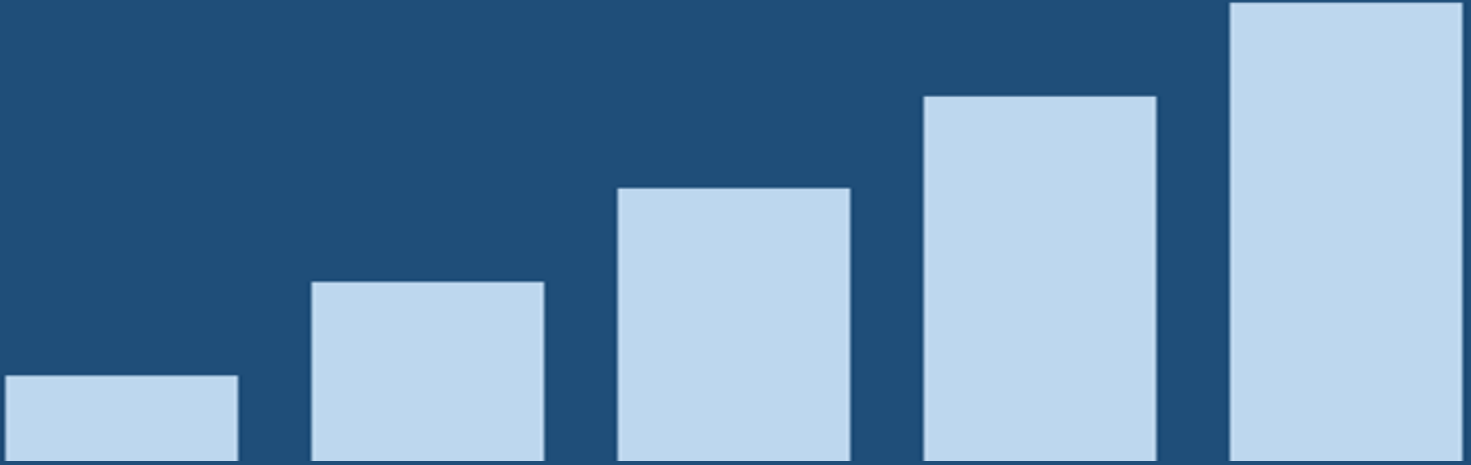


# 2020

# GHANA ELECTION REPORT



**EN ANALYTICS AND CONSULTING LIMITED**

© 2021 EN Analytics and Consulting Limited

All rights reserved. This report, including charts and visualisations, is the sole property of EN Analytics and Consulting Limited. No part of this report may be reproduced in a research document, a publication or any form of report without the permission of the publishers. Any person who does any unauthorised reproduction either in part or in full in relation to this document will be liable to criminal prosecution and claims for damages.

MAY 2021

CONTENT	PAGE
<b>Chapter 1 Analysis of Registered Voters</b>	1
<b>Chapter 2 Arithmetic and Computational Errors in the 2020 Elections</b>	4
2.1 Errors That Affected the Total Valid Votes Cast	4
2.2 Error That Affected Total Votes Cast Only	5
<b>Chapter 3 Analysis of the Presidential Results</b>	6
3.1 Historical Trends in Percentage of Votes Since 1992	7
3.2 Performance by Region	8
3.3 Percentage Distribution of Total Valid Votes by Party	10
3.4 Growth Rates in Valid Votes by Region	12
3.5 A breakdown of Regional Performance	13
3.6 Registered Voters vs Total Valid Votes	15
3.7 The Constituency Dashboard	16
3.8 Third Party Performance	16
<b>Chapter 4 How Constituencies Rated the First 4 Years of the Nana Addo’s Presidency</b>	18
4.1 The Rating Results Dashboard	18
4.2 NPP Takes a Hit in Mining Communities	21
4.3 The Enthusiasm Gap	22
<b>Chapter 5 Turnout</b>	24
<b>Chapter 6 Rejected Ballots</b>	25
6.1 Historical Trends in Rejected Ballots	25
6.2 Rejected Ballots by Constituency	26
<b>Chapter 7 Statistical Analysis</b>	27
7.1 The Scatter Plots for 2016 and 2020 Elections	27
7.2 The Correlation Matrix	28
7.3 Voting Pattern by Constituency (“Skirt & Blouse”)	29
7.4 Boxplots for NDC and NPP	31
7.5 Cluster Analysis	32
<b>Chapter 8 Analysis of the Parliamentary Results</b>	33
<b>Chapter 9 Gender and Politics</b>	35
9.1 Historical Trends in Number and Percentage of Female MPs	35
9.2 Historical Trends in Female MPs by Party	36
9.3 The Gender Performance Index(GPI) Score	38
9.4 Constituencies That Have Elected the Most Female MPs in the 4 <sup>th</sup> Republic	39
<b>Conclusion</b>	40
<b>About EN Analytics and Consulting Limited</b>	41
<b>About the Author</b>	43

## **INTRODUCTION**

EN Analytics and Consulting Limited is an analytics firm based in Accra, Ghana, that provides data analytics and consulting services to its clients. This report forms part of the company's corporate social responsibility and our very first report. Our corporate social responsibility is to provide insights and analysis on publicly available data on issues that matter to Ghanaians the most. Our objective for writing this report therefore is to connect the dots, and make Ghanaians appreciate the patterns embedded in the raw election data.

This report does not deal with the election processes or how elections must be conducted. That is the work of civil society organisations like Coalition of Domestic Elections Observers(CODEO) and our donor partners. Our objective is to generate insights for Ghanaians on the dataset published by the EC. The report therefore does not look at the merit or otherwise of the election petition filed by the National Democratic Congress.

## **SOURCE OF DATA**

The source of data for this report and analysis are the constituency summary (pink) sheets of the presidential and parliamentary results published by the Electoral Commission of Ghana on its website. Historical election dataset is from the company's election database compiled using previously published results by the EC.

## Chapter 1: ANALYSIS OF REGISTERED VOTERS

Table 1

Region	2016	2020	Increase/ (Decrease)	% Change
	Registered Voters	Registered Voters		
Ahafo	302,221.00	316,970	14,749.00	▲ 4.88%
Ashanti	2,872,619.00	3,019,178	146,559.00	▲ 5.10%
Bono	587,953.00	653,378	65,425.00	▲ 11.13%
Bono East	518,020.00	594,610	76,590.00	▲ 14.79%
Central	1,405,976.00	1,567,756	161,780.00	▲ 11.51%
Eastern	1,605,943.00	1,641,050	35,107.00	▲ 2.19%
Greater Accra	3,115,262.00	3,528,996	413,734.00	▲ 13.28%
North East	252,878.00	289,529	36,651.00	▲ 14.49%
Northern	922,203.00	1,050,016	127,813.00	▲ 13.86%
Oti	339,666.00	358,552	18,886.00	▲ 5.56%
Savannah	252,836.00	298,404	45,568.00	▲ 18.02%
Upper East	648,788.00	659,317	10,529.00	▲ 1.62%
Upper West	415,539.00	469,753	54,214.00	▲ 13.05%
Volta	942,640.00	924,116	(18,524.00)	▼ -1.97%
Western	1,086,901.00	1,187,333	100,432.00	▲ 9.24%
Western North	495,590.00	468,683	(26,907.00)	▼ -5.43%
<b>Grand Total</b>	<b>15,765,035.00</b>	<b>17,027,641.00</b>	<b>1,262,606.00</b>	<b>8.01%</b>

Source of Registered Voters data: [www.ec.gov.gh](http://www.ec.gov.gh)

The following observations are quite obvious from the Table 1 above:

- Western North and Volta regions saw a decline in registered voter population. It is difficult to explain why but the boarder closures cannot be ruled out.
- The three adjoining regions, Ahafo, Ashanti and Eastern, which traditionally and predominantly vote for the New Patriotic Party, recorded only marginal growth rates.
- Generally, the northern regions and the coastal regions recorded big jumps in voter populations, with Upper East being an exception.

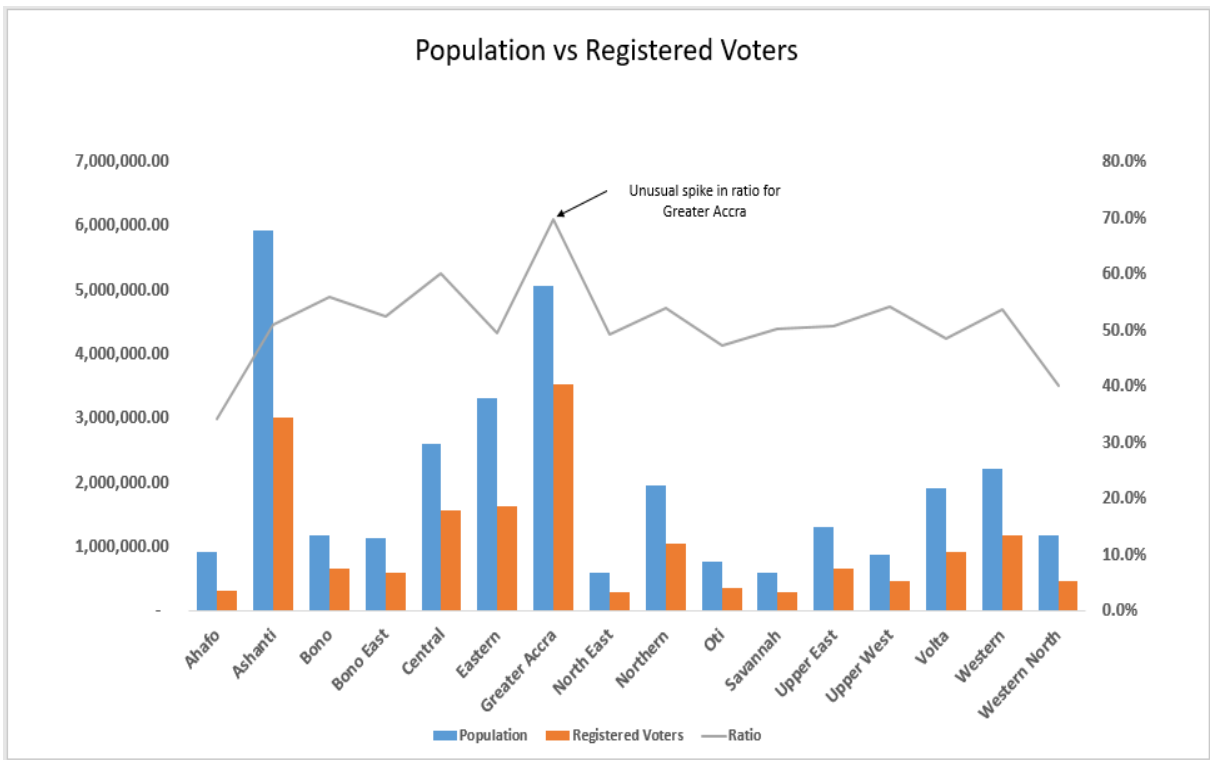
Table 2

Region	Population	Registered Voters	Ratio
Ahafo	927,960.00	316,970	34.2%
Ashanti	5,924,498.00	3,019,178	51.0%
Bono	1,168,807.00	653,378	55.9%
Bono East	1,133,768.00	594,610	52.4%
Central	2,605,492.00	1,567,756	60.2%
Eastern	3,318,853.00	1,641,050	49.4%
Greater Accra	5,055,883.00	3,528,996	69.8%
North East	588,800.00	289,529	49.2%
Northern	1,948,913.00	1,050,016	53.9%
Oti	759,799.00	358,552	47.2%
Savannah	594,712.00	298,404	50.2%
Upper East	1,302,718.00	659,317	50.6%
Upper West	868,479.00	469,753	54.1%
Volta	1,907,679.00	924,116	48.4%
Western	2,214,660.00	1,187,333	53.6%
Western North	1,168,235.00	468,683	40.1%
Total	31,489,256.00	17,027,641.00	

Population data Source: Ghana Statistical Service

- The population data used for the above chart is the 2020 population figures published by the Ghana Statistical Service. It must be noted that these figures include minors (those below 18 years). Since the Service does not publish population figures for Ghanaian adults, the author used these unadjusted population figures for his analysis. And so the ratios calculated will be far higher in reality than those presented here. The ratios must therefore be viewed as rough estimates.
- The ratio for Greater Accra is extremely high since the population figure includes individuals less than 18 years.
- Apart from Greater Accra, there also seems to be a disconnect between the population and registered voters figures for Ahafo region. It is the reverse of what happened in Greater Accra, very low. It results in registered voters to population ratio of 34.2%.

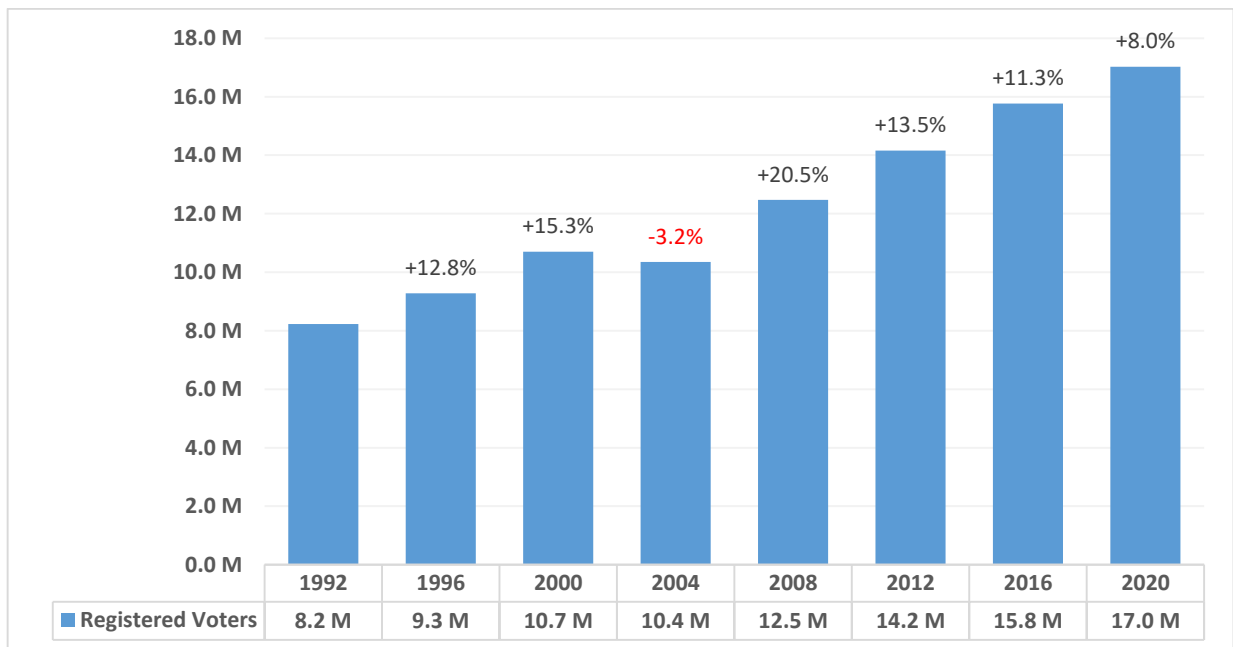
Figure 1



There was an unusual spike in the ratio for Greater Accra, which recorded almost 70% of its population registering for the elections.

Historical trends in Registered Voter Population, plus growth rates

Figure 2



## CHAPTER 2: ARITHMETIC AND COMPUTATIONAL ERRORS IN THE 2020 ELECTIONS

There were twenty (20) constituencies where arithmetic errors occurred during the last election. Twelve (12) of these constituency errors affected the total valid votes, while eight (8) affected the total votes cast only. Before using the data for our analysis and for this report, we had to correct those errors. Did these arithmetic and computational errors had a material effect on the final results declared by the EC? NO.

### 2.1 Errors That affected the Total Valid Votes Cast

These were errors that directly impacted the total valid votes, howbeit negligible. There were twelve (12) constituencies whose total valid votes were incorrectly stated. It must be stated that these errors identified by the author deals with values as stated on the face of the pink (constituency summary) sheets. They were basic arithmetic (addition) errors. Table 3 gives the details:

Table 3

S/N	Region	Constituency	NPP	NDC	GUM	CPP	GFP	GCPP	APC	LPG	PNC	PPP	NDP	IND	Corrected Total Valid Votes	Declared by EC	Difference
1	Ashanti	Asawase	35,214	47,460	248	32	10	7	15	9	22	16	11	10	83,054	83,051	(3)
2	Ashanti	Sekyere Afram Plains	6,331	9,194	56	16	3	7	16	7	12	3	9	31	15,685	15,689	4
3	Bono East	Techiman South	46,379	52,034	720	46	24	16	54	24	45	19	29	46	99,436	97,227	(2,209)
4	Central	Mfantseman	34,939	32,194	1,136	51	61	20	18	38	7	38	24	41	68,567	70,166	1,599
5	Central	Upper Denkyira West	18,413	17,136	654	15	13	4	16	15	10	5	7	17	36,305	37,187	882
6	Greater Accra	Ayawaso Central	32,166	29,838	283	31	11	4	13	8	8	20	20	4	62,406	62,284	(122)
7	Greater Accra	Ledzokuku	50,530	59,096	747	81	19	11	21	21	8	34	33	35	110,636	110,626	(10)
8	North East	Chereponi	17,388	14,179	179	36	24	31	140	60	127	13	21	68	32,266	32,261	(5)
9	Northern	Tamale Central	29,295	46,104	131	82	8	5	25	16	34	18	12	5	75,735	75,734	(1)
10	Northern	Tamale North	12,474	27,875	109	95	13	5	24	17	35	30	8	11	40,696	40,688	(8)
11	Northern	Yendi	38,822	24,942	117	49	15	26	47	95	83	18	21	86	64,321	64,381	60
12	Oti	Krachi West	9,697	13,052	206	16	13	7	7	10	4	29	20	13	23,074	23,436	362
	<b>TOTAL</b>														<b>712,181</b>	<b>712,730</b>	<b>549</b>

**The overall effect of this type of arithmetic error was that the EC overstated the Total Valid Votes by 549 votes.**



## 2.2 Errors that affected Total Votes Cast only

Even though the error describe above would indirectly affect the total votes cast, there were eight (8) constituencies whose total votes cast were wrong even though their valid votes figures were properly tabulated. As already stated, these were arithmetic errors detected on the face of the summary sheets published by the EC. The effect of this error would ordinarily be on the turnout ratio but since the net effect was so minimal, the turnout ratio established by the Electoral Commission would remain unchanged. The details are below:

Table 4

S/N	Region	Constituency	NPP	NDC	GUM	CPP	GFP	GCPP	APC	LPG	PNC	PPP	NDP	IND	Total Valid Votes	Rejected Ballot	Corrected Total Votes Cast	Declared by EC	Difference
1	Ashanti	Obuasi East	28,689	13,504	295	19	9	1	6	3	5	3	4	3	42,541	420	42,961	42,964	3
2	Ashanti	Manso Nkwanta	34,386	10,064	530	29	9	7	8	25	12	7	5	20	45,102	844	45,946	45,947	1
3	Ahafo	Asunafo North	36,737	28,502	395	69	18	13	31	26	30	10	13	26	65,870	1,487	67,357	67,352	(5)
4	Bono	Tain	20,749	22,535	729	56	23	19	31	29	33	7	18	94	44,323	1,603	45,926	45,976	50
5	Greater Accra	Ablekuma North	53,352	31,021	633	44	20	3	6	12	8	33	14	9	85,155	769	85,924	85,897.00	(27)
6	Upper West	Nadowli/Kaleo	7,030	27,263	318	101	26	45	41	66	282	22	27	73	35,294	1,279	36,573	36,666.00	93
7	Upper West	Sissala West	12,952	17,599	203	44	27	41	39	53	220	9	36	56	31,279	1,368	32,647	32,649.00	2
8	Upper West	Wa West	10,202	27,888	274	103	44	48	57	92	112	39	53	204	39,116	2,243	41,359	42,172.00	813
	<b>TOTAL</b>																<b>398,693</b>	<b>399,623</b>	<b>930</b>

**The overall effect of this particular error was that the total votes cast was overstated by 930 votes by the Electoral Commission.**

### The National Picture

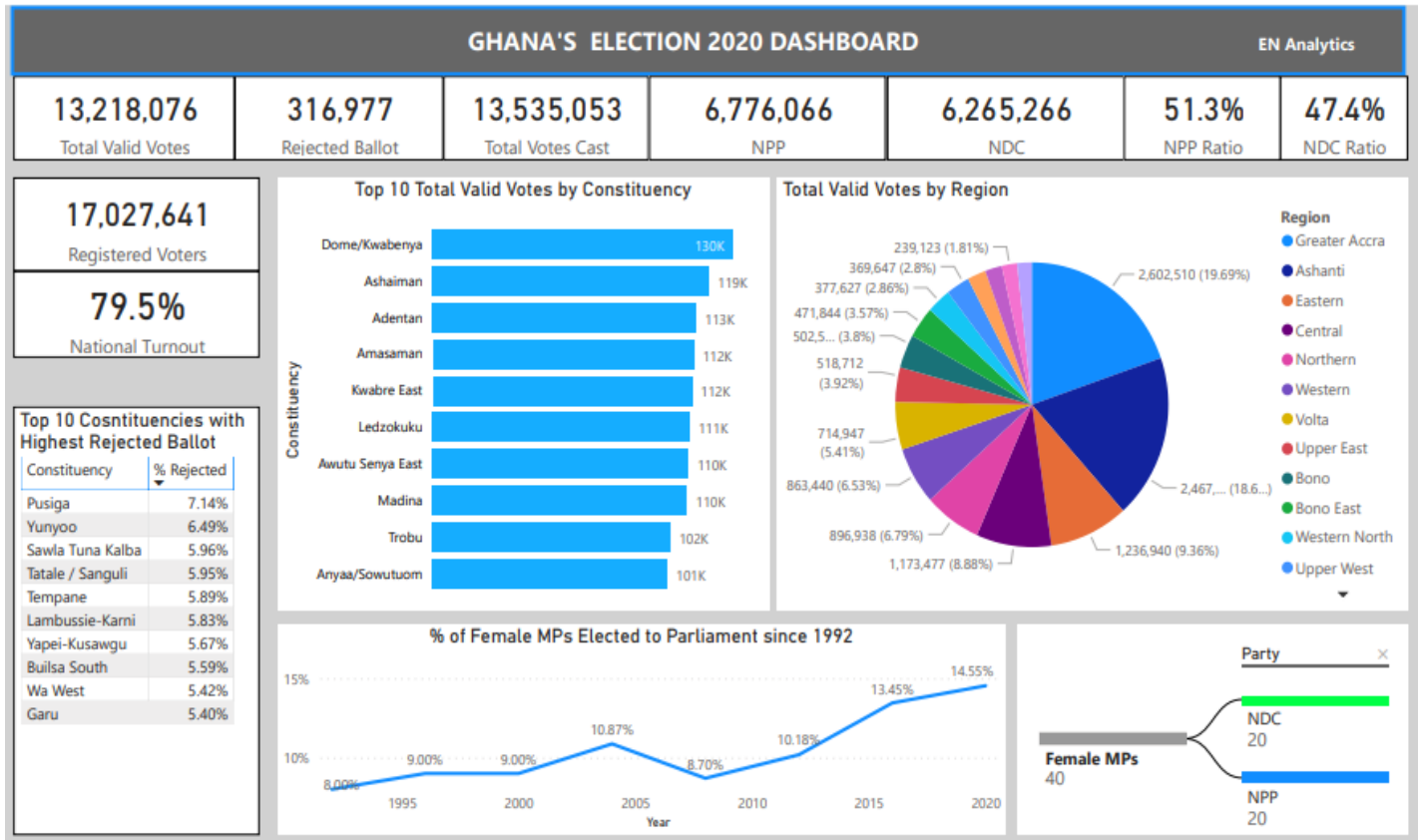
The table below gives the corrected values of the Total Valid Votes as well as the Total Votes Cast.

NPP	NDC	GUM	CPP	GFP	GCPP	APC	LPG	PNC	PPP	NDP	IND	Total Valid Votes	Rejected Ballot	Total Votes Cast
6,776,066	6,265,266	106,265	12,248	5,640	3,582	7,171	7,740	10,897	6,882	6,531	9,788	13,218,076	316,977	13,535,053
51.26%	47.40%	0.80%	0.09%	0.04%	0.03%	0.05%	0.06%	0.08%	0.05%	0.05%	0.07%		2.34%	

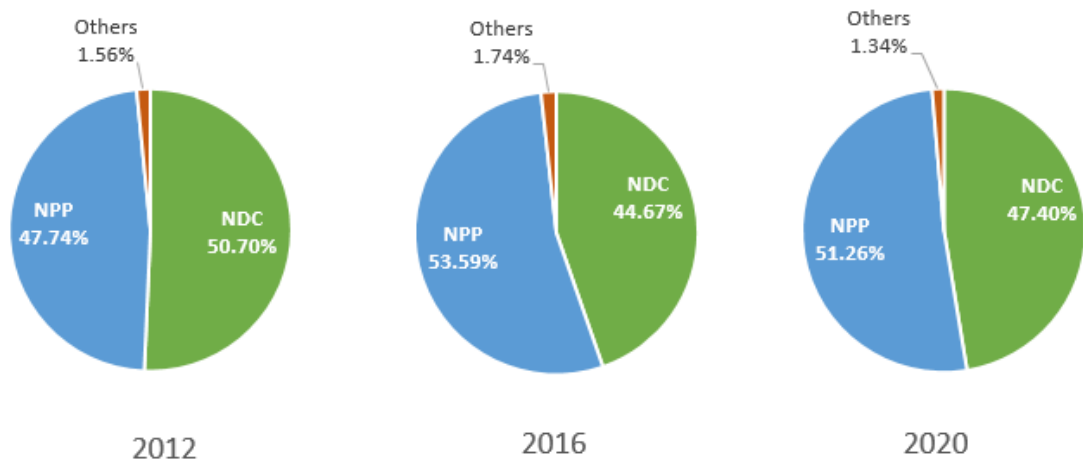
# CHAPTER 3: ANALYSIS OF THE PRESIDENTIAL RESULTS

## The Election Dashboard

Figure 3

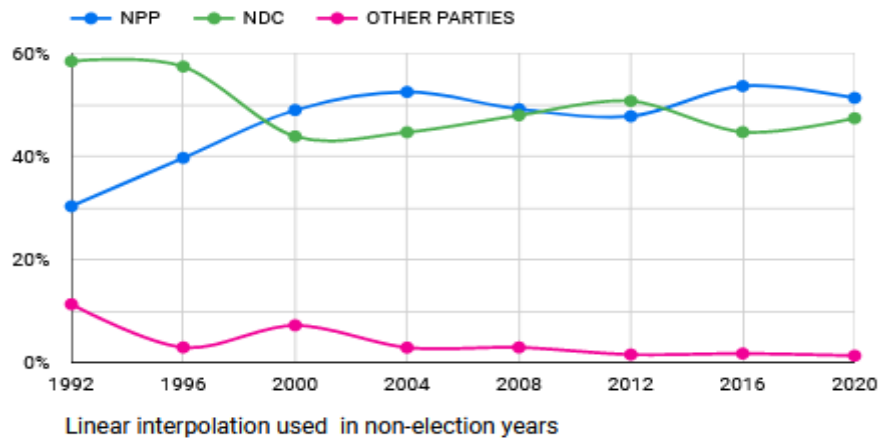


### Share of valid votes in last three elections



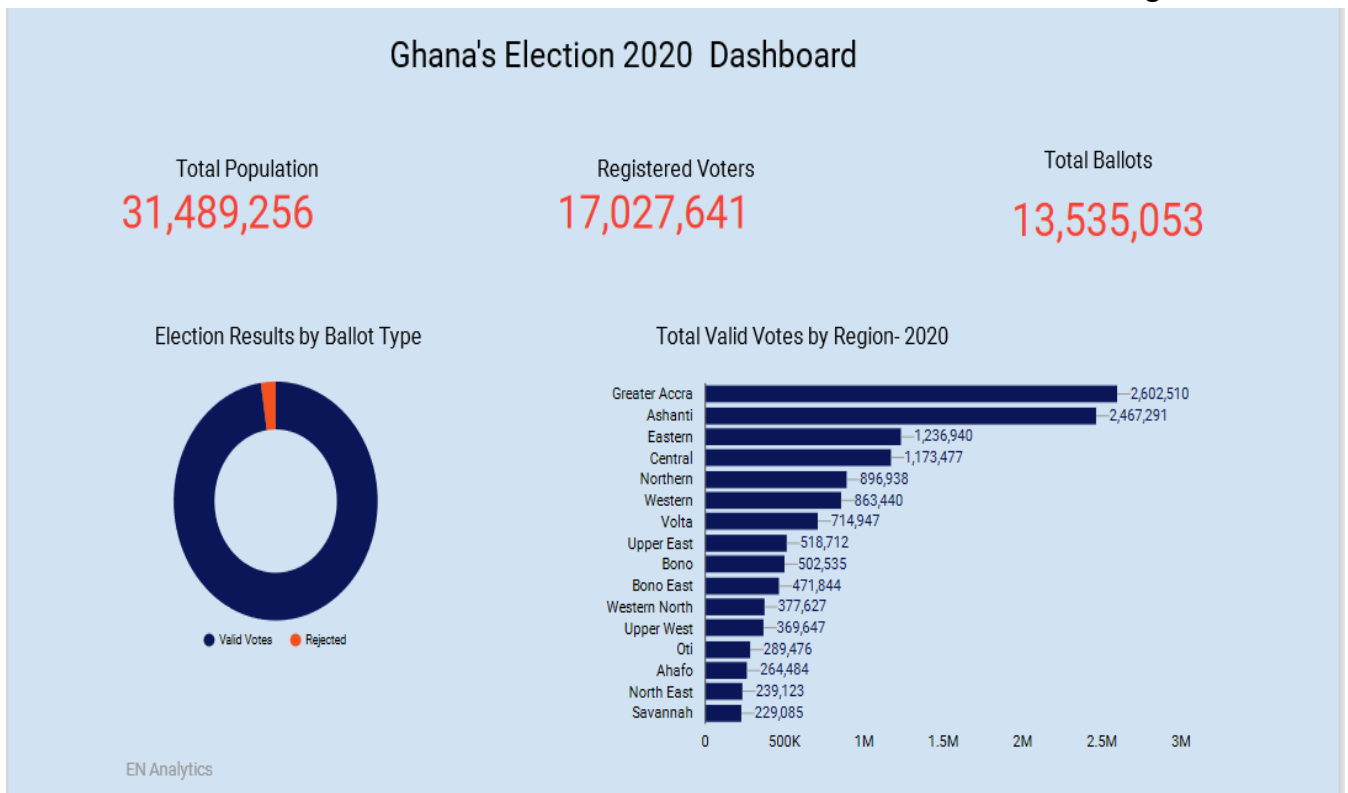
### 3.1 Historical trends in % obtained by the two main parties since 1992

Figure 4



- The data points used for this chart do not include data for the run offs in 2000 and 2008.
- Ghana is gradually moving towards a two-party state. Third party share of valid votes in the 2020 elections was the lowest in the fourth republic, a mere 1.34%.
- The 2020 data point is more synonymous to that of 2004, in which the NDC went ahead and won in the 2008 elections. And it is even in a better position in 2020 than it was in 2004. But there are other dependent variables like the choice of candidate in both parties that will also affect the 2024 elections.

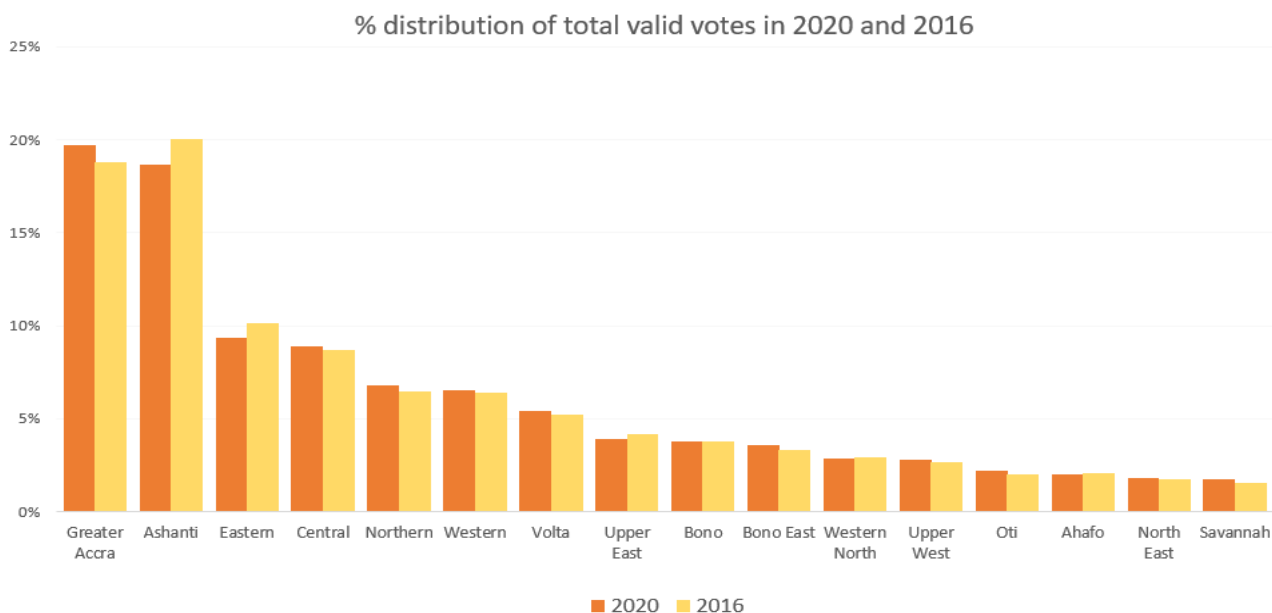
Figure 5



### 3.2 Performance by Region

Total valid votes by region

Figure 6



- With the exception of Greater Accra, Ashanti and Eastern that witnessed significant changes in the ratio of their total valid votes, the ratios in the other regions were relatively stable over the two election cycles. The table below throws more light on the above chart.

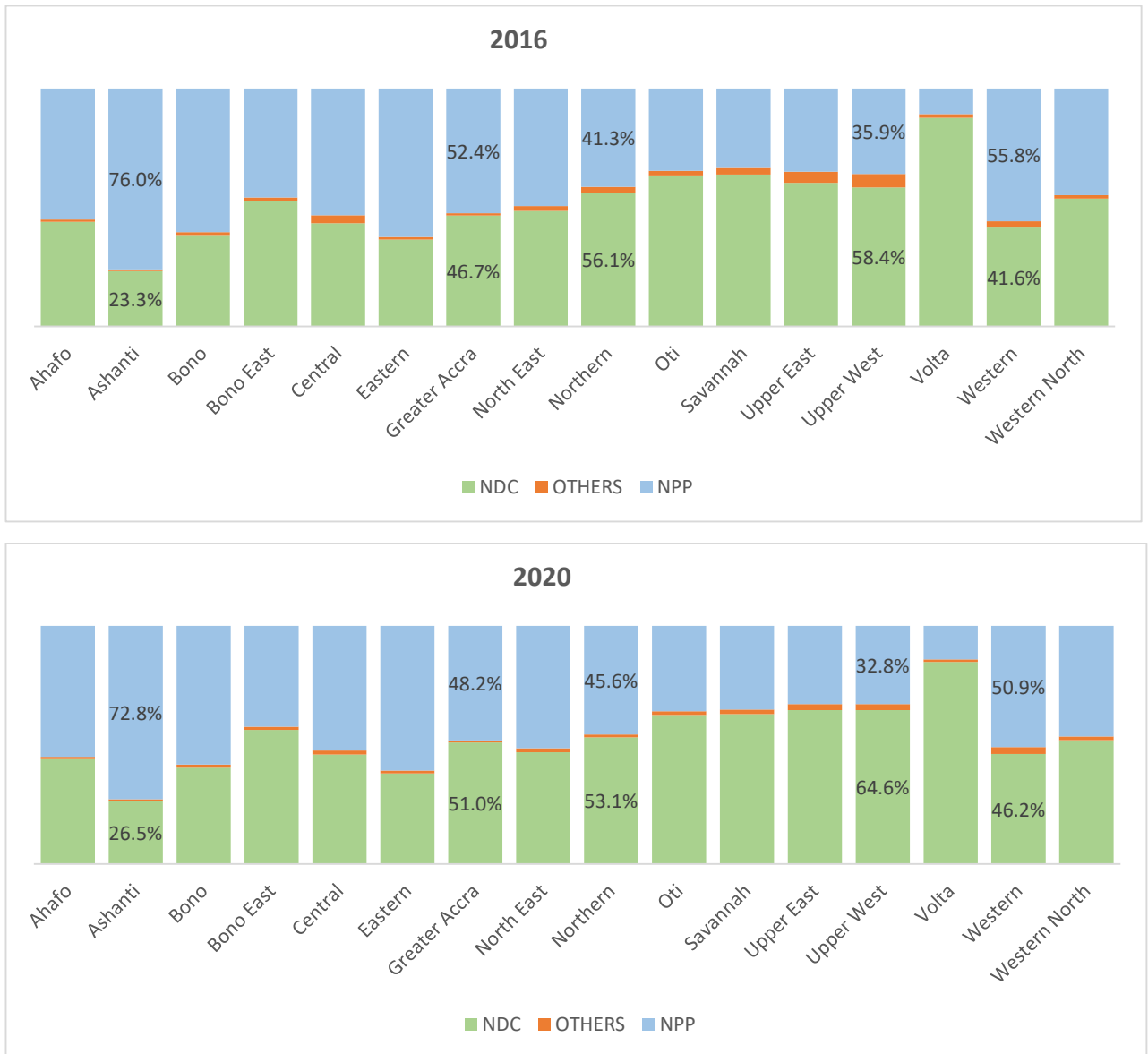
Table 5

Region	2020	2016	Increase/Decrease
Greater Accra	19.69%	18.83%	0.86%
Northern	6.79%	6.45%	0.34%
Bono East	3.57%	3.33%	0.24%
Central	8.88%	8.67%	0.21%
Oti	2.19%	2.00%	0.19%
Savannah	1.73%	1.55%	0.19%
Volta	5.41%	5.23%	0.18%
Western	6.53%	6.39%	0.14%
Upper West	2.80%	2.66%	0.14%
Bono	3.80%	3.76%	0.04%
North East	1.81%	1.77%	0.04%
Ahafo	2.00%	2.08%	-0.08%
Western North	2.86%	2.94%	-0.08%
Upper East	3.92%	4.19%	-0.26%
Eastern	9.36%	10.11%	-0.75%
Ashanti	18.67%	20.06%	-1.40%

- Greater Accra gained the most in 2020. It increased its share of valid votes from 18.83% in 2016 to 19.69%, an increase of 0.86%.
- Ashanti and Eastern lost the most in 2020. Ashanti lost 1.40% of its share in 2020 while Eastern lost 0.75% of its share of total valid cast.
- The ratios of the remaining regions were relatively stable, although Northern region increased its share as well.

### 3.3 % Distribution of Total Valid Votes by Region and by Party

Figure 7



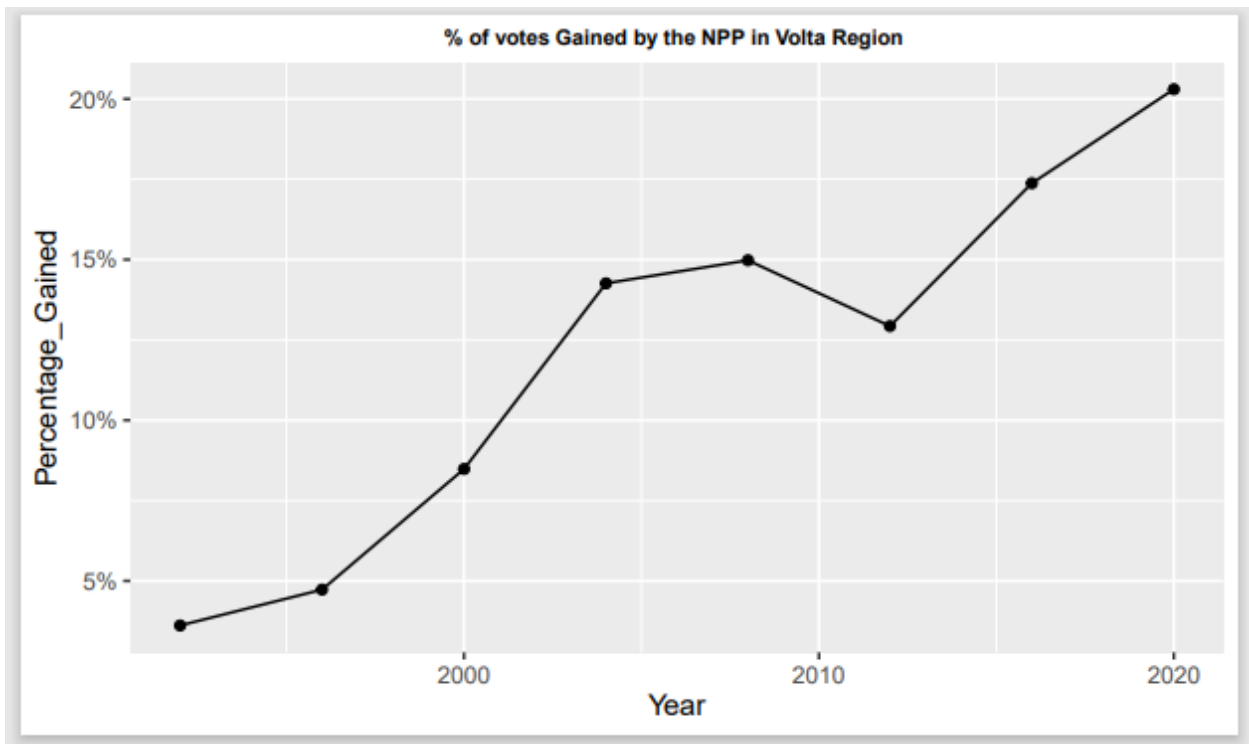
- The third party votes present in 2016 were eroded in 2020. We observe in the above charts that the third party votes that existed in Central, Upper East and Upper West regions have all but disappeared. And the NDC was the chief beneficiary of this situation. The Western region was the only region that held onto its third party vote.
- 2020 was the first time in the fourth republic that the NPP has had below 74% in Ashanti region, and still been able to win the presidency. It was also the first time in the 4<sup>th</sup> republic that the NDC obtained above 26% in the Ashanti region and did not win the presidency.

- 2020 was the first time in the fourth republic that the NPP obtained about 45% in former Northern region (current Northern region, North East, and Savannah combined). These 3 combined regions gave NPP 44.86% in the 2020 elections, the highest in the fourth republic.

### **NPP makes history in Former Volta Region (current Volta and Oti)**

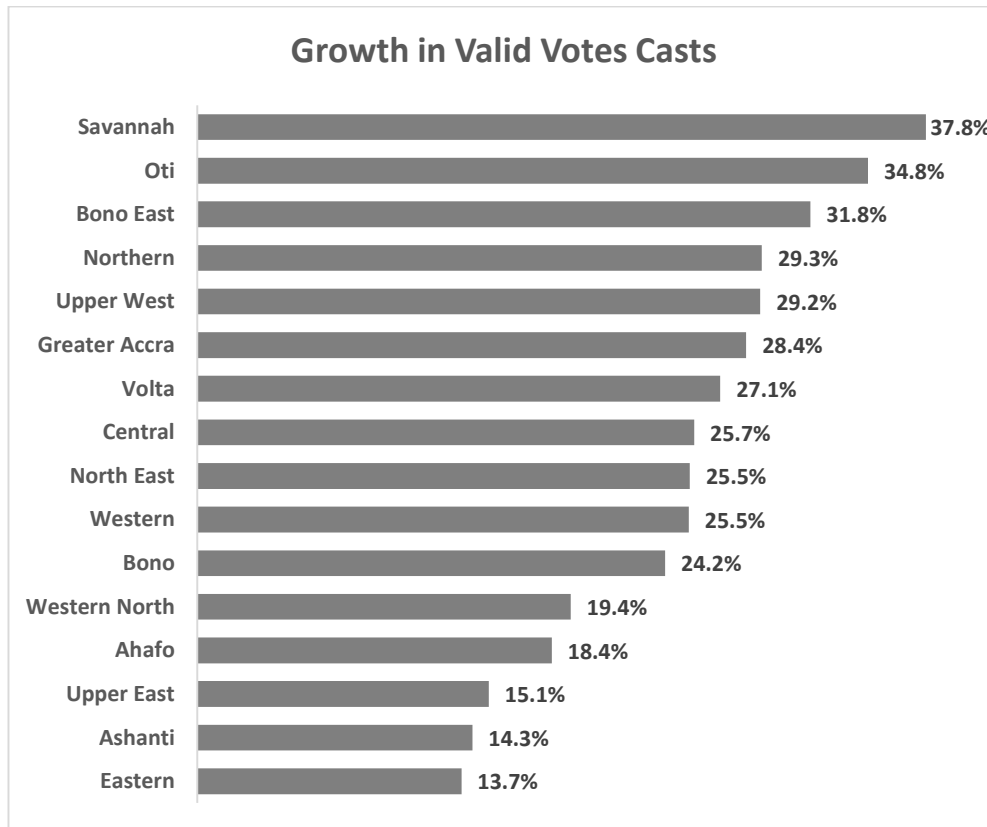
The New Patriotic Party made history in the 2020 elections by crossing the 20% mark in Volta region (ie current Volta and Oti combined) for the first time in the fourth republic. If you consider Oti and Volta regions as one block for historical comparative purposes, the NPP obtained 20.3% of the total valid votes. The Volta region had particularly been a nemesis for the NPP. The party ushered in the Fourth republic with a paltry 3.61% of votes in the region in 1992. And after 28 long years, it finally crossed the 20% mark.

Figure 8



### 3.4 Growth Rates in valid votes by region

Figure 9



#### NPP Support Weakened in Ashanti, Eastern and Upper East Regions

The 2020 elections saw the New Patriotic Party support in its two tradition regions of Ashanti and Eastern weakening substantially. Its support base in the Upper East region also deteriorated. The growth rates in total valid votes casts in these three regions were not encouraging and it is no wonder they found themselves at the bottom of the log. It is a bit difficult to pinpoint the exact reasons for the slump in the performance in Ashanti and Eastern, but voter apathy may be a factor.

One interesting development in the 2020 elections was the fierce competition between Ashanti and Eastern at the bottom of each ranking. Whiles in Table 5, Ashanti ranked last, it managed to pull ahead to the last but one position in Figure 9, condemning the Eastern region to the last position.



### 3.5 A Breakdown of Regional Performance

Table 6

Region	Party	2020-Total Valid Votes	2016-Total Valid Votes	Increase	% Increase
Ahafo	NDC	116,485	98,272	18,213	18.5%
	NPP	145,584	123,139	22,445	18.2%
Ashanti	NDC	653,149	503,497	149,652	29.7%
	NPP	1,795,824	1,640,694	155,130	9.5%
Bono	NDC	203,279	155,488	47,791	30.7%
	NPP	292,604	243,904	48,700	20.0%
Bono East	NDC	265,728	189,029	76,699	40.6%
	NPP	199,720	164,104	35,616	21.7%
Central	NDC	538,829	405,262	133,567	33.0%
	NPP	613,804	496,668	117,136	23.6%
Eastern	NDC	470,999	397,786	73,213	18.4%
	NPP	752,061	678,514	73,547	10.8%
Greater Accra	NDC	1,326,489	946,048	380,441	40.2%
	NPP	1,253,179	1,062,157	191,022	18.0%
North East	NDC	112,306	92,395	19,911	21.5%
	NPP	122,742	94,066	28,676	30.5%
Northern	NDC	476,650	389,132	87,518	22.5%
	NPP	409,063	286,868	122,195	42.6%
Oti	NDC	181,021	136,257	44,764	32.9%
	NPP	103,865	74,275	29,590	39.8%
Savannah	NDC	144,244	106,256	37,988	35.8%
	NPP	80,605	55,485	25,120	45.3%
Upper East	NDC	335,502	271,796	63,706	23.4%
	NPP	170,340	157,398	12,942	8.2%
Upper West	NDC	238,972	167,032	71,940	43.1%
	NPP	121,230	102,843	18,387	17.9%
Volta	NDC	606,508	493,141	113,367	23.0%
	NPP	100,481	60,802	39,679	65.3%
Western	NDC	398,549	285,938	112,611	39.4%
	NPP	439,724	384,211	55,513	14.4%
Western North	NDC	196,556	169,900	26,656	15.7%
	NPP	175,240	141,948	33,292	23.5%

#### NDC Obliterates NPP in Greater Accra Region

One of the positives for the opposition NDC in the 2020 presidential elections was its sterling performance in the Greater Accra region. It completely dominated the region both in nominal votes as well as growth rate. It increased its total valid votes from 946,048 in 2016 to 1,326,489 in 2020, a whopping increase of 380,441 (ie 40.2%).

### **NDC support grows in Ashanti, Bono East, Upper West and Western Regions**

The party made significant inroads in these four regions as well. It almost matched NPP in Ashanti region in terms of nominal increase in valid votes (149,652 to NPP's 155,130). The other three regions of Bono East, Western, and Upper West, all had an average of 40% increase in their total valid votes casts for the NDC.

### **Northern Region, North East, Savannah (former Northern Region) opens its doors to NPP**

These three regions were the brightest spots for the NPP in the 2020 elections. But for these regions a second round could have occurred. The Northern, North East and Savannah increased their total valid votes by 42.6%, 30.5% and 45.3% respectively.

### **There is hope for NPP in Volta Region**

The NPP grew its valid vote cast by an unprecedented 65.3% in the Volta region. Though the base is relatively small, it is still a significant achievement.

### 3.6 Registered Voters (RV) versus Total Valid Votes(TVV)

% contribution of Total Valid Votes(TVV) versus % of Registered Voters(RV)

Figure 10

	Region	Ratio(TVV)	Ratio(RV)	TVV-RV
1.	Greater Accra	19.69%	20.73%	-1.04%
2.	Ashanti	18.67%	17.73%	0.94%
3.	Eastern	9.36%	9.64%	-0.28%
4.	Central	8.88%	9.21%	-0.33%
5.	Western	6.53%	6.97%	-0.44%
6.	Northern	6.79%	6.17%	0.62%
7.	Volta	5.41%	5.43%	-0.02%
8.	Upper East	3.92%	3.87%	0.05%
9.	Bono	3.8%	3.84%	-0.04%
10.	Bono East	3.57%	3.49%	0.08%
11.	Upper West	2.8%	2.76%	0.04%
12.	Western North	2.86%	2.75%	0.11%
13.	Oti	2.19%	2.11%	0.08%
14.	Ahafo	2%	1.86%	0.14%
15.	Savannah	1.73%	1.75%	-0.02%
16.	North East	1.81%	1.7%	0.11%

The value of (TVV-RV) is a qualitative measure the author uses to gauge turnout, and how impactful a particular region is during a presidential election in reference to its registered voter population. A high positive value of (TVV-RV) indicates a region with a high turnout and more impactful in an election. A (TVV-RV) value of about  $\pm 0.5\%$  is deemed normal and within acceptable limits.

All regions were within the acceptable range of about  $\pm 0.5\%$  except Ashanti, Greater Accra and Northern regions. Ashanti had a value of positive 0.94%, which indicate a high turnout (Figure 15 ) and the region that impacted the 2020 elections more than it should have.

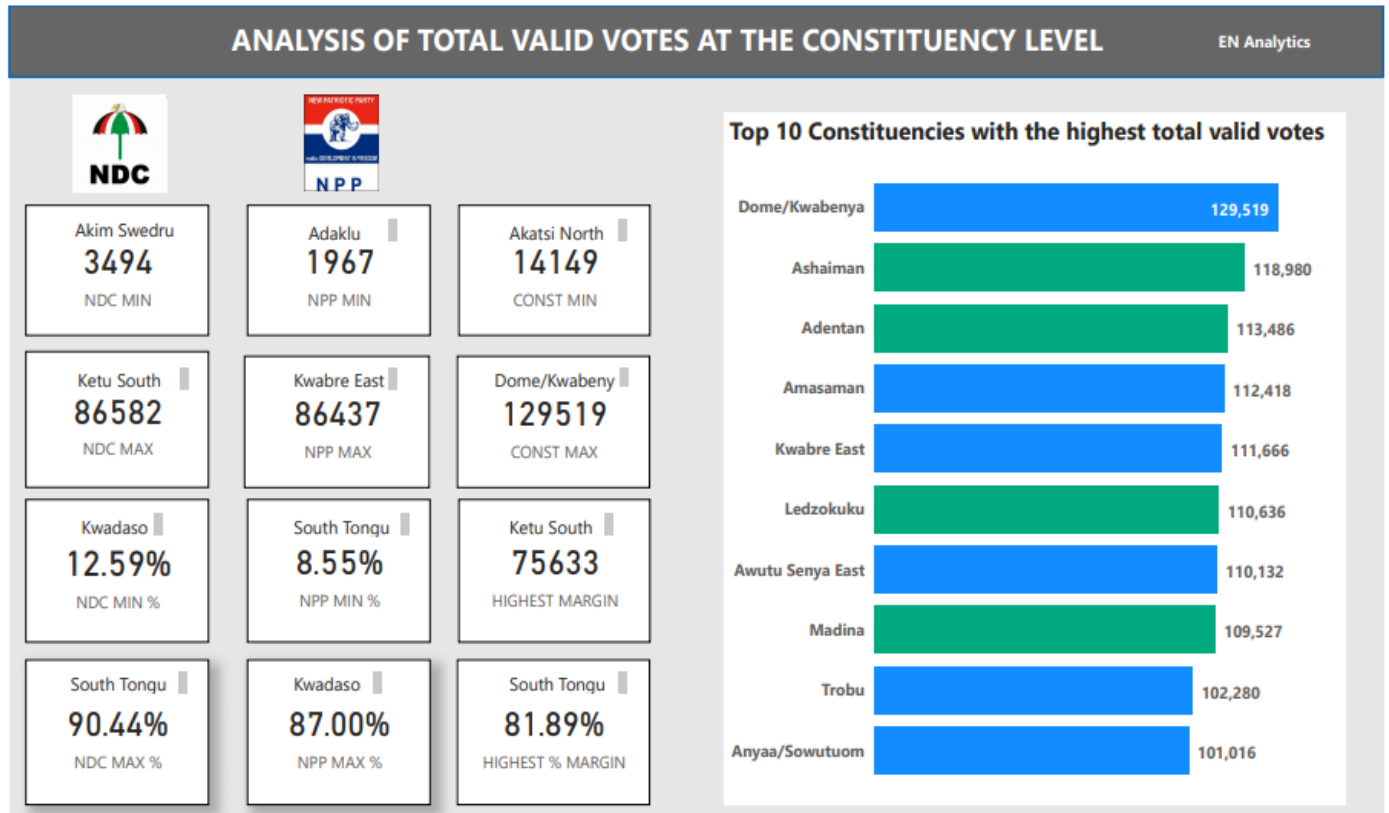
Northern region also fell outside the confidence interval with +0.62%, indicating a high turnout in the region (Figure 15). It impacted the national outcome slightly more than it should have in relation to its registered voter population.

Greater Accra was the region with the lowest (TVV-RV) value. It had a negative value of 1.04%. Even though it is the most populous region, it had a below par turnout ratio (Figure 15) and did not impact the presidential elections as it should. This high negative value for the region may be attributable to NPP supporters who did not turn out in their

numbers to vote (Table 6) or the registered voters for the region was just too high (Table 2).

### 3.7 The Constituency Dashboard

Figure 11



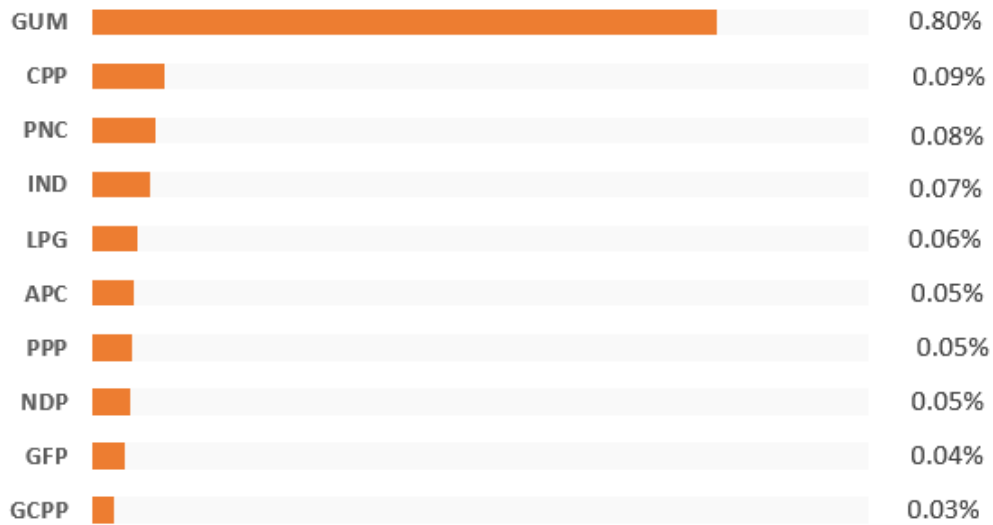
- CONST MIN/CONST MAX refer to the constituency with minimum total valid votes and maximum total valid votes respectively.
- The margin measures the difference in votes between NPP and NDC at the constituency level.

### 3.8 Third Party Performance

The 2020 elections saw Ghana move a step closer to becoming a two-party state, as third parties find it difficult to increase their fortunes. The combined share of third party candidates (including the independent candidate) was 1.34%, their lowest share in the fourth republic. At this rate of decline, we can project that their influence on elections will be so diminished that by 2040 and onwards, there will not be run-offs in Ghana’s elections anymore.

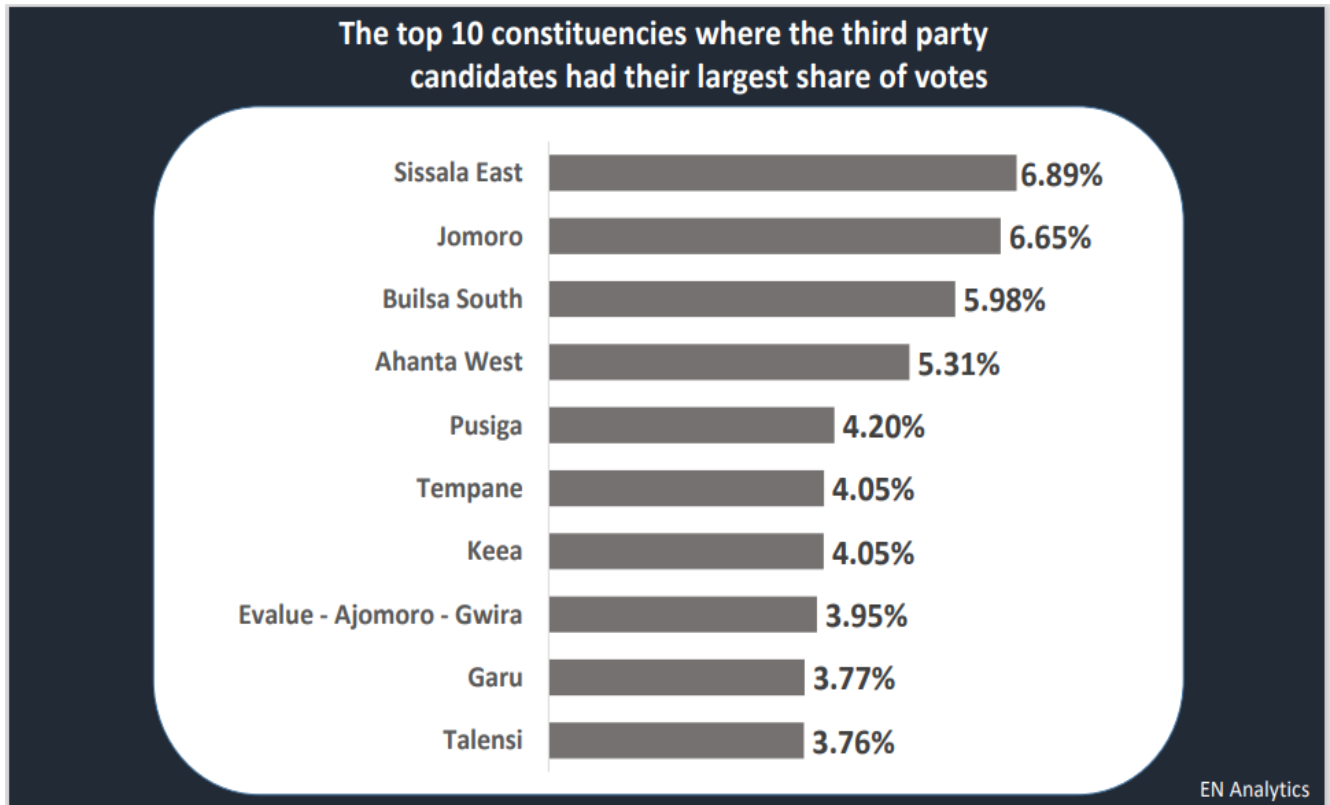
% of votes obtained by 3<sup>rd</sup> parties

Figure 12



- The nine parties (excluding GUM) had a total share of 0.53% of the total valid votes, which was still far lower than the 0.80% GUM alone got.

Figure 13



## CHAPTER 4: HOW CONSTITUENCIES RATED THE FIRST FOUR YEARS OF THE AKUFFO ADDO'S PRESIDENCY

The author used the % increase (decrease) in constituency results of the NPP to model voters' perception about the government performance. The model is based on the simple assumption that a positive % increase represents voters' approval and a lower one represents voters' disapproval. A deviation of  $\pm 2\%$  from the 2016 results was deemed acceptable.

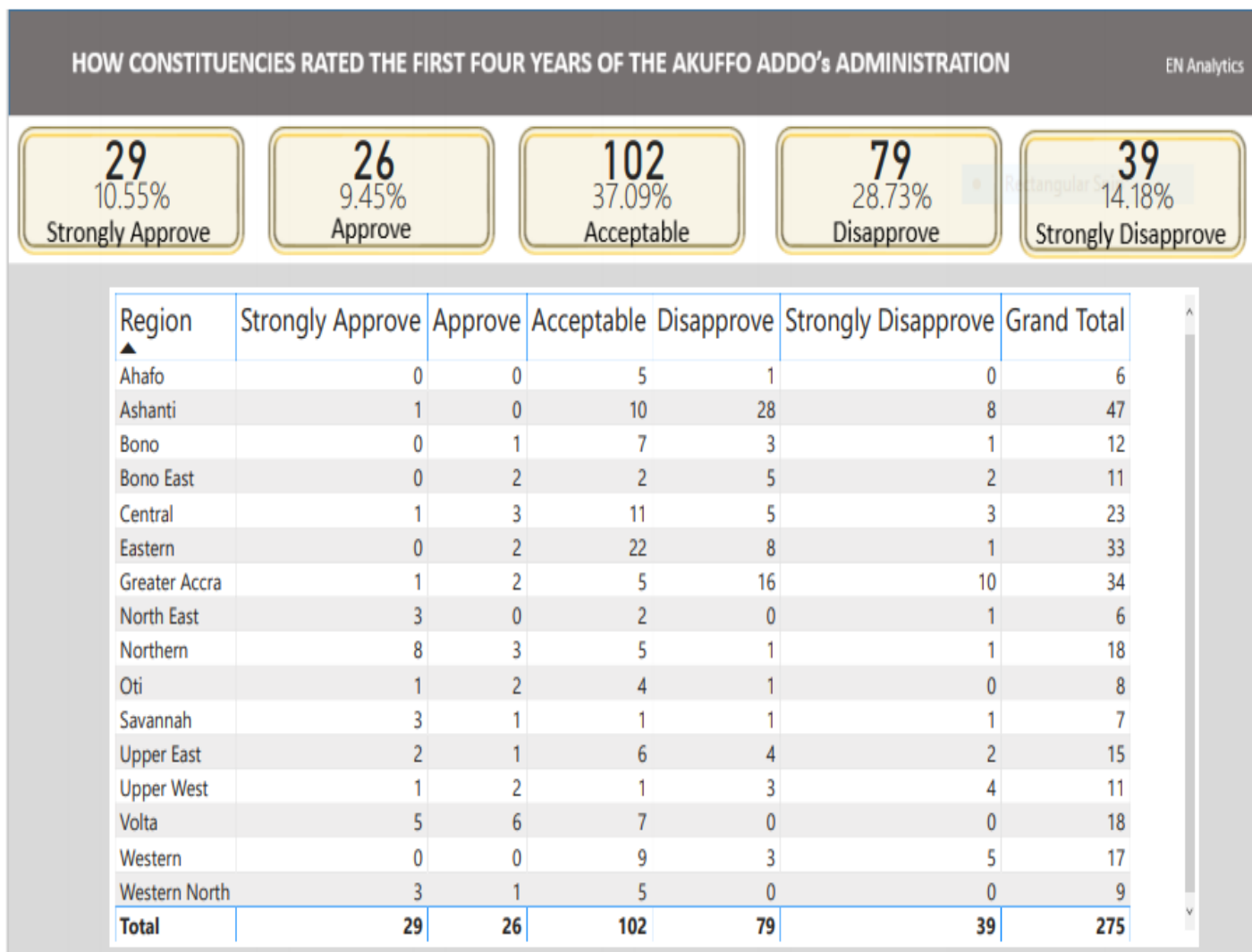
The rating criteria is set out in the table below:

Strongly Approve	Approve	Acceptable	Disapprove	Strongly Disapprove
$\geq +5\%$	$> +2\%, < +5\%$	$\pm 2\%$	$< - 2\%, > -5\%$	$\leq -5\%$

The dashboard below gives a summary of how the constituencies in the various regions viewed the first four years of the Akuffo Addo's presidency.

### 4.1 The Rating Dashboard

Figure 14



- In all, a plurality of constituencies, 157 representing 57.1%(Acceptable, Approve and Strongly approve) gave favourable ratings for the performance of the administration in the first four years.
- Without the effect of the baseline “Acceptable” category, more constituencies (118) expressed some form of disapproval (Disapprove or Strongly Disapprove) than the 55 constituencies that expressed some form of approval (Approve or Strongly Approve).
- The administration got good ratings from constituencies in Northern, North East, Oti, Savannah, Volta, and Western North regions.
- The administration got unfavourable ratings from constituencies in Ashanti, Greater Accra, Western, and Bono East.
- In particular, Ashanti and Greater Accra regions had high disapproval for the administration’s performance. For example, in Ashanti, 28 constituencies Disapproved, 8 more Strongly Disapproved with only one constituency in the region expressing some form of approval for the presidency.
- Twenty-two (22) constituencies in the president’s home region rated the administration’s performance acceptable with 8 constituencies disapproving of his performance.

The next pages give the lists of the top 20 constituencies in each category except the “Acceptable” category with their respective margins of approval or disapproval.

Table 7

STRONGLY APPROVE				APPROVE			
	Region	Constituency	Margin ▾		Region	Constituency	Margin ▾
1.	North East	Yagaba/Kubori	19.77%	1.	Northern	Yendi	4.73%
2.	Savannah	Salaga North	17.77%	2.	Northern	Zabzugu	4.71%
3.	Northern	Karaga	16.41%	3.	Volta	Agotime-Ziope	4.51%
4.	Northern	Kumbungu	15.23%	4.	Volta	Adaklu	4.4%
5.	Upper East	Builsa South	15.02%	5.	Volta	Anlo	4.38%
6.	Volta	Hohoe	13.62%	6.	Greater Ac...	Amasaman	4.37%
7.	Northern	Mion	12.91%	7.	Northern	Nanton	4.36%
8.	Northern	Tatale / Sanguli	10.7%	8.	Volta	Afadjato South	4.08%
9.	Upper West	Nandom	10.68%	9.	Volta	South Dayi	3.75%
10.	Volta	Akatsi North	10.15%	10.	Upper West	Lambussie-Karni	3.64%
11.	Savannah	Daboya / Mankarigu	8.93%	11.	Volta	Ho West	3.55%
12.	Central	Keea	8.74%	12.	Eastern	Ofoase/Ayirebi	3.43%
13.	Western N...	Sefwi Akontombra	8.51%	13.	Western N...	Bia East	3.08%
14.	Northern	Sagnarigu	7.93%	14.	Central	Abura/Asebu/Kwam...	3.07%
15.	Greater Ac...	Domeabra/Obom	7.05%	15.	Upper West	Jirapa	2.99%
16.	North East	Chereponi	6.87%	16.	Savannah	Salaga South	2.92%
17.	Western N...	Bodi	6.82%	17.	Eastern	Suhum	2.86%
18.	Northern	Savelugu	6.79%	18.	Bono	Dormaa Central	2.82%
19.	Oti	Nkwanta North	6.65%	19.	Oti	Nkwanta South	2.76%
20.	Savannah	Damongo	6.22%	20.	Bono East	Pru West	2.7%

- The Yagaba/Kubori constituency in the North East region was the constituency that gave the administration the highest approval rating.
- Salaga North in the Savannah region, Karaga and Kumbungu in the Northern region all gave the presidency big thumbs up for a good job done in the first four years the gave the president “4 more to do more”.



Table 8

DISAPPROVE				STRONGLY DISAPPROVE			
	Region	Constituency	Margin ▲		Region	Constituency	Margin ▲
1.	Greater Accra	Krowor	-4.92%	1.	Ashanti	Manso Adubia	-17.34%
2.	Greater Accra	Ayawaso West Wuo...	-4.85%	2.	Upper East	Navrongo Central	-11.78%
3.	Greater Accra	Tema-Central	-4.84%	3.	Upper East	Zebilla	-11.59%
4.	Bono East	Techiman North	-4.81%	4.	Central	Upper Denkyira West	-11.54%
5.	Upper East	Garu	-4.74%	5.	Western	Tarkwa Nsuaem	-11.29%
6.	Greater Accra	Okaikwei North	-4.72%	6.	Upper West	Wa East	-9.28%
7.	Central	Awutu Senya East	-4.67%	7.	Ashanti	Manso Nkwanta	-8.87%
8.	Eastern	Lower Manya Krobo	-4.64%	8.	Western	Prestea Huni-Valley	-8.79%
9.	Greater Accra	Ayawaso North	-4.6%	9.	Upper West	Nadowli/Kaleo	-8.69%
10.	Upper West	Daffiama/Bussie/Issa	-4.46%	10.	Western	Amenfi East	-8.54%
11.	Greater Accra	Anyaa/Sowutuom	-4.44%	11.	Central	Upper Denkyira East	-7.98%
12.	Ashanti	Manhyia North	-4.43%	12.	Northern	Saboba	-7.33%
13.	Eastern	Atiwa West	-4.39%	13.	Ashanti	Afigya Kwabre North	-7.32%
14.	Greater Accra	Korle Klottey	-4.36%	14.	Ashanti	Akrofuom	-7.12%
15.	Ashanti	Kwabre East	-4.36%	15.	Greater Accra	Tema-East	-7.09%
16.	Greater Accra	Okaikwei South	-4.3%	16.	Ashanti	Odotobiri	-7.05%
17.	Bono East	Nkoranza South	-4.13%	17.	Upper West	Sissala West	-7.04%
18.	Greater Accra	Ablekuma North	-4.1%	18.	Western	Ahanta West	-6.8%
19.	Bono East	Techiman South	-4%	19.	Greater Accra	Dome/Kwabanya	-6.55%
20.	Greater Accra	Ablekuma Central	-3.98%	20.	Upper West	Wa Central	-6.48%

## 4.2 NPP takes a hit in mining communities

It seems the administration took a direct and significant hit in the 2020 elections for its crackdown on illegal mining. At the apex of the Strongly Disapprove log is Manso Adubia, one of the epicenters of illegal mining in the country. Almost all the constituencies where illegal mining is rife either Disapproved or Strongly Disapproved of the administration's performance. From Amenfi East to Tarkwa-Nsuaem, Afrofoom to Upper Denkyira East & West, Prestea Hunny-Valley to Atiwa East & West, Ahanta West to Obuasi East, all the 26 constituencies with reported cases of galamsey in the media gave the president and his administration thumps down.

It seems these die hard illegal miners are not only bent on destroying the forest and the water bodies, but are also willing to show any political party that crosses their path the exit.

### 4.3 The Enthusiasm Gap

One of the key metrics for measuring and forecasting elections is looking at how enthusiastic voters are toward a particular candidate or a party. In the absence of polling in 2020 on enthusiasm, the author used the growth rate in total votes cast within each constituency to gauge how enthusiastic voters were in the various constituencies during the just ended elections. This is because there is almost a perfect correlation between enthusiasm and turnout. The table below gives the 30 least (and most) enthusiastic constituencies.

Table 9

LEAST ENTHUSIASTIC				MOST ENTHUSIASTIC			
Region	Constituency	Winning Party	% Growth in Vote Cast	Region	Constituency	Winning Party	% Growth in Votes Cast
Ashanti	Manhyia South	NPP	-20.17%	Central	Gomoa East	NPP	110.00%
Western	Amenfi East	NDC	-17.34%	Gt. Accra	Amasaman	NPP	102.66%
Ashanti	Subin	NPP	-6.44%	Western	Wassa East	NDC	94.99%
Eastern	Akim Swedru	NPP	-1.39%	Central	Awutu Senya East	NPP	87.12%
Ashanti	Old Tafo	NPP	-0.94%	Oti	Buem	NDC	85.69%
Western	Takoradi	NPP	-0.85%	Gt. Accra	Ningo Prampram	NDC	84.69%
Central	Cape Coast South	NPP	-0.60%	Gt. Accra	Domeabra/Obom	NDC	73.39%
Western	Sekondi	NPP	-0.54%	Ashanti	Sekyere Afram Plains	NDC	72.36%
Eastern	Ofoase/Ayirebi	NPP	0.11%	Gt. Accra	Adentan	NDC	69.36%
Western	Effia	NPP	1.16%	Savannah	Bole/Bamboi	NDC	66.97%
Gt. Accra	Okaikwei Central	NPP	1.26%	Gt. Accra	Bortianor-Ngleshie Amanfro	NPP	66.26%
Ashanti	Suame	NPP	1.85%	Northern	Sagnarigu	NDC	62.23%
Gt. Accra	Ayawaso Central	NPP	2.09%	Gt. Accra	Shai-Osudoku	NDC	62.07%
Ashanti	Adansi Asokwa	NPP	2.13%	Savannah	Damongo	NDC	60.17%
Gt. Accra	Ablekuma South	NDC	2.47%	Gt. Accra	Kpone-Katamanso	NDC	57.83%
Gt. Accra	Ayawaso East	NDC	2.52%	Bono	Jaman North	NDC	48.52%
Eastern	Akwatia	NPP	2.71%	Ashanti	Atwima Kwanwoma	NPP	48.45%
Ashanti	Oforikrom	NPP	2.95%	Bono East	Atebubu/Amantin	NDC	48.11%
Gt. Accra	Okaikwei South	NPP	3.06%	Gt. Accra	Madina	NDC	46.88%
Ashanti	Obuasi West	NPP	3.50%	Northern	Karaga	NPP	44.29%
Gt. Accra	Ablekuma North	NPP	4.32%	Western	Amenfi West	NDC	44.20%
Ashanti	Kwadaso	NPP	4.43%	North East	Yagaba/Kubori	NPP	43.69%
Ashanti	Kumawu	NPP	5.69%	Western	Evalue - Ajomoro - Gwira	NDC	43.14%
Eastern	Kade	NPP	5.77%	Gt. Accra	Ada	NDC	42.67%
Ashanti	Asokwa	NPP	5.83%	Western North	Bia East	NDC	42.63%
Ashanti	Afigya Sekyere East	NPP	5.94%	Central	Ajumako Enyan Esiam	NDC	42.35%
Eastern	Lower West Akim	NPP	6.16%	Northern	Gushegu	NPP	41.72%
Gt. Accra	Korle Klottey	NDC	6.42%	Central	Effutu	NPP	41.71%
Ashanti	Effiduase/Asokore	NPP	6.64%	Savannah	Salaga North	NDC	41.43%
Ashanti	Obuasi East	NPP	7.07%	Ashanti	Afigya Kwabre South	NPP	40.99%

- Of the least enthusiastic constituencies, 26 out of the 30 constituencies were won by the NPP, or are traditionally NPP constituencies.
- In 8 constituencies, fewer people voted in 2020 than they did in 2016. This happened in Manshyia South, Amenfi East, Subin, Akim Swedru, Old Tafo, Takoradi, Cape Coast South, and Sekondi.
- Manshyia South was the constituency with the least enthusiastic voters in the 2020 elections. Nominally, 33,518 people voted in the 2020 elections as against total votes cast of 41,986 in 2016, a drop of 8,468 voters (ie a 20.17% drop in voter turnout).
- Of the most enthusiastic constituencies, 20 out of the 30 constituencies were won by the NDC, while the NPP won 10.
- Two constituencies had over 100% increase in turnout when compared with the 2016 data, an unprecedented growth in just four years. They are Gomoa East and Amasaman, both were won by the NPP.

Modeling the entire dataset produced the table below:

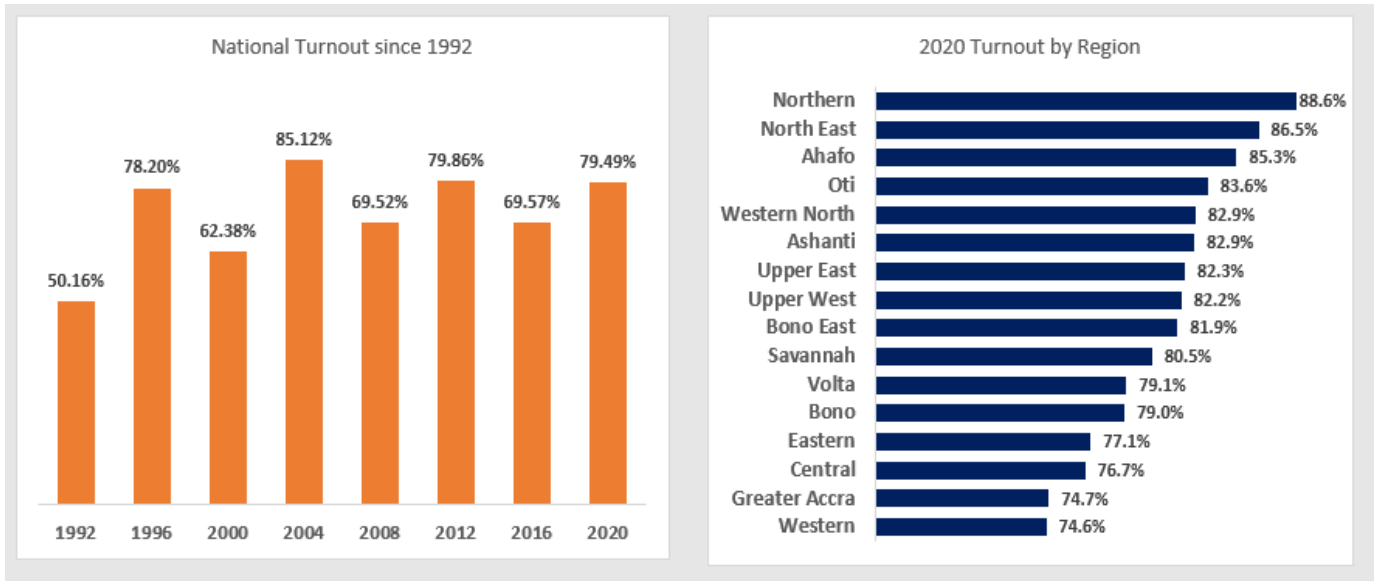
	NPP	NDC	Enthusiasm Advantage
Constituencies won	144	131	
Average Enthusiasm per constituency	19.8%	30.1%	+10.3% NDC

From the table above, increase in total votes cast averaged 19.8% in the 144 constituencies won by the NPP, while it averaged 30.1% in the 131 constituencies won by the NDC, giving the NDC a 10.3% advantage in enthusiasm level heading into the 2024 elections.

Even though the NDC has the wind slightly on its back, it does not necessarily translate into increased turnout in favour of the NDC in 2024. Four years from now is a long journey and other factors such as the choice of a presidential candidate for either party, internal party squabbles, and the performance of the government all impact directly on voter enthusiasm.

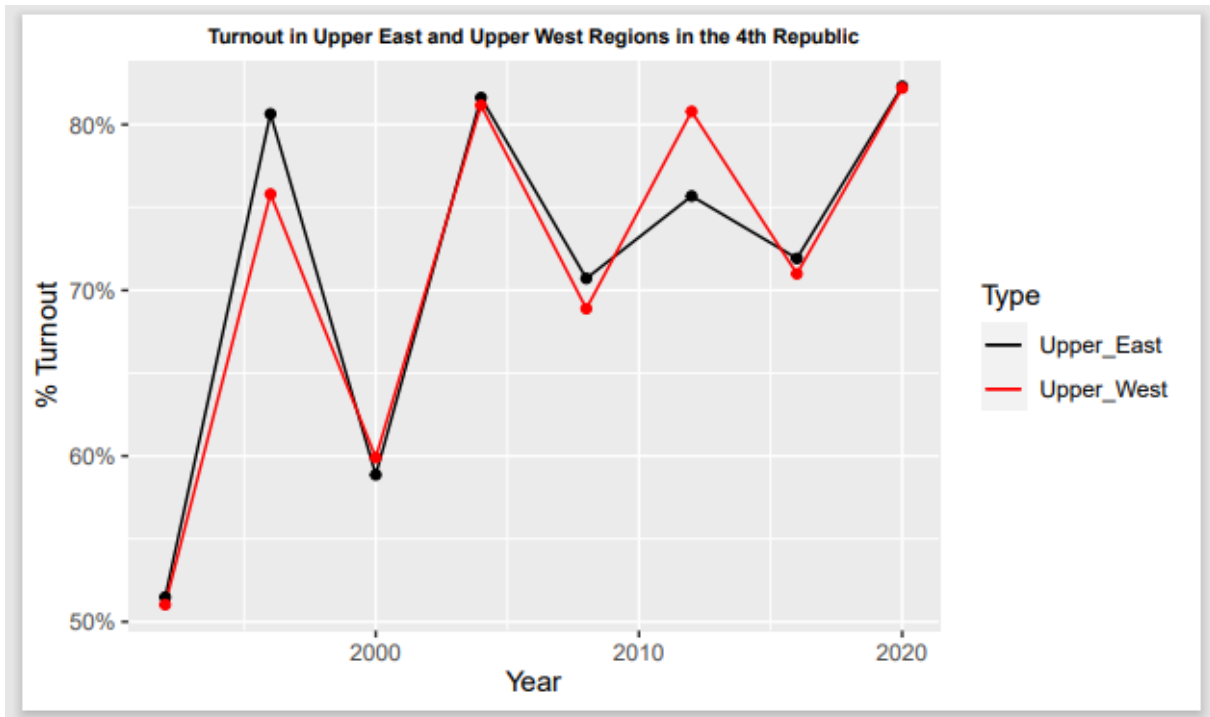
## CHAPTER 5: TURNOUT

Figure 15



### Upper East and Upper West set turnout records in 2020 Elections

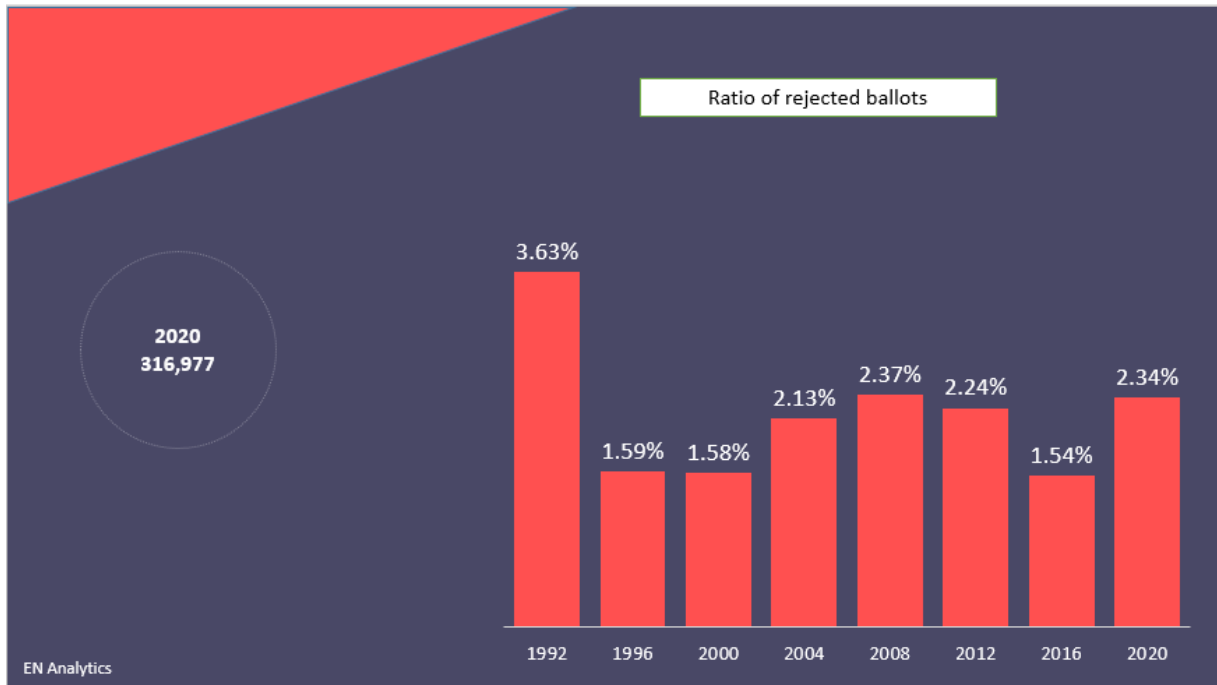
Figure 16



- Upper East and Upper West recorded turnout of 82.3% and 82.2% respectively in the 2020 elections, which were the highest for the regions in the 4<sup>th</sup> republic.

## CHAPTER 6: REJECTED BALLOTS

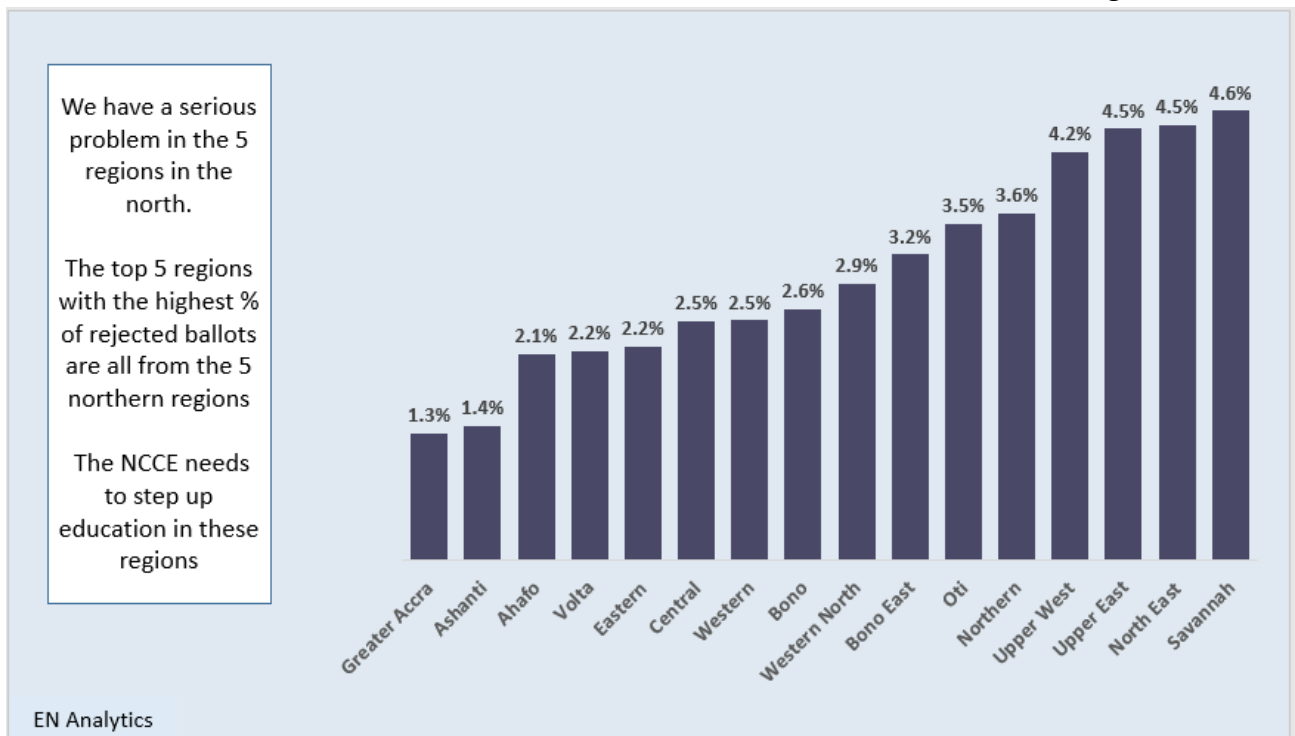
Figure 17



- 2016 was the year we achieved the lowest percentage of rejected ballot.

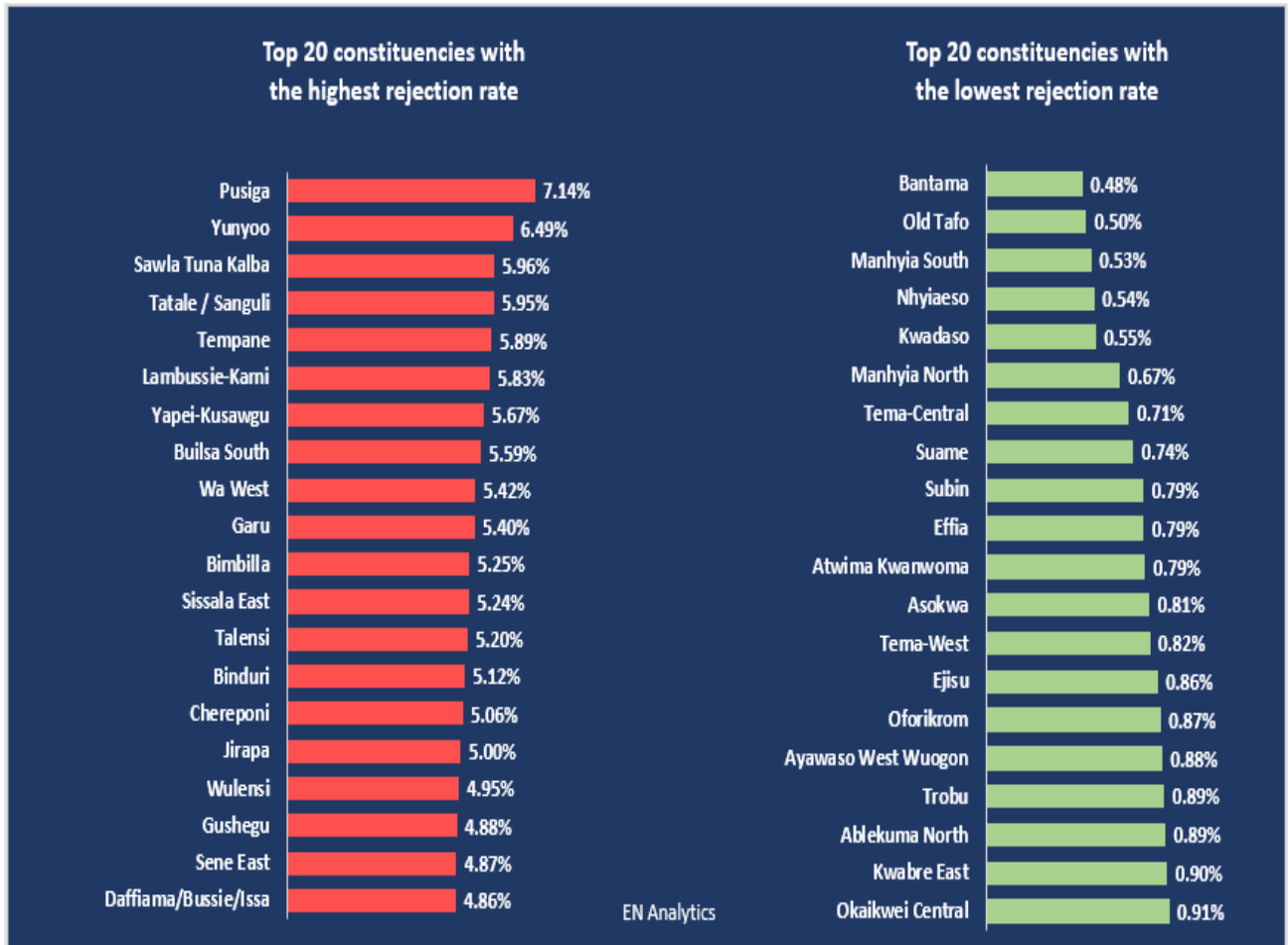
### Rejected ballot by region in 2020 elections

Figure 18



## 6.2 Rejected ballots by Constituency in 2020 elections

Figure 19



- One striking observation was that all the top 20 constituencies with the lowest rejected ballot rates were won by the NPP in the presidential election.
- 14 out of the 20 constituencies with the lowest rates of rejected ballots are in the Ashanti region.
- All the top 20 constituencies with the highest rates of rejected ballots are in the five regions of the north, except Sene East, which is in the Bono East region.

## CHAPTER 7: STATISTICAL ANALYSIS

### 7.1 The Scatter Plots for 2016 and 2020 Elections

Figure 20

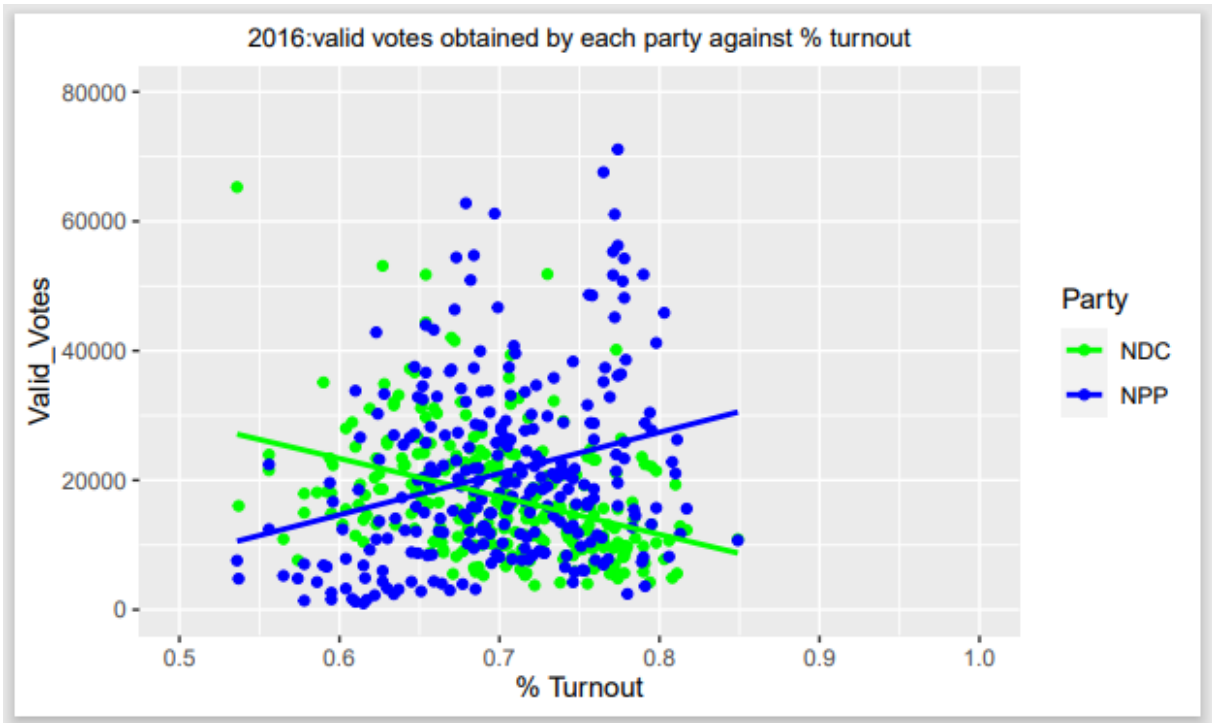
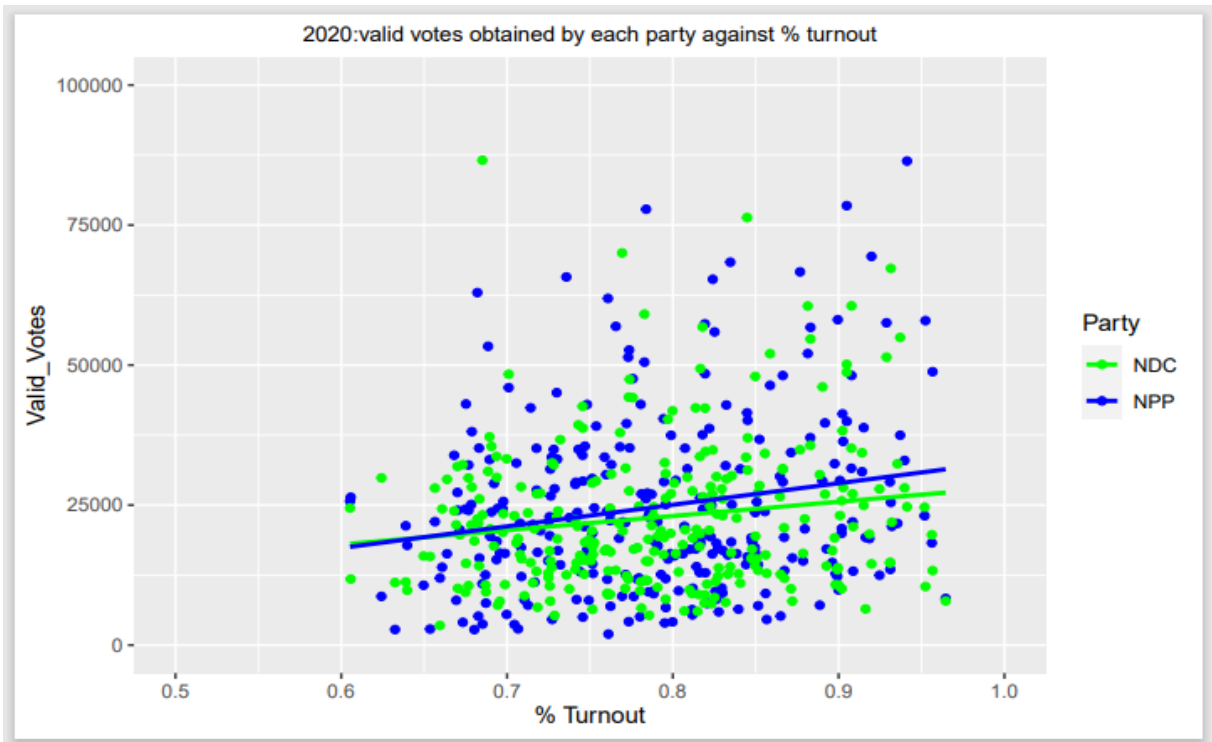


Figure 21



- NPP had a slight edge over NDC as turnout increases. NPP won majority of the constituencies in which turnout was above 75%. As we can observe on the 2020 chart, the gap between the trendlines begins to widen as turnout crosses the 75% mark.
- NDC was annihilated in 2016 as turnout increased, resulting in an inverse relationship between the valid votes obtained by the party and turnout. It seems to have reversed course in the 2020 elections and has put the party on an upward trajectory.

**7.2 The Correlation Matrix**

Covariance Analysis: Ordinary  
 Date: 03/15/21 Time: 23:00  
 Sample: 1 275  
 Included observations: 275

Table 10

Correlation Probability	NDC	NPP REGISTERE...	TURNOUT	VALID_VOTES	
NDC	1.000000 ----				
NPP	0.194555 0.0012	1.000000 ----			
REGISTERED_VO...	0.719590 0.0000	0.775873 0.0000	1.000000 ----		
TURNOUT	0.737376 0.0000	0.805026 0.0000	0.968690 0.0000	1.000000 ----	
VALID_VOTES	0.730674 0.0000	0.811591 0.0000	0.969234 0.0000	0.999668 0.0000	1.000000 ----

- All the probability values are statistically significant.
- NPP had a higher coefficient than NDC when correlated against turnout, buttressing the earlier point that there is a more direct relationship between turnout and valid votes obtained by the party than it is for NDC.
- There was almost a perfect correlation between Registered voters and Turnout. This was to be expected because of the new voter register compiled just before the elections.
- For all three variables, i.e. Registered Voters, Turnout, Total Valid Votes Cast, the NPP exhibited a stronger direct relationship than the NDC in all three categories.

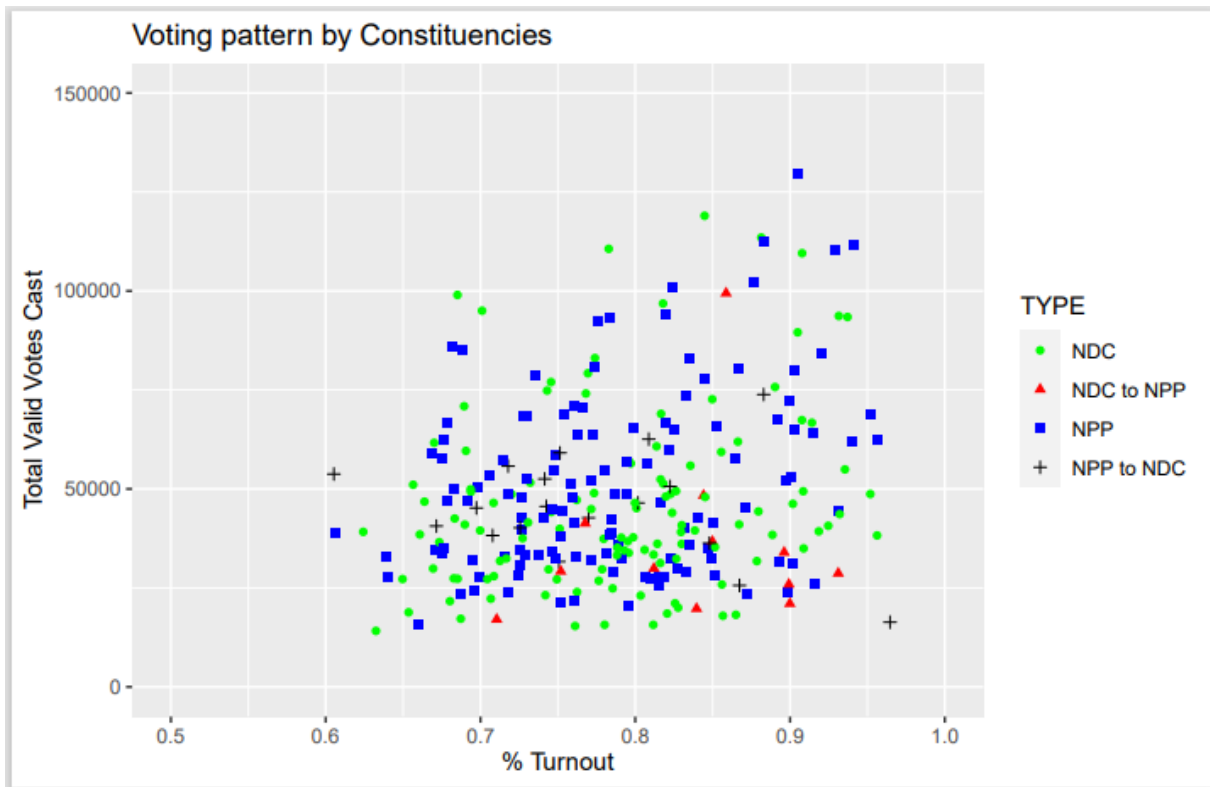


### 7.3 Voting Pattern by Constituencies (“Skirt and Blouse”)

The graph below shows how the various constituencies voted in the just ended elections. The following definitions under “TYPE” apply:

- NDC: constituencies that voted NDC in both presidential and parliamentary.
- NPP: constituencies that voted NPP in both presidential and parliamentary.
- NDC to NPP: constituencies that voted for NDC in presidential but NPP in parliamentary.
- NPP to NDC: constituencies that voted for NPP in presidential but NDC in parliamentary.

Figure 22



- This election saw the highest number of constituencies voting for presidential for one party and parliamentary the other way. In all thirty (30) constituencies, representing 11% of all constituencies voted “skirt and blouse”. It shows voters were driven more by local issues that affected them directly at the constituency level than by a single national issue.
- Of the 30 “skirt and blouse” constituencies, the NDC had 12 constituencies voting for its presidential candidate but voting NPP in the parliamentary.
- All constituencies that voted for NDC in presidential but NPP in parliamentary (▲) were smaller constituencies with total valid votes less than 50,000 except one, the infamous Techiman South constituency.

- The increased rate of “skirt and blouse” syndrome reveals an electorate that are beginning to vote based on issues that affect them locally, and MPs who are closer to them will feel the brunt of this emerging trend. Voters will continue to vent their frustrations on members of parliament who are closer to them.

The full list of constituencies that voted “skirt and blouse” in the 2020 elections.

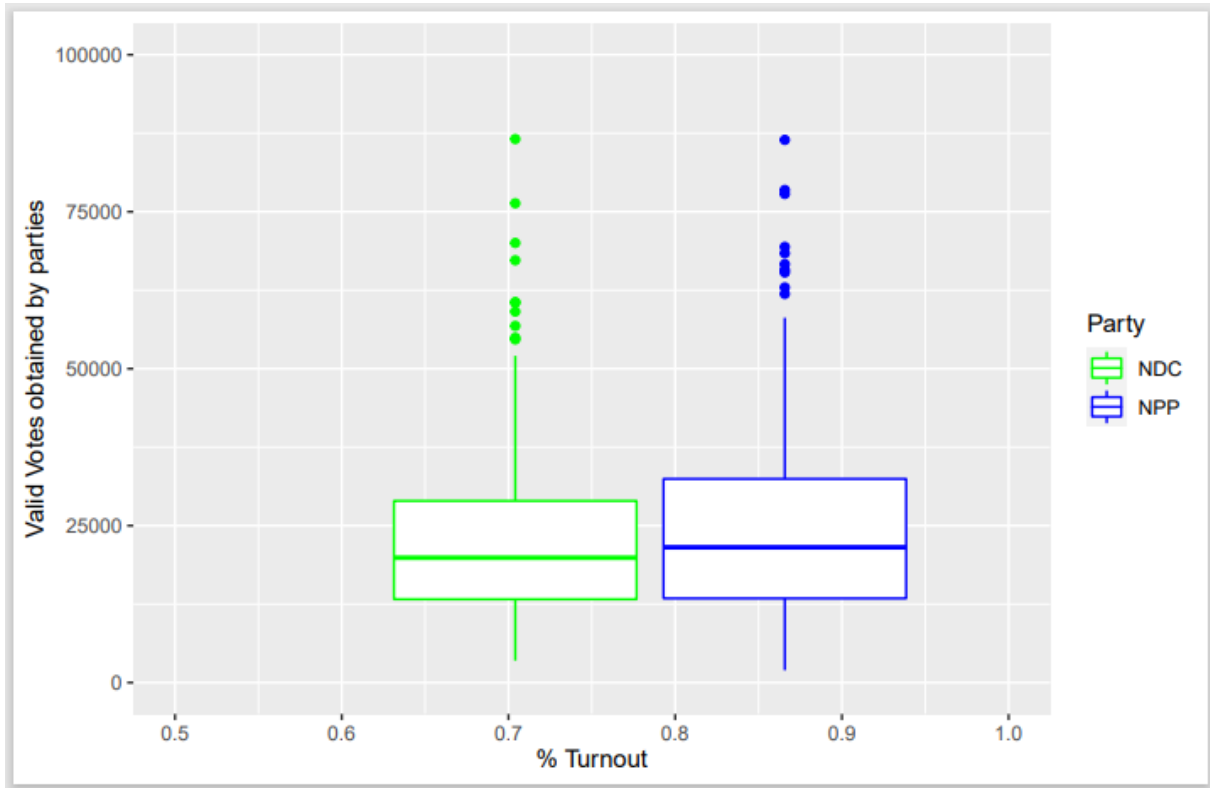
Table 11

NDC Presidential, NPP Parliamentary		NPP Presidential, NDC Parliamentary	
Region	Constituency	Region	Constituency
Bono East	Kintampo South	Ahafo	Asunafo South
	Pru West	Bono	Banda
	Techiman South		Jaman South
	Wenchi		
Eastern	Upper West Akim	Bono East	Nkoranza North
North East	Yunyoo	Central	Agona East
Savannah	Damongo		Asikuma/Odoben/Brakwa
	Salaga North		Assin North
Upper East	Binduri		Awutu Senya West
Upper West	Lambussie-Karni		Cape Coast North
	Nandom		Cape Coast South
	Sissala East		Gomoa East
Volta	Hohoe		Gomoa West
			Upper Denkyira West
		Eastern	Akwatia
			Ayensuano
		Greater Accra	Okaikwei North
		Western	Jomoro

- Ashanti, Northern, Oti and Western North were the only regions that did not vote “skirt and blouse”. The author did not classify the Fomena parliamentary seat as “skirt and blouse”.

## 7.4 Boxplots for NPP and NDC

Figure 23

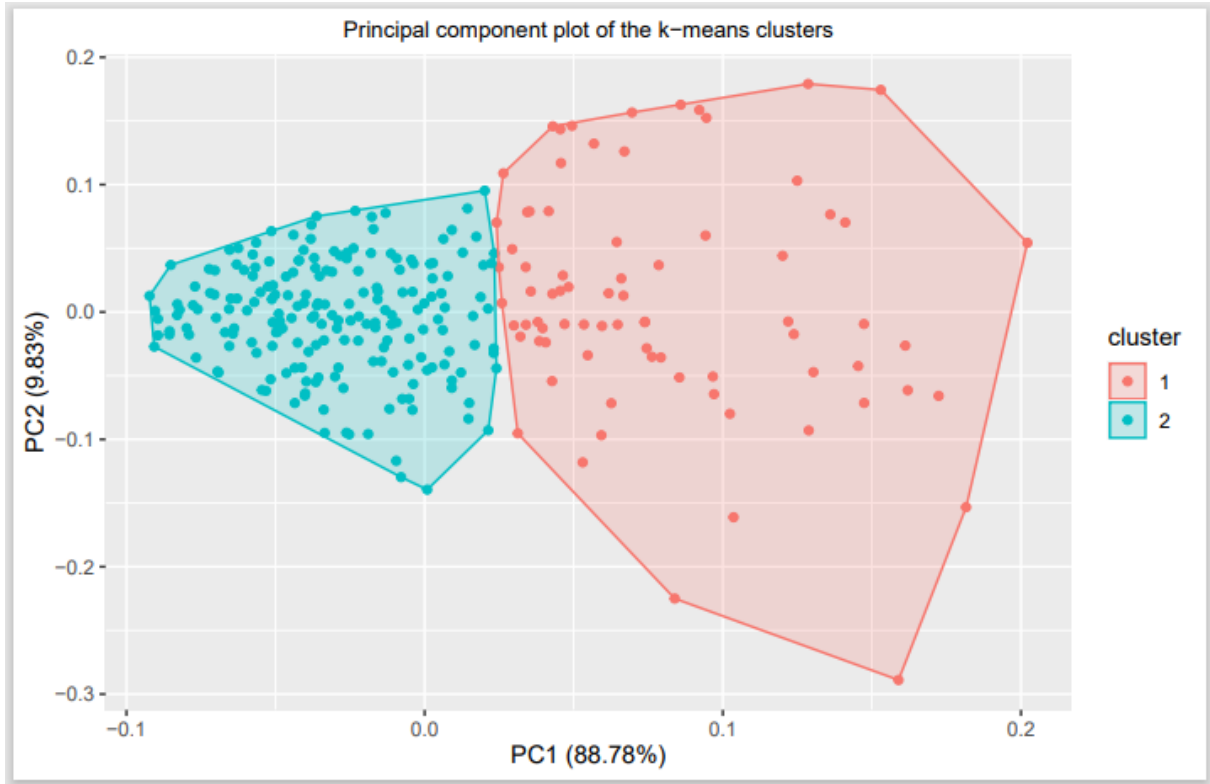


- NPP had the lowest valid votes cast among the two parties. This happened at the Adaklu constituency in the Volta region. The party had 1,967 as its share of the total valid votes.
- NPP had a slightly higher median value in the valid votes it obtained than that of NDC. It had a median value of 21,541 which happened at Abuakwa North while NDC's median value was 19,884 which happened at Karaga.
- NPP has a larger inter-quartile range (a larger boxplot) than NDC, signifying a more dispersed dataset for the NPP than the NDC.
- Finally, the datasets for both parties seem slightly positively skewed.

## 7.5 Cluster Analysis

Using the k-means machine learning technique, the author discovered two distinct clusters in the 2020 election data.

Figure 24



- These two principal components explained about 98% of the total variability in the data.

The centers of the clusters are shown below:

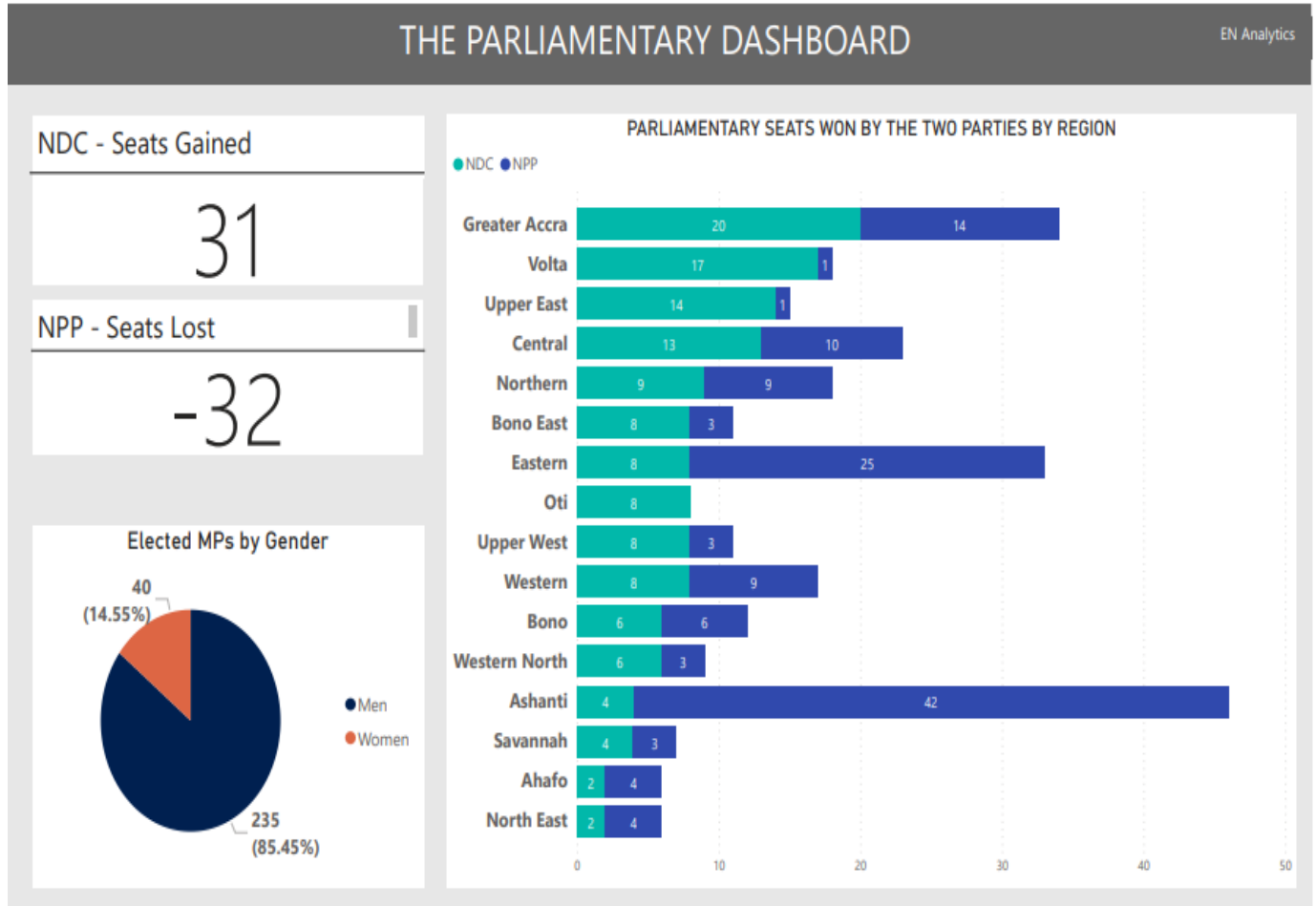
	NPP	NDC	Total_valid_votes	Registered_voters
1	42805.53	33842.78	77509.30	97743.52
2	17575.96	18481.68	36615.45	48561.61

Cluster 1 refers to “Larger” constituencies with an average registered voter population of 97,743. Of this cluster, NPP polled an average valid votes of 42,805 as against 33,842 averaged by NDC.

Cluster 2 refers to “Smaller” constituencies with an average voter population of 48,561. Of this cluster the NDC had a slight advantage, polling an average of 18,481 as against NPP’s figure of 17,575.

NPP won the elections because it had a comparative advantage in cluster 1, and was competitive in cluster 2.

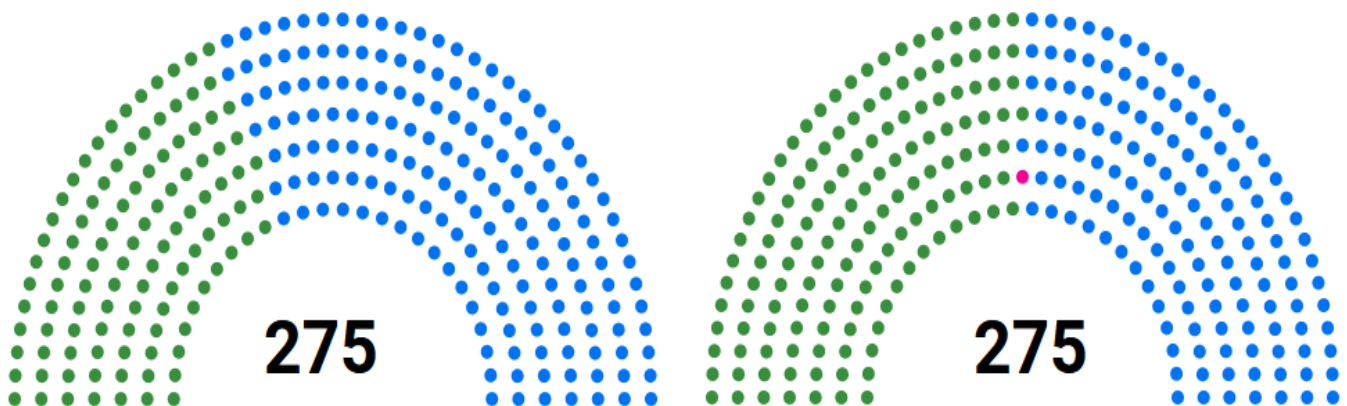
Figure 25



The balance of power

The 7th Parliament

The 8th Parliament



## Regional Breakdown of Changes in Parliamentary Results

Table 12

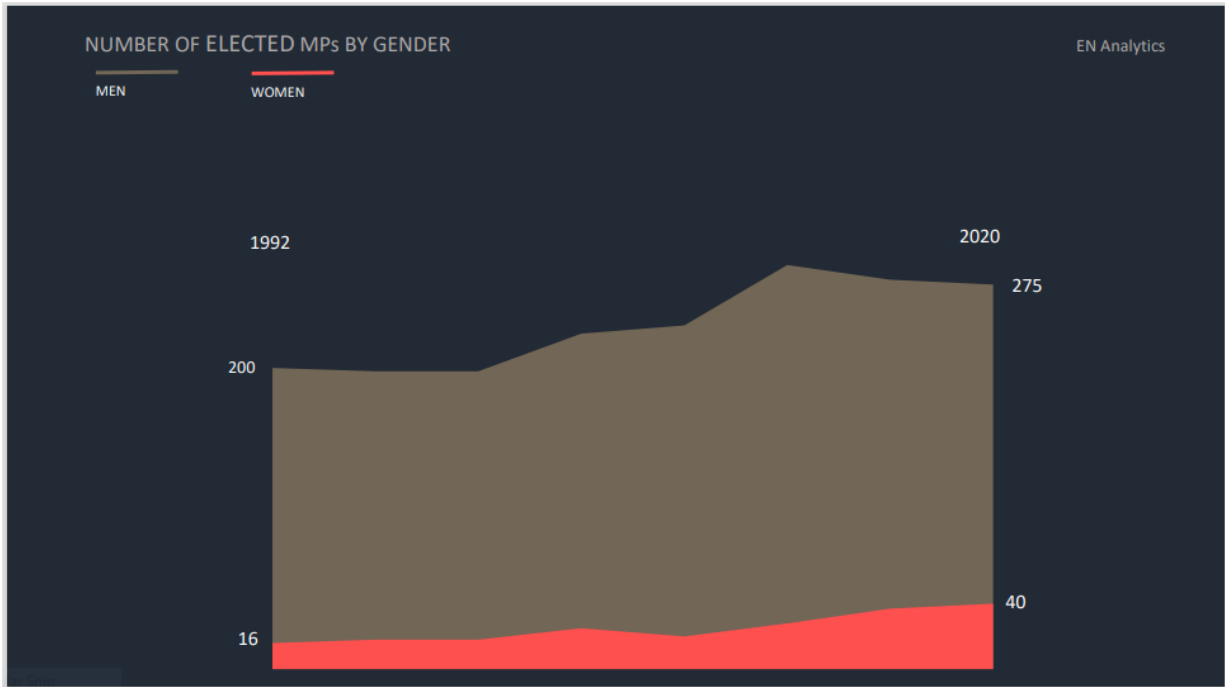
	<b>REGION</b>	<b>NDC</b> ▼	<b>NPP</b>
1.	Central	9	-9
2.	Greater Accra	7	-7
3.	Bono	5	-5
4.	Western	4	-4
5.	Bono East	2	-2
6.	Eastern	2	-2
7.	Upper East	2	-2
8.	Upper West	2	-2
9.	Ashanti	1	-2
10.	Oti	1	-1
11.	Ahafo	0	0
12.	Northern	0	0
13.	Western North	0	0
14.	North East	-1	1
15.	Volta	-1	1
16.	Savannah	-2	2

- In a complete reversal of fortunes, the Central region gave an emphatic mandate to the NDC in the parliamentary elections. Once again the region did not disappoint. It proved that it has no allegiance to either party and it is ever ready and willing to crack the whip at the least opportunity.
- The coastal regions proved to be difficult terrain for the NPP in the parliamentary elections.
- There were no changes in the parliamentary structure in Ahafo, Northern, and Western North regions.
- Despite the Santrofi, Akpafu, Lipke and Lolobi (SALL) controversy, the NPP pulled off one of the most statistically improbable victories in the Hohoe constituency in the Volta region.

## CHAPTER 9: GENDER AND POLITICS

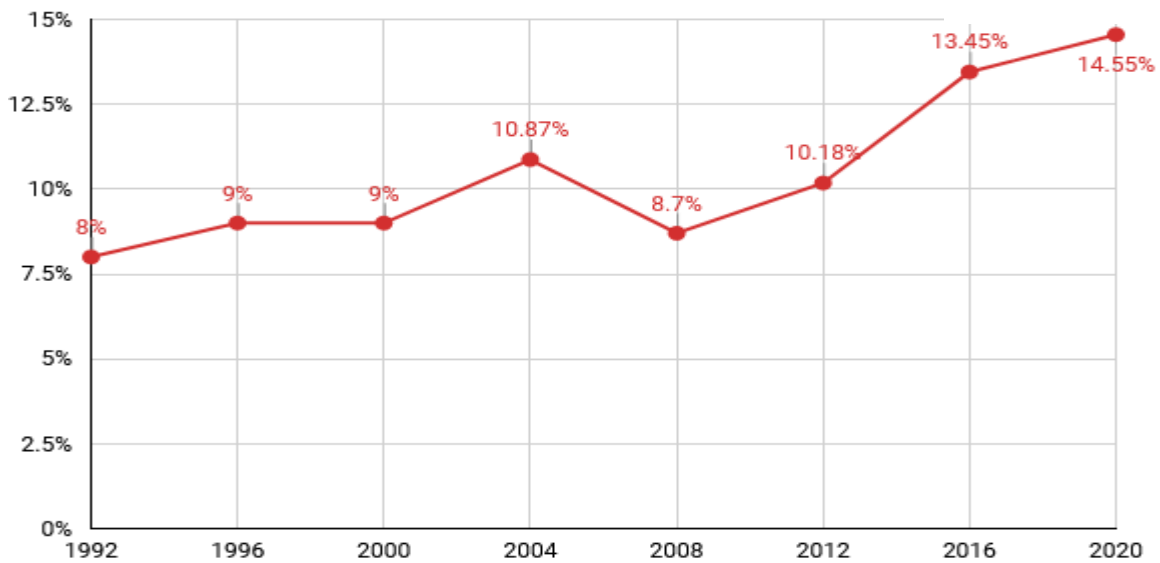
The country continues to make progress on the number of women representation in parliament, though the rate of increase has been slower than expected. All the analysis in this chapter exclude by-election results.

Figure 26



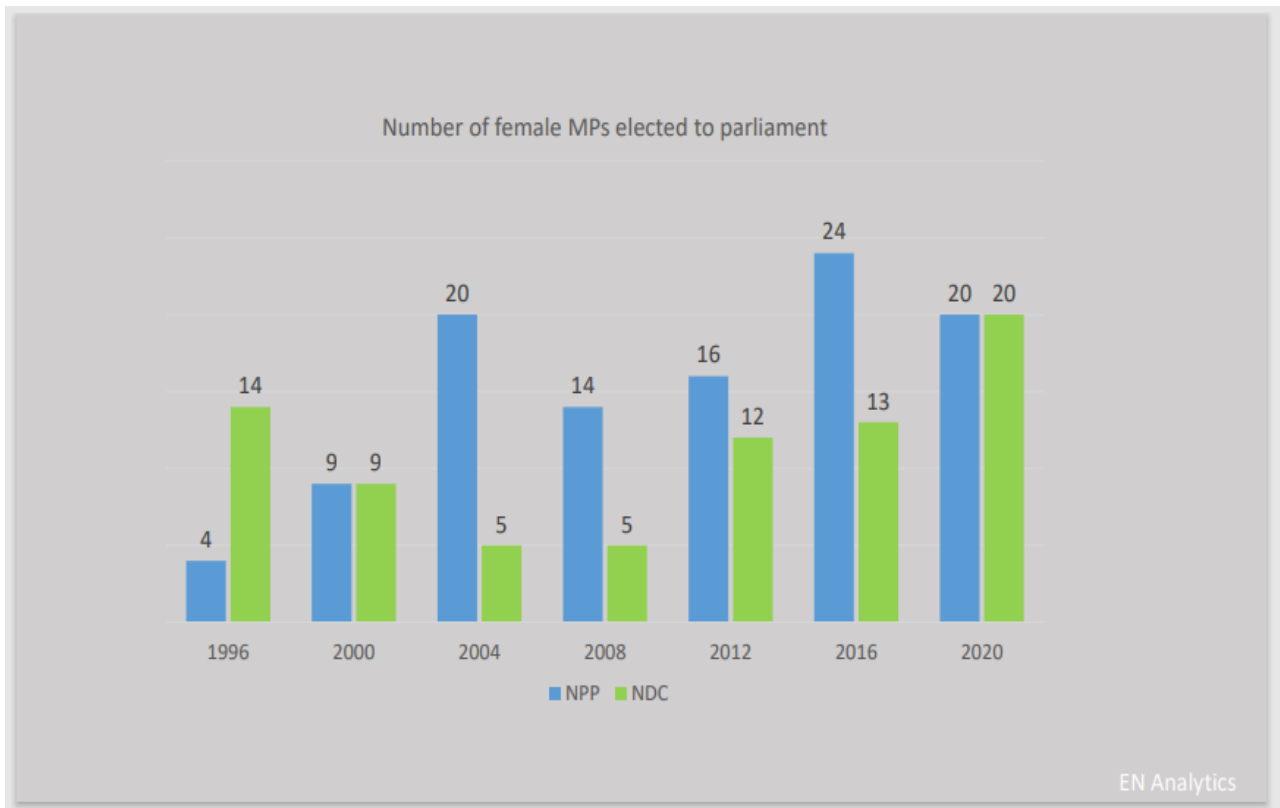
% of female MPs elected to parliament in the 4<sup>th</sup> Republic

Figure 27



## 9.2 Female representation by party

Figure 28



- Election year 1992 has been excluded because the NPP boycotted the parliamentary elections. Also excluded is data on minority parties.
- 2020 was the year NDC sent the highest number of female MPs to parliament in the 4<sup>th</sup> republic. It matched the NPP “boot-for-boot”.
- The NPP must be commended for consistently outperforming the NDC from 2004 to 2016 and equaling the NDC’s performances in 2000 and 2020 in terms of the number of females elected to parliament. For more than two decades, the NDC has not been able to outperform the NPP in this regard.



Figure 29

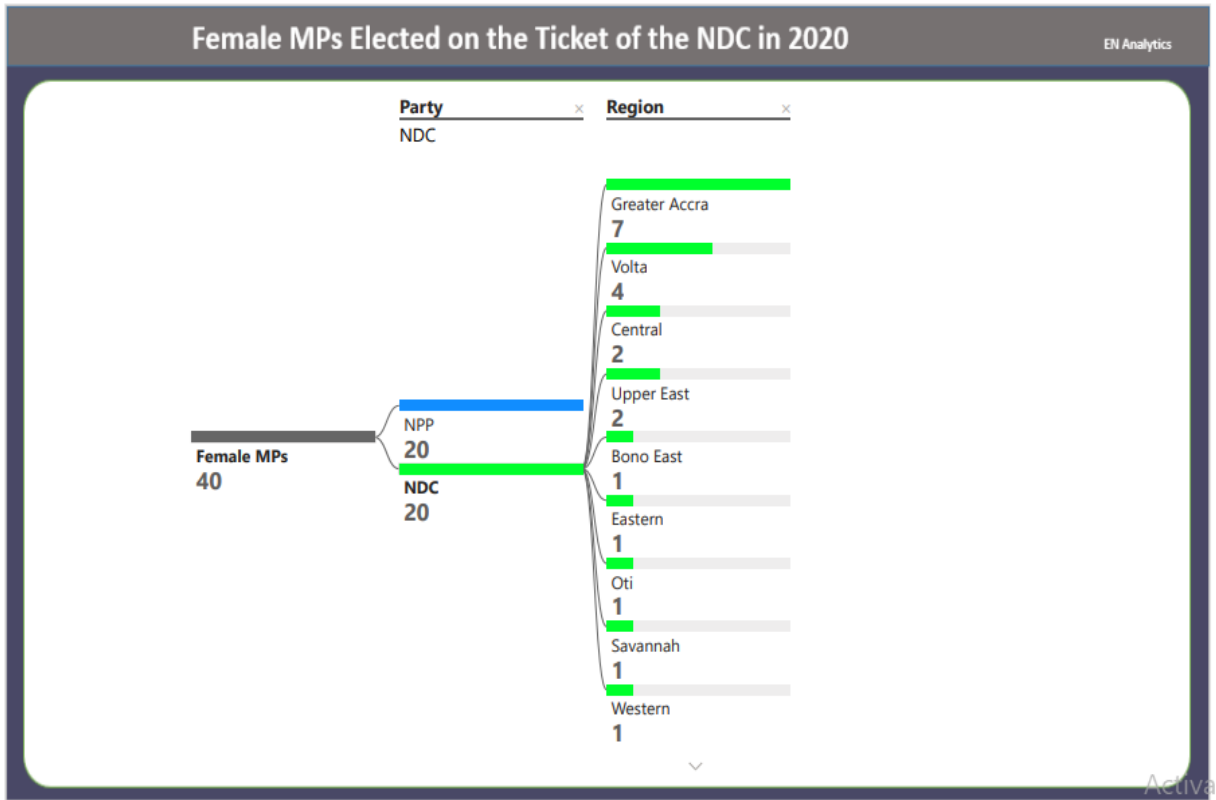
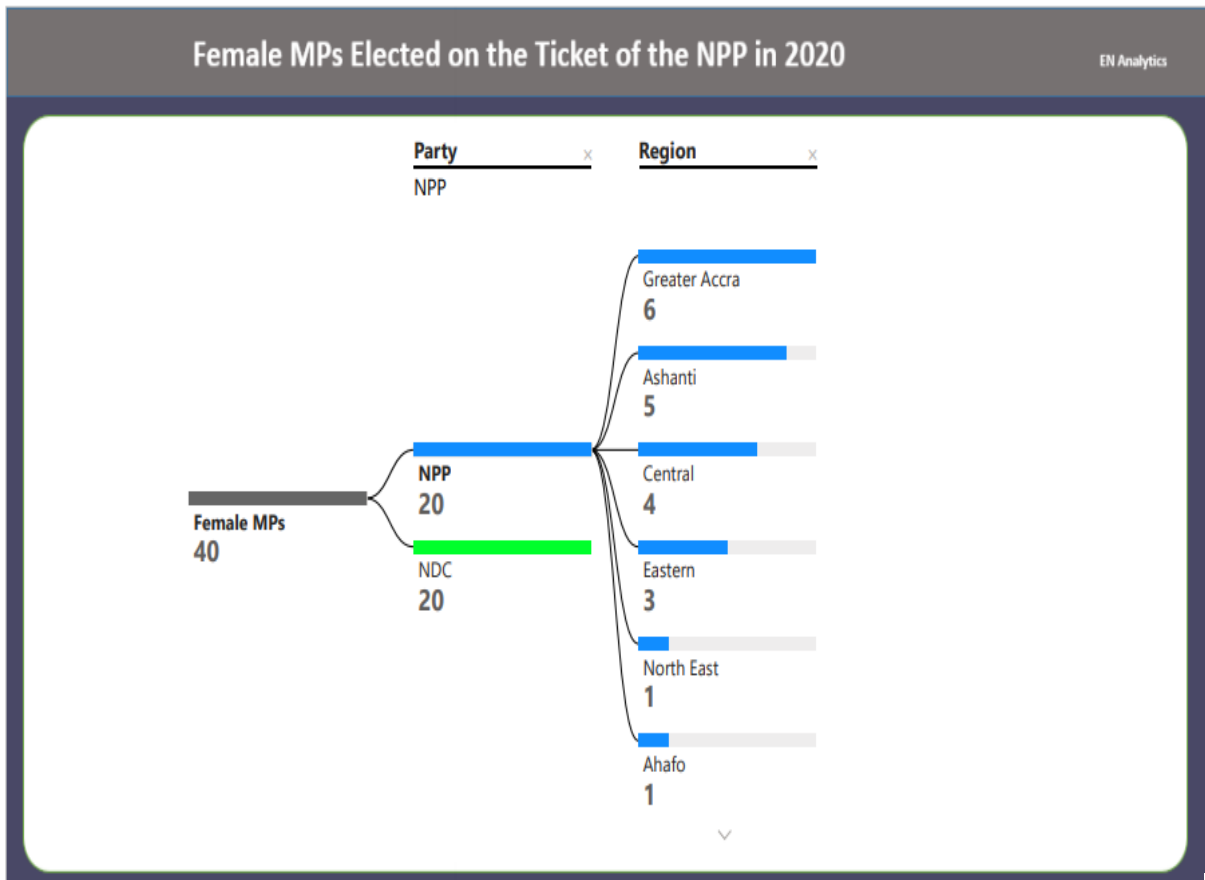


Figure 30



### 9.3 The Gender Performance Index(GPI)

The Gender Performance Index(GPI) is an index exclusively developed by EN Analytics to track the performance of each region as far as the promotion and election of female MPs are concerned in the fourth republic. The model is built by standardizing the raw data (the number of female MPs elected in each region in each election in the fourth republic) using the standard normal distribution. The results are then weighted by the number of constituencies in each region as well as the registered voter population. A final weighting is done by placing more emphasis on recent election data.

For the purposes of the model, the old ten-region structure is maintained since the index represents a cumulative performance in the fourth republic.

Table 13

	Region	GPI Score ▾
1.	Greater Accra	90.7%
2.	Central	79.5%
3.	Volta	57.1%
4.	Ashanti	47.5%
5.	Western	43.9%
6.	Eastern	43.5%
7.	Upper East	34.3%
8.	Northern	32.2%
9.	Brong Ahafo	29.7%
10.	Upper West	25%

- Only three regions had a score above 50%.
- As expected, Greater Accra leads the pack with 90.7%.
- Central Region must be highly commended for its track record on women empowerment in the 4<sup>th</sup> republic. It is a shining light to other regions.
- There must be a conscious effort by stakeholders to improve female participation in regions with a GPI score of less than 40%.

Figure 31

NUMBER OF WOMEN ELECTED TO PARLIAMENT IN THE 4<sup>TH</sup> REPUBLIC BY REGION

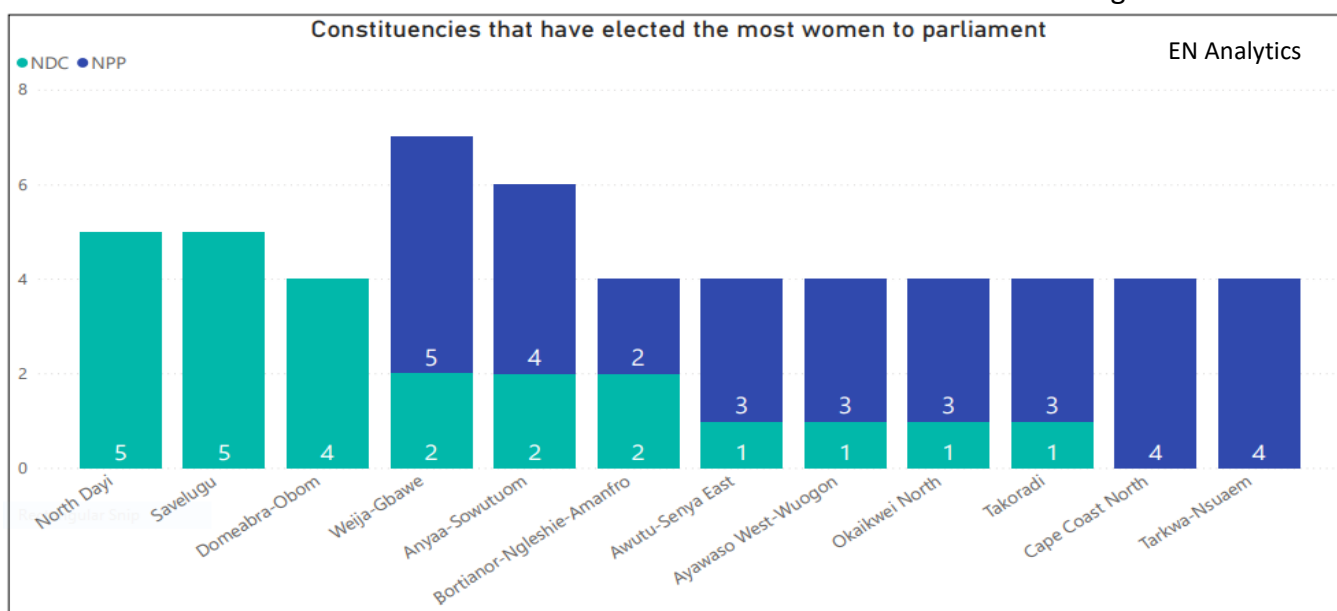
EN Analytics

	2020	2016	2012	2008	2004	2000	1996	1992	Total
Greater Accra	13	10	8	4	5	2	4	2	48
Ashanti	5	5	4	4	5	2	2	4	31
Central	6	6	5	1	2	4	4	3	31
Volta	5	5	3	2	2	1		1	19
Eastern	4	5	3	3	1		1	1	18
Western	1	2	1	3	3	4	1	2	17
Brong Ahafo	2	2	2		1	2	3	2	14
Northern	2	1	1	2	4	1	2		13
Upper East	2	1	1		1	1	1	1	8
Upper West				1	1	1			3
<b>Total</b>	<b>40</b>	<b>37</b>	<b>28</b>	<b>20</b>	<b>25</b>	<b>18</b>	<b>18</b>	<b>16</b>	

- Greater Accra, Central, Volta, and Eastern regions have all upped their games in recent elections.
- We have to wake up Upper West region from its slumber. It is like it doesn't know that we have entered the 21<sup>st</sup> century.

#### 9.4 Constituencies That Have Elected The Most Female MPs In The 4<sup>TH</sup> Republic

Figure 32



- The data has been adjusted for changes in name of a constituency or a split of a constituency. For example, Cape Coast North benefits from its parent constituency Cape Coast.
- Weija/Ghawe is the undisputed champion in the fourth republic. It has sent 7 female MPs out of the eight elections held in the 4<sup>th</sup> republic. It was only in the year 2000 that the constituency failed to send a woman as MP to parliament. Remember that it benefits from its parent constituency Weija, as well as its “grandparent” constituency Ga South.

## CONCLUSION

The 2020 elections provided insights into how voters are reacting to the policies of politicians. One key takeaway from the 2020 dataset is that the Ghanaian voter is now more sensitive than ever. S(he) is looking for politicians who will solve the numerous challenges facing him/her at the local level.

The changing demographics means that the two parties cannot continue to rely solely on their “world banks” to get them over the finish line in presidential elections. In the 2020 elections, the NDC made significant in rolls in Ashanti and Eastern regions, while the NPP found openings in Volta and Northern regions. The successes of the parties in future elections will depend on how they perform outside their traditional strongholds.

The upcoming 2024 elections will be one of the most competitive elections in the 4<sup>th</sup> republic with a high possibility of a run-off in play. With tensions already high in both parties on potential 2024 presidential nominees, the stage is set for an acrimonious election in 2024. The key variables that may impact the upcoming elections are how each party manages the selection process for its presidential candidate, internal party squabbles and divisions, and the selection process for parliamentary candidates.

For the NPP, its fortunes are tied to the second term performance of the Nana Addo’s administration. With a majority of constituencies giving the administration the baseline pass mark of “Acceptable”, an improved performance will benefit the party greatly.

For the NDC, it has to improve on its performance in bigger constituencies. A slight improvement in that area will better its chances of winning the next elections.

The Electoral Commission should ensure that some of the basic arithmetic errors that occurred are avoided.

Finally, we should strive as a country to get to at least a 20% female representation in parliament. Though much process has been made, we can do better.

## ABOUT EN ANALYTICS AND CONSULTING LIMITED

EN Analytics and Consulting Limited is a data analytics firm based in Accra that helps businesses and institutions make data-driven decisions. We generate insights from data by performing data and statistical analysis using cutting edge analytic and statistical tools.

We provide training and consulting services in Advanced Excel, Power Bi, Google Analytics, Eviews, R Programming , and Advanced Analytics. Our goal is to help businesses and organisations turn their data into actionable information.

We are the leaders of Advanced Excel training in Ghana and no matter how big or small Excel plays in your organisation, we equip you with the skills necessary to use this universal data analysis tool effectively.

For businesses that want more reporting power and analytical muscle than that offered by Microsoft Excel, Power Bi is the next level in business intelligence. Our team of Power BI experts will help you gain hands-on experience creating reports, visualizations, and dashboards with Microsoft Power BI.

We help institutions automate and build corporate dashboards for real-time business decisions either using Google Data Studio or the Power BI Service.

Instead of investing huge sums of money in data infrastructure, sometimes all what your business needs is Google Sheets(free) or Excel Online (or Office 365 for premium) to solve your data needs and challenges. We offer training in these cloud-based spreadsheets for data gathering, collaboration and automation.

Are you an organisation that generates data and want to make meaning out of your data? Just give us a call. We will help you generate the needed insights and analytics from your datasets. Our goal is to make your data work for you.

Beyond our baseline training programmes in Advanced Excel, Power Bi and Google Analytics, we also offer training and consulting services in advanced analytics using “R” and Eviews. We offer consulting services in forecasting, simulations and decision modelling using these advanced statistical and econometric tools.

No matter your data and analytic needs, we are here to help you solve them. Contact us at :

EN Analytics and Consulting Limited  
P.O Box SK 2369, Sakumono, Accra

Mobile : 0558630338

Email : [info@enanalytics.com](mailto:info@enanalytics.com)

Website: [www.enanalytics.com](http://www.enanalytics.com)

## OUR RANGE OF TRAINING AND CONSULTING SERVICES AT EN ANALYTICS

### ADVANCED EXCEL

- Date and Time Functions in Excel
- Text Functions
- Advanced Functions in Excel
- If Statements and Logical Functions
- Lookup Functions in Excel
- Data Validation
- Charts and Visualisations
- Decision Modelling (What if Analysis, Forecasting, Solver)
- Financial Modelling
- PivotTables and Dashboards In-depth
- Data Analysis Tool Pack (for Statistics)
- Power Query, Data Model and Power Pivot
- Data Analysis Expressions (DAX)
- Macros and VBA

### POWER BI

- Overview of Power Bi
- Connecting to data sources
- Data Transformation
- Data Modelling
- Data Visualisations
- DAX Expressions
- Creating Measures
- The Power Bi Service
- Direct Connectivity
- Sharing reports and Dashboards

### GOOGLE ANALYTICS

- Working with data in Sheets
- Formulas in Google Sheets
- Formatting and charting techniques in Sheets
- Data analysis
- Pivot Tables
- Introduction to Data Studio
- Connecting data sources into Sheets and Data Studio
- Creating reports and dashboards in Data Studio
- Automation
- Sharing reports and dashboards

### ADVANCED ANALYTICS

- Forecasting using Eviews or “R”
- Statistical Analysis
- Monte Carlo simulations
- Decision modelling
- Regression analysis (including Logistic regression)
- Principal Components(PA) analysis
- K-Means and other Clustering techniques
- Classification & Decision Tree (CART) techniques

## ABOUT THE AUTHOR

Ebenezer Nimako Nyarko is the founder and CEO of EN Analytics and consulting Limited. He is a professionally trained actuarial analyst and a member of the Institute and Faculty of Actuaries, UK.

He is also an adjunct lecturer in Actuarial Science at the Statistics Department of the University of Cape Coast where he teaches Risk Theory and Survival Models. He has also taught Financial Mathematics and Loss Distributions.

He holds an MSc in Actuarial Science from the University of Leicester, UK, and an MSc in Statistics from the University of Cape Coast, Ghana.

At the professional level, he holds the Diploma in Actuarial Techniques (DAT) qualification from the Institute and Faculty of Actuaries, UK.

He obtained his Bachelor of Science degree in Mathematics from the Kwame Nkrumah University of Science and Technology (KNUST), in Kumasi, Ghana.

His main areas of interests are predictive statistics, modelling, simulations, analytics and data science, and statistical inference. He also enjoys teaching.

Prior to establishing EN Analytics, Ebenezer worked as a Principal Revenue Officer and a supervisor at the Statistics and Revenue Forecasting Unit of the Ghana Revenue Authority where he performed quantitative analysis for the organisation. He also helped in operational issues.

Contact Details : [Ebenezer.nyarko@enanalytics.com](mailto:Ebenezer.nyarko@enanalytics.com)

Mobile: 0558630338