

A Statistical Approach to Assess Referendum Results: the Venezuelan Recall Referendum 2004

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Summary

This article presents a statistical approach to assess the coherence of official results of referendum processes. The statistical analysis described is divided in four phases, according to the methodology used and the corresponding results:

(1) Initial Study, (2) Quantification of irregular certificates of election, (3) Identification of irregular voting centers and (4) Estimation of recall referendum results.

The technique of cluster analysis is applied to address the issue of heterogeneity of the parishes with respect to their political preferences.

The Venezuelan recall referendum 2004 is the case study we used to apply the proposed methodology, based on the data published by the “Consejo Nacional Electoral” (CNE-National Electoral Council). Finally, we present the conclusions of the study which we summarize as follows: The percentage of irregular certificates of election is between 22.2% and 26.5% of the total; 18% of the voting centers show an irregular voting pattern in their certificates of election, the votes corresponding to this irregularity are around 2,550,000; The result estimate, using the unbiased votes as representative of the population for the percentage of YES votes against President Chávez is 56.4% as opposed to the official result of 41%.

Key words: Cluster analysis; Confidence interval; Hypothesis testing; Recall referendum.