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## Evaluation and optimization of electoral systems

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## **Abstrak**

This monograph offers a systematic quantitative approach to the analysis, evaluation, and design of electoral systems. Today, electoral reform is of concern to newborn democracies as well as many old ones. The authors use mathematical models and automatic procedures, when possible, to solve some of the problems that arise in the comparison of existing systems as well as in the construction of new ones. One distinctive feature of the book is the emphasis on single- and multiple-criteria optimization methods. This powerful tool kit will help political researchers evaluate and choose an appropriate electoral system.

A general formal model is included as well as a coding system to describe, identify, and classify electoral systems. Evaluation criteria and the corresponding performance indicators are discussed. A treatment of electoral formulas as algorithms to minimize actual cost functions or disproportionality indexes is also included. Neutral automatic procedures for political districting are presented, and the process of electoral reform is analyzed from historical and political points of view.

Targeted toward mathematically trained scientists (applied mathematicians, operations researchers, and statisticians) and written in clear and simple language, this monograph is largely accessible to political and social scientists as well. A basic knowledge of elementary set theory and integer programming and graph theory is advisable, although not essential, to fully appreciate some technical features.