow up, existing studies have explained that the influence of remittance inflow on trade increases business efficiency and quality of service delivery to ensure that agglomeration of economic activity is more productive. Apart from the significant effect of remittance inflow on trade performance, Faullant and Matzler (2008) also explained how other macroeconomic variable like transport infrastructure can be of great help in enhancing the trade growth in developing economies. The study affirms that the infrastructural development is an essential engineer in promoting production which in turn can promote overall growth of trade operations.

The estimation results conducted by Fauzel (2021) in African economies attest the fact which also revealed that remittance inflow can impact considerable on trade by boosting production activities in the real sectors of the economy.

Historical report as provided in Figure 3 shows the graph of remittance inflow in Nigeria from 2010 to 2022. The graph aptly revealed that remittance inflow in Nigeria has been

Figure 3: Percentage share of remittance inflow against the years in Nigeria



Source: Research conceptualisation using data from World Development Indicators.

fluctuating during the period under study. Such fluctuations have remained a serious challenge to policymakers to predict and execute right recommendations in improving the position of remittance inflows in the economy. The graph also revealed that remittance inflow received in the country was low in the last four years. The low level of remittance inflow in the economy has trickled down to influence the overall consumption especially those at low-income distribution. Herein lies the key motivation for this research.

To rescue these challenges confronting Nigerian economy, the government of Nigeria has made enormous efforts to ensure that there is a empowerment schemes to encourage trade. Some of these efforts were created in the form of social interventions like N-POWER, YOU-WIN among others to address problems of joblessness and support of social development to engage youth into a meaningful job. The core motive of these interventions despite the youth empowerment is to ensure maximum growth in trade. Unfortunately, these efforts from the government have not yielded some level of improvement in trade. Against this background of this research, the objectives of this research are to scrutinize how tourism and remittance inflow in Nigeria influence trade.

## 2 Literature review

### 2.1 Theoretical literature

The particular section of this research targets some relevant trade theories like country similarity trade theory; theories of remittance such as financial liberalization theory and the Marshall—Lerner; theories of economic growth like the Export-led growth hypothesis, and the endogenous growth theory. These theories as enumerated were summarized and postulated as follows.

The country similarity trade theory was developed by Steffan Linder in 1961. The theory explained the relationship between the nation on similar stage of development and consumers of similar preference. The theorist established that nations on similar stage of development would have consumers of similar preferences. The theorist also believes that countries that share uniform per capita incomes have the likelihood to engage in trade of most produced commodities. Some existing literature is in support with the theory. The support affirmed that companies usually manufacture for domestic consumption and thereafter ensure that such production is exported to countries where end users share similar preferences. To understand the trade theory where the consumers take decisions based on the reputations and brand names of the products, the theory of country similarity is better suitable.

As a follow up, Balaguer and Cantavella-Jordá (2002) proposed a hypothesis which is tourism-led growth. The hypothesis pointed out the relevance of tourism in an economy. According to the theory, tourism has a pivotal and significant support in enhancing economic growth. The proponents of the research established that harnessing tourism potentials is necessary in an economy and doing so can go a long way for growth sustainability and development. Some recent work in the literature like Ribeiro and Wang (2020); Jiya et al. (2020) are in a strong support with the theory. Their support contributed an exceptional performance to tourism sector in United Arab Emirates (UAE) as acknowledged in a research by Shadab (2018).

The financial liberalization theory as proposed by McKinnon (1973) explained the consequences of government regulation on financial sector. The theorist believes that the removal of government regulations on the financial sector can lead to positive economic outcomes, which will subsequently contribute to economic growth. The theorist put forward that if financial markets are exempted from excessive government control, it will be a guarantee for them to allocate financial resources more efficiently. Traditionally, sending money home could be expensive due to government regulations and limitations on foreign exchange markets. Financial liberalization is often the measure to curtail costs, thereby making it easier and cheaper for Nigerians abroad to send remittances back home and easier for government to track and monitor them.

The Marshall-Lerner hypothesis as proposed by Marshall (1923) deals with the alliance between international trade and migration. The theory believes that when a country's currency is depreciated or devalued, its exports become cheaper for foreign buyers and become more expensive for domestic buyers. The theorist explained the synergy between price elasticity and foreign exchange and its effect on remittance inflow. The theorist believes that when the sum of the price elasticity of demand in absolute values for exports and imports is more than one, it will cause a depreciation in remittance inflow and such depreciation can lead to an improvement in trade balance (meaning exports will outweigh imports). According to the theory, remittance inflow will have a greater purchasing power in the home country. In other words, the migrants sending money abroad

would be able to buy more goods and services with the same amount of money.

The export-led growth hypothesis was propounded by Xu (1996). The theory states that the expansion of export is among the determinants of economic progress. The theory agrees that the overall growth in an economy is not only dependent on quantum of labour and capital in the economy, but the growth that can exist through exports expansion. The theory argues that such can be of help for adequate resource allocation, establishing economies of scale and efficient production through development of technology and job creation. The theory further explained various sequence of income generation in an economy through tourism. The theorist established that when the foreign tourists visit a country, part of their income would be spent on goods and services and in doing so, the integral part of their foreign currency would be injected into the economy.

The endogenous growth theory as propounded by Aghion and Howitt (1992) established some external factors that contribute to economic growth. According to the theory, some of the factors include: capital agglomeration, human capital, governance institutions and technological growth. In the context of remittance and tourism, this theory unveils some importance of human capital evolution and technological advancement. Endogenous growth theory underscores the importance of internal factors like human capital evolution and technological growth in driving economic growth. These factors can be influenced by the inflow of remittances and tourism expenditures. The theory explained that through investment in human capital and technological advancement, countries can harness the potentials of remittance and tourism inflows to promote sustainable economic development and prosperity.

## **2.2 Empirical literature**

Recent studies in the literature have as well examine how tourism and remittance are influencing economic progress using numerous econometric approaches covering various nations and continent of the world. In what follows, the outcome of this research focuses on the alliance between remittance and economic growth. Thereafter, a research on the alliance between tourism and economic growth.

### **2.2.1 Remittance and trade**

For instance, Nchofoung and Asongu (2022) evaluate how governance moderates the impact of trade openness on CO<sub>2</sub> emission. The study was accomplished using 36 countries in Africa and GMM methodological approach for the period 2003–2015. However, the study concludes that when governance interacts with trade openness, it produces a negative net impact on the CO<sub>2</sub> emission in Africa. Also a study by Jiya et al. (2020) uses a dynamic fixed effects approach and the period 1993–2016 to investigate how trade openness and infrastructural development are influencing manufacturing evolution in both east and south countries of Africa. The final outcome of the study believes that trade open-

ness and innovations in infrastructure have a long run and significant relationship with manufacturing output in Africa.

In sub-Saharan Africa, Ho and Iyke (2021) subjected their study to a panel data background by investigating the short and long term effect of trade openness on financial development employing 43 countries in sub-Saharan Africa. The result shows that trade openness is associated with financial development significantly in the long term.

Another study, Evans and Kelikume (2018) sought to interrogate whether remittances affect welfare under terrorism and militancy during the period 1980–2016 in Nigeria. The bound test method was adopted for the empirical analysis and the conclusion of the research unveil that the remittances are positive and significant in influencing the welfare under terrorism together with the militancy for both in short and long run. The entire result implies that the influence of remittances on welfare under terrorism and militancy in Nigerian economy in terms of short and long term approach are uniform.

Additionally, Didia and Tahir (2021) did the same research but the research is focusing on how remittances are influencing economic growth with another approach, vector error correction. Another difference is that the research was considering a period 1990 to 2018. Empirically, the outcome of research designates that the remittances are detrimental in the long run when it has an influence on economic growth in Nigeria. On the part of recommendation, the research suggests that Nigerian economy requires to pursue a useful policies and interventions that reduces emigration especially for the skilled professionals in order to boost the rate of remittance inflows in the country.

Subsequently, Adigun and Ologunwa (2017) investigated the rate of remittances into Nigeria and how such rate has been influencing the progress of the economy within the period from 1980 to 2015. Their work believed that the influence of remittance is positive on economic growth. The research further established that such influence can go a long way in improving the pattern of consumption and investment in expenditure. The research maintained that remittance has a significant effect on economic growth but the magnitude of its impact on economic growth was ineligible. The recommendations from the research believes that the remittance recipients should engage more on investment and less in consumption.

Onyeisi and Odo (2018) also aimed at discovering using empirical evidence to unveil the how remittances from the abroad is impacting the Nigerian economy. The research focuses on time period from 1980 to 2015. Some important test like such as co-integration, vector error correction and granger causality were adopted to ensure that the conclusion is not misplaced. The outcomes from the estimation designated that there is a negative and significant alliance between international remittance inflows and domestic economy of Nigeria. The research thus recommended that policy should focus on how to regulate remittances and ensure that the remittances from the abroad follows the normal process to avoid outrageous cost.

In another form, Nwosa and Akinbobola (2019) examined the how FDI has been influ-

encing the growth of Nigerian economy. The research was looking at the period starting from 1970–2016. The estimator adopted for the research is a Vector Error Correction Modelling (VECM). The outcome of the research observed that foreign direct investment is influencing economic growth. The policy emerging from the research is advocating for redirection of FDI from rent-seeking sector to growth-enhancing sector.

The research by Ikwuakwu et al. (2024) tried to look at how remittance inflows are influencing the growth of Nigerian economy which was consider within the period 1981–2019. The conclusion was achieved with help of bound test approach. The conclusion of their bound test, reported that there is an existence of long-run equilibrium alliance between remittance inflows and economic growth in Nigeria. The research designates the existence of unidirectional causality running from the growth of Nigerian economy to remittances and thus recommends that government should engage in expansion and improvement of financial sector to ensure that the remittance transfer is much adequate in terms of transparent and less expensive.

The research conducted by Bassey et al. (2019) examined how private sector remittance is influencing the tourism development in Nigeria using Calabar as a case study. The research was achieved because the data for research was originated through documentary. The methodology employed for the research focuses on different descriptive statistics approach for the analysis. The observation of the research established that when there is a decline in revenue remittances from private sector it influences tourism. The recommendation emerges from the research revealed that government is expected encourage private sector organizations and importantly reduce taxes through instrumentality of legislature and judiciary.

Another research in Nigeria by Nwodo et al. (2023) examined remittance inflows and its well-being indication in Nigeria using quarterly data (1980Q1–2020Q4) which was collected from World Development Indicators (2020). The research was achieved through the use of dynamic ordinary least squares (DOLS) model. The conclusion of the research revealed that the remittance inflows are significant in encouraging the well-being of Nigerians at about 0.04% increase in remittance inflows.

Moreover, Oyelami et al. (2020) investigated the part of remittances of migrants on financial inclusion in some selected countries in sub-Saharan Africa (SSA). The bound test was employed to unveil the analysis. The research revealed that remittances have no significant effect on financial inclusion in SSA. However, the variable designates positive influence on financial inclusion. Thus, the research believes that there should be a serious policy recommendations in the SSA to make remittances count for inclusive growth.

### 2.2.2 Tourism and trade

A research from Africa by Adeola et al. (2020) is focusing on the alliance between FDI inflow and growth in of tourism adopting bound test approach development. The research affirmed that there is a positive and bi-directional long-run causality between FDI inflows

and tourism growth. The conclusion further revealed that covariates like economic growth and political stability are essential drivers of growth in tourism sector.

Abbasi et al. (2021) investigated the alliances between carbon emission and tourism using the top 18 economic complexity index countries from 1990 to 2019. The research employed two estimation approaches, namely: the second-generation co-integration and the cross-section bound test method. The research also conducted pre-tests such as cross-sectional dependence test and panel co-integration test to avoid spurious outcomes. The findings of the research also designate that tourism decreases carbon emissions both in the long-term and short-term. The research concluded that tourism and economic complexity are the primary drivers of carbon emission.

Farsari et al. (2011) studied the complexity in tourism policies in Greece using cognitive system approach to reveal core policy considerations, valued outcomes and complexity perceptions. The research focused on policies for tourism sustainability. The research also examined complexity of the instruments that make up the policy consideration. The conclusions of the research designate that there exists complex domain in various ramifications perceived in different patterns by policymakers individually. The conclusion also revealed that policies at all levels in Greece are clearly focused on how tourism would be economically sustained, rather than reflecting parochial dimension on sustainable tourism.

Nyaupane (2009) did research to examine the Lumbini complexity from the perspective of heritage and tourism. This research used Lumbini, Nepal to investigate heritage complexity and tourism. The research covered the periods 2006 and 2008, through direct interviews from the organization and management of Lumbini. Some of those organizations are resident in the village, home business managers, and tourists. The research also sourced information from archived documents and documents of tourist data and prepared by Lumbini Development Trust that are yet to be published. The findings of the research revealed that heritage and tourism brought about latent dissonance, the multifaceted phenomenon in Lumbini, Nepal.

Quattrociocchi et al. (2017) carried out research on the alliance between tourism supply chain and strategic partnerships for managing the complexity in tourism industry in European community. The research employed multi-disciplinary strategies such as economic, sociological, psychological, anthropological and geographic for the analysis. Other methods like VRIO framework and PEST analysis were used for the purpose of understanding the strategic decision of integration to the chain with either a single or multiple rings. This was achieved through holistic analysis. The findings from the research designates that tourism is related in part to the human instinct of exploring and knowledge of a place in different forms that is close and related to economic, cultural and social evolution of many countries.

Gelbman and Timothy (2011) developed research on border complexity, tourism and international exclaves in Belgian Baarle-Hertog and Dutch Baarle-Nassau with a focus to examine the tourism development in exclaves as most unique forms of borderland

destinations in the present world. The research employed some factor components like typology of the physical, social and cultural elements that have potential in developing tourism in exclaves. The conclusion of the research designates that transnational borderlanders of Baarle does not provide unease, ambivalence and sense of not belonging or displacement.

Ojonta and Ogbuabor (2024a) adopted system GMM approach to unveil how tourism is influencing environmental quality and renewable energy consumption in Africa. The time period of the research was from 2011 to 2020. The research also shared discussions as covariate variable on how governance institution is moderating the effect of tourism on both environmental quality and renewable energy consumption. The outcome of the research revealed that tourism sector enhances environmental quality but not an important driver of renewable consumption in Africa.

Laws and Pelley (2000) investigated the management of complexity and change in tourism with focus on general issues for historical cities with relevant activities of tourists in the city of Canterbury. The research employed an open soft systems model for the analysis of the managers of historic walled cities, the tourist destination. The research also examined how Canterbury has identified the particular challenges and opportunities confronting it. The outcome of the research designates that tourists bring about peddlers and buskers, complaints from shop keepers.

### **2.3 Gap in the literature and value additions**

By going through the previous studies, it is evident that the aforementioned literature review is yet to carry out research for effect of remittance and tourism on trade in Nigeria. The existing studies have generally focused on panel data analysis. None of the existing studies in literature could either conducted research on how tourism is impacting on trade or how remittance inflow is impacting on trade for the period 1981–2021, which is the main objectives of our research.

Besides, the large number of the previous studies neglected the use of ordinary least square technique. This study adopted OLS because of its assumption of being best, linear unbiased estimator (BLUE). The present research addressed these lacuna in the literature in order to proffer deeper policy recommendations.

## **3 Data and methodology**

### **3.1 The data**

As you are aware, our target is to investigate how tourism and remittance inflow are influencing trade in Nigeria. Hence, the research is confined within Nigeria, while the period covered is from 1981–2021, due to inadequate data availability. Further information regarding the definitions of the variables as included in the research as well as data source

are designated in Appendix A, while the descriptive statistics and the correlation matrix of the variables are shown in Appendices B and C, respectively.

The conclusion from the descriptive statistics unveil that each variable in the model has a positive mean value, which implies that on the average, Nigerian economies have high level in all the variables under the research. On the other hand, the mean value including the values of both the maximum and minimum are close to each. This implies that the data for our research are free from outliers. In case of outcome from the standard deviations revealed as expected that all the variables in the model witnessed variations within the period under investigation. The outcome of correlation matrix showcased that all the variables under investigation are not highly correlated with each other. Hence, this suggests that the outcome of the correlation matrix is free from collinearity problems. The unit root tests and co-integration tests outcome in Appendix D and E respectively are the evidence that ordinary least square estimator is the best suited for analysis.

### 3.2 Model specification

To examine how trade in Nigeria responds to remittance inflows and tourism, this research follows the model approach of Owan et al. (2020) based on the ordinary least squares (OLS) technique in its functional form as follows:

$$TR = f(TOR, REM, HCD, FDI) \quad (1)$$

where TR = Trade; TOR = tourism; REM = remittance; HCD = human capital development; FDI = foreign direct investment. To facilitate estimation, the econometric form of the model specification in Equation (1) is specified as an Ordinary Least Square (OLS) as follows:

$$TR = \beta_0 + \beta_1 TOR + \beta_2 REM + \beta_3 HCD + \beta_4 FDI + \mu \quad (2)$$

where, TR denotes trade; TOR represents the tourism arrival; REM is equal to remittance; HCD is the human capital development and FDI denotes foreign direct investment inflow;  $\beta_0$  denotes constant term;  $\mu$  is the stochastic variable while  $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ , are the coefficient of the parameters to be estimated.

In order to achieve a robust estimation outcome, the control variables in the model were in tandem with the existent literature. For instance, some empirical studies designate that human capital development is relevant in explaining the dynamics of trade (Abbasi et al., 2021; Okogor, 2022). Few studies for example Ali et al. (2021) and Amin and Khan (2021) also believe that the inclusion of foreign financial inflow variables such as remittance inflows and FDI have an important influence on trade performance in an economy. Moreover, existing literature like Carlisle et al. (2016); Osinubi and Osinubi (2020); Massidda and Etzo (2012) employed trade measured in % of GDP as provided in the present study.

### 3.3 Estimation approach and model justification

Our research endorses ordinary least square (OLS) method in executing the model in Equation (2). The OLS estimator is generally considered appropriate estimator for the reason that it is the best, linear and unbiased. The estimator is also widely accepted for use in most econometric studies and in studies that utilize time series data for the reason that it has a high efficiency in reducing errors. Apart from its efficiency in minimizing errors, the estimator is associated with some salient features such un-biasedness, least mean square error, efficiency, minimum variance, BLUE, and sufficiency among other estimating technique.

In addition, the works of Phillips and Perron (1988) and Ng and Perron (2001) have also shown that the OLS not only associated with BLUE but also characterized by least means square error and sufficiency.

However, to prove that OLS estimator is suitable for this research, some important pre-estimation tests like unit root test was conducted for the model in Equation (1) using the Augmented Dickey Fuller (1979) test. The outcomes of the unit root test as shown in Appendix B, generally designate that the variables in the model for Equation (1) are stationary at I(1). Apart from the unit root test, another pre-estimation test carried out before estimating the model for this research is the test of co-integration. This is because co-integration test is a reliable analytic approach for testing the common trends in multivariate analysis in a time series. It is suitable for modeling long-run and short-run dynamics. According to Romer (1986) ignoring co-integration test in OLS model will cause a serious inefficient estimation. Thus, this research tested for co-integration following the research by Hubrich et al. (2001), which is asymptotically efficient in a model with small cross-sectional units and large time periods. The outcomes of the co-integration tests are shown in Appendix C, which overwhelmingly designate that the trace statistics is greater than the critical value at the 5% level of significance. Hence, co-integration test is not found as a problem in this research.

## 4 Empirical outcomes

### 4.1 Regression outcomes for the objectives of the study

As you are aware, the target of this research is to scrutinize how tourism is influencing trade in Nigeria and how trade is responding to remittance inflow in Nigeria. In considering these two objectives, the research estimated the underlying model in Equation (2) using the econometric estimator of ordinary least square. The footprints are shown in Table 1.

Prior to the outcome, the variables in Table 1 are logged to ensure they are all scaled down. The only exception is foreign direct investment inflow. The purpose is to ensure that the value of coefficient is less than one in absolute term. The values of coefficient

obtained are compatible with Ojonta and Ogbuabor (2024b), which also believed that the values of coefficient should be less than one.

The conclusions in Table 1 designate that the remittance inflow is positive in coefficient with probability value of 0.0541. The conclusion reveals that remittance inflow has a positive impact on trade at 10% level of significance. Our estimation result is in line with Musa et al. (2021) study, which also established that remittance inflow has a significant positive effect on trade in Nigeria. The conclusions in Table 1 further revealed that the tourism is positive in coefficient with probability value of 0.000. The result suggests that tourism has a positive impact on trade at 1% level of significance. This conclusion is compatible with Obiefuna et al. (2023) result which also believed that tourism has a significant influence on trade.

The results in Table 1 also designates that the impact of human capital development on trade in Nigeria is insignificant. Our estimated result also reveals that foreign direct investment inflow has a positive impact on trade of Nigeria. Its probability value of 0.0085, which is statistically significant at 1% level, reveals that the FDI inflow is a significant variable in the model.

Table 1: OLS outcome showing the effects of tourism and remittance inflow on trade in Nigeria

Variable	Coefficient	Std. Error	<i>t</i> -Statistic	Prob.
DREM	0.013*	0.007	1.991	0.054
DTOR	0.336***	0.034	9.893	0.000
DHCD	0.028	0.042	-0.677	0.503
FDI	0.036***	0.013	-2.784	0.009
C	2.449	0.453	5.405	0.000

$R^2 = 0.918$ ; adjusted  $R^2 = 0.910$ ;  $F$  statistic = 101.180; Durbin-Watson statistic = 1.966.

Note: Estimated coefficients and Prob. are well reported.

\*  $p < 10\%$ , \*\*  $p < 5\%$ , \*\*\*  $p < 1\%$ .

Notice the following: (i) the effects of remittance inflow, tourism, and FDI inflow on trade are positive and significant; (ii) the effects of human capital development on trade are insignificant.

## 5 Conclusion and policy recommendations

Following the shortage of empirical facts on the relevant drivers of trade in Nigeria, this research however, interrogated the effects of tourism and remittance inflow on trade in Nigeria using the 2022 world development indicator (WDI) series data. The research employed both descriptive and ordinary least square approach for the analysis.

The outcome of the study reveals that tourism and remittance inflow in Nigeria contribute essentially in enhancing the improvement of trade. Other covariates in the model

include human capital development and foreign direct investment inflow. The outcomes of the variables revealed that FDI promotes trade in Nigeria while human capital development remained insignificant.

Based on our estimated result, policy should recommend support for remittance inflow, tourism and FDI as a relevant factor in promoting trade in Nigeria. This can be achieved through reliable money transfer services. This can go a long way in assisting remittances from the abroad. Policy should also focus on adequate security to protect the life and properties. This will guarantee the safety of the tourists. Another one is the sustainability of already existing infrastructure. This will help in attracting foreign direct investment to the economy. Furthermore, where policies are provided in such direction to ensure that economy thrive, there should be an adequate and regular monitoring to sustain such policies.

## References

- Abbasi, K. R., Lv, K., Radulescu, M., and Shaikh, P. A. (2021). Economic complexity, tourism, energy prices and environmental degradation in the top economic complexity countries: Fresh panel evidence. *Environmental Science and Pollution Research*.
- Adeola, O., Boso, N., Osabutey, E. L. C., and Evans, O. (2020). Foreign direct investment and tourism development in Africa. *Tourism Analysis*, 25(4):395–408.
- Adigun, A. O. and Ologunwa, O. P. (2017). Remittance and economic growth in Nigeria. *International Journal of Research in Management*, 7:29–41.
- Aghion, P. and Howitt, P. (1992). A model of growth through creative destruction. *Econometrica*, 60(2):323–351.
- Akkemik, K. A. (2012). Assessing the importance of international tourism for the Turkish economy: A social accounting matrix analysis. *Tourism Management*, 33(4):790–801.
- Al-Hallaq, S., Athamneh, A., and Suleiman, H. (2020). The impact of foreign direct investment on the growth of the tourism sector in Jordan (1980–2016). *Journal of Public Affairs*, 20(2):e2005.
- Alegre, J. and Garau, J. (2009). Tourist satisfaction indices: A critical approach. *Investigaciones Regionales*, 14:5–26.
- Algieri, B. (2006). International tourism specialisation of small countries. *International Journal of Tourism Research*, 8:1–12.
- Ali, Q., Yaseen, M. R., Anwar, S., Makhdam, M. S. A., and Khan, M. T. I. (2021). The impact of tourism, renewable energy, and economic growth on ecological footprint and natural resources: A panel data analysis. *Resources Policy*, 74:102365.

- Amin, S. B. and Khan, F. (2021). Tourism and renewable energy in South Asia: A panel study. *Tourism and Hospitality Management*, 27(3):555–579.
- Balaguer, J. and Cantavella-Jordá, M. (2002). Tourism as a long-run economic growth factor: The Spanish case. *Applied Economics*, 34(7):877–884.
- Bassey, F. O., Arrey, M. V., and Ibe, C. E. (2019). Private sector remittances and tourism development in Calabar, Cross River State. *European Journal of Hospitality and Tourism Research*, 7(4):1–16.
- Carlisle, S., Johansen, A., and Kunc, M. (2016). Strategic foresight for (coastal) urban tourism market complexity: The case of Bournemouth. *Tourism Management*, 54:81–95.
- Didia, D. and Tahir, S. (2021). Enhancing economic growth and government revenue generation in Nigeria: The role of diaspora remittances. *Review of Black Political Economy*, 49:1–28.
- Evans, O. and Kelikume, I. (2018). The effects of foreign direct investment, trade, aid, remittances and tourism on welfare under terrorism and militancy. *International Journal of Management, Economics and Social Sciences*, 7(3):206–232.
- Farsari, I., Butler, R. W., and Szivas, E. (2011). Complexity in tourism policies. *Annals of Tourism Research*, 38(3):1110–1134.
- Faullant, R. and Matzler, K. (2008). The impact of satisfaction and image on loyalty: The case of Alpineski resorts. *Managing Service Quality*, 18(2):163–178.
- Fauzel, S. (2021). FDI and tourism futures: A dynamic investigation for a panel of small island economies. *Journal of Tourism Futures*, 7(1):98–110.
- Gelbman, A. and Timothy, D. J. (2011). Border complexity, tourism and international exclaves: A case study. *Annals of Tourism Research*, 38(1):110–131.
- Ho, S. Y. and Iyke, B. N. (2021). Short and long-term impact of trade openness on financial development in Sub-Saharan Africa. *The Journal of Developing Areas*, 55(1).
- Hubrich, K., Lütkepohl, H., and Saikkonen, P. (2001). A review of systems co-integration tests. *Econometric Reviews*, 20(3):247–318.
- Ikwuakwu, E. B., Onyele, K. O., and Onyele, C. O. (2024). The effect of remittances on economic growth of Nigeria. *Review of Socio-Economic Perspectives*, 9(1):121–134.
- Jiya, A. N., Sama, M. C., and Ouedraogo, I. (2020). Infrastructure, trade openness and economic transformation in Common Market for Eastern and Southern Africa member countries. *Social Sciences & Humanities Open*, 2(1):100072.

- Laws, E. and Pelley, B. L. (2000). Managing complexity and change in tourism: The case of a historic city. *International Journal of Tourism Research*, 2(4):229–245.
- Makhlouf, H. H. (2012). The multi-dimensional impact of international tourism. *International Business & Economics Research Journal*, 11(2):233–240.
- Maleki, M., Mohammadpour, S., and Azadeh, S. R. (2020). The effect of infrastructural integration of regional transport on tourism promotion: The case of Guilan Province, Iran. *Journal of Urban and Regional Analysis*, 12(2):217–231.
- Marshall, A. (1923). *Money, credit and commerce*. Macmillan, London.
- Massidda, C. and Etzo, I. (2012). The determinants of Italian domestic tourism: A panel data analysis. *Tourism Management*, 33(3):603–610.
- McKinnon, R. I. (1973). *Money and capital in economic development*. Brookings Institution, Washington, DC.
- Musa, M. S., Jelilov, G., Iorember, P. T., and Usman, O. (2021). Effects of tourism, financial development, and renewable energy on environmental performance in EU-28: Does institutional quality matter? *Environmental Science and Pollution Research*, 28:53328–53339.
- Nchofoung, T. N. and Asongu, S. A. (2022). Effects of infrastructures on environmental quality contingent on trade openness and governance dynamics in Africa. *Renewable Energy*, 189:152–163.
- Ng, S. and Perron, P. (2001). Lag length selection and the construction of unit root tests with good size and power. *Econometrica*, 69:1519–1554.
- Nwodo, I. P., Omeje, A. N., and Okereke, C. U. (2023). Remittance flows and welfare implications: The Nigerian experience. *International Journal of Emerging Markets*.
- Nwosa, P. F. and Akinbobola, T. O. (2019). Foreign aid, foreign direct investment and international workers' remittances in Nigeria: Are there complement or substitute investment? *Journal of Economic Cooperation and Development*, 40(2):77–100.
- Nyaupane, G. P. (2009). Heritage complexity and tourism: The case of Lumbini, Nepal. *Journal of Heritage Tourism*, 4(2):157–172.
- Nyong, S. F. and Inyang, L. O. (2018). Tourism sites and infrastructural development in Southern Senatorial District of Cross River State, Nigeria. *International Journal of New Technology and Research*, 4(3):57–63.
- Obiefuna, E. C., Ojonta, O. I., and Ogbuabor, J. E. (2023). The influence of COVID-19 pandemic and coping strategies on work operation of nonfarm household enterprises in Nigeria. *Environment, Development and Sustainability*, 25(6):1–16.

- Ojonta, O. I. (2023). Influence of credit access on the total sales of household non-farm enterprises in Nigeria: Evidence from binary logit regression. *International Journal of Economics and Business Research*, 25(1):50–63.
- Ojonta, O. I. and Ogbuabor, J. E. (2024a). Effects of international tourism on environmental quality and renewable energy use in Africa: A study of the moderating role of governance institutions. *Economic Change and Restructuring*, 57(149).
- Ojonta, O. I. and Ogbuabor, J. E. (2024b). Effects of tourism and institutional quality on infrastructural development in Africa: New evidence from the system GMM technique. *Business Economics*.
- Okogor, C. (2022). Effects of environmental quality on human health status in Nigeria. *Acta Universitatis Danubius. Economica*, 18(5).
- Onyeisi, O. S. and Odo, I. S. (2018). International remittance inflow and economic growth in Nigeria. *IOSR Journal of Humanities and Social Science*, 23(1):52–64.
- Osinubi, T. T. and Osinubi, O. B. (2020). Inclusive growth in tourism-led growth hypothesis: Evidence from Nigeria. *African Journal of Economic Review*, 8(2):141–160.
- Owan, V. J., Ndibe, V. C., and Anyanwu, C. C. (2020). Diversification and economic growth in Nigeria (1981–2016): An econometric approach based on ordinary least squares (OLS). *European Journal of Sustainable Development Research*, 4(4):em0131.
- Oyelami, L. O., Ogundipe, A. A., and Ogundipe, A. (2020). An empirical investigation of remittances and financial inclusion nexus in Sub-Saharan Africa. *Cogent Business & Management*, 7(1).
- Phillips, P. C. B. and Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika*, 75(2):335–346.
- Quattrociochi, B., Perano, M., and Calabrese, M. (2017). Tourism supply chain & strategic partnerships for managing the complexity in tourism industry. *Enlightening Tourism. A Pathmaking Journal*, 7(1):62–93.
- Ribeiro, C. and Wang, B. (2020). Tourism led growth hypothesis: Has the tourism industry an impact on the economic growth of Sao Tome and Principe? *International Journal of Economics and Financial Issues*, 10(1):180–185.
- Romer, P. M. (1986). Increasing returns and long-run growth. *Journal of Political Economy*, 94(5):1002–1037.
- Shadab, S. (2018). Tourism and economic growth in the United Arab Emirates: A Granger causality approach. *IOSR Journal of Business and Management*, 20(4):01–06.

- Xu, Z. (1996). On the causality between export growth and GDP growth: An empirical reinvestigation. *Review of International Economics*, 4:172–184.
- Zahra, A. and Ryan, C. (2007). From chaos to cohesion: Complexity in tourism structures: An analysis of New Zealand's regional tourism organizations. *Tourism Management*, 28:854–862.

## A Definitions of variables and data sources

Variable	Acronym	Description / measurement	Data source
Trade	TR	Trade (% of GDP)	World Development Indicators (WDI) ( <a href="https://datacatalog.worldbank.org/dataset/world-development-indicators">https://datacatalog.worldbank.org/dataset/world-development-indicators</a> )
Tourism	TOR	Tourism, number of arrivals	World Development Indicators (WDI)
Foreign direct investment	FDI	Foreign direct investment net inflows (BOP, current US\$)	World Development Indicators (WDI)
Human capital development	HCD	Human capital index	World Bank Human Capital Index (HCI) ( <a href="https://data.worldbank.org/indicator/HD.HCI.OVRL">https://data.worldbank.org/indicator/HD.HCI.OVRL</a> )
Remittance inflow	REM	Personal remittances, received (current US\$)	World Development Indicators (WDI)

## B Descriptive statistics of the variables

	TR	REM	TOR	HCD	FDI
Mean	1895.734	8.50E9	2 961 302	50.512	1.269
Median	1693.746	1.21E9	2 011 600	57.712	1.088
Maximum	2679.554	2.43E10	6 113 000	68.671	4.282
Minimum	1408.209	2.42E6	1 031 000	24.562	0.137
Standard deviation	461.252	9.78E9	1 749 165	13.569	0.940
Observations	41	41	41	41	41

## C Correlation matrix result

Variable	TR	REM	TOR	HCD	FDI
TR	1				
REM	0.151	1			
TOR	0.219	0.029	1		
HCD	0.221	0.237	0.208	1	
FDI	-0.018	0.057	0.098	-0.217	1

Source: Researcher's construct from Eview's output.

## D Unit root test results

Variables	ADF test statistic	<i>t</i> statistic	<i>p</i> value	Order of integration	Decision
LTR	-4.045	-2.939	0.0032	I(1)	Stationary
LREM	-6.451	-2.939	0.0000	I(1)	Stationary
LTOR	-6.275	-2.939	0.0000	I(1)	Stationary
LHCD	-6.299	-2.939	0.0000	I(1)	Stationary
FDI	-9.771	-2.939	0.0000	I(1)	Stationary

Source: Author's computation using E-views 10.

Note: Test critical values at 5% level of significance.

## E Co-integration rank test

Hypothesized number of CE(s)	Eigenvalue	Trace statistic	Critical value (0.05)	<i>p</i> value
None*	0.654	83.606	69.819	0.003
At most 1	0.352	42.184	47.856	0.154
At most 2	0.339	25.265	29.797	0.152
At most 3	0.184	9.127	15.495	0.354
At most 4	0.030	1.189	3.841	0.276

Note: Trace test indicates 1 co-integrating eqn(s) at the 0.05 level.