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Análisis fractal de elecciones federales 1991-2003

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### Abstract

Voting data from Mexican federal deputy elections are analyzed and considered as a response function of a social system with underlying dynamics leading to complex behavior. We found that the voting distributions among candidates, as well as among parties behave as a fat-tailed Lévy stable distribution, associated with fractal structure of electoral network. Specifically, we show that the distribution of voter preferences follows the shifted Pareto distribution with scaling exponent  $\alpha \approx 1.5$ , which shows only small variations from entity to entity and it is essentially the same for all federal elections from 1991 to 2003. Furthermore, we show that Mexican voter network should be modeled by hierarchical pseudo-fractal network characterized by two different fractal dimensions. The identified hierarchical architecture of voter network offers a new perspective on the analysis, modeling and forecasting of elections.

### Keywords

complex networks, fat-tail distributions, fractal, pseudofractal network, social network, Paretos distribution, fractal dimension.

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