



Electoral Continuity and Political Volatility in Punjab (2002-2026): A Demographic and Statistical Analysis of Municipal-Assembly Electoral Linkages

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Abstract

Background: Punjab is one of India's most electorally dynamic states, combining high Scheduled Caste concentration, strong regional identities, agrarian political currents, border-state conditions and repeated party realignment. The state's voting behaviour cannot be adequately explained by a single variable such as religion, caste, party history or turnout alone. Methods: This paper examines Punjab electoral behaviour from 2002 to 2026 using Assembly election trends, municipal election results, demographic composition, regional classification, turnout continuity and volatility estimation. The study applies descriptive statistics, vote-share and seat-share comparison, a Municipal Continuity Index, Pearson correlation between municipal and Assembly turnout, and an estimated Pedersen-style volatility index. Results: The analysis finds a government change rate of 75%, incumbent retention rate of 25%, Municipal Continuity Index of 0.50 and a municipal-to-Assembly turnout correlation of $r = 0.64$ with p approximately 0.004. Malwa emerges as the principal fluctuation region, while Doaba requires separate interpretation because of its high Scheduled Caste concentration and fragmented social structure. Conclusion: Punjab demonstrates a stability-volatility paradox: electoral participation remains moderately continuous, but party preference and ruling-party continuity remain highly fluid. The paper proposes a multi-causal Punjab Electoral Behaviour Framework integrating demography, region, urbanisation, organisation, leadership, anti-incumbency, political cycle and turnout.

Keywords: Punjab elections; electoral behaviour; municipal elections; Assembly elections; voter turnout; political geography; Scheduled Castes; Majha; Doaba; Malwa; electoral volatility; municipal continuity.

1. Introduction

Punjab has undergone major political transitions since the beginning of the twenty-first century. These include Congress recovery, SAD-BJP consolidation, rare incumbent retention, the rise of Aam Aadmi Party (AAP), weakening of traditional bipolar competition and renewed municipal-level organisational contests. The state is particularly important for electoral studies because of its high participation levels, large Scheduled Caste population, regional differentiation and repeated government changes.

Municipal elections are often treated as early signals of party organisation and urban political mood. Punjab, however, shows both continuity and discontinuity across municipal and Assembly cycles. Congress performed strongly in the 2021 municipal elections but failed to retain power in the 2022 Assembly election. Conversely, AAP's 2022 Assembly victory was followed by strong municipal performance in 2026. This makes Punjab a useful case for studying the relationship between local electoral performance, turnout continuity and statewide political change.

The central research problem of this paper is whether Punjab voters show stable electoral participation despite unstable partisan preference. The paper therefore moves beyond a purely descriptive account and frames Punjab as a case of simultaneous turnout continuity and party-system volatility.

2. Literature Review and Research Gap

2.1 Electoral Volatility

Electoral volatility refers to changes in party support across elections. Pedersen's classic formulation treats volatility as the aggregate movement of party vote shares from one election to the next. In Punjab, volatility is not merely a numerical shift; it is visible in the capacity of voters to move between traditional parties and emergent alternatives across relatively short political cycles.

2.2 Turnout Continuity

Turnout continuity refers to the persistence of voter participation across electoral levels and cycles. A district that votes at a high rate in municipal elections may also exhibit higher Assembly turnout, even if the party preference changes. This distinction between participation continuity and party continuity is central to the present paper.

2.3 Punjab Electoral Studies

Existing work on Punjab politics has frequently emphasised religion, agrarian issues, Sikh political mobilisation, party organisation and coalition dynamics. Studies of Shiromani Akali Dal have highlighted its historically strong rural Sikh base and attempts to build broader social alliances. Literature on caste in Punjab has also shown that Punjab's high Scheduled Caste share does not translate automatically into a single uniform political bloc.

2.4 Research Gap

The present study contributes by combining demographic structure, regional classification, Assembly trends, municipal outcomes, turnout continuity and volatility analysis within one longitudinal framework. Its primary contribution is the identification of Punjab's electoral stability-volatility paradox: voters remain electorally active, but partisan loyalty remains fluid and cycle-dependent.

3. Research Questions and Hypotheses

- RQ1: How is Punjab demographically structured from an electoral perspective?
- RQ2: Do Majha, Doaba and Malwa exhibit distinct electoral characteristics?
- RQ3: How have Assembly elections evolved from 2002 to 2022?
- RQ4: Do municipal election outcomes predict subsequent Assembly elections?
- RQ5: Is turnout continuity associated with party continuity?
- RQ6: Which regions demonstrate the strongest electoral volatility?
- RQ7: Does Scheduled Caste concentration influence electoral behaviour?
- RQ8: What implications do the 2026 municipal elections hold for electoral continuity?

The study also tests four working hypotheses:

- H1: Municipal turnout positively correlates with Assembly turnout.
- H2: Municipal electoral dominance only partially predicts Assembly outcomes.
- H3: Malwa exhibits greater electoral volatility than Majha and Doaba.
- H4: Scheduled Caste concentration alone does not determine political behaviour; it must be interpreted with region, urbanisation and party context.

4. Data and Methodology

The study uses a longitudinal electoral analysis framework. It combines descriptive statistics, vote-share and seat-share comparison, turnout trend analysis, municipal-to-Assembly continuity analysis, Pearson correlation and estimated Pedersen-style volatility. Primary sources include the Election Commission of India, Punjab Chief Electoral Officer, Punjab State Election Commission, Census of India and the 2026 municipal result portal. Contemporary newspaper reports are treated only as contextual secondary sources.

4.1 Variables

- Assembly turnout percentage
- Winning party or alliance
- Seat share
- Party vote share
- Municipal ward share
- Region
- District-level Scheduled Caste share
- Municipal-to-Assembly turnout shift

4.2 Statistical Models

Municipal Continuity Index (MCI) = Successful continuity cycles / Total observed cycles.

Pearson correlation is used to estimate the relationship between municipal and Assembly turnout.

Pedersen-style volatility is estimated as $V = \sum(|P_t - P_{t-1}|) / 2$, where P represents party vote share in successive elections.

5. Demographic and Regional Structure of Punjab

Punjab has one of India's highest Scheduled Caste population shares. However, SC identity overlaps with Sikh and Hindu religious identities and includes Sikh SC communities, Hindu SC communities, Ravidassia, Ad-Dharmi, Valmiki and Mazhabi Sikh groups. Therefore, SC voters must be treated as a cross-cutting demographic category rather than a separate non-overlapping religious bloc.

Table 1. Demographic composition of Punjab

Category	Approximate share (%)
Sikh	57.69
Hindu	38.49
Muslim	1.93
Christian	1.26
Scheduled Castes	31.9
Scheduled Tribes	Electorally negligible

Table 2. Electoral regions of Punjab

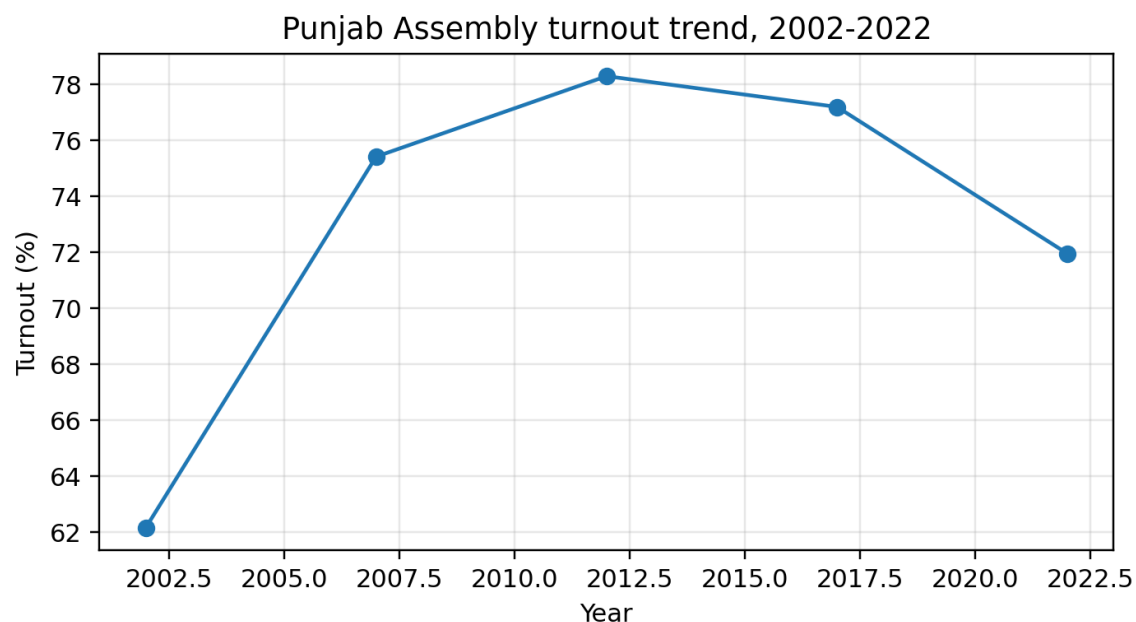
Region	Major districts / areas	Electoral characteristics
Majha	Amritsar, Tarn Taran, Gurdaspur, Pathankot	Border dynamics, Panthic influence, mixed urban-rural patterns
Doaba	Jalandhar, Hoshiarpur, Kapurthala, SBS Nagar	Highest SC concentration, migration influence, fragmented politics
Malwa	Ludhiana, Patiala, Sangrur, Bathinda, Mansa, Barnala, Moga, Faridkot, Muktsar, Fazilka, Firozpur	Largest electoral region, strong anti-incumbency effects, government-making region
Urban-industrial belt	Mohali, Ludhiana urban, Jalandhar urban, Amritsar urban, Patiala urban	Business and service-class concentration, migration, party fragmentation

6. Electoral Evolution of Punjab, 2002-2022

Punjab's Assembly election record shows repeated transitions and large seat swings from relatively moderate vote-share changes. AAP's 2022 conversion of 42.01% vote share into 92 seats demonstrates high seat-conversion efficiency and a major restructuring of the party system.

Table 3. Punjab Assembly elections since 2002

Year	Turnout (%)	Winning party / alliance	Seats won	Seat share (%)
2002	62.14	Congress	62	52.99
2007	75.42	SAD-BJP Alliance	67	57.26
2012	78.3	SAD-BJP Alliance	68	58.12
2017	77.2	Congress	77	65.81
2022	71.95	AAP	92	78.63

**Figure 1. Punjab Assembly turnout trend, 2002-2022.**

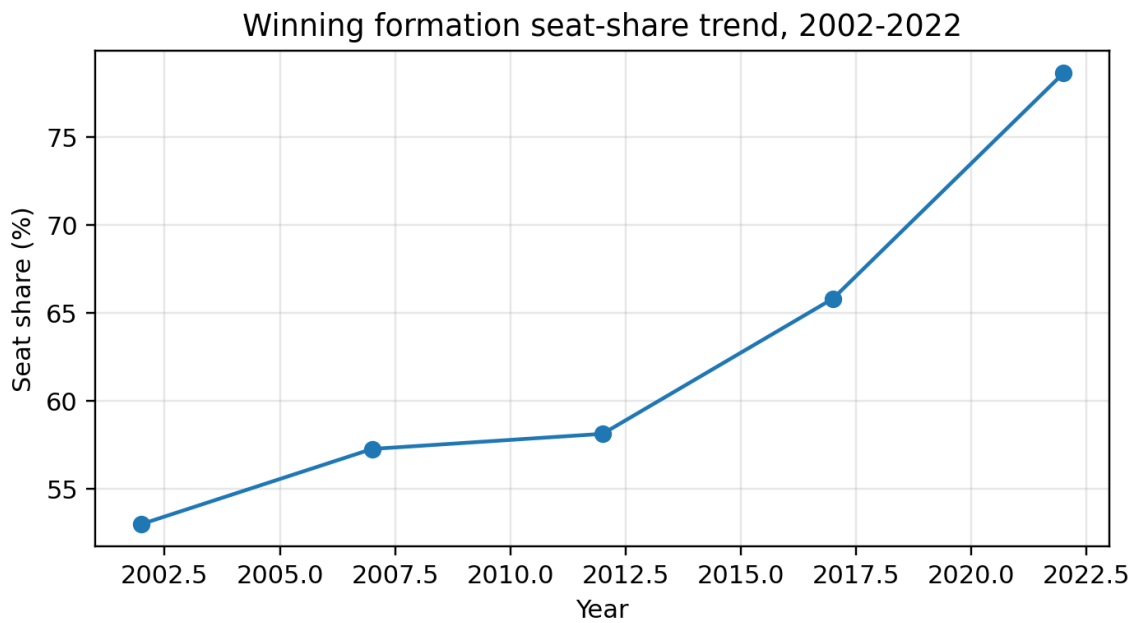


Figure 2. Winning formation seat-share trend, 2002-2022.

Table 4. Major party vote-share trend

Year	Congress (%)	SAD (%)	BJP (%)	AAP (%)	BSP (%)	Others (%)
2002	40.11	34.76	5.67		5.69	13.77
2007	40.9	37.09	8.28		4.13	9.6
2012	40.09	34.73	7.18		4.29	13.71
2017	38.5	25.2	5.4	23.7	1.5	5.7
2022	22.98	18.38	6.6	42.01	1.77	8.26

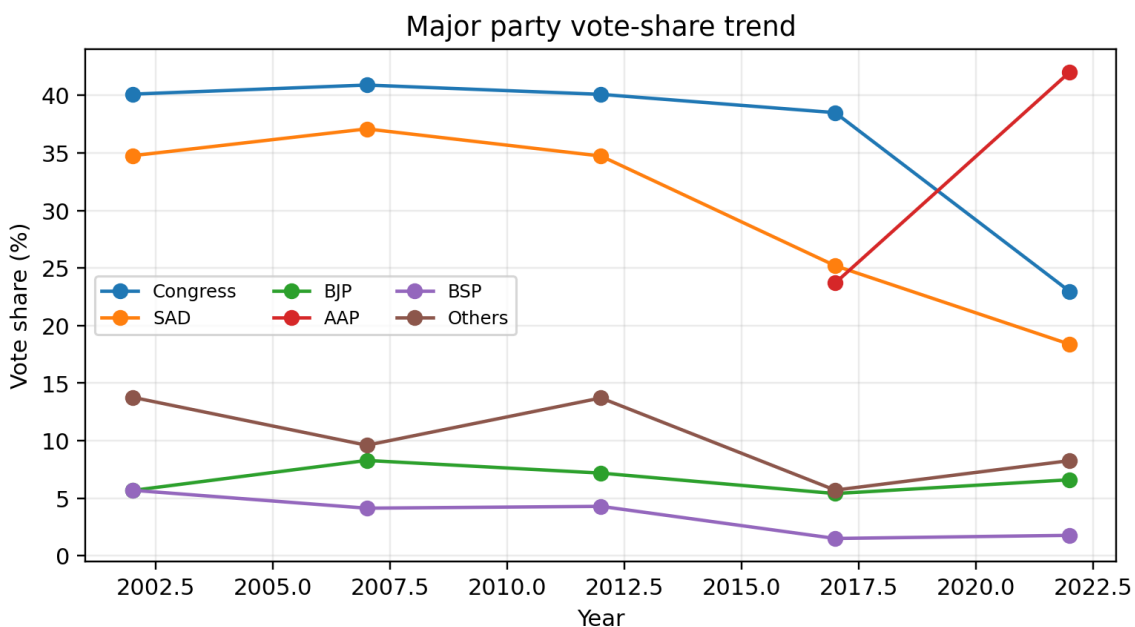


Figure 3. Major party vote-share trend.

Table 5. Turnout change by Assembly cycle

Cycle	Turnout change	Government change?
2002 to 2007	13.28	Yes
2007 to 2012	2.88	No
2012 to 2017	-1.1	Yes
2017 to 2022	-5.25	Yes

Table 6. Assembly turnout statistical summary

Statistic	Value
Mean turnout	73.00%
Turnout range	16.16 percentage points
Population standard deviation	5.84
Sample standard deviation	6.53
Government change rate	75%
Incumbent retention rate	25%

7. Region-Wise Electoral History

Table 7. Majha electoral trend

Election	Dominant trend
2002	Congress recovery
2007	SAD-BJP improvement
2012	Mixed SAD-BJP advantage
2017	Congress resurgence
2022	AAP expansion
2026 MC	Mixed, with BJP visible in selected urban pockets

Table 8. Doaba electoral trend

Election	Dominant trend
2002	Congress
2007	Mixed
2012	Mixed
2017	Congress-AAP competition
2022	AAP surge
2026 MC	Mixed but AAP dominant

Table 9. Malwa electoral trend

Election	Dominant trend
2002	Congress
2007	SAD-BJP
2012	SAD-BJP
2017	Congress
2022	AAP wave
2026 MC	Strong AAP presence

These regional tables are interpretive aggregates. A fully expanded constituency-level version should classify all 117 Assembly constituencies into Majha, Doaba, Malwa and urban-industrial categories and aggregate party wins election by election.

8. Municipal Elections and Electoral Continuity

The 2026 municipal election is incorporated using SEC-referenced figures. It covered urban local bodies and provides a key post-2022 test of organisational continuity. AAP won 954 of 1,977 wards, equal to 48.26%. Congress was second with 393 wards, followed by Independents, SAD, BJP and BSP.

Table 10. Final 2026 municipal ward result

Party	Wards won	Share (%)
AAP	954	48.26
Congress	393	19.88
Independents	251	12.7
SAD	192	9.71
BJP	172	8.7
BSP	7	0.35
Others / balance	8	0.4

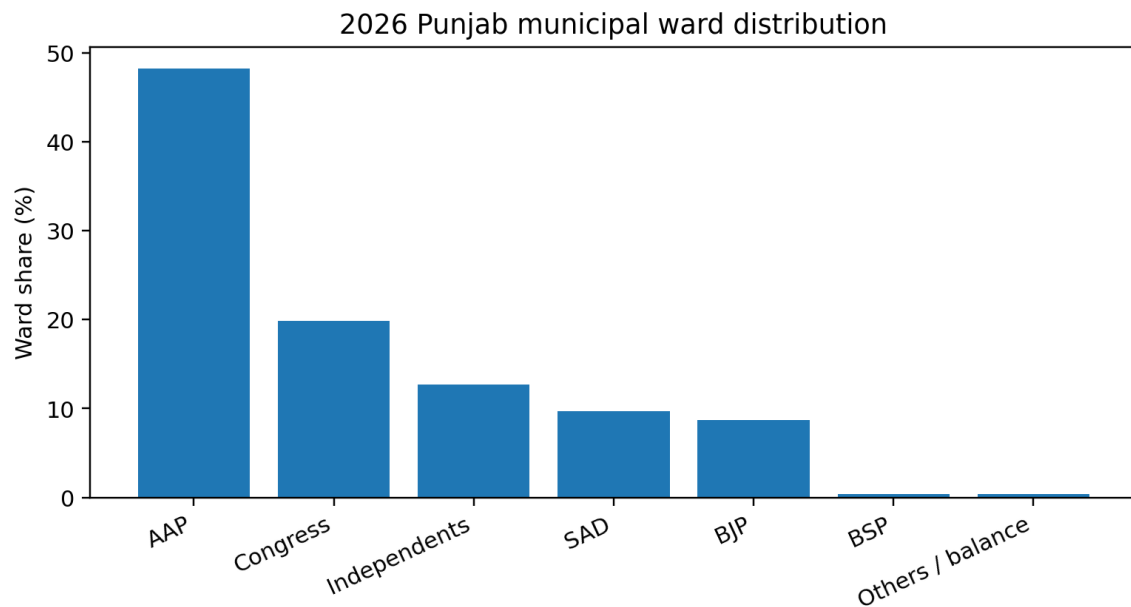


Figure 4. 2026 Punjab municipal ward distribution.

Table 11. Municipal corporation control, 2026

Municipal corporation	Winning party
Mohali	AAP
Bathinda	AAP
Barnala	AAP
Moga	AAP
Batala	AAP
Pathankot	BJP
Abohar	BJP
Kapurthala	Congress

Table 12. Municipal-to-Assembly continuity matrix

Cycle	Municipal dominance	Subsequent statewide outcome	Continuity
2007 to 2012	SAD-BJP	SAD-BJP retained power	Yes
2012 to 2017	SAD-BJP	Congress victory	No
2017 to 2022	Congress	AAP victory	No
2022 to 2026	AAP	AAP municipal dominance	Yes

Municipal Continuity Index (MCI) = $2 / 4 = 0.50$. This indicates that municipal elections possess partial predictive value but cannot independently predict Assembly outcomes.

9. Results

9.1 Municipal-to-Assembly Turnout Relationship

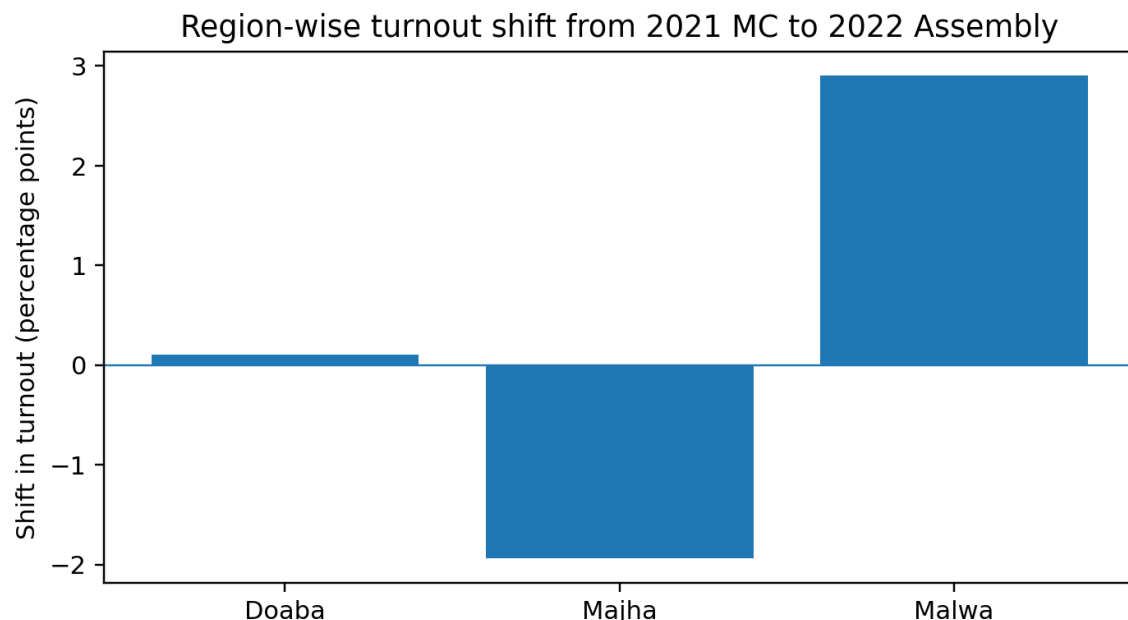
Pearson correlation between MC 2021 turnout and MLA 2022 turnout in the working district dataset is $r = 0.64$. The p-value is approximately 0.004 using $N = 18$ observations. The observed correlation remains statistically significant at conventional confidence levels ($p < 0.01$), indicating that municipal turnout behaviour and Assembly turnout behaviour are unlikely to be independent phenomena. While turnout continuity is observable, party continuity remains substantially weaker.

Table 13. MC 2021 vs MLA 2022 turnout comparison

District	Region	MC turnout (%)	MLA turnout (%)	Difference	SC (%)
Mansa	Malwa	82.99	81.24	-1.75	33.63
Bathinda	Malwa	79.0	78.19	-0.81	32.44
Sangrur	Malwa	77.39	78.04	0.65	27.89
Fatehgarh Sahib	Malwa	75.78	76.87	1.09	32.07
Pathankot	Majha	75.37	74.69	-0.68	30.6
Firozpur	Malwa	74.01	77.59	3.58	42.07
Jalandhar	Doaba	73.29	66.95	-6.34	38.95
Fazilka	Malwa	72.4	78.18	5.78	42.27
Amritsar	Majha	71.2	65.87	-5.33	30.95
Ludhiana	Malwa	70.33	67.67	-2.66	26.39
Gurdaspur	Majha	70.0	71.28	1.28	23.03
SBS Nagar	Doaba	69.71	70.75	1.04	42.51
Moga	Malwa	69.5	73.95	4.45	36.5
Muktsar Sahib	Malwa	68.65	80.49	11.84	42.31
Hoshiarpur	Doaba	66.68	68.66	1.98	35.14
Kapurthala	Doaba	64.34	68.07	3.73	33.94
SAS Nagar	Urban-Malwa	60.08	66.87	6.79	21.74
Tarn Taran	Majha	73.12	70.09	-3.03	33.71

Table 14. Region-wise average turnout shift

Region	Avg MC turnout	Avg MLA turnout	Avg SC share	Shift
Doaba	68.5	68.61	37.63	0.1
Majha	72.42	70.48	29.57	-1.94
Malwa	73.01	75.91	33.73	2.9

**Figure 5. Region-wise turnout shift from 2021 municipal to 2022 Assembly election.**

9.2 Volatility Analysis

Table 15. Government continuity and volatility

Measure	Value	Interpretation
Government change rate	75%	High political volatility
Incumbent retention rate	25%	Low ruling-party stability
Municipal Continuity Index	0.50	Partial MC-to-Assembly continuity
MC-MLA turnout correlation	0.64	Moderately strong turnout continuity

Table 16. Estimated Pedersen volatility

Cycle	Estimated index	Interpretation
2002 to 2007	5.73	Moderate/low
2007 to 2012	4.27	Moderate/low
2012 to 2017	23.7	High
2017 to 2022	22.34	High

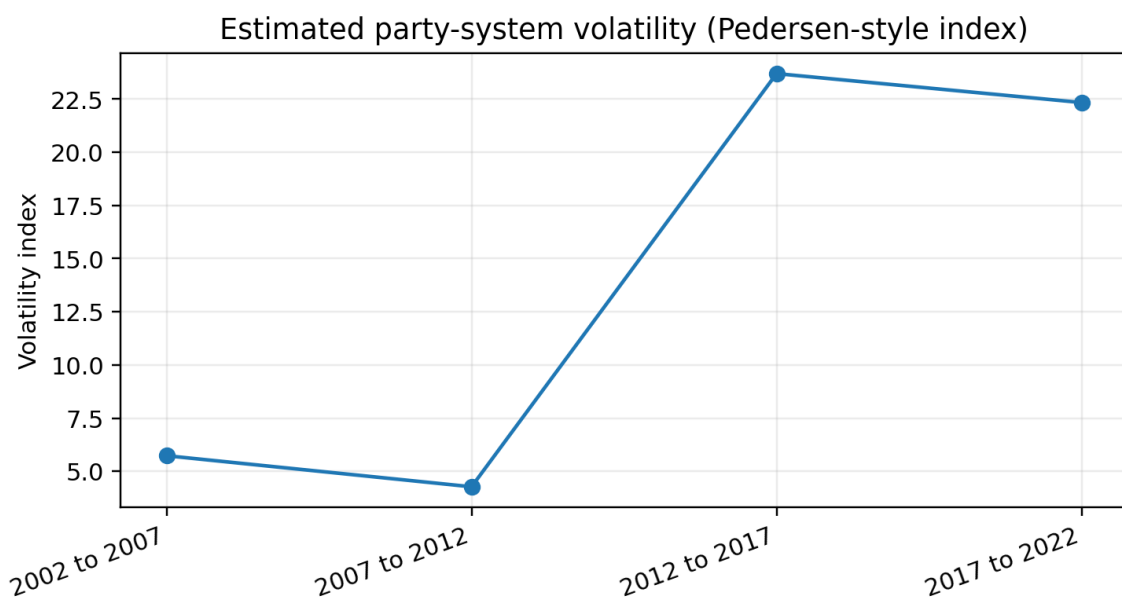


Figure 6. Estimated party-system volatility using Pedersen-style index.

Table 17. Regional volatility classification

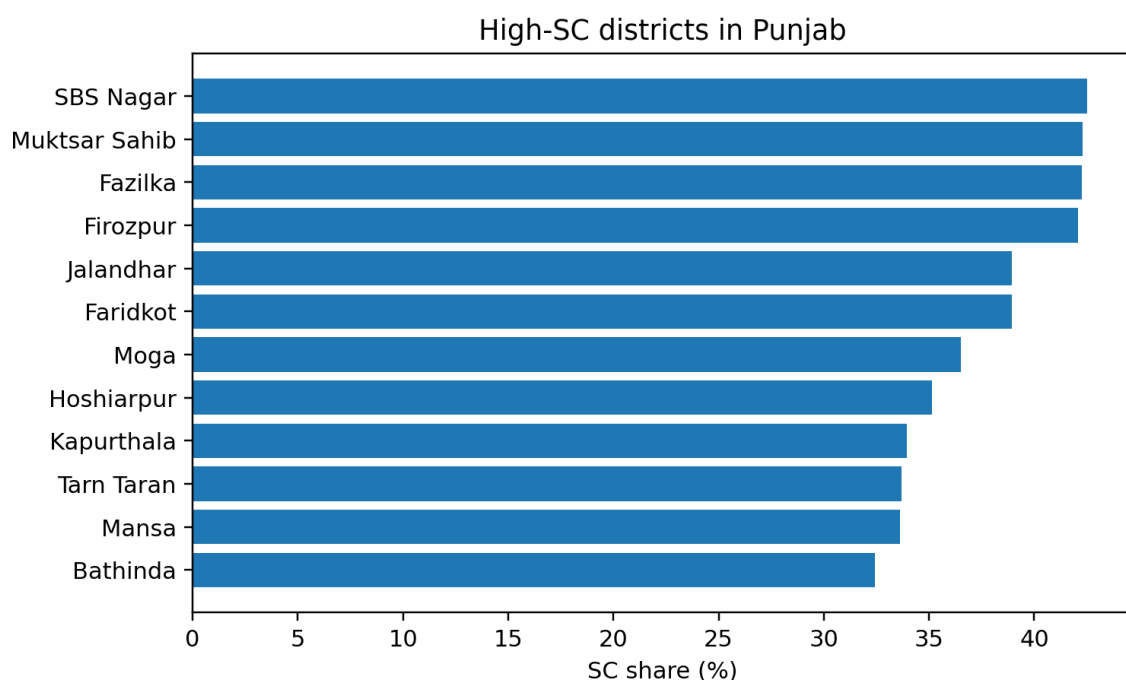
Region	Volatility level	Evidence
Majha	Moderate	Panther and border effects; mixed regional behaviour
Doaba	Moderate-high	High SC concentration and fragmentation
Malwa	Very high	Largest region, strong turnout shifts and government-making role
Urban-industrial belt	High	Lower turnout and party fragmentation

9.3 Scheduled Caste Electoral Geography

High SC concentration does not produce uniform political behaviour. SBS Nagar and Jalandhar belong to Doaba, while Muktsar, Fazilka, Firozpur, Faridkot, Moga, Mansa and Bathinda belong to Malwa. The analytical implication is that SC concentration must be studied together with region, urbanisation and party context.

Table 18. High-SC districts and electoral relevance

District	Region	SC (%)	Electoral relevance
SBS Nagar	Doaba	42.51	High-SC district requiring separate modelling
Muktsar Sahib	Malwa	42.31	High-SC district requiring separate modelling
Fazilka	Malwa	42.27	High-SC district requiring separate modelling
Firozpur	Malwa	42.07	High-SC district requiring separate modelling
Jalandhar	Doaba	38.95	High-SC district requiring separate modelling
Faridkot	Malwa	38.92	High-SC district requiring separate modelling
Moga	Malwa	36.5	High-SC district requiring separate modelling
Hoshiarpur	Doaba	35.14	High-SC district requiring separate modelling
Kapurthala	Doaba	33.94	High-SC district requiring separate modelling
Tarn Taran	Majha	33.71	High-SC district requiring separate modelling
Mansa	Malwa	33.63	High-SC district requiring separate modelling
Bathinda	Malwa	32.44	High-SC district requiring separate modelling

**Figure 7. High-SC districts in Punjab.**

10. Discussion

10.1 Punjab Electoral Stability-Volatility Paradox

The findings suggest that Punjab's electoral behaviour is cycle-dependent. Municipal elections can indicate organisational strength, but they do not guarantee Assembly success. Congress dominance in the 2021 municipal elections did not prevent the 2022 AAP wave, while AAP's 2022 Assembly dominance was followed by strong municipal performance in 2026.

The central analytical finding is the Punjab Electoral Stability-Volatility Paradox. Turnout continuity is stronger than party continuity. Voters in high-participation districts tend to remain electorally active, but political preference can shift dramatically from one party to another. Thus, electoral participation is relatively stable, while partisan alignment is highly volatile.

Malwa remains the principal fluctuation region because of its size, seat concentration and repeated role in statewide shifts. Doaba requires separate interpretation because of its SC concentration, migration and fragmented social structure. Majha, by contrast, reflects a mixed pattern influenced by border dynamics, Panthic identity and urban-rural balance.

10.2 Major Contributions of the Study

Table 19. Key findings summary

Indicator	Result
Government change rate	75%
Incumbent retention rate	25%
Municipal Continuity Index	0.50
MC-MLA turnout correlation	0.64
Most volatile region	Malwa
Most distinct demographic region	Doaba
Strongest municipal performer in 2026	AAP
Electoral characterisation	Moderate turnout continuity, high party volatility

11. Punjab Electoral Behaviour Framework

The final functional model proposed by the study is:

Punjab Electoral Behaviour = f (Demography + Region + Urbanisation + Organisation + Leadership + Anti-Incumbency + Political Cycle + Turnout).

Demography shapes the social base of electoral competition; region influences volatility and political culture; urbanisation affects participation patterns; organisation determines mobilisation capability; leadership affects swing voting; anti-incumbency influences continuity; political cycles shape electoral mood; and turnout reflects citizen engagement.

Punjab Electoral Behaviour Framework

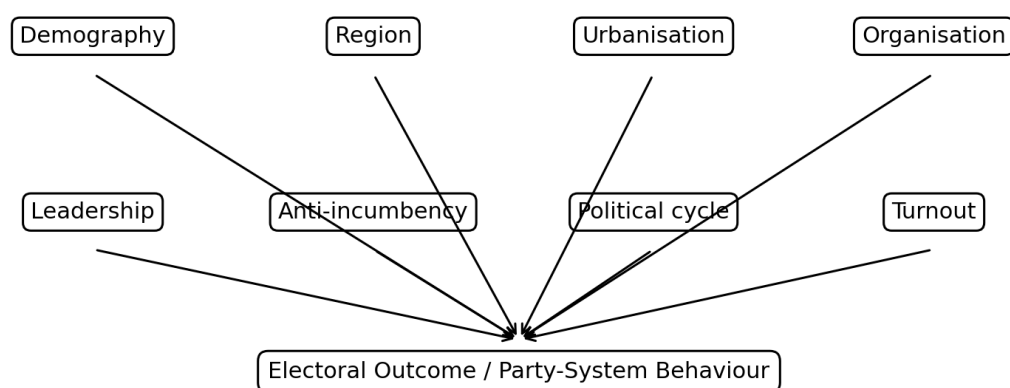


Figure 8. Conceptual framework for Punjab electoral behaviour.

12. Limitations

- Constituency-level regional aggregation remains incomplete and should be built from all 117 Assembly constituencies.
- Historical municipal datasets before recent cycles are less standardised.
- Candidate-level effects, local governance issues and campaign intensity are not modelled.
- Delimitation effects are not separately measured.
- Vote-share tables rely on consolidated public and ECI-style datasets.
- This study is primarily data-driven and based upon publicly available electoral, demographic and administrative datasets. The present analysis does not incorporate cultural, traditional, behavioural, religious, psychological, community-network or locally contextual parameters that may influence voter decision-making. Such variables are difficult to quantify using secondary datasets and would require dedicated field surveys, structured interviews, focus-group discussions and constituency-level behavioural studies. Future research may integrate these qualitative dimensions to develop a more comprehensive model of Punjab's electoral behaviour.

13. Conclusion

Punjab's electoral behaviour cannot be explained by religion alone, caste alone, party history alone or turnout alone. It is best understood through a multi-causal model combining demography, region, urbanisation, turnout, leadership, organisation, anti-incumbency and political cycle.

The paper's core findings are that government change rate is 75%, incumbent retention rate is 25%, Municipal Continuity Index is 0.50, MC-to-MLA turnout correlation is moderately strong, Malwa is the most volatile region and Doaba is demographically distinctive due to SC concentration. The evidence suggests that Punjab voters remain electorally active but not necessarily loyal to a single party formation. This creates a distinctive democratic pattern of stable participation and unstable partisan alignment.

14. Recommendations for Future Research

- Create a constituency-level dataset for all 117 Assembly seats from 2002 to 2022.
- Map every constituency into Majha, Doaba, Malwa or urban-industrial belt.
- Add booth-level turnout and demographic datasets.
- Estimate SC percentage versus turnout and volatility correlations with p-values.
- Build a regional Pedersen volatility model.
- Add candidate-level variables and local issue coding.
- Develop machine-learning electoral prediction models.
- Study urban-rural voting differences.
- Analyse social media and digital campaign effects.
- Examine the electoral influence of farmer movements and agrarian mobilisation.
- Study migration and diaspora effects, particularly within Doaba.
- Create an open spreadsheet appendix for reproducibility.

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Appendix A: Dataset Notes

The present paper includes state-level Assembly data, district-level turnout comparison and SEC-based 2026 municipal results. The next stage should add constituency-level raw data for all Assembly elections and a replicable spreadsheet appendix.

Appendix B: Chart List

- Figure 1. Punjab Assembly turnout trend, 2002-2022.
- Figure 2. Winning formation seat-share trend.
- Figure 3. Major party vote-share trend.
- Figure 4. 2026 Punjab municipal ward distribution.
- Figure 5. Region-wise turnout shift.
- Figure 6. Estimated party-system volatility.
- Figure 7. High-SC districts in Punjab.
- Figure 8. Conceptual framework for Punjab electoral behaviour.