Analysis of Voter Apathy During 2011, 2015, and 2019 Presidential Elections in Nigeria

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Abstract — **This paper compares the average level of voter apathy across six-geopolitical zones in Nigeria for the 2011, 2015, and 2019 Presidential elections of Nigeria. The two-way analysis of variance (ANOVA) method was used for data analysis. It was observed that the average level of voter apathy during the 2011, 2015, and 2019 Nigeria presidential elections were not the same across the years under study. However, there is no statistical evidence to show that voter apathy across the six geopolitical zones is different.**

Keywords - *Non-informative priors, Exponentiated Gumbel type-2 distribution, Bayesian approximation, R-software, random censoring.*

I. INTRODUCTION

The Merriam-Webster dictionary defines a democratic system of government as a form of government in which supreme power is vested in the people and exercised by them directly or indirectly via a system of representation sometimes involving periodic free elections. In view of this definition, voting is very essential in every democratic system. Through voting, electorates are allowed to carefully choose candidates that will represent them efficiently and effectively at local, state, and federal levels of government. Consequently, voters are seen as kingmakers in every democratic system of government. In fact, it is only through their votes that winners of various elective positions emerge.

Since 1999 Nigeria has been practicing uninterrupted democratic rule. Elections have been conducted by the Independent National Electoral Commission (INEC) for the sole aim of fair selection of representatives at the local, state and federal levels of government. One of the most challenging elections in Nigeria has been the Presidential election, which is held across the country simultaneously.

Obviously, the Nigerian presidential election has been greatly affected by a high level of voter apathy. By voter apathy, we mean the lack of involvement of electorates in the voting process on purpose. Voter apathy may also be referred to as a state whereby eligible voters do not come out to vote (Yakubu, 2012). It is the decline in the involvement of the citizens of a given country in the political system (Arowole and Aluko, 2010). Voter apathy denotes the absence of a feeling of personal obligation to participate in the electoral process (Crewe et al, 1992). Similarly, Cloud (2010) mentioned that voter apathy occurs when eligible voters do not vote in public elections. Voter apathy thus results in low voter turnout.

According to Jega (2014), a high degree of voter apathy exists in Nigeria and such voter apathy has negative impacts upon the electoral process and its outcome. For instance, the general election in Nigeria has a record of voter apathy with a voter turnout of 36% in 2019; 43% in 2015; 54% in 2011 57% in 2007; 69% in 2003, and 52% in 1999 respectively. He further stated that any serious effort at electoral reforms to bring about free, fair, and credible elections must take into account the challenges of voter apathy. Jega (2014) posits that INEC needed to do a study on the nature, causes, dimensions, and consequences of voter apathy, to be adequately knowledgeable in planning future approaches to tackle its challenges within the Nigerian context.

Further, (INEC and FES, 2014) stressed that a country like Nigeria, trying to deepen democracy after a long history of authoritarian military rule, must have well conceptualized and carefully designed strategies for mobilising people for popular participation and effective engagement in the electoral process. In doing this, peoples' perceptions and attitudes have to be studied, analysed, understood, and taken into consideration.

Undoubtedly, voter apathy does not guarantee a reliable democratic system because the main kingmakers

did not fully participate in choosing their preferred leaders due to reasons best known to them. Voter apathy is now a canker-worn that has eaten deep into the Nigerian election and reduced the development of Nigerian democracy. To this end, several studies have been carried out to determine the main reasons for a high level of voter apathy in Nigeria during presidential elections. Notable among the reasons include broad psychological factors and collective memory of historical and contemporary events, patterns of trust, feelings of efficacy, political engagement and disengagement at individual, group, and regional levels, failed promises on the part of the previously elected government officers, poor voter education, violence, poor voter registration process which deprives, inadequate security during elections, bribery and electoral corruption(Verba et al., 1978; Mason et al., 1991; Thomas 2004; Margurn 2003; Falade 2008).

Worried by the high degree of voter apathy in Nigeria's presidential elections and its effect on democracy, this work becomes necessary. The ultimate objective of this work is to compare the average level of voter apathy during the 2011, 2015, and 2019 Nigeria presidential elections across the years. The rest of the paper is unfolded as follows: Section 2 deals with the materials and methods.

In Section 3, the results are discussed. Finally, Section 4 gives the concluding remarks.

II. MATERIALS AND METHODS

2.1 Data

This study collected data from the Independent National Electoral Commission (INEC) on the number of registered voters, the number of votes cast, percentage of voters' turnout, and voter apathy across the 36 states and the Federal Capital Territory (FCT)for the 2011, 2015 and 2019 Nigeria Presidential elections respectively. The data were further classified into six-geopolitical zones of Nigeria (North-East, North-West, North-Central, South-East, South-West, and South0South) across the years under investigation.

2.2 Analytic technique

In order to compare the average level of voter apathy across the six geopolitical zones for the 2011, 2015, and 2019 Nigeria Presidential elections, this word adopted the two-way analysis of variance technique for data analysis. Table 1 gives a layout of the data used in this work.

Table 1: Layout of Data for a two-way analysis of variance

Factor A (Year)	Factor B (Geo-political zone)				Totals, $X_{i.}$	Averages, $\overline{X}_{i.}$
	1	2	$\cdots$	b		
1	X_{11}	X_{12}	$\cdots$	X_{1b}	$X_{1.}$	$\overline{X}_{i.}$
2	X_{21}	X_{22}	$\cdots$	X_{2b}	$X_{2.}$	$\overline{X}_{i.}$
$\vdots$	$\vdots$	$\vdots$	$\ddots$	$\vdots$		
a	X_{a1}	X_{a2}	$\cdots$	X_{ab}	$X_{a.}$	$\overline{X}_{a.}$

Source: Rangaswamy (2010).

In line with Rangaswamy, R. (2010), the response of the jth geo-political zone in the ith year may be represented by the statistical model

$$X_{ij} = \mu + \alpha_i + \beta_i + e_{ij} \quad \begin{cases} i = 1, 2, ..., a \\ j = 1, 2, ..., b \end{cases} \quad (1)$$

where

X_{ij} represents the jth geo-political zone voter apathy for i^{th} election year

μ represents the overall mean of voter apathy

α_i denotes a measure of ith effect of election year on voter apathy

β_j is a measure of jth effect of geo-political year on voter apathy

e_{ij} represents a random error component

Equation(1) is called a two-way analysis of variance model because only two factors (election year and geo-political zone) are investigated.

The name analysis of variance is derived from a partitioning of total variability into its component parts.

Montgomery(2013) partitioned the total corrected sum of squares as

$$SS_T = SS_A + SS_B + SS_E \qquad (2)$$

where

$$SS_T = \sum_{i=1}^{a}\sum_{j=1}^{b}\left(X_{ij} - \bar{X}_{..}\right)^2 = \sum_{i=1}^{a}\sum_{j=1}^{b} X_{ij}^2 - \frac{X_{..}^2}{ab}$$
$$(3)$$

$$SS_A = \sum_{i=1}^{a}\sum_{j=1}^{b}\left(X_{i.} - \bar{X}_{..}\right)^2 = \frac{1}{b}\sum_{i=1}^{a} X_{i.}^2 - \frac{X_{..}^2}{ab}$$
$$(4)$$

$$SS_B = \sum_{i=1}^{a}\sum_{j=1}^{b}\left(X_{.j} - \bar{X}_{..}\right)^2 = \frac{1}{a}\sum_{i=1}^{a} X_{.j}^2 - \frac{X_{..}^2}{ab}$$
$$(5)$$

$$SS_E = SS_T - SS_A - SS_B$$
$$(6)$$

Dividing Equation(4) by the degrees of freedom for election years,we obtain the mean square treatment given as

$$MS_A = \frac{SS_A}{(a-1)} \qquad (7)$$

Dividing Equation (5) by the degrees of freedom for geo-political zone,we obtain the mean square treatment given as

$$MS_B = \frac{SS_B}{(b-1)} \qquad (8)$$

Dividing Equation (6) by the degrees of freedom for error, we obtain the mean square error given as

$$MS_E = \frac{SS_E}{a(b-1)} \qquad (9)$$

Dividing Equation (7) by Equation (9), one obtains the test statistic for testing the effect of election years on voter apathy

$$F_A = \frac{MS_A}{MS_E} \qquad (10)$$

Similarly, a division of Equation (8) by Equation (9), yields the test statistic for testing the effect of geo-political zone on voter apathy

$$F_B = \frac{MS_B}{MS_E} \qquad (11)$$

The test procedure is summarized in Table 2, called the Analysis of Variance table.

Table 2: The Analysis of Variance Table for Two-Way, Fixed Effects Model

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F_0
Factor A	$a-1$	SS_A	MS_A	F_A
Factor B	$b-1$	SS_B	MS_B	F_B
Error	$a(b-1)$	SS_E	MS_E	
Total	$ab-1$	SS_{Total}		

Notice that the null hypothesis, H_o would be rejected if

$$F_0 > F_{cal.} \qquad (12)$$

where F_o is computed from Equations (10) and (11) and $F_{cal.}$ is obtained from the F-table at a specified α- level. Alternatively, we could use the p-value approach for decision making, such that we should reject H_o if p-value < α.

Note: If H_o is rejected, we shall conclude that there are differences in the average level of the voter apathy. This will invariably imply that the average level of voter apathy is significantly influenced by the factors (election years and geo-political zone of the voters)

2.3 Model Adequacy Checking

The usual interpretation of the analysis of variance is valid only when the basic assumptions underlying the analysis of variance model are met. Thus, before undertaking an analysis of variance using the model given in Equation (1), it is worthwhile to first verify that the data to be analyzed satisfies the assumptions of normality, homogeneity and independence.

Consequently, the Shapiro-Wilks test for normality was used and the result shows that computed the p-values (0.5438,0.1971 and 0.3878) for 2011, 2015 and 2019 respectively, are each greater than the significant level of 0.05. Thus, the data on voter apathy satisfies the normality assumption.

Also, the Levene's test for homogeneity of variance showed that for the 2011, 2015 and 2019 election years, the p-values are greater than 0.05 level, indicating that the constant variance assumption is valid. The runs test also showed that the data is not random and thus the independence assumption is violated.

III.   Results and Discussion

Applying Equations (3)-(11) to the research data one obtains the results in Table 3

Table 3: ANOVA for voter apathy across the six-geopolitical zones of Nigeria for the 2011, 2015 and 2019 Presidential elections

SV	DF	SS	MS	F-ratio	F-critical	Remarks
A (Year of election)	2	1017.11	508.56	4.931	4.10	Significant
B (Geopolitical zones)	5	458.88	91.78	0.89	3.33	Significant
Error	10	1034.09	103.09			
Total	17	2510.09				

From Table 3, it is evident that $F = 4.93 > F_{0.05,2,10} = 4.10$. In view of this, we reject the null hypothesis H_0 and infer that there is average level of voter apathy between the years of election under investigation are significantly different.

In a similar way, we observe for the geo-political zone that $F = 0.89 < F_{0.05,5,10} = 2.33$. Consequently, we accept the null H_0 and remark that there the average level of voter apathy between the geopolitical zones is statistically the same.

IV.   Conclusion

In this study, the two-way analysis of variance technique was used to compare the average level of voter apathy in Nigeria Presidential elections for the 2011, 2015 and 2019 election years. The results of this study support the claim of several researchers who opined that there is clear difference in the voter apathy recorded over the years in during Nigerian Presidential election.

In accordance with the findings made in this work it is recommended that the electoral body should ensure improve voter education to educate the masses on the importance of voting so as to deepen Nigeria's democracy.

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