

**Schneider, Michael H.; Zenios, Stavros A.**

**A comparative study of algorithms for matrix balancing.** (English) Zbl 0703.90094

Oper. Res. 38, No. 3, 439-455 (1990).

Summary: The problem of adjusting the entries of a large matrix to satisfy prior consistency requirements occurs in economics, urban planning, statistics, demography, and stochastic modeling; these problems are called matrix balancing problems. We describe five applications of matrix balancing and compare the algorithmic and computational performance of balancing procedures that represent the two primary approaches for matrix balancing - matrix scaling and nonlinear optimization. The algorithms we study are the RAS algorithm, a diagonal similarity scaling algorithm, and a truncated Newton algorithm for network optimization. We present results from computational experiments with large-scale problems based on producing consistent estimates of Social Accounting Matrices for developing countries.

**MSC:**

- 90C90 Applications of mathematical programming
- 15A12 Conditioning of matrices
- 65F35 Numerical computation of matrix norms, conditioning, scaling
- 90C30 Nonlinear programming
- 90-08 Computational methods for problems pertaining to operations research and mathematical programming
- 90C06 Large-scale problems in mathematical programming
- 90C35 Programming involving graphs or networks

Cited in **28** Documents

**Keywords:**

matrix balancing; matrix scaling; RAS algorithm; diagonal similarity scaling algorithm; truncated Newton algorithm

**Full Text:** [DOI](#)