Mail-In Ballot Processing Anomalies: A Diagnostic Analysis

Evaluating rejection rates, volume effects, and voter propensity trends in the March–April 2026 Virginia datasets.

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EPEC Voter Data

Electoral Process Education Corp.

Independent, Transparent Analysis

The Volume Gap

15.8-Point Rejection Delta

Comparing high-volume vs. low-volume processing days.

Propensity Disparity

13.6% vs 2.2%

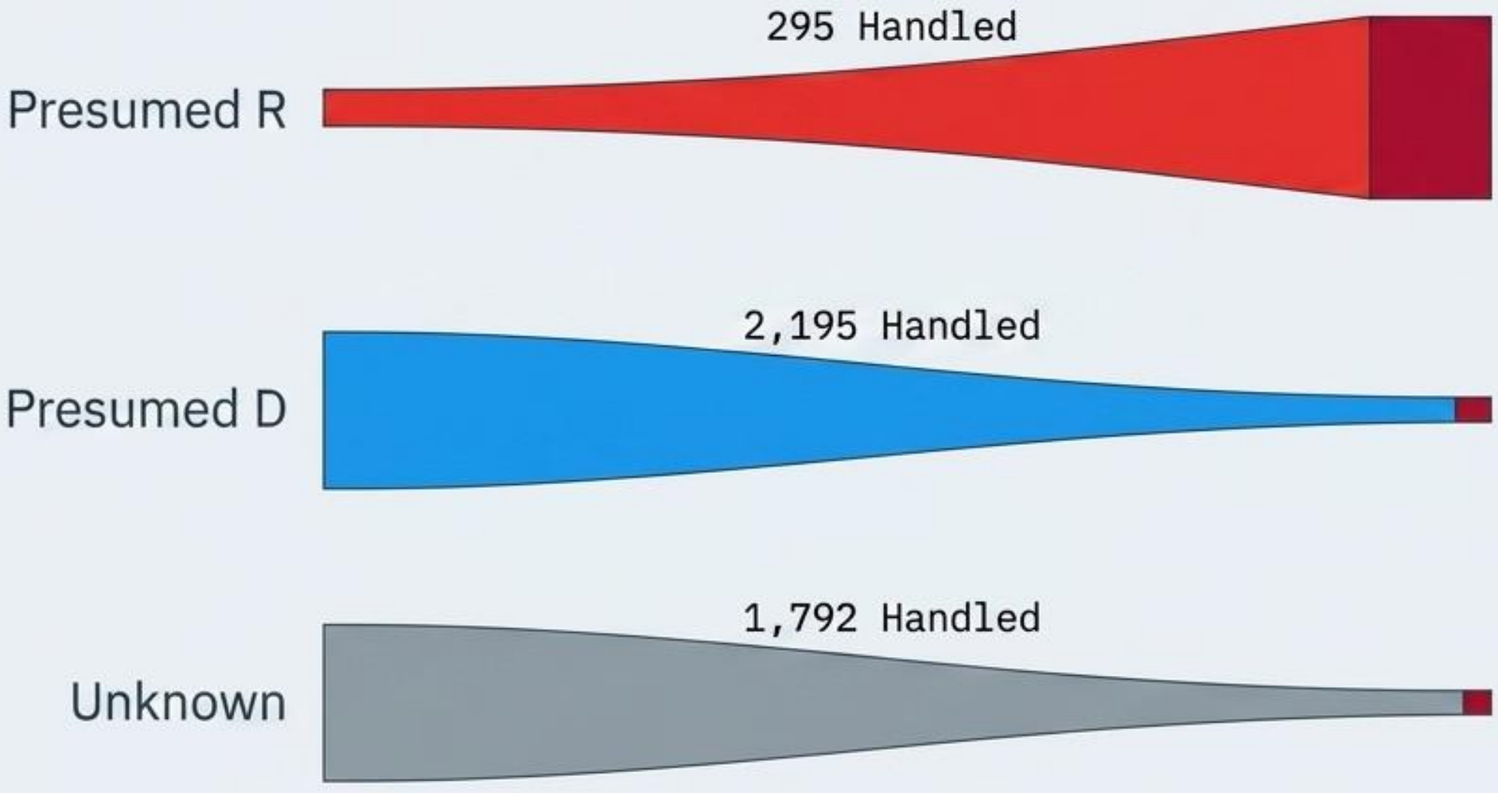
The local rejection rate gap between Presumed R and Presumed D voters.

Statewide Replication

Systemic Pattern

Anomalies confirmed across a secondary dataset of 450,000+ ballots.

Propensity Disparities Exceed 11 Points in Local Processing



Statistical **Significance:**

R vs. D difference is 11.37 percentage points ($z=8.87$, $p \ll 0.001$).

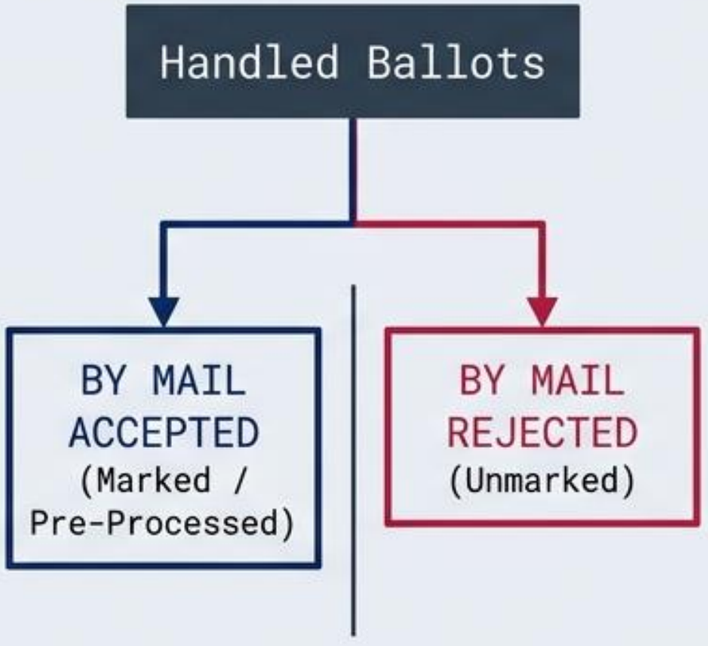
No statistically significant difference between Presumed D and Unknown voters.

Data Sources and Methodological Parameters

The Locations & Timeline

- Portsmouth City (Local)
- Virginia Beach (Local)
- Statewide

The Definitions



The Statistical Rigor

- Two-proportion z-tests for success rates
- Chi-square tests for weekday distribution
- Poisson rate-ratio testing for volume disparities

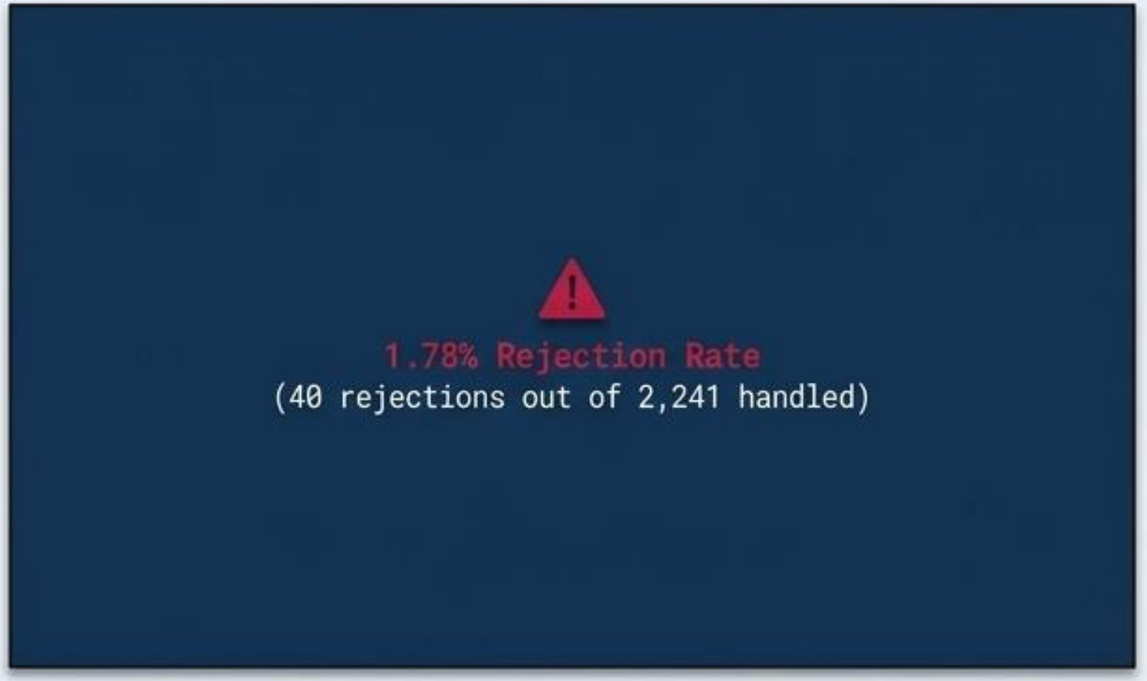
The Volume Paradox Shows Higher Rejection Rates on Slower Days

Small Days (≤64 handled)

17.6% Rejection Rate

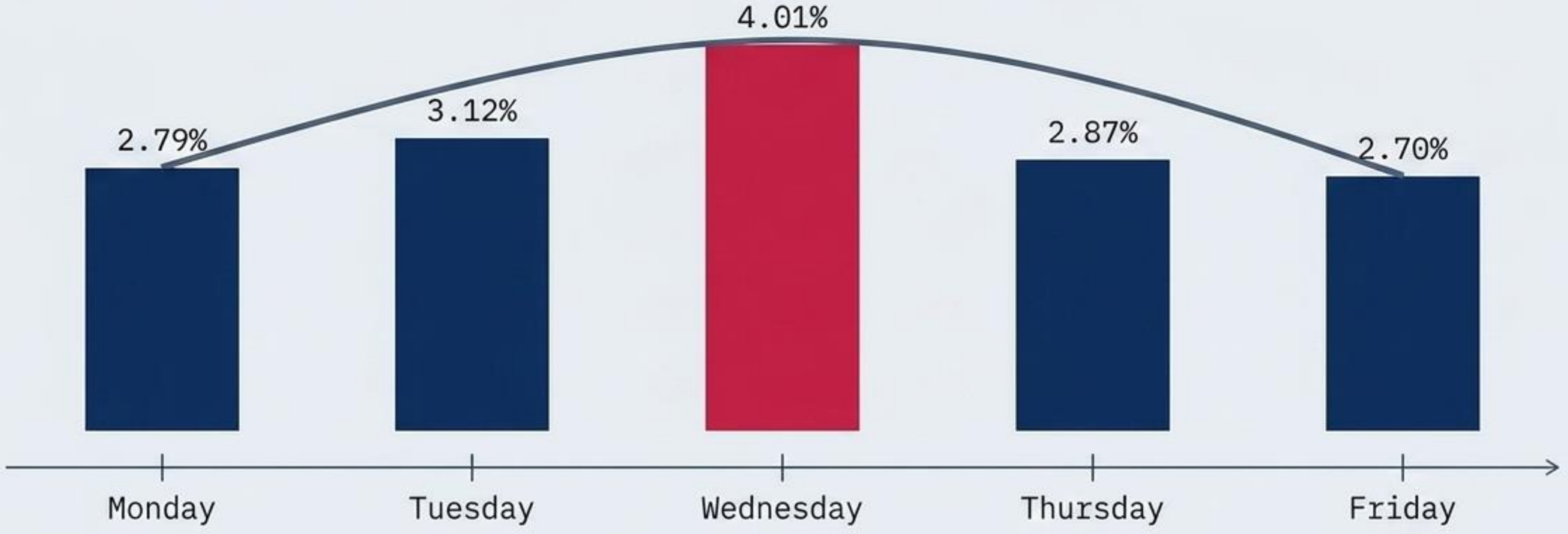
(95 rejections out of 540 handled)

Large Days (>64 handled)



Difference: 15.82 percentage points. **Z-score:** 15.35 ($p \ll 0.001$).
Rejection probability per ballot is dramatically higher when overall daily volume is low.

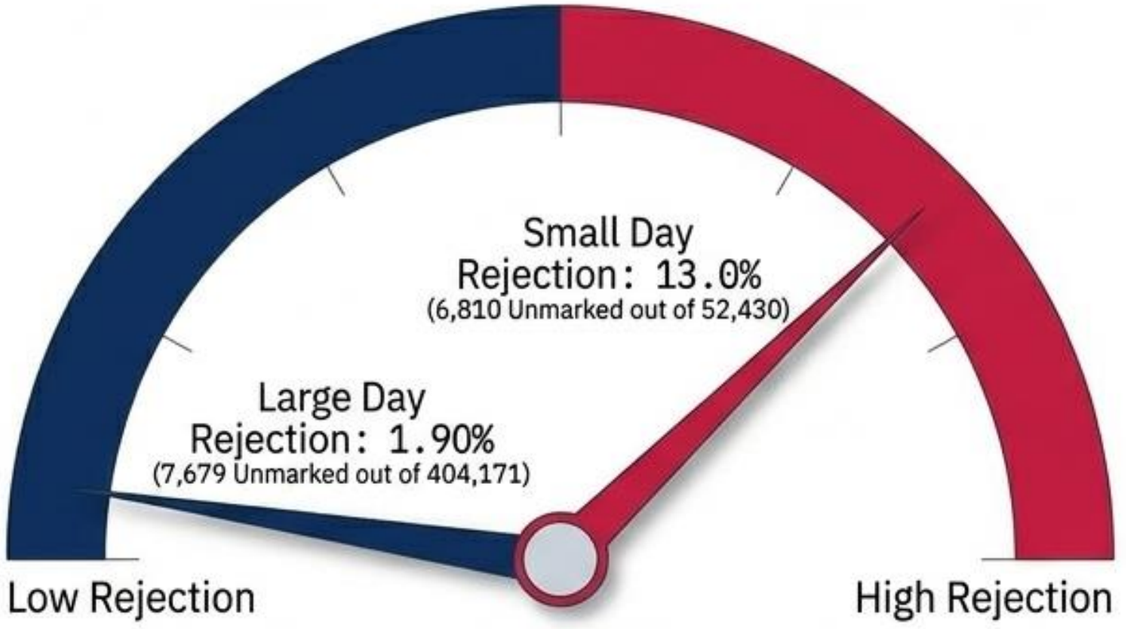
Rejection Probabilities Peak During Mid-Week Processing



Chi-square test of independence:
$\chi^2 = 28.6$, $df = 4$, $p < 0.001$.
Wednesday experiences a highly significant rejection spike compared to Monday and Friday.

Scaling the Investigation Validates the Anomalies Statewide

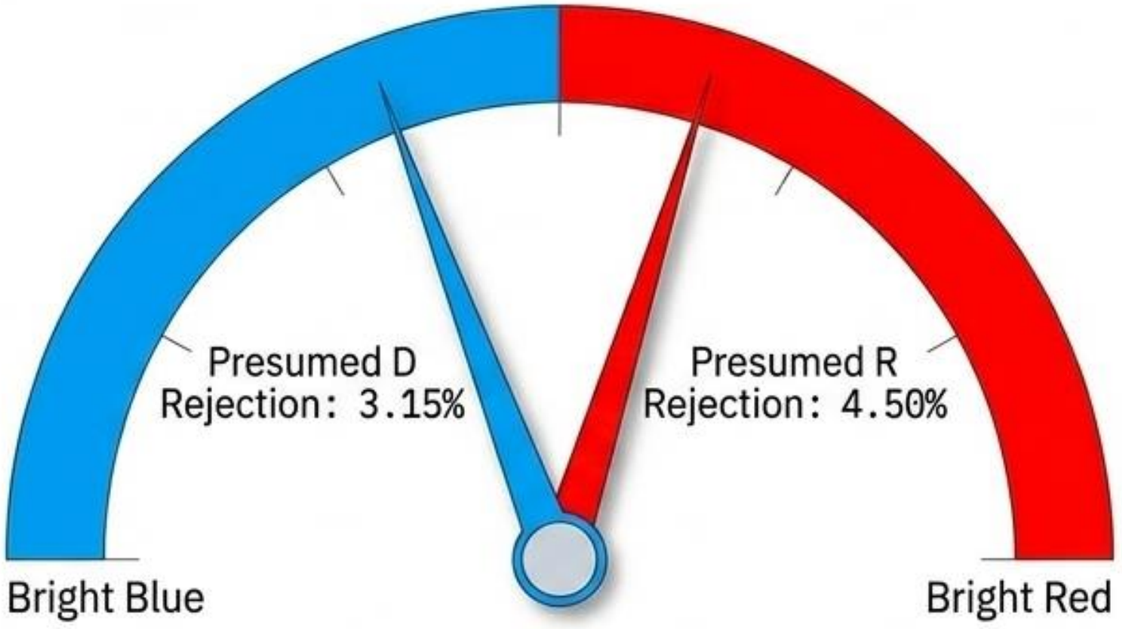
The Volume Effect



Small Day Rejection: 13.0% (6,810 Unmarked out of 52,430)

Large Day Rejection: 1.90% (7,679 Unmarked out of 404,171)

The Propensity Effect



Presumed R Rejection: 4.50% (2,639 Unmarked)

Presumed D Rejection: 3.15% (4,790 Unmarked)

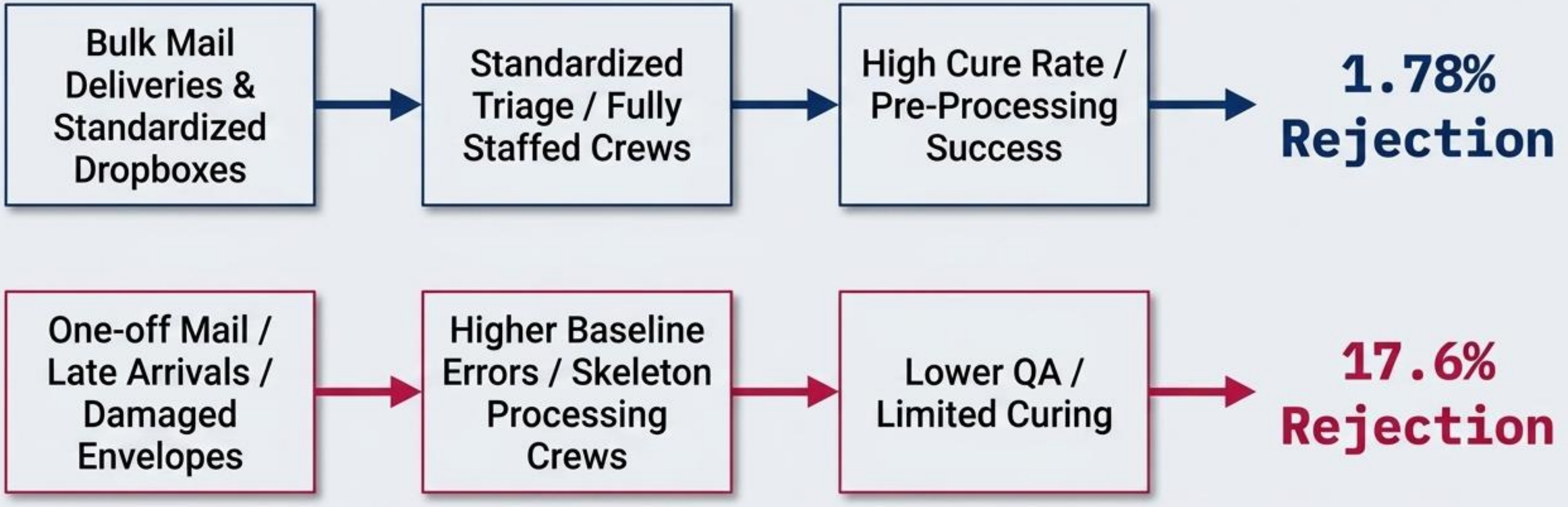
Statewide tests confirm both the Volume Paradox ($z \gg 10$, $p \ll 0.001$) and the Propensity Gap ($z \approx 11.9$, $p \ll 0.001$). This is a systemic pattern, not a localized error.

Local Anomalies Replicate Across the Macro Dataset

Variable	Local Subset (Portsmouth & VA Beach)	Statewide Data
Volume Effect	17.6% (Low Vol) vs 1.78% (High Vol)	13.0% (Low Vol) vs 1.90% (High Vol)
Propensity Gap (R vs D)	13.56% vs 2.19% (11.37 point gap)	4.50% vs 3.15% (1.35 point gap)
Peak Rejection Timing	Mid-week (Wednesday at 4.01%)	Mirrors mid-week batch processing reporting

While the trend replicates statewide, the magnitude of the propensity discrepancy in Portsmouth is uniquely severe.

The Case Mix Theory Explains the Volume Paradox



Rejections are not necessarily arbitrary; they are heavily influenced by how the ballot arrives and who is staffing the processing desk on a given day.

Diagnostic Matrix Isolates Potential Root Causes

Operational Factors

- Staffing volatility (high vs low volume days)
- Selective batch routing (triaging difficult ballots to mid-week)
- Inconsistent application of signature matching or curing windows

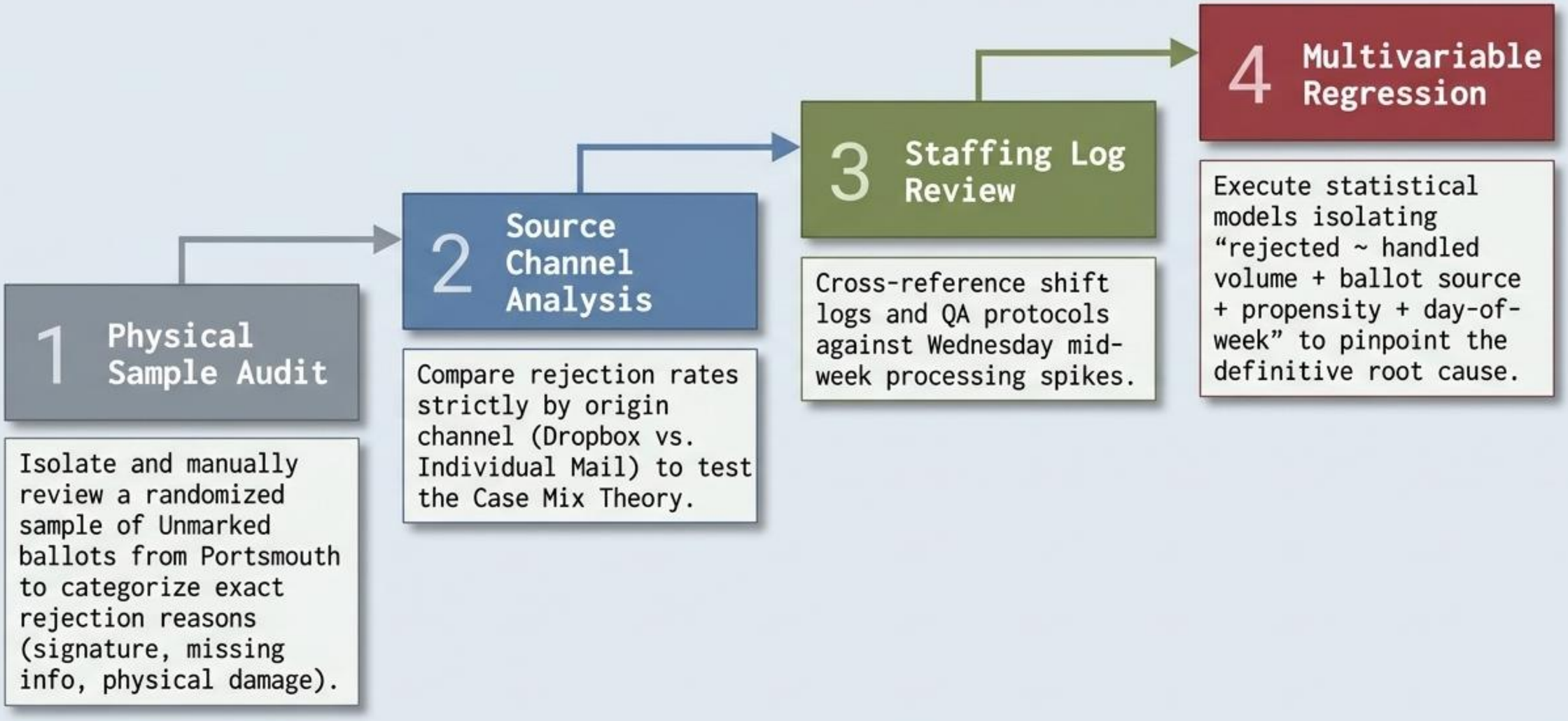
Voter Factors

- Demographic differences in signing behavior or return channels (mail vs dropbox)
- Case mix variations (bulk standardized returns vs late one-off submissions)

Data Artifacts

- Batch reporting lags inflating mid-week numbers
- Consolidation errors or misclassified Unmarked statuses in statewide aggregation

Recommended Audit Protocol and Next Steps



A systemic anomaly requires a systemic audit. Focus investigations on the intersection of low-volume days and high-disparity propensity batches.

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Data Source:
Virginia Dept. of Elections, Daily Absentee List (DAL)
April 21, 2026 Special Election, Early Voting
Graphics by NotebookLM, Computations by ChatGPT-5 Mini

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