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Analysis of trade in Nigeria: The role of remittance inflows and tourism

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Abstract

The importance of trade in stimulating the overall production of goods and services cannot be overemphasized across the world. Trade is crucial in an economy in terms of income generation, job creation, improvement in consumption, and poverty alleviation. Apart from the significant contributions of trade to overall growth, tourism and remittance inflows to Nigeria can be relevant in explaining the dynamics of trade. Unfortunately, the effects of tourism and remittance inflows to the Nigerian economy on trade are yet to be documented in the existing literature. Therefore, this study focuses on how the aggregate effects of tourism and remittance inflows to Nigeria influence trade in the country. The objectives of this research were adequately achieved through the support of the Ordinary Least Square (OLS) estimator and time series data spanning from 1981 to 2021. The outcome of the study revealed that tourism and remittance inflows to the country have a positive and significant impact on trade. Based on the results, it is evident that tourism and remittance inflows to Nigeria are veritable channels in encouraging trade in the country. The study recommends that the government promote policies supporting remittance and tourism to achieve maximum trade performance in Nigeria through legislative instruments.

Keywords: Tourism, Remittance, Trade, Ordinary Least Square, Time Series data, Nigeria.

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Contents

Contribution of this paper to the literature
This study contributes to the existing literature by investigating the aggregate effects of tourism and remittance inflow to Nigeria on trade. It aims to determine whether remittance and tourism, using the Ordinary Least Squares estimator for the period 1981-2021, can significantly influence trade in Nigeria.

1. Introduction

Trade has been identified as one of the important means of income generation in most economies around the world. Apart from the fact that trade can generate income, it can also serve as a channel for stimulating overall growth in an economy through bilateral relationships (Nyong & Inyang, 2018), including improvement for consumption patterns (Maleki, Mohammadpour, & Azadeh, 2020). The influence of trade in promoting the overall business of a country is well acknowledged by some recent studies in an emerging literature (Jiya, Sama, & Ouedraogo, 2020; Nchofoung & Asongu, 2022). These studies believed that trade can renew and unveil a remarkable turnaround in the fortunes of the Nigerian economy, shifting from those characterized by capital dissemination and technological retardation to those characterized by capital accumulation and technological growth. According to Ho and Iyke (2021), trade enhances the improvement of employment creation and income generation in an economy. Conversely, a report from the World Bank (2022) revealed that Nigeria's trade pattern has been fluctuating for more than six decades (see Figure 1), despite the fact that Nigeria is endowed with abundant human and natural resources. These trade fluctuations over such a period indicate that the Nigerian economy has yet to realize the full potential of its trade performance, despite its significant resources. However, Nigeria's share of global trade remains unattractive compared to other developing countries. This is because Nigeria is characterized by weak institutions (Ojonta & Ogbuabor, 2024a), low-income level (Nwosu, 2009), and a high rate of dependency ratio (Ejimonye & Nwosu, 2018). This is a serious impediment that motivates this study.

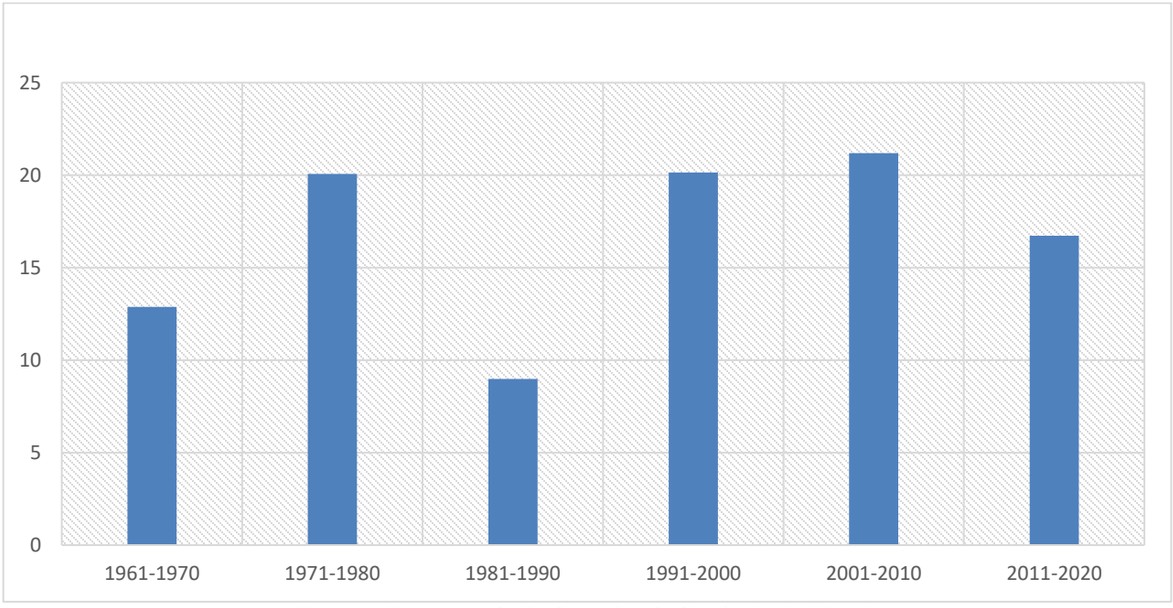

Figure 1. Percentage decile share of trade distribution in Nigeria.

Apart from the contributions of trade to the economy in terms of job creation and income generation, it is also established in the literature that tourism and remittance inflows to the economy can be very important in elucidating the progress of trade performance in Nigeria.

For example, a 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, Boso, Osabutey, & Evans, 2020; Al-Hallaq, Athamneh, & Suleiman, 2020). These studies explain that countries can greatly achieve their potential trade and generate significant profits through the tourism sector. According to Zahra and Ryan (2007), the tourism sector is an important channel for job creation and increased investment, which in turn can help promote trade in the economy.

Some economic researchers have also explained that the 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 indicates that for more than a decade, the tourism industry in Nigeria has not experienced steady growth. This issue of the incompatibility of tourism with consistent development has been a significant impediment to trade in Nigeria. This, however, constituted another motivation for this study.

Figure 2. Distribution of tourism according to the years in Nigeria.
Source: Research conceptualisation using data from World Development Indicators.

It is also revealed that remittance inflows to the economy can influence trade. Based on the research developed by Makhlouf (2012), remittance inflows to the economy are generally useful in revitalizing the overall growth of an economy, especially in an established environment, with a significant increase in investment and job opportunities. According to Alegre and Garau (2009), remittance inflow to the economy can significantly influence the exchange rate, which in turn can contribute maximally to enhancing trade value and national integration through global markets. Interestingly, existing studies have revealed how trade can be indirectly influenced by remittance inflows to the economy (Odionye & Emerole, 2015; Oshota & Badejo, 2015). These studies established that remittance inflows to the country increase business efficiency through the procurement of goods and improved service delivery. The proponents of these studies believe that procurement and service delivery promote trade as well as ensure that the agglomeration of economic activity is more productive. Besides the significant effect of remittance inflows in promoting trade, it also plays a crucial role in supporting economic stability and development. Faullant, Matzler, and Füller (2008) also explained how transport infrastructure can be of great help in enhancing trade in various developing economies. The study affirms that infrastructural development is an essential factor in promoting production, which in turn can promote overall growth, including trade. The system GMM results from the study conducted by Fauzel (2021) in African economies attest to this fact. The study revealed that remittance inflows to the region have a positive and significant impact on boosting production activities in the real sectors of the economy through trade.

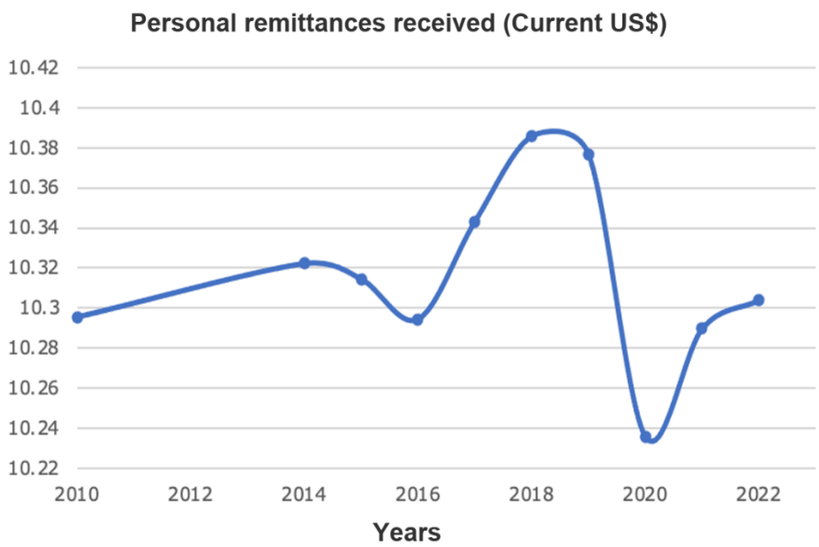

Figure 3. Percentage share of remittance inflow over the years in Nigeria.
Source: Research conceptualization using data from World Development Indicators.

The historical report, as provided in Figure 3, shows the graphical representation of remittance inflows to Nigeria from 2010 to 2022. The graph aptly reveals that remittance inflows to the country have been fluctuating during the period under study. Such fluctuations have remained a serious challenge for policymakers to predict and implement appropriate recommendations to improve the position of remittance inflows to the economy. The graph also indicates that remittances received in the country were low in the last four years. The low level of remittance inflows to the nation has trickled down to overall consumption, especially among those at the lower end of the income distribution.

To address the challenges confronting the Nigerian economy, the government of Nigeria has made significant efforts to implement schemes aimed at empowerment to encourage trade. Some of these efforts have been created in the form of social interventions such as N-POWER, YOU-WIN, among others, to tackle issues of joblessness and support social development by engaging youth in meaningful employment. The core motive of these interventions,

despite youth empowerment, is to ensure that youths are enrolled in trade through social emancipation. Unfortunately, these uncommon efforts from the government have not resulted in substantial improvements in Nigerian trade. Against this background, this research aims to scrutinize 1. The effects of tourism on trade in Nigeria and 2. How trade responds to remittance inflows to the Nigerian economy.

2. Literature Review

2.1. Theoretical Literature

The particular section of this research targets some relevant theories. For instance, trade theories such as country similarity trade theory and new trade theory; theories of remittance inflow, including financial liberalization theory and the Marshall-Lerner hypothesis; and theories of tourism, such as the tourism-led growth hypothesis and the eclectic 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 explains the relationship between nations at similar stages of development and consumers with similar preferences. The theorist established that nations on comparable levels of development tend to have consumers with similar preferences. Additionally, the theory suggests that countries sharing uniform per capita incomes are more likely to engage in trade of the most produced commodities. Existing literature, such as Samuelson (1948), supports this theory. This support affirms that companies typically manufacture for domestic consumption and subsequently export to countries where end users share similar preferences. To understand trade theories where consumer decisions are influenced by product reputation and brand names, the theory of country similarity is particularly relevant. Subsequently, Paul Krugman championed the new trade theory in 1987. This theory explains that economies of scale and network effects in various sectors are key drivers of international trade. These factors are considered significant determinants of trade patterns. Krugman's theory posits that economies of scale create incentives for specialization and trade, even when there are no resource or technological differences between countries. The new trade theory has important implications for developing nations, especially in the current era. It suggests that developing economies may face challenges in establishing most industries due to the lack of necessary economies of scale compared to developed economies.

For the theory of remittance, the Marshall-Lerner hypothesis, as proposed by Marshall (1923), deals with the relationship between international trade and migration. The theory states that when a country's currency is depreciated or devalued, its exports become cheaper for foreign buyers and 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 exceeds one, it will cause a depreciation in remittance inflow, which can lead to an improvement in the trade balance, meaning exports will outweigh imports. According to the theory, remittance inflow will have greater purchasing power in the home country. In other words, 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 exports is among the determinants of economic progress. The theory agrees that overall growth in an economy is not only dependent on the quantum of labor and capital but also on growth that can result from export expansion. The theory argues that such growth can assist in adequate resource allocation, establishing economies of scale, and achieving efficient production through technological development and job creation. The theory further explains various sequences of income generation in an economy through tourism. The theorist established that when foreign tourists visit a country, part of their income would be spent on goods and services, and in doing so, an integral part of their foreign currency would be injected into the economy.

The remittance multiplier effect theory of remittance, as proposed by Ratha and Shaw (2007), explains the role of remittance in stimulating economic growth. The theory posits that when migrants remit money back to their home countries, such remittances can influence improvements in consumption, which can, in turn, lead to significant economic growth. It suggests that remittances act as a catalyst for economic growth through increased aggregate demand and consumption in recipient countries. The theorists further emphasize the important role of these remittances in the overall growth of an economy. According to the theory, remittance recipients receive these funds, and a portion of the money is spent on goods and services, thereby helping to stimulate economic growth. The theory establishes that this initial spending creates a ripple effect; as the money circulates through the economy, it leads to further rounds of consumption and investment. Consequently, the multiplier effect of remittances amplifies their overall impact, contributing to higher levels of domestic investment, job creation, and ultimately, economic development in the receiving countries.

As a follow-up, Balaguer and Cantavella-Jorda (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 role 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 toward growth, sustainability, and development. Some recent work in the literature, like Ribeiro and Wang (2020) and Jiya et al. (2020), is in strong support of the theory. Their support contributed to an exceptional performance in the tourism sector in the United Arab Emirates (UAE), as acknowledged in research by Shadab (2018).

Another theory of tourism is the eclectic theory propounded by Dunning (2001). It states that an increase in tourism to a defined area is driven by the market-seeking goal of infrastructure development. The theorist further explains the link between infrastructure and the tourism sector. According to the theory, innovations in infrastructure lead to quality services, which in turn promote international tourism arrivals, making the tourism sector a business hub for income generation. Some studies lend support to this theory (Balsalobre-Lorente & Leitão, 2020; Dunning & Lundan, 2008; Roudi, Arasli, & Akadiri, 2019; Sokhanvar, 2019).

2.2. Empirical Literature

Recent studies in the literature have also examined how tourism and remittance influence economic progress using numerous econometric approaches covering various nations and continents of the world. In what follows, the

outcome of this research focuses on the alliance between remittance and economic growth. Thereafter, research on the alliance between tourism and economic growth.

2.2.1. Remittance and Trade

Nchofoung and Asongu (2022) evaluate how governance is moderating the impact of trade openness on CO_2 emissions. The study was conducted using 36 countries in Africa and employed the GMM methodological approach for the period 2003-2015. The study concludes that when governance interacts with trade openness, it produces a negative net impact on CO_2 emissions in Africa. However, Jiya et al. (2020) use 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 African countries. The final outcome of the study indicates that trade openness and innovations in infrastructure have a long-term and significant relationship with manufacturing output in Africa. In contrast, in sub-Saharan Africa, Ho and Iyke (2021) subjected their study to a panel data background by investigating the short- and long-term effects of trade openness on financial development, employing 43 countries in sub-Saharan Africa. The results show that trade openness is significantly associated with financial development in the long term.

In addition, Evans and Kelikume (2018) sought to interrogate whether remittances have a impact on 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 unveils that the remittances are positive and significant in influencing welfare under terrorism, together with militancy, for both in the short and long run. The entire result implies that the influence of remittances on welfare under terrorism and militancy in the Nigerian economy, in terms of short- and long-term approaches, is uniform.

Likewise, Didia and Tahir (2022) conducted the same research, but the focus was on how remittances influence economic growth using an alternative approach, vector error correction. Another difference is that the study considered the period from 1990 to 2018. Empirically, the research indicates that remittances are detrimental in the long run when they influence economic growth in Nigeria. Regarding recommendations, the study suggests that the Nigerian economy needs to implement effective policies and interventions to reduce emigration, especially among skilled professionals, to increase remittance inflows into the country.

Furthermore, Adigun and Ologunwa (2017) investigated the flow of remittances into Nigeria and how such rates have 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 indeterminate. The recommendations from the research suggest that the remittance recipients should engage more in investment and less in consumption.

Similarly, Onyeisi and Odo (2018) also aimed at discovering, using empirical evidence, how remittances from abroad are impacting the Nigerian economy. The research focuses on the time period from 1980 to 2015. Some important tests, such as co-integration, vector error correction, and Granger causality, were adopted to ensure that the conclusions are accurate. The outcomes from the estimation indicated that there is a negative and significant relationship between international remittance inflows and the domestic economy of Nigeria. The research thus recommended that policy should focus on how to regulate remittances and ensure that remittances from abroad follow the normal process to avoid high costs.

Although Nwosa and Akinbobola (2019) examined how FDI has been influencing the growth of the Nigerian economy. The research covered the period from 1970 to 2016. The estimator adopted for the research is a Vector Error Correction Model (VECM). The outcome of the research observed that foreign direct investment influences economic growth. The policy recommendation from the research advocates for redirecting FDI from rent-seeking sectors to growth-enhancing sectors.

The research by Ikwuagwu, Onyele, and Onyele (2024) examined how remittance inflows influence the growth of the Nigerian economy within the period 1981-2019. The study employed a bound test approach to reach its conclusions. The results indicated the existence of a long-run equilibrium relationship between remittance inflows and economic growth in Nigeria. The research also identified unidirectional causality running from economic growth to remittances. Based on these findings, it is recommended that the government expand and improve the financial sector to facilitate more transparent and cost-effective remittance transfers.

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

Another research in Nigeria by Nwodo, Omeje, and Okereke (2025) examined remittance inflows and their well-being implications in Nigeria using quarterly data (1980Q1–2020Q4) collected from World Bank (2022). The research was conducted using a dynamic ordinary least squares (DOLS) model. The findings revealed that remittance inflows significantly contribute to improving the well-being of Nigerians, with approximately a 0.04% increase associated with remittance inflows.

Moreover, Oyelami and Ogundipe (2020) investigated the role of remittances from migrants in promoting financial inclusion in selected countries within sub-Saharan Africa (SSA). The study employed the bound test to analyze the relationship. The findings indicated that remittances have no significant effect on financial inclusion in SSA. However, the variable shows a positive influence on financial inclusion. Therefore, the research emphasizes the need for serious policy interventions in SSA to ensure that remittances contribute effectively to inclusive growth.

2.2.2. Tourism and Trade

Research from Africa by Adeola et al. (2020) focuses on the alliance between FDI inflow and growth in tourism, adopting the bound test approach to development. The research affirms that there is a positive and bi-directional long-run causality between FDI inflows and tourism growth. The conclusion further reveals that covariates such as economic growth and political stability are essential drivers of growth in the tourism sector.

Abbasi, Lv, Radulescu, and Shaikh (2021) investigated the alliances between carbon emission and tourism using the top 18 economic complexity indices 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 the cross-sectional dependence test and panel co-integration test to avoid spurious outcomes. The findings of the research also indicate 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 emissions.

Likewise, Farsari, Butler, and Szivas (2011) studied the complexity in tourism policies in Greece using a 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 the complexity of the instruments that make up the policy consideration. The conclusions of the research indicate that there exists a 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 dimensions of sustainable tourism.

However, Nyaupane (2009) conducted research to examine the complexity of Lumbini from the perspectives of heritage and tourism. This research utilized Lumbini, Nepal, to investigate heritage complexity and tourism. The study covered the periods 2006 and 2008, through direct interviews with organizations and management entities in Lumbini. Some of these organizations are resident in the village, including home business managers and tourists. The research also sourced information from archived documents and tourist data prepared by the Lumbini Development Trust, which are yet to be published. The findings revealed that heritage and tourism generated latent dissonance, highlighting the multifaceted nature of the phenomenon in Lumbini, Nepal.

In addition, Quattrociocchi, Mercuri, Calabrese, and Perano (2017) carried out research on the alliance between the tourism supply chain and strategic partnerships for managing complexity in the tourism industry within the European community. The research employed multidisciplinary strategies such as economic, sociological, psychological, anthropological, and geographic analyses. Other methods, like the VRIO framework and PEST analysis, were used to understand strategic decisions regarding integration into the chain, whether with a single or multiple rings. This was achieved through holistic analysis. The findings indicate that tourism is partly related to the human instinct of exploring and gaining knowledge of a place, which is connected to the economic, cultural, and social evolution of many countries.

In contrast, Gelbman and Timothy (2011) developed research on border complexity, tourism, and international exclaves in Belgian Baarle-Hertog and Dutch Baarle-Nassau, with a focus on examining the tourism development in exclaves as some of the most unique forms of borderland destinations in the present world. The research employed several factor components, such as the typology of physical, social, and cultural elements that have potential in developing tourism in exclaves. The conclusion of the research indicates that transnational borderlanders of Baarle do not experience unease, ambivalence, or a sense of not belonging or displacement.

Therefore, Ojonta and Ogbuabor (2024b) adopted the system GMM approach to unveil how tourism influences environmental quality and renewable energy consumption in Africa. The research period was from 2011 to 2020. The study also discussed governance institutions as covariate variables moderating the effect of tourism on both environmental quality and renewable energy consumption. The results revealed that the tourism sector enhances environmental quality but is not a significant driver of renewable energy consumption in Africa.

Furthermore, Laws and Le Pelley (2000) investigated the management of complexity and change in tourism with a 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 shopkeepers.

2.3. Gap in the Literature and Value Additions

By reviewing previous studies, it is evident that some research, such as Ojonta and Ogbuabor (2024a) and Abbasi et al. (2021), investigated the determinants of trade using panel data analysis. However, panel data analysis is not suitable for the current study. This study adopted OLS because of its assumption of being the best linear unbiased estimator (BLUE). The aforementioned studies have yet to examine the aggregate effects of tourism and remittance inflow to Nigeria on trade. Additionally, none of the existing literature has investigated the effects of tourism and remittance inflow to Nigeria on trade within the period 1981-2021. The present research addresses these gaps in the literature to provide more comprehensive policy recommendations.

3. Data and Methodology

3.1. The Data

The focus of this study is to investigate how tourism and remittance inflows to Nigeria are influencing trade. Hence, the research is confined to Nigeria, while the period covers the period 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 sources, is designated in Appendix 1. The descriptive statistics and the correlation matrix of the variables are shown in Appendices 2 and 3, respectively. The conclusion from the descriptive statistics reveals that each of the variables in the model has positive mean values, which implies that, on average, Nigerian economies have high levels in all the variables under the research. Additionally, the mean values, including the maximum and minimum, are close to each other. This indicates that the data for the research are free from outliers. Regarding the standard deviations, it is observed that all variables in the model experienced variations within the period under investigation,

as expected. The correlation matrix results show that all the variables under investigation are not correlated with each other. Therefore, this suggests that the outcome of the correlation matrix is free from collinearity problems. The unit root tests and co-integration tests outcomes in Appendices 4 and 5, respectively, provide evidence that the ordinary least squares estimator is best suited for analysis.

3.2. Theoretical Framework

The theoretical framework of this study is based on the country similarity trade theory, developed by Linder (1961). The theory explains the relationship between nations at similar stages of development and consumers with similar preferences. The theorist established that nations at comparable stages of development tend to have consumers with similar preferences. Additionally, the theory suggests that countries sharing uniform per capita incomes are more likely to engage in trade of the most produced commodities. Existing literature, such as Samuelson (1948), supports this theoretical perspective. The study also recognizes that trade driven by remittance inflows and tourism plays a significant role. Proponents of this perspective argue that harnessing remittances and tourism are effective channels through which companies can maximize trade.

3.3. Model Specification

To examine how trade is responding to remittance inflows to Nigeria and tourism. This research followed Owan, Ndibe, and Anyanwu's (2020) model approach based on ordinary least squares 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 Squares (OLS) model.

$$TR = \beta_0 + \beta_1 TOR_t + \beta_2 REM_t + \beta_3 HCD_t + \beta_4 FDI_t + \mu_t \quad (2)$$

Where TR denotes trade; TOR represents tourism arrivals; REM is equal to remittance; HCD is human capital development, and FDI denotes foreign direct investment inflow. β_0 denotes the constant term; μ is the stochastic variable, while β_0, β_1, β_2, β_3, β_4, are the coefficients of the parameters to be estimated. To achieve a robust estimation outcome, the control variables in the model were aligned with existing literature. For instance, some empirical studies indicate that human capital development is relevant in explaining the dynamics of trade (Abbasi et al., 2021; Okogor, 2022). A few studies, for example, Ali, Yaseen, Anwar, Makhdum, and Khan (2021) and Bin Amin and Khan (2021), also believe that the inclusion of foreign financial inflow variables, such as remittance inflows and FDI, has an important influence on trade performance in an economy. Moreover, existing literature like Carlisle, Johansen, and Kunc (2016); Osinubi and Osinubi (2020), and Massidda and Etzo (2012) employed trade measured in % of GDP as provided in the present study.

3.4. Estimation Approach and Model Justification

This study adopts the ordinary least squares (OLS) estimator to estimate the model in Equation 2. The OLS estimator is generally considered an appropriate estimator because 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 because it has high efficiency in reducing errors. Apart from its efficiency in minimizing errors, the estimator is associated with some salient features such as unbiasedness, least mean square error, efficiency, minimum variance, BLUE, and sufficiency among other estimating techniques (Gujarati, 2010). In addition, the works of Phillips and Perron (1988) and Ng and Perron (2001) have also shown that the OLS is not only associated with BLUE but also characterized by the least mean square error and sufficiency. Thus, to demonstrate that the OLS estimator is suitable for this research, some important pre-estimation tests, such as the unit root test, were conducted for the model in Equation 1 using the Augmented Dickey and Fuller (1979) test. The outcomes of the unit root test, as shown in Appendix 2, generally indicate that the variables in the model for Equation 1 are stationary at 1(1) and are in line with the study by Oyegoke and Aras (2021). Apart from the unit root test, another pre-estimation test is the test of co-integration. This is because the co-integration test is a reliable analytical approach for testing 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 the co-integration test in the OLS model can lead to serious inefficiencies in estimation. Therefore, this research tested for co-integration following the study by Ihezie, Okoro, and Chinatu (2025). The co-integration test is asymptotically efficient in models with small cross-sectional units and large time periods. The results of the co-integration tests are presented in Appendix 3, which clearly indicate that the trace statistic exceeds the critical value at the 5% significance level. Consequently, the co-integration test does not pose a problem in this research.

4. Empirical Outcomes

4.1. Regression Outcomes for the Objectives of the Study

The target of this research is to scrutinize how tourism influences trade in Nigeria and how trade responds to remittance inflows to Nigeria. In considering these two objectives, the research estimated the underlying model in equation 2 using the econometric estimator of ordinary least squares. The results are shown in Table 1. Prior to analysis, the variables in Table 1 were logged to ensure they are all scaled down; the only exception is foreign direct investment inflow. The study reveals that tourism has a positive coefficient with a probability value of 0.000, indicating that tourism positively affects trade at the 1% level of significance. This finding aligns with the a priori expectation that tourism is an important driver of trade. Our results are consistent with the study by Ojonta and Ogbuabor (2024b), which established that tourism can explain the dynamics of trade. Additionally, the study shows that remittance inflows to Nigeria have a positive coefficient with a probability value of 0.0541, implying that remittance inflows positively and significantly influence trade at the 10% level. This supports the expectation that remittance promotes trade. The OLS result is in line with the study by Musa, Jelilov, Iorember, and Usman (2021). The result also established that remittance inflows to Nigeria are an important driver of trade. The footprints in Table 1 also indicate that human capital has a positive coefficient and a p-value of 0.503. The result depicts that human capital has an insignificant impact on trade in Nigeria, which suggests that human capital does not have a

significant relationship with trade in Nigeria. Our estimated results also reveal that foreign direct investment inflow (FDI) has a positive coefficient with a p-value of 0.0085. The finding means that FDI has a positive effect on trade and is statistically significant at the 1% level. The outcome suggests that an increase in FDI will lead to an increase in trade in Nigeria. The result is in line with the study by Didia and Tahir (2022). The study explained that FDI is essential in promoting trade.

Table 1. OLS outcome showing the effects of tourism and remittance inflow to Nigeria on trade

Variable	Coefficient	Std. error	t-statistic	Prob.
REM	0.013*	0.006	1.991	0.054
TOR	0.336***	0.033	9.893	0.000
HCD	0.028	0.041	-0.676	0.503
FDI	0.035***	0.012	-2.783	0.008
C	2.449	0.453	5.404	0.000
R-square= 0.918315; Adjusted R-square= 0.9099239; F-statistic= 101.1797; Durbin-Watson statistics= 1.966244				

Note: Estimated coefficients and probabilities are well reported. * p < 10%, *** p < 1%. Notice the following: (i) the effects of remittance inflow, tourism, and FDI inflow on economic growth 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 the Nigerian economy using 2022 World Development Indicator (WDI) time series data. The research employed both descriptive and ordinary least squares approaches for the analysis. The outcome of the study reveals that tourism and remittance inflow in Nigeria contribute significantly to enhancing trade. Other covariates in the model include human capital development and foreign direct investment inflow. The results indicate that FDI promotes trade in Nigeria, while human capital development remains insignificant. Based on our estimated results, policies should support remittance inflow, tourism, and FDI as relevant factors in promoting trade in Nigeria. This can be achieved through reliable money transfer services, which can facilitate remittances from abroad. Policies should also focus on ensuring adequate security to protect lives and properties, thereby guaranteeing the safety of tourists. Additionally, the sustainability of existing infrastructure is crucial for attracting foreign direct investment to the economy. Furthermore, where policies are implemented to promote economic growth, there should be regular and adequate monitoring to sustain such policies.

5.1. Limitations for Further Studies

This study has succeeded in investigating the effects of tourism and remittance inflows to Nigeria on trade. Thus, a large scope of existing studies investigates the effects of tourism and remittance inflows to Africa on trade using panel data analysis. Subsequent studies can investigate the same using cross-sectional data for analysis. In addition, more policy insights can be identified by adopting such data on a comparative basis by explaining the dynamics of time series data and cross-sectional data on trade.

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Appendix 1. Definitions of variables and data sources.

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

Appendix 2. Descriptive statistics of the variables.

Variables	GDPPC	REM	TOR	HCD	FDI
Mean	1895.734	8.50E+09	2961302	50.512	1.269
Median	1693.746	1.21E+09	2011600	57.712	1.087
Maximum	2679.554	2.43E+10	6113000	68.670	4.282
Minimum	1408.209	2424527	1031000	24.561	0.137
Std. Dev.	461.251	9.78E+09	1749165	13.569	0.940
Observations	41	41	41	41	41

Appendix 3. Correlation matrix result.

	TRADE	REM	TOR	HCD	FDI
TR	1				
REM	0.151	1			
TOR	0.218	0.028	1		
HCD	0.220	0.237	0.207	1	
FDI	-0.018	0.057	0.097	-0.216	1

Appendix 4. Unit root test results.

Variables	ADF test statistic	t-Statistic	P-value	Order of integration	Decision
LTR	-4.044	-2.938	0.003	I(1)	Stationary
LRRI	-6.450	-2.938	0.000	I(1)	Stationary
LTNA	-6.274	-2.938	0.000	I(1)	Stationary
LHCD	-6.298	-2.938	0.000	I(1)	Stationary
FDI	-9.770	-2.938	0.000	I(1)	Stationary

Note: Test critical values at 5% level of significance.
Source: Author's computation using E-views 10.

Appendix 5. Co-integration rank test.

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.654	83.606	69.818	0.002
At most 1	0.351	42.184	47.856	0.153
At most 2	0.338	25.265	29.797	0.152
At most 3	0.184	9.127	15.494	0.353
At most 4	0.030	1.188	3.841	0.275

Note: **p<0.05= significant at 5% level; *p<0.10= significant at 10% level.
Trace test indicates 1 co-integrating equation (s) at the 0.05 level.