

# The Ugly Side Of Sentimental Politics: The Nigeria Situation Using Statistical Model

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**Abstract**—This paper focused on the problems of politicians and political parties in Nigeria towards the electorates. Four political parties were used to infer information on what the voting populace considers when casting their vote. The contingency table, the Chi squared, the likelihood ratio Chi squared and the Cramer's V were used. The analysis revealed the rejection of the null hypothesis indicating the acceptance of the alternate hypothesis. This result indicated that the voting age in Nigeria will willingly cast their vote to aspirants and political parties whose ideology is based on development and internal democracy. This implies outright rejection of political parties whose ideology is based on regional and religious sentiment. The Cramer's V suggested that there is strong association between the profiles and the political parties. In other words, the profiles of the political party are direct manifestation of the aspirant's ideology.

**Keywords**—Development; Sentiment; Contingency Table; Chi squared; Cramer's V

## I. INTRODUCTION

Authorities in political science have defined politics in different ways. The Abraham Lincoln's definition is assumed accepted universally. While the western nations observed that democratic system is a way to utilize the resources of the nation for the benefit of their citizens, the contrary is the case for the handlers of democratic power in Africa. The African political handlers with special emphasis on NIGERIAN POLITICIANS assumed it is the easiest way to enrich themselves and their cronies. This study focuses on the Nigeria political party's future as most Nigerians are well informed on the abuse of power, gimmick and resources mismanagement. The voting age in Nigeria has realized that they are the only weapon to elect credible, resourceful and issued based leaders and while performing this civic responsibility the unscrupulous and recalcitrant politicians are voted out. The alignment to achieve the above is focused on the following characteristics otherwise called profiles which the voting age has considered vital in casting their vote in subsequent election in Nigeria. They are:

(1) development (2) regional sentiment (3) religious sentiment (4) internal democracy. The survey revealed that Nigerians are keen on development and internal democracy as against regional and religious sentiments. To provide a reliable results and analysis, the statistical technique is applied.

Conventionally, contingency table is viewed as a generalized theory of association. In recent time, contingency tables are often used in statistical analysis to interpret relationships between two or more categorical variables [1-3]. The Chi-squared test is a hypothesis testing technique that produce statistics that is approximately distributed as the Chi squared distribution [4]. It is advisable to apply contingency table and chi squared test before decisions are taken, this is due to the information it reveals about the system understudy.

Though, the conventional chi squared and the likelihood ratio chi squared statistics is computationally complex when  $k = 4$  which can though be computed since the model is not expressed in multiplicative pattern and the maximum likelihood estimates of the expected value cannot be written as a closed form expression of the observed values [5, 6]. Basically, the objective of this study is to infer information on what the electorate may desire to cast their votes to aspirants and political parties. Before we proceed to discuss the statistical aspect of this discussion, we should be quick to realize that we are applying the chi square and the contingency table to infer information regarding the intuitions of the electorate towards the political parties under discussions. Though, the paper is intended to provide basic political party performance with reference to the achievements and conceptual sentiments the political party operators demonstrate. In this discussion, we intend to provoke and ransack the intelligent of the electorate via questionnaires. We will be quick to say that the conceptualization of this paper was coin prior to the Nigeria general election, therefore, the prediction and outcome is prior to the general election time and hence the election.

An over view of contingency table is described in Section Two while the methods are reported in Section Three. Section Four contains analysis and discussion while Section Five contains conclusion.

## II. CONTINGENCY TABLE

The term contingency table was initially applied by Pearson around 1904, the emphasis was based on the theory of association[7]. The contingency table is also called the frequency table, a table of count [8]. A contingency table, though depending on the number of rows and columns can be denoted and defined in a matrix form,

Table 1: General Form of Contingency Table

T/Y	1.....CC	Σ
1	n <sub>11</sub> .....n <sub>1cc</sub>	n <sub>1.</sub>
.....	.....	.....
rr	n <sub>r1</sub> .....n <sub>rcc</sub>	n <sub>r.</sub>
Σ	n <sub>.1</sub> .....n <sub>.cc</sub>	n

Let  $n$  be the total sample sized in the observations which are categorized as  $T$  and  $Y$ , these categories appeared as  $T_i, i = 1, 2, \dots, rr$  and  $Y_j, j = 1, 2, \dots, cc$ . as described in the above table. Note that the values of  $n_{ij}$  denotes the observed values, where  $n_{i.}$  and  $n_{.j}$  denotes the row and column sums respectively [9]. In cases,  $n_{i.}$  and  $n_{.j}$  are called the marginal count [10, 11]. The probabilities of the observed values based on each cell is computed and denoted by

$$\hat{p}_{ij} = \frac{n_{ij}}{n}, n = \sum_{ij=1}^m n_{ij}. \quad (1)$$

## III. METHODS

### A. The chi square

The chi squared statistics reveals the difference between the observed values and the expected values. The formula below describes the computation of the expected value  $E_v$  useful to the computation of the chi squared

$$E_v = \frac{m_i \times l_j}{n}, \quad (2)$$

where  $m_i, l_j$  denotes the row and column and  $n$  is the total sample size. Based on the expected value and the observed value  $O_v$  the chi squared is obtained as follows

$$\chi^2 = \frac{\sum_{i=1}^{m_i} \sum_{j=1}^{l_j} (O_v - E_v)^2}{E_v}. \quad (3)$$

The chi squared test statistics is approximately distributed as  $\chi^2$  on  $(m-1)(l-1)$  degrees of freedom[4]. Note that the chi square statistics is

approximated by the chi square distribution, thus this approximation is affected with small expected value. Howell observed that when the expected value is small, the chi square statistic is discrete. Thus, the accepted rule with respect to the minimum expected value should be at least five. However, the minimum of 'five' is a rule of thumb posited by [12] which he admitted can be "chosen arbitrarily". Note that large value of the chi squared value reveals that the profile variables are not independent otherwise dependent. However, the larger the chi squared value the stronger the association[3].

Note that if the observed and the expected values are equal, the chi square value is zero. Suppose that the chi square value is zero, this implies that there is nothing to compare, hence the issue of independent between profile variables is immaterial at this conclusion. Sure, it will be meaningless implies the comparison between the computed chi square value to the table value of the chi square using well established level of significant. This process leads to un-interpretable result, though such cases are very rear in practice.

### B. The likelihood ratio chi square

The likelihood ratio chi squared statistics is suitable for the 4 by 4 contingency table and is designed based on the likelihood of the data set with respect to the null hypothesis[4]. This procedure is defined as

$$w^2 = 2 \sum \left[ O_v - v_{ij} \left( \log \left( \frac{O_v - v_{ij}}{E_v - v_{ij}} \right) \right) \right]. \quad (4)$$

The uniqueness of this technique is that for large dimensional table, such contingency table can be decomposed into smaller tables. It was observed that as the sample size increases the chi squared and the likelihood chi square statistics converges. In some situation, the likelihood ratio chi square is more reliable and useful in some situation than the Pearson chi square, this is so because the likelihood ratio chi square often give lower values in some cases than the Pearson chi square [11].

### C. The Cramer's V

The Cramer's V procedure is applicable to compare association. The Cramer's V is defined as

$$V_v = \sqrt{\frac{\chi_{xx}^2}{n(\min(m-1)(l-1))}}.$$

Thus, the values of this method is in the interval of zero and one, in which case, the maximum is attained for maximum association[13].

Hypothesis

$H_n$  : Vote against political party whose ideology is based on religious and regional sentiment:

$H_A$  : Vote for political party based on development and internal democracy.

Basically, the chi square computation and the hypothesis will revealed if whether the null hypothesis is independent of the alternate hypothesis or otherwise[11]. In this case, the Chi square statistic is applied to compare and test the chi square distribution to determine independence of the political parties based on the profiles used.

IV. ANALYSIS AND DISCUSSION

The objective is to determine independence of the profile variables and to determine if the electorate in Nigeria actually vote based on issue or sentiment. This survey tries to infer information on the Nigerian voting class as compared to the political class philosophy. Most of the people stated that if there is internal democracy in any political party such party will develop the society relying on the fact that decisions are collective rather than individual imposition. The 2014 nationwide party primaries are still fresh in the heart of most Nigerians; this can be ascribed to some of the candidates been miffed. Some analyst has attributed the outcome of the results as a demonstration of the political party mien or simply put the outcome of these results are mickey. Individuals have equally ascribed Nigerian politicians of depriving others from participating politically due to their antics which have not allowed meticulous ways of achieving generally accepted results.

This study is designed in order to infer the factors that the electorate considered suitable for casting their vote to aspirants based on their political party profiles. For this survey, about 5,360 people comprising of boys and girls of voting age (18-24 years ) and women and men age 25 years and above participated. The profile variables are based on four popular political parties in Nigeria and the observed characteristics, say development, regional sentiment, religious sentiment and internal democracy. Based on the above, the following information was obtained, see Table 2 below.

Table 2: Observed value on the electorate preference

Political Parties/Motivation of Electorate	Development	Regional Sentiment	Religious Sentiment	Internal Democracy	Total
APC	632	684	281	391	1,988
APGA	341	730	130	159	1,360
LP	136	97	23	346	602
PDP	293	701	212	204	1,410
Total	1,402	2,212	646	1,100	5,360

Table 3. Expected value of electorate preference

Political Parties/Motivation of Electorate	Development	Regional Sentiment	Religious Sentiment	Internal Democracy	Total
APC	519.99	820.42	239.59	407.99	1,988
APGA	355.73	561.25	163.91	279.10	1,360
LP	157.46	248.44	72.55	123.54	602
PDP	368.81	581.89	169.94	289.37	1,410
Total	1,402	2,212	646	1,100	5,360

Table 4: Chi square value

O_v	E_v	O_v-E_v	D <sup>2</sup> =(O_v-E_v) <sup>2</sup>	X <sup>2</sup> =D <sup>2</sup> /E_v
632	519.99	112.01	12,546.24	24.1278
684	820.42	-136.42	18,610.42	22.684
281	239.59	41.41	1,714.79	7.157
391	407.99	-16.99	2,88.66	0.7075
341	355.73	-14.73	216.97	0.6099
730	561.25	168.75	28,476.58	50.7377
130	163.91	-33.91	1,149.88	7.01536
159	279.10	-120.10	14,424.01	51.680
136	157.46	-21.46	460.53	2.9247
97	248.44	-151.44	22,934.07	92.312
23	72.55	-49.55	2,455.20	33.8415
346	123.54	222.46	49,488.45	400.586
293	368.81	-75.81	5,747.15	15.5829
701	581.89	119.11	14,187.19	24.3812
212	169.94	42.06	1,769.04	10.4098
204	289.37	-85.37	7,288.04	25.1858
				769.943

O\_v: observed value; E\_v: expected value

In this consideration, the difference between the observed and expected values is examined to obtain more information from the study. Based on probability concept, the large expected value vary more than the small expected values [3]. The values in each cell correspond to the description of the characteristics of each political party under consideration. From the above tables, both the observed values (Table 2) and the expected values (Table 3) revealed that APC perform better than other political parties in terms of development. The observed values indicated that APGA and PDP has more regional sentiment than other political parties however, the expected value revealed that APC has more regional sentiment followed by APGA and PDP, respectively. The observed and expected values showed that APC is more religious followed by PDP and APGA. The observed and expected values revealed that APC is more democratic than the other political parties, see Fig. 1 for details. When the computed chi squared value is greater than the chi squared table value, the null hypothesis is rejected indicating the rejection of the null hypothesis about the independence of the profile variables (political party and motivation of electorate). This discussion describes the association

between the profile variables. A higher value of the Cramer's V revealed how strong the rejection of the null hypothesis with respect to independence. By comparing the observed and the expected values, it is practical to say that some of the observed values appears practical than the expected observations.

On the other hand, the expected value actually predicted the reality than the observed values. From Table 3, the computed chi squared value is 769.94 and at 5% level of significant and 9 degrees of freedom, the chi squared value is equal to 16.92. This implies that the computed chi squared value is greater than the chi squared value at 5% level of significance; this implies that the null hypothesis is rejected. The likelihood ratio chi squared  $w^2=684.81$  is greater than the computed chi squared value, this also support the rejection of the null hypothesis thereby leading to the acceptance of the alternate hypothesis. The Cramer's V is equal to 0.2188. This indicates that the above profiles are associated to the political parties. The larger the Cramer's V the more evidence to reject the null hypothesis. The rejection of the null hypothesis revealed the acceptance of the alternate hypothesis, implying that Nigerians are willing to vote for aspirants from a political party whose manifestoes are based on development and internal democracy. The values in Table 2 to Table 4 give a clear picture though.

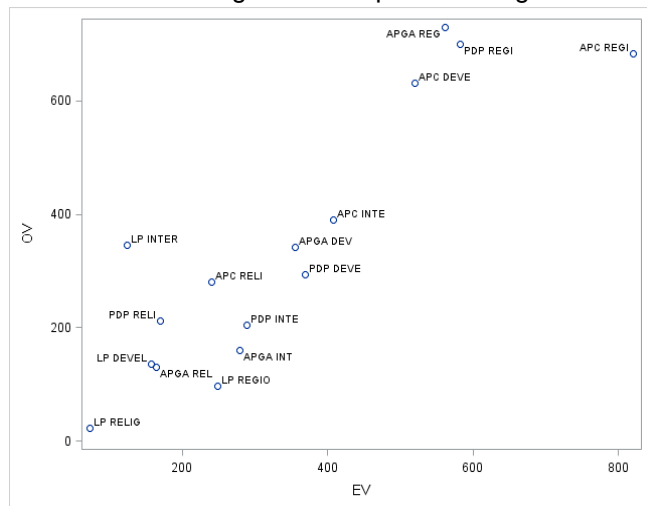


Fig. 1 Electorate preference based on observed and expected values.

#### V. CONCLUSION

This study revealed that most Nigerians are becoming enlightened on the different political party manifestoes and hence the desire to vote and elect the best aspirants based on their political party, individual profiles and ideology. The study though indicated the fundamental principle in which some of the political parties are based. The analysis, relied strictly on the test statistic which showed that the null hypothesis is

rejected indicating the acceptance of the alternate hypothesis. This implies that the profile characteristics depend on the political parties and the aspirants. The implication of this study, is that when a political party impose unpopular aspirants on the party and the electorates; the likelihood that the aspirant and the party will lost during election is certain because of the enlightenment Nigerians are exposed to in recent time while the contrary is true otherwise. The study also revealed that the 2015 general election will upset some aspirants and political parties which turnout to be advantageous to other political parties. It is evident based on this study that the next dispensation might not be dominated by a political party due to publicity on electoral malpractice say; rigging, financial inducement and political gimmicks. This study revealed regional and religious sentiment based on the political parties and the aspirants. We conclude this by asking the following questions; are the political parties in Nigeria practicing sentimental or developmental politics? Or practicing ethnic, minority or majority politics?

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