Chapter 5

Introduction to Performance Improvement Management Software (PIM–DEA)

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ABSTRACT

This chapter provides information on the use of Performance Improvement Management Software (PIM–DEA). This advanced DEA software enables users to make the best possible analysis of the data, using the latest theoretical developments in Data Envelopment Analysis (DEA). PIM-DEA software gives full capacity to assess efficiency and productivity, set targets, identify benchmarks, and much more, allowing users to truly manage the performance of organizational units. PIM-DEA is easy to use and powerful, and it has an extensive range of the most up-to-date DEA models and which can handle large sets of data.

INTRODUCTION


- Assessment of units under constant or variable returns to scale;
- Assessment of units under non-increasing or non-decreasing returns to scale;
- Assessment of units with restrictions on the input /output weights;
- Estimate performance targets with varying priorities over the improvement of inputs and outputs;
- Assess some units when some variables are exogenously fixed and returns to scale are variable;
- Assess the super efficiency of units, including automated identification of units above a user-specified efficiency threshold, their removal and re-assessment of the remaining units;

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Identification of whether increasing, constant or decreasing returns to scale hold locally for units efficient under variable returns to scale;
- Compute Malmquist productivity indices and their decomposition into boundary shift and efficiency catch-up. Boundary shift can be identified both under constant and variable returns to scale;
- Compute Cross-efficiency matrices using optimal weights of selected units to compute the efficiencies of other selected units;
- Compute bootstrapping interval;
- And many more.

With PIM-DEA a user can produce a variety of results including:

- Tables of efficiencies;
- Tables of Pareto efficient input-output levels for assessed units;
- Tables of benchmark (efficient) units for each inefficient unit to emulate;
- Tables of input - output weights to estimate their marginal rates of cross substitution;
- Summary statistics (mean, variance, maximum, minimum etc) of efficiencies;
- Production Possibility Set (PPS) charts for visual assessment when the number of inputs and outputs permits it.

All reported results can be:

- Exported directly into Excel, Word, PDF, HTML format;
- All graphs can be saved as images.

PIM-DEA can handle large sets of data including:

- The use of Excel to import data;
- The use of categorical variables to select subsets of units to be assessed by a given DEA model in batch mode;
- Multiple DEA models can be set up, involving different input and output variables from a global data set to be executed in batch mode.

The rest of this chapter is an overview of the PIM-DEA software that has been extracted from its manual (Emrouznejad and Thanassoulis 2011) (see also http://deasoftware.co.uk for the latest version of the PIM-DEA features and its Manual).

**INSTALLATION OF PIM-DEA**

PIM-DEA is easy to install on any computer with Windows and both 32-bit and 64-bit operating systems are supported. Readers of this book will get a free version of PIM-DEA software for evaluation.