Election Analysis |

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| Introduction

Our approach to analyzing the West Bengal legislative assembly elections was three-fold –

(i) We looked into the distribution of seats amongst the top four parties each year, and observed the changes in the influence of various parties

(ii) We ran the correlation program on criminal cases of candidates versus their total assets, and on criminal cases versus educational qualifications

(iii) We observed the distribution of seats amongst women candidates, and trends across years

Programs used –

(i) webscraping program to scrape raw data from the myneta website and read into a csv file – scraped for all winners and also for women winners, for the last four state elections

(ii) data handling program to sort the data obtained based on various parameters (assets, liabilities, criminal cases)

(iii) correlation program to find any relations between data points

(iv) bag of words program to find the top four parties for each year, and educational qualifications of the winners

| Parties

On running the Bag of Words program on the raw scraped data from the myneta website, we were able to obtain the number of seats each party won each year. Following are the results obtained –

2006 - CPM: 173, AITC: 32, AIFB: 22, INC: 21

2011 - AITC: 185, INC: 41, CPM: 40, AIFB: 11

2016 - AITC: 214, INC: 45, CPM: 26, BJP: 7

2021 - AITC: 220, BJP: 77, {INC, CPM}: 0

In all years except 2006, the AITC party won the majority (with about 200 seats each year). In 2006, CPM had won 173 seats.

We also see that though CPM have the overwhelming majority in 2006 and the same happened for AITC in the subsequent years, the distribution among parties dramatically dwindles. It can be seen from the data that the number of winners from both the winning and runner-up party increases every time while the contrary happens with other parties.

From the year 2006 to 2011, the top four parties changed significantly – AITC went from 32 to 185, CPM went from 173 to 40, INC and AIFB too experienced significant changes.

Till 2006, the CPM were the clear majority in West Bengal for 34 consecutive years until 2011, when AITC won. The sudden dip in CPM's share of seats marks a change in the political composition of the state. This may have been catalyzed by the emergence of a strong opposition leader in Mamata Banerjee (AITC).

In 2016, for the first time, we see BJP in the top four parties, in the wake of their landslide victory in national elections in 2014, having won 0 seats in both 2006 and 2011.

In 2021, AITC retains its dominant position for the third election straight, and BJP has greatly increased its share of seats in the assembly. Interestingly, none of the winners are of the left front or Congress. A possible interpretation of this, is that the growing influence of BJP at the national level, and also in the state, prompts voters who do not align with the BJP not to vote with the party most aligned to them, but instead for any party capable of getting more seats than the BJP, which is AITC.

| Criminal Cases

Number of Criminal Cases –

Year: % of Winners with Declared Criminal Cases, % of Winners with Serious Criminal Cases

2006: 22%, 14%
2011: 17%, 11%
2016: 18%, 15%
2021: 25%, 20%

On running the correlation program for criminal cases versus (i) total assets, and (ii) education, we obtained the following results –

(i) Criminal Cases vs Total Assets –

Year	**Correlation**
2006	-0.025922245442518154
2011	-0.05694142283559829
2016	-0.07128323754030724
2021	-0.093682535871089

We observe an extremely low correlation, close to none at all. There appears to be no relationship between total declared assets of winners and the number of criminal cases against them. However, it is also worth noting that candidates may not declare total assets entirely accurately, hence it is possible that an underlying correlation does exist, but it is difficult to quantify due to a lack of accurate reporting.

From the data we do have, however, we may only observe close to no correlation between criminal cases and total assets declared.

(ii) Criminal Cases vs Education –

{To analyze the relationship numerically against education, we established a scale for different educational qualification levels –
5th pass: 1, 8th pass: 2, 10th pass: 3, 12th pass: 4, Graduate: 6, Graduate Professional: 7, Post Graduate: 8, Doctorate: 10, Others: 5}

Year	**Correlation**
2006	-0.07408083371159381
2011	-0.06272300967343365
2016	-0.1959237930804037
2021	-0.12491801472083378

We observe a low negative correlation between education and criminal cases of winners. We expected a negative correlation – candidates with higher education to have lesser number of declared criminal cases. While this does seem to occur, the magnitude of the negative correlation is lower than expected.

It is worth noting that to enumerate the level of education of candidates, we established an arbitrary scale – with different levels of education having different numbers assigned to each. This does provide a method of quantifying education, but it is not a foolproof model. It does give some insight – we observe a low negative correlation between education and number of criminal cases.

| Gender

The share of assembly seats held by women over years is as follows –
2006: 12%
2011: 11%
2016: 14%
2021: 14%

We observe that despite significant changes in parties and the number of seats each party wins, the constant is the low representation of women in the assembly. Minor fluctuations, not indicative of major transformation even in the later years, are seen. Despite making up approximately 50% of the voters, women are not proportionately represented in the assembly.

The Party-wise Distribution among Women Candidates –

Party	2006		2011		2016		2021	
	% of Total	% of Women	% of Total	% of Women	% of Total	% of Women	% of Total	% of Women
AITC	10.8	8.6	62.9	69.7	72.8	72.5	74.8	82.5
BJP	-	-	-	-	2.4	0.0	25.1	17.5
Left	58.8	68.6	13.6	15.6	8.8	12.5	-	-
INC	7.1	8.6	13.9	11.4	15.3	12.5	-	-
AIFB	7.4	5.7	3.7	0.0	-	-	-	-

In the table above, $\% \text{ of total} = \frac{\text{the number of seats that particular party has won}}{\text{the total number of seats in the assembly (294)}} \times 100$, and

$$\% \text{ of women} = \frac{\text{the number of seats that women candidates of that particular party have won}}{\text{the total number of seats in the assembly won by women}} \times 100$$

We observe that AITC has mostly maintained a proportional share of seats won by women candidates. In the years when they won the election, the women candidates of AITC have performed better than the average of all candidates.

The left front has also maintained a similar record – women candidates of the left front have a greater share among the total women winners for the years that the left have won seats.

In 2016 and 2021, the BJP have a lower share of successful women candidates when compared to the total. In 2016, none of the seats won by the BJP were held by women.

Similar trends are observed for AIFB in 2006 and 2011. The INC has a fluctuating share among women winners.

Average Number of Criminal Cases: All Winners vs Women Winners –

Year	Average Number of Criminal Cases	
	All Winners	**Women Winners**
2006	0.3024054983	0.057142857
2011	1.356164384	0.454545455
2016	1.153333333	0.425000000
2021	1.578595318	0.775000000

In general, women winners have a lower average number of criminal cases.

For all years, women candidates have significantly lower number of declared criminal cases, less than half of the average of all candidates.

| Conclusion

Hence, we analyzed the West Bengal assembly elections for four years – 2006, 2011, 2016 and 2021.

Specifically on the basis of –

(I) party-wise distribution of seats across different years

(II) trends in:
- (a) number of criminal cases
- (b) its correlation with education and assets

(III) gender:
- (a) distribution of seats by gender overall and party-wise
- (b) its correlation with criminal cases

By obtaining the election statistics by webscraping, and analyzing the extracted data based on the aforementioned parameters, we were able to gain valuable insight into the West Bengal assembly elections.