Review of "Data Envelopment Analysis, A comprehensive text with models, applications, references and DEA-solver software" by W.W. Cooper, L.M. Seiford and K. Tone, Kluwer, 1999, 130 USD, 318 pages. ISBN 0-7923-8693-0

DEA has become within 20 years a central technique in productivity and efficiency analysis and can safely be considered as one the recent success stories in OR. An exponentially growing literature has followed the 78 seminal contribution [1], which this Journal can be quite proud of having published. In the best tradition of OR, real-world applications of DEA have lead to new theoretical developments and *vice versa*.

This new book on DEA is authored by one of the founders of DEA as well as two of the most prolific contributors in the area. It is part of an already long series of books, contributed volumes and special issues of journals on the subject (see [2-15]). Although, the fame of the authors speaks for itself, the person wanting a reference book on DEA on his/her shelves has nowadays quite many options. A more detailed analysis of the book may therefore help. This is all the more true that this book is priced at 136 € (130 USD), which may be reasonable for libraries but is surely not for individuals.

If you are an OR academic interested in DEA and do not own any reference text on the subject, this book is without doubt an excellent buy. The first three chapters give a very good introduction to the basic CCR-DEA model. The remaining chapters offer a deep and clear presentation of the various extensions of this model ranging from the BCC model to models with restriction on weights, models including ordinal or non-discretionary variables and techniques for sensivity analyses. The text offers a wonderful source on DEA and contains all basic material needed to be able to enter the flourishing literature on the subject. The expertise of the authors on the subject is impressive. The text is rich of useful and original remarks and of uncommon but very useful presentation of results.

The CD-ROM accompanying the book contains an impressive list of 1500 references (up-to-date in 1999) that most researchers will find very useful (although they will miss a BibTeX file). With apologies to the authors, I has been unable to test the DEA-solver on the CD-ROM which is only working coupled with a popular spreadsheet running using operating systems that do not meet my criteria for stableness and reliability. Apparently the solver is an Excel add-on allowing to process limited numerical examples using many different DEA models, which may be useful for test purposes.

Outside the case covered above of an OR academic not already owing a basic text on DEA, the decision to buy the book appears more complex. The specialist of DEA inclined towards technical developments will certainly miss a chapter dealing with the use of DEA in dynamic settings (an essential part of most real-world applications and a tricky technical topic). Similarly the economist interested in productivity studies is likely to be disappointed by the absence in this book of an in-depth comparison of the "non-parametric" approach advocated in DEA with the traditional "parametric" approach used in econometrics. In either case, this case the text will have to be supplemented with other books (e.g. [12] and [9]).

Academics are not the intended audience of this book however. In their preface, the authors state that it is designed for students and practitioners. I must confess that I doubt that this text can serve can serve such purposes. Although the exposition style is slow during the first three chapters, it nevertheless requires a substantial technical expertise in LP. Practitioners not familiar in OR are likely not to be able to go any further that chapter two, which begins the "definition-lemma-theorem" style of exposition followed in the rest of the book. The practitioner already much familiar with LP will survive longer. He/She will nevertheless be somewhat disappointed by the absence of any detailed case study in the book. Furthermore he/she will surely miss chapters on structuration and implementation (as far as I am aware of, the book by Norman and Stolker [5] remains the only textbook doing so). For similar reasons, I find it difficult to recommend the use of this volume as textbook for students, unless they are already very familiar with LP and somewhat research-inclined. Practically this seems to limit the use of the book to doctoral and advanced graduate students. The excellent exercises accompanying each chapter will give them many occasions to test their understanding of the technical side of DEA and to crunch numbers.

The book is very well written. It was apparently produced using LaTeX, a guarantee of an overall nice presentation (the TeXnician will however note that the file has been produced by a relatively naive LaTeX user). Typos are rare (page 105 produces an uneasy impression however).

The book is an invaluable source for the DEA researcher. The expertise of the authors shows nearly at each page. In view of its price however, it can only be unconditionally recommended to those OR academics not already owning a source book on DEA. Unfortunately, it seems that an up-to-date textbook introducing DEA to students and practitioners has yet to be written.

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