

# The effect of terrorism on tourism development in Nigeria: A note

Tourism Economics

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## Abstract

This article investigated the tourism–terrorism nexus in Nigeria using quarterly time series data within a vector autoregression analytical framework. Unlike extant studies, we gauge the influence of terrorism *shocks* on the tourism sector specifically on the one hand and broadly the response of some key macroeconomic variables on the other hand. Several interesting results ensued. To sum up these findings, we found a negative response of tourism revenues to terrorist incidents over the long haul as well as adverse effects on other key macroeconomic variables. Therefore, government policies to revamp the ailing economy should be complemented with well-tailored counter-terrorism approaches for effectiveness.

## Keywords

Nigeria, terrorism, tourism receipts, vector autoregression

## Introduction

The slump in global oil prices since 2014 has resulted in renewed calls for the urgency of diversification of the Nigerian economy. The debate on the options for expanding both the productive and revenue bases of the economy is far from conclusive. However, for an oil-dependent developing nation like Nigeria which also possesses rich tourism potential, the attempts at diversifying the economy can leverage on the largely untapped opportunities in the tourism industry. With other

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words, tourism is a viable sector that needs to be exploited and well utilized as an integral component of diversification strategy. Aside from this diversification advantage, tourism has also been found to be a trigger of growth across nations of the world (Dritsakis, 2004, Hye and Khan, 2013, Trang et al., 2014). Nonetheless, these opportunities are not without challenges and threats. A key inhibitor of tourism-led diversification in Nigeria is terrorism. There is abundant literature indicative of a retarding effect of terrorism on tourism development specifically (Ahlfeldt et al., 2015, Edmonds and Mak, 2006, Sönmez, 1998) and economic growth at large (Blomberg et al., 2004, Eckstein and Tsiddon, 2003, Enders et al., 2006, Enders and Olson, 2012; Tang and Abosedra, 2014).

To offer some context to the crux of this article, it is noteworthy that in Nigeria, the incidence of terrorism is highest in the Northern part of the country, and such activities have blossomed over the last one decade. A major effect has been the wanton destruction of lives and properties. This turn of events forced the government to devote more resources to internal security. Such funds could have been beneficially used to develop other sectors of the economy. Needless to say, that this severely puts pressure on government revenue and the capacity for provision of necessary social services. Thus, it goes without saying that terrorist attacks in a developing oil-dependent nation like Nigeria is a major clog in the wheel of economic development and overall social transformation.

However, this important terrorism–tourism nexus has received no empirical attention for Nigeria. This is specifically the gap which the present study fills. To delink the Nigerian economy from the vagaries of the international oil markets, a sound diversification plan is required with the tourism sector central to this effort. This research note thus investigates the linkage between terrorist attacks and tourism development in Nigeria and draws plausible implications accordingly.

## Methodology

After verifying the appropriateness of the stationarity and long-run properties of the variables, this study made use of the vector autoregressive (VAR) in estimating the effect of terrorism shocks on tourism, foreign direct investment (FDI), crude oil receipt and output. The VAR model is specified as

$$Z_t = A_0 + A(L)Z_{t-p} + u_t$$

where  $Z_t$  is the vector of the variables (tourism, terrorism, oil revenue, gross domestic product (GDP), and FDI), and serves as the vector of the variables up to the  $p$ th lag length, while  $u_t$  is the vector of error terms. Thus, in the form below

$$\begin{bmatrix} \Delta \text{TOU}_t \\ \Delta \text{TER}_t \\ \Delta \text{OIL}_t \\ \Delta \text{GDP}_t \\ \Delta \text{FDI}_t \end{bmatrix} = \begin{bmatrix} A_{1t} \\ A_{2t} \\ A_{3t} \\ A_{4t} \\ A_{5t} \end{bmatrix} + \begin{bmatrix} A_{11}(L) & A_{12}(L) & A_{13}(L) & A_{14}(L) & A_{15}(L) \\ A_{21}(L) & A_{22}(L) & A_{23}(L) & A_{24}(L) & A_{25}(L) \\ A_{31}(L) & A_{32}(L) & A_{33}(L) & A_{34}(L) & A_{35}(L) \\ A_{41}(L) & A_{42}(L) & A_{43}(L) & A_{44}(L) & A_{45}(L) \\ A_{51}(L) & A_{52}(L) & A_{53}(L) & A_{54}(L) & A_{55}(L) \end{bmatrix} \begin{bmatrix} \Delta \text{TOU}_{t-1} \\ \Delta \text{TER}_{t-1} \\ \Delta \text{OIL}_{t-1} \\ \Delta \text{GDP}_{t-1} \\ \Delta \text{FDI}_{t-1} \end{bmatrix} + \begin{bmatrix} u_{1t} \\ u_{2t} \\ u_{3t} \\ u_{4t} \\ u_{5t} \end{bmatrix}$$

Tourism receipts (TOU), sourced from the World Development Indicators (WDI), were used to proxy tourism. The reason for this is to cover a broad concept of tourism earnings which can serve as a pointer to the prospect of diversifying the economy through the expansion of the tourism sector. Terrorism (TER) is the number of terrorism incidents in the country, sourced from the Global Terrorism Database (GTD). The real GDP and oil revenue (OIL), sourced from the Central Bank of Nigeria (CBN) *Statistical Bulletin*, were used to proxy output and oil, respectively. The FDI is a net inflow, sourced from the WDI. The data span is from 1995Q1 to 2015Q4. The

variables, except terrorism, were sourced in the annual form but were transformed into quarterly data with the approach of Lisman and Sandee (1964).

## **Empirical results**

### *Impulse response*

With focus on the response of tourism to impulses from other variables and also the reactions of other variables to terrorist incidence, the impulse response result of the VAR is presented on this section. The first graph in the panel below, as expected, shows the negative response of tourism to terrorism. This means that the higher the rate of terrorist incidence, the lower tourism revenues will be. Subsequently, there is a convergence to the base line in the long run. This can be attributed to the long-term psychological effects that terrorist attacks have on the perceptions of tourists. The second graph shows that tourism initially reacts positively and later more negatively to a shock in oil revenue. This can be simply because a positive shock in the oil revenue will be used to improve the tourism sector but may later lead to neglecting the tourism sector as a result of quick and huge revenue from the oil sector, thereby leading to a negative long run effect. The result also shows that the shock effects of GDP are mixed and move closely around the base line. On a last note, the shock effect of FDI on tourism is positive, which plausibly reflects the fact that the tourism sector also attracts a decent portion of foreign investments.

The movements depicted in Figure 2 may not be surprising, since economic variables are expected to be negatively affected by terrorist activities. The first graph shows that tourism receipts decline largely as a result of a shock from terrorist attack. The negative response of oil revenue to shocks arising from terrorist attacks is expected to also filter into the reaction of GDP to the same terrorism shocks as seen from the third graph. This is as a result of the nation's heavy reliance on crude oil as the mainstay of the economy. Both the third and fourth graphs show a continuous negative divergence of the GDP and FDI from the baseline, as a result of the terrorist shocks. Nigeria being an oil-dependent nation, coupled with the importance of investment in economic growth, the effects of terrorism on both oil revenues therefore culminate into a larger negative effect on the nation's economic growth. This means that there is a negative GDP reaction to terrorist shocks through the oil revenue and FDI channels.

### *Variance decomposition*

The long-run evidence shows that the variance of a variable can be apportioned to both itself and other variables in the model. Therefore, the variance decomposition, presented in Table 1, looks into how the variances in each of the variables are decomposed.

The decomposition of tourism receipts, as displayed in Table 1, shows that it accounts for all of its variation in the first quarter. By the fifth quarter, besides tourism, terrorism and the oil revenue accounted for more of the variations in tourism to the tune of approximately 2.11 and 2.92%, respectively. Up to the 10th quarter, the variation of tourism attributed to itself continues to decline, while the contribution of other variables continued to increase with more contribution still coming from both terrorism and the oil revenue. It can be concluded from the study that the major contributor to changes in tourism receipt in Nigeria is terrorist incidence. Therefore, policies meant to increase growth through higher tourism receipts should be complemented with efforts to mitigate the incidence of terrorism in the country.

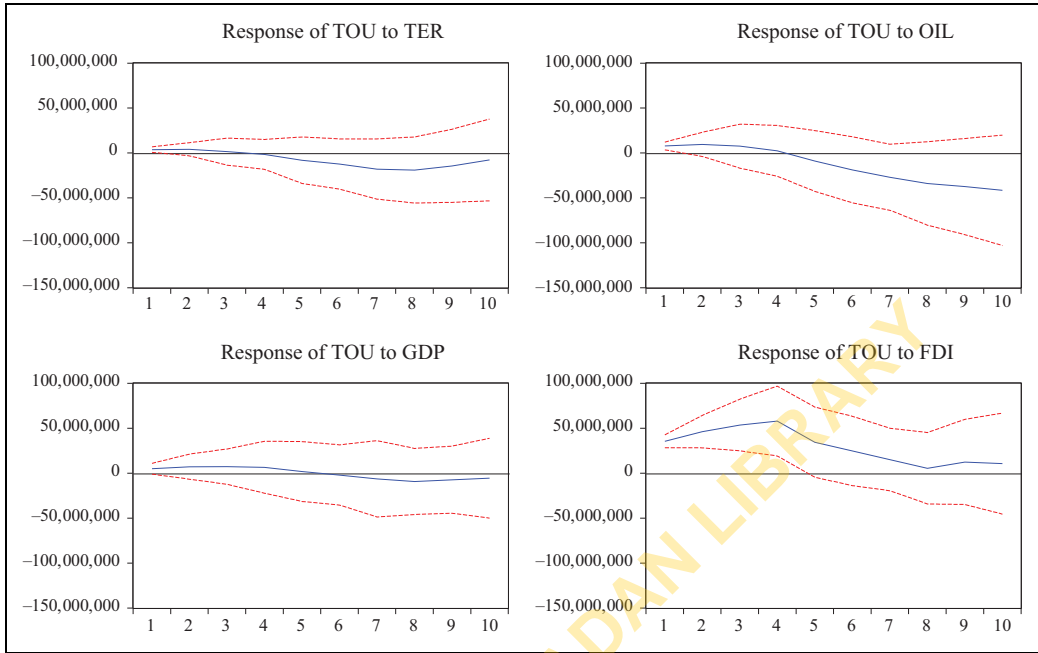


Figure 1. Responses of TOU to shocks from all other variables (Cholesky one standard deviation innovations  $\pm 2$  standard error).

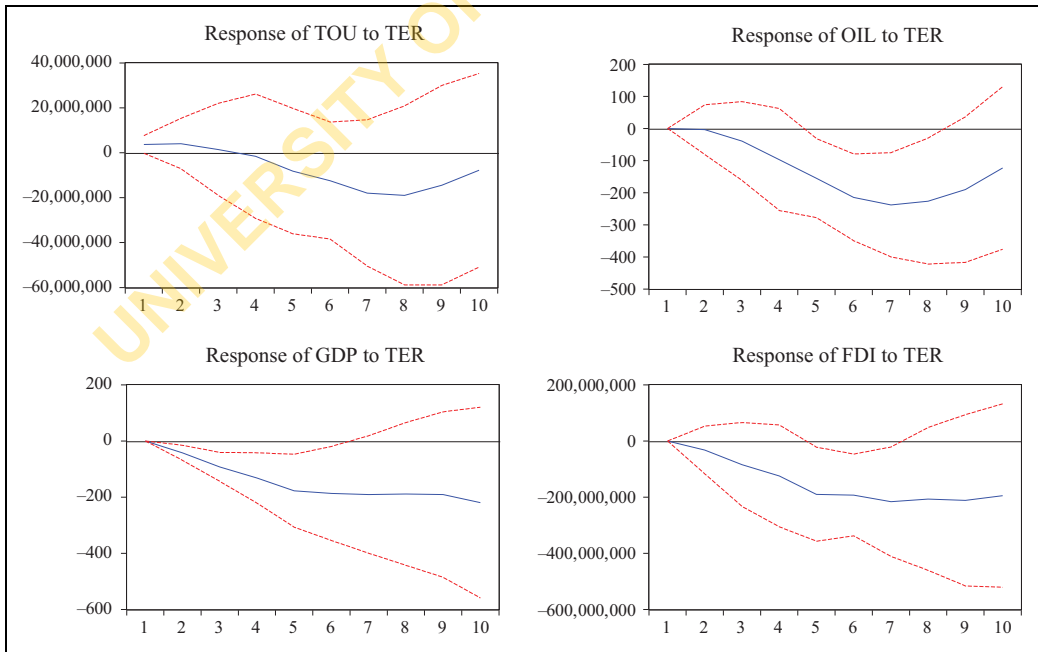


Figure 2. Response of all other variables to shocks from TER (Cholesky one standard deviation innovations  $\pm 2$  standard error).

**Table 1.** Variance decomposition results.

| Periods                       | SE     | TOU      | TER     | OIL     | GDP     | FDI     |
|-------------------------------|--------|----------|---------|---------|---------|---------|
| Variance decomposition of TOU |        |          |         |         |         |         |
| 1                             | 0.1458 | 100.0000 | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| 5                             | 0.3588 | 92.1811  | 2.1124  | 2.9165  | 1.4026  | 1.3874  |
| 10                            | 0.4650 | 78.0401  | 7.4773  | 5.1681  | 5.1677  | 4.1467  |
| Variance decomposition of TER |        |          |         |         |         |         |
| 1                             | 0.2593 | 0.2295   | 99.7705 | 0.0000  | 0.0000  | 0.0000  |
| 5                             | 0.3501 | 1.4731   | 96.8527 | 0.6150  | 0.6659  | 0.3932  |
| 10                            | 0.3695 | 4.0068   | 91.7992 | 0.9035  | 2.6966  | 0.5939  |
| Variance decomposition of OIL |        |          |         |         |         |         |
| 1                             | 0.1151 | 19.9232  | 0.0055  | 80.0713 | 0.0000  | 0.0000  |
| 5                             | 0.4406 | 5.8205   | 5.1822  | 83.5347 | 4.5489  | 0.9137  |
| 10                            | 0.7082 | 2.3029   | 16.3780 | 70.4222 | 8.4173  | 2.4795  |
| Variance decomposition of GDP |        |          |         |         |         |         |
| 1                             | 0.1852 | 3.0804   | 0.8085  | 0.3598  | 95.7514 | 0.0000  |
| 5                             | 0.7393 | 2.8863   | 2.6661  | 0.9907  | 93.3815 | 0.0755  |
| 10                            | 0.8793 | 10.0683  | 7.2086  | 10.7799 | 70.8498 | 1.0934  |
| Variance decomposition of FDI |        |          |         |         |         |         |
| 1                             | 0.4178 | 4.6885   | 5.6221  | 0.4156  | 18.4939 | 70.7799 |
| 5                             | 0.7068 | 17.0386  | 21.1675 | 0.6573  | 19.1043 | 42.0323 |
| 10                            | 0.9428 | 19.0750  | 35.5154 | 1.2839  | 14.6232 | 28.5026 |

Note: SE: standard error; TOU: tourism receipts; TER: terrorism; OIL: oil revenue; GDP: gross domestic product; FDI: foreign direct investment.

Source: Estimated by the Authors.

Besides GDP itself, the decomposition of GDP variance right from the first quarter can be attributed to oil revenue, terrorism, and tourism. These contributions rose overtime to approximately 10.78, 7.21, and 10.07%, respectively, by the 10th quarter. A keen look at the results shows that oil revenue has more prospect of determining more of the variation in GDP in the long run. The contributions of FDI also keep increasing overtime with its highest contribution of approximately 1.09% of the variation in GDP in the 10th quarter. It is also worth noting that the contribution of GDP to the variation of itself decreases as the time period increases. As at the first quarter, the FDI variation is largely attributed to own shocks as well as shocks from GDP and terrorism. The reason for this is not far-fetched; economic performance is a major short run attraction of foreign investments. At the same time, investors typically seek safe havens for their investments.

## Concluding remarks

The Nigerian economy has relied on oil revenues over an extended horizon. The vagaries of the international oil market, especially the recent slump in global oil prices has renewed, focus on efforts to diversify both the economic and attendant revenue bases of the government. The tourism sector has demonstrable potential to function as an option for diversification. However, internal terrorism which has become rampant in the last few years remains an obvious threat to the deployment of tourism for growth and economic development in Nigeria. Therefore, this article empirically examined the influence of terrorism on the performance of the tourism sector using

quarterly data spanning the years 1995–2015. To reflect the unanticipated nature of these terrorist incidents, in the main, we elected to work within a VAR framework. The impulse response functions (IRFs) generated are useful for gauging the impact of terrorism shocks on tourism specifically and a set of other macroeconomic variables. Complimentarily, the variance decomposition (VDC) is used to augment the findings from the IRFs. Summarily, we found a negative response of the tourism sector to terrorist activities. This effect is persistent plausibly owing to the substantial reduction of both oil revenues and foreign direct investment as indicated by the VDC results. Terrorism equally had a debilitating influence on the other key macroeconomic factors. Hence, the present concerted efforts to curb the activities of insurgent groups within the country need to be better coordinated in order to eradicate terrorist activities in Nigeria and promote tourism development. One clear policy direction is to get a well-founded tourism policy for Nigeria to begin with. Following this decisive step, counter-terrorism approaches can then be effective complements.

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