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Economic Policy Uncertainty Index for Nigeria¹

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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 April 2016 – 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 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 outlined 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 28 countries have had their EPU indices computed and featured on the website² hosted by

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² <http://www.policyuncertainty.com/index.html>

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 for Nigeria 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 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 during the period May 2009 – June 2023.

Table 1: List of keywords

Economy (E)	Policy (P)	Uncertainty (U)
economics, economy.	monetary policy, fiscal policy, central bank, cbn, firs, federal inland revenue service, policymakers, subsidy, ministry of budget and national planning, ministry of finance, regulation, national assembly, senate, house of representatives, deficit, government, reserves, taxes, tariffs, legislation.	uncertainty, uncertain, unpredictable, unclear, unstable.

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 assumed to convey useful information regarding economic policy uncertainty. Baker *et al.* (2016) published the index of economic policy uncertainty (EPU index) for the US using a standard list of words for each category. The EPU index presented in this paper was computed based on the keywords selected in line with Baker *et al.* (2016). However, as shown in Table 1, a few adjustments were made to accommodate the idiosyncrasies of the Nigerian situation.

Table 2: Summary of Data Utilized for Index Computation

S/N	Newspaper	Total Articles retrieved	Articles classified as EPU related	Data Span
1	Daily Trust	373,984	1010	May 2009 - June 2023
2	Guardian	326,561	2694	January 2015 - June 2023
3	BusinessDay	129,354	3174	January 2014 - June 2023
4	Punch	342,236	1189	February 2016 - June 2023
5	This Day	255,793	2558	April 2016 - June 2023
Total		1,427,928	10,625	May 2009 – June 2023

Of the downloaded articles, a total number of 10,625 (about 0.744%) were found to contain at least one word each relating to Economy (E), Policy (P), and Uncertainty (U) simultaneously. Once the articles have been marked, the daily count of such marked articles are aggregated and normalised to obtain monthly series of uncertainty. A summary of the number of articles classified as EPU-related is presented in Table 2.

Given the variation in the data span for the selected five papers, we computed two variants of the index, with the benchmark index (*EPU-1*) covering a data span that is common to the five papers. Thus, the benchmark index presented in Section 3 covered the period April 2016 - June 2023. The second variant, *EPU-2*, with a longer data span is based on articles published by BusinessDay and Guardian newspapers over the period January 2015 – June 2023.

2.2 Index Computation

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 remaining steps for computing the index are 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 benchmark EPU index for Nigeria, *EPU-1*. It is observed that the index spiked around periods of significant domestic and international events, demonstrating its usefulness for capturing important occurrences that are anticipated to increase economic uncertainty in the country. The index increased during the periods of significant policy change, economic recession, general elections, and the occurrence of the COVID-19 pandemic.

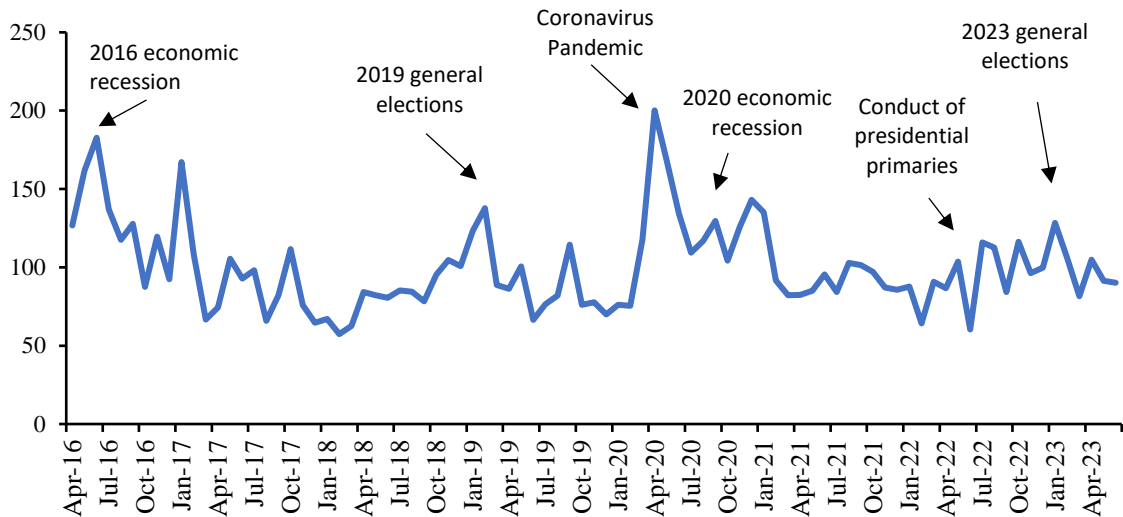


Figure 1: EPU-1 Index for Nigeria

The index showed elevated levels of uncertainty in June 2016, coinciding with the 2016 economic recession induced by the oil price decline that began in 2014. This underscores the potential roles of uncertainties arising from external sources in driving domestic uncertainties in small open resource-rich economies. As the economy rebounded, the index trended downwards reaching its lowest point in February 2018. The index rose systematically, starting from March 2018, indicating rising uncertainty in the lead up to the 2019 general elections.

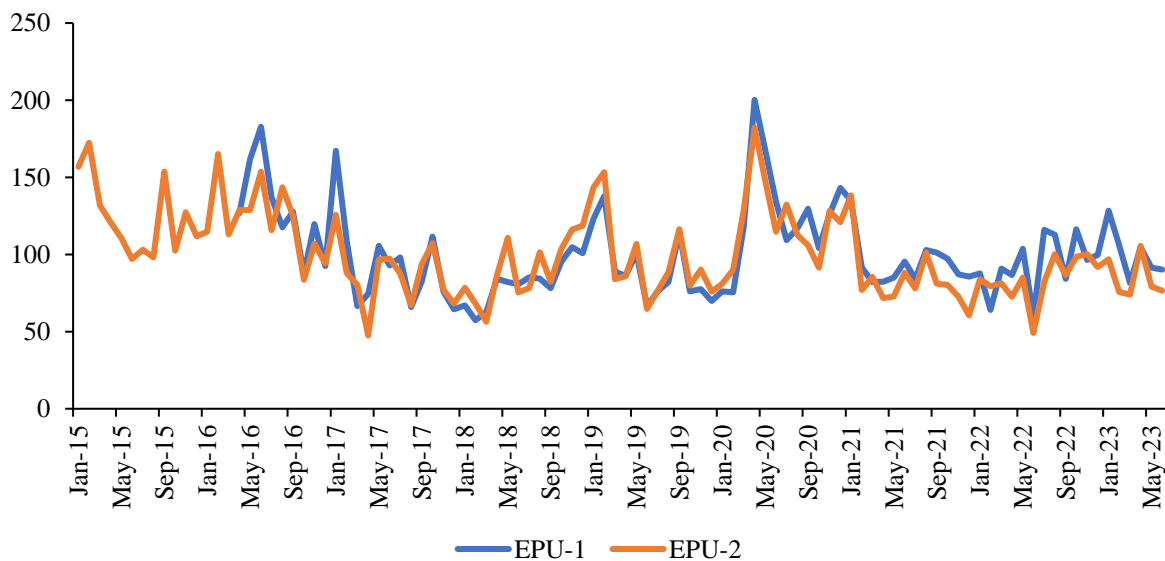


Figure 2: Time series plot of EPU-1 and EPU-2 indices for Nigeria

The second variant of the index, *EPU-2*, exhibited a similar trend with the benchmark index (Figure 2), highlighting the importance of the identified drivers of policy uncertainty in the country. Table 3 in the Appendix presents the series for *EPU-1*.

5.0 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. Notably, elevated uncertainties were recorded during periods of elections, significant policy change, and economic recessions in the country. The index also showed higher uncertainty during the COVID-19 period. 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.

Appendix

Table 3: Computed Economic Policy Uncertainty Index for Nigeria

Month	EPU-1 Index	Month	EPU-1 Index	Month	EPU-1 Index
Apr-16	126.7891	Jul-19	76.3837	Oct-22	116.3333
May-16	161.7351	Aug-19	82.0548	Nov-22	96.3924
Jun-16	182.6993	Sep-19	114.4496	Dec-22	99.6951
Jul-16	137.0290	Oct-19	76.0410	Jan-23	128.3056
Aug-16	117.5340	Nov-19	77.6403	Feb-23	105.9278
Sep-16	127.8039	Dec-19	69.9688	Mar-23	81.5791
Oct-16	87.4352	Jan-20	76.1115	Apr-23	104.8037
Nov-16	119.6786	Feb-20	75.4634	May-23	91.4860
Dec-16	92.5072	Mar-20	117.6020	Jun-23	90.1396
Jan-17	167.2585	Apr-20	200.1797		
Feb-17	108.5578	May-20	167.9599		
Mar-17	66.6357	Jun-20	134.2498		
Apr-17	74.4692	Jul-20	109.3110		
May-17	105.5857	Aug-20	116.8785		
Jun-17	92.8930	Sep-20	129.6303		
Jul-17	98.1106	Oct-20	104.1783		
Aug-17	65.9115	Nov-20	125.8070		
Sep-17	82.2415	Dec-20	143.0581		
Oct-17	111.5679	Jan-21	135.0230		
Nov-17	75.8434	Feb-21	91.6071		
Dec-17	64.5747	Mar-21	82.2128		
Jan-18	66.9816	Apr-21	82.4185		
Feb-18	57.3946	May-21	84.9853		
Mar-18	62.6198	Jun-21	95.4074		
Apr-18	84.1383	Jul-21	84.2010		
May-18	82.1292	Aug-21	102.8154		
Jun-18	80.6045	Sep-21	101.3093		
Jul-18	85.2386	Oct-21	97.2031		
Aug-18	84.3573	Nov-21	87.1607		
Sep-18	78.2646	Dec-21	85.5769		
Oct-18	95.1801	Jan-22	87.7032		
Nov-18	104.6846	Feb-22	64.1207		
Dec-18	100.7636	Mar-22	90.8539		
Jan-19	123.2000	Apr-22	86.6467		
Feb-19	137.7589	May-22	103.6078		
Mar-19	88.7884	Jun-22	60.3098		
Apr-19	86.2844	Jul-22	115.9508		
May-19	100.6205	Aug-22	112.7383		
Jun-19	66.5078	Sep-22	84.1403		