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Economic Policy Uncertainty Index for Nigeria

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Abstract

We construct an index of economic policy uncertainty (EPU) for Nigeria following the news-based approach developed by Baker et al. (2016). The index is based on news articles published by five Nigerian newspapers over the period May 2009 – June 2023. The computed index tracks major events in the country, increasing during periods of higher uncertainties around key economic and political developments. For instance, the terrorist activities of 2011, negative oil price shocks of 2014, the economic recession of 2016, the COVID-19 pandemic, and the country's election cycles were associated with higher levels of the index. The computed index is useful for economic and policy analyses.

Keywords: News, Policy Uncertainty, Economic Developments

JEL Classification: C43, D89, L38

1.0 Background

The methodology for computing the news-based measure of EPU was developed in the seminal work of Baker *et al.* (2016). The approach is based on standard statistical operations conducted on the counts of keywords pertaining to “economy”, “policy”, and “uncertainty” appearing in news articles published by carefully selected newspapers. The EPU is a useful measure of the prevailing underlying uncertainties around economic policy as it measures uncertainty from the perspective of economic agents.

The EPU index computed for Nigeria in this paper is based on news articles published in five major newspapers in the country, namely: Daily Trust, The Punch, Guardian, Business Day and Thisday. As useful as an index of economic policy uncertainty is for economic analysis, only

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28 countries have had their EPU indices computed and featured on the website¹ hosted by Baker *et al.* (2016). To our knowledge, this effort represents the first attempt at computing a news-based EPU for Nigeria following the approach developed by Baker *et al.* (2016).

The rest of the paper is structured as follows. In the next section, the details of the methodology adopted for computing the EPU index are discussed. The computed index is presented in Section 3 while Section 4 concludes the paper.

2.0 Data and Methodology

2.1 Data

We developed a database of news articles published between May 2009 and June 2023 by Daily Trust, The Punch, Guardian, Business Day and This Day. A major distinguishing feature of these papers is that they have national coverage and feature articles on a wide range of topics. Overall, the database comprises 1,427,928 articles published online. Of the total number of downloaded articles, 549,429 (about 38.5%) contained at least one word each relating to Economy (E), Policy (P), and Uncertainty (U) simultaneously.

2.2 Index Computation

Following the approach outlined in Baker *et al.* (2016), we classify an article as indicating uncertainty if it contains at least one keyword from each of three categories. These are Economy (**E**), containing keywords related to the economy; Policy (**P**), containing keywords related to policy; and Uncertainty (**U**), containing keywords related to uncertainty. An article fulfilling these conditions is marked an EPU article and is assumed to convey useful information regarding economic uncertainty.

Once the articles have been marked, the daily count of such marked articles are aggregated and normalised to obtain monthly series of uncertainty. Baker *et al.* (2016) published their index of economic policy uncertainty (EPU index) for the US using a standard list of words for each category. However, given the idiosyncrasies of the Nigerian economy, we added other carefully selected keywords that reflect additional sources of uncertainties in the country, especially in the light of the following:

¹ <http://www.policyuncertainty.com/index.html>

- i. The country's level of economic and infrastructural development and the role of relevant authorities in implementing both traditional and non-traditional approaches to address legacy infrastructural constraints.
- ii. The predominant role of oil as a major source of export earnings and government revenue as well as the vulnerabilities of the economy to the vagaries of the international crude oil market.
- iii. The spate of economic uncertainties induced by political instabilities, insecurity, and the COVID-19 pandemic.

In view of the above, the EPU index presented in this paper was computed based on the keywords presented in Table 1. This approach rests on the appearance of specific terms in a news article, presuming that the frequency of use of such words is a reflection of the level of economic uncertainty.

Table 1: List of keywords

Economy (E)	Policy (P)	Uncertainty (U)
economic, economy, econ, crude oil, pms, premium motor spirit, gdp, gross domestic product, financial, commerce, progress, expectation.	trade, external reserve, disburse, rt200, naira for dollar, intervention, development, economic sustainability plan, stimulus, support, regulation, regulate, central bank, cbn, deficit, tax, revenue, budget, firs, federal inland revenue service, subsidy, faac, national assembly, senate, house of rep, house of representative, monetary policy, mpr, cash reserve requirement, crr, exchange rate, legislation, tariff, politic, policy, fiscal, public spending, public debt, ministry of finance, international trade, structural reform, government, supreme court, president, minister, international monetary fund, imf, unemployment, inflation, finance, council of state, stock exchange, securities and exchange commission, sec, regulatory framework, government spending, law, bill, world trade organization, wto, devaluation, devalue, hike.	uncertainty, uncertainties, contagion, fear, hostilities, pressure, downgrade, insecurity, scarcity, spillover, dilemma, election, boko haram, insurgency, war, uncertain, unpredictable, unclear, unstable, threat, tension, provocation, concern, vagueness, doubt, volatile, turmoil, not certain, risk, not reliable, non-reliable, crisis, instability, shock, headwinds, covid, corona virus.

In computing the index, the first step involves counting the number of articles marked as *EPU* in each month and dividing the same by the total number of articles in the month. The procedure is outlined as follows:

- i. Let S_{it} represent the scaled EPU frequency for newspaper $i = 1, 2, \dots, 5$ in month t . Let T_{1i} be the time intervals for each newspaper and T_2 represent the time interval for the sample period, May 2009 to June 2023. Thus,

$$S_{it} = \frac{epu_count_{it}}{total_article_{it}} \quad (1)$$

- ii. Obtain a standardized series N_{it} , by taking the ratio of S_{it} and its standard deviation (σ_i) in the interval T_{1i} as follows:

$$N_{it} = \frac{S_{it}}{\sigma_i} \quad (2)$$

The series N_{it} for each paper $i = 1, 2, \dots, 5$ has a unit standard deviation in the interval T_{1i} .

- iii. Combine the standardized series N_{it} computed for each newspaper by computing the mean (simple average) for each month to get a new series M_t .

$$M_t = \frac{\sum_{i=1}^n N_{it}}{n} \quad (3)$$

- iv. Compute μ , which is the mean value of M_t over the period T_2 .
- v. To obtain the EPU series, the series M_t is normalized by multiplying it by $(100 / \mu)$ for all t .

$$EPU_t = \frac{M_t}{\mu} * 100 \quad (4)$$

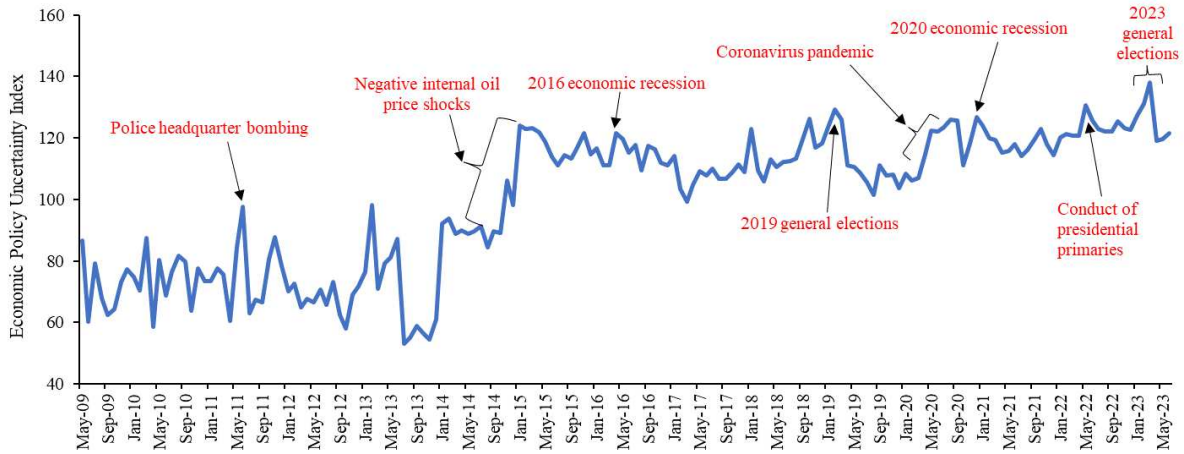
3.0 The Computed EPU Index

Figure 1 shows the computed news-based EPU index for Nigeria. The index remained relatively lower, though quite volatile, in the period preceding the decline in the international price of oil in 2014. The persistent decline in oil price led the country into an economic recession in 2016. This underscores the potential implications of uncertainties arising from international sources for domestic uncertainties in small open resource-rich economies.

It is further observed that the EPU spikes around periods of significant domestic and international events, demonstrating its usefulness to capture important occurrences that are anticipated to increase economic uncertainty in the country. These include the spikes in the index arising from increased insecurity in the country as typified by the bombing of police headquarters in June 2011, the uncertainties associated with the decline in global oil price that

commenced in 2014, the economic recession of 2016, and the occurrence of the COVID-19 pandemic in Nigeria during early 2020.

Figure 1: EPU Index for Nigeria



Furthermore, elevated levels of uncertainties were recorded during periods of the country’s general elections of 2019 and 2023.

4.0 Conclusion

This paper documents the procedure adopted for computing a news-based economic policy uncertainty index for Nigeria following the technique enunciated in Baker *et al.* (2016). Utilising news articles sourced from five national newspapers in the country, we found that the computed index tracked major events contributing to economic uncertainties in the country. Starting from September 2014, the index showed elevated uncertainties largely due to the oil price volatilities that began in 2014 and led the Nigerian economy into recession in 2016. Notably, elevated uncertainties were also recorded during periods of elections in the country. It is hoped that researchers and policy makers will find the computed index useful for economic and policy analyses.

References

Baker, S., Bloom, N. and Davis, S. J., (2016). Measuring economic policy uncertainty. *Quarterly Journal of Economics*, 131(4), pp. 1593-1636.