資料包絡分析與應用

DATA ENVELOPMENT ANALYSIS AND APPLICATIONS

國立臺灣大學農業經濟研究所

課程編號：627 M4810

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學分：3　　　　全年或半年：半年　　　　必修或選修：選修

授課對象：碩士班、博士班研究生及相關研究單位專家學者

軟體程式：

   (1) **GAMS: Release 2.25, 1992,** Washington, D.C.: GAMS Development Corp.
本程式置於臺灣大學農業經濟學研究所電腦室，請向電腦室 吳信東先生申請使用。

評分標準：(1) 課堂討論佔學期總分 20%
　　　　　　(2) 習題作業(或期中考試)佔學期總分 40%
　　　　　　(3) 期末考試(或期末報告)佔學期總分 40%

授課目的：

1) 從公理性架構(Axiomatic Framework)探討生產經濟學(Production Theory)基本理論
2) 強調在應用生產經濟領域，無效率(Inefficiency)現象的普遍存在及其測度方法
1) 介紹Data Envelopment Analysis (DEA)相關文獻、理論架構及其應用
2) 介紹非意欲產出(Undesirable Outputs)的概念、相關文獻、理論架構及其應用
3) Malmquist 總要素生產力的介紹、測度與拆解及實例應用與說明
3) 熟悉GAMS 相關軟體程式的操作及其在生產經濟學的應用

主要用書：

Fare, R., S. Grosskopf and C.A. K. Lovell (1985), *The Measurement of Efficiency of Production,* Boston: Kluwer Academic Publishers. [HB241.F335]

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授課大綱

I. The Measurement of Productive Efficiency:

Introduction

Coelli, Timothy J., D.S. Prasada Rao, Christopher J. O'Donnell and George E. Battese, *An Introduction to Efficiency and Productivity Analysis,* Second Edition, New York: Springer Science+Business Media, Inc., 2005. [HB241.C64] Chapters 1, 2, and 3.

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Lovell, C.A.K. (1993), "Production Frontiers and Productive Efficiency," Chapter 1 in H. O. Fried, C. A. K. Lovell and S. S. Schmidt, eds., *The Measurement of Productive Efficiency: Techniques and Applications.* New York: Oxford University Press.

The Mathematical Programming Approach: Data Envelopment Analysis

1) Introduction
1.0 Introduction
1.1 The Treatment of Efficiency in Modern Production Theory
1.2 The Recognition of Inefficiency in Modern Production Theory
1.3 The Introduction of Inefficiency in Applied Production Theory

2) The structure of Production Technology
    2.0 Introduction
    2.1 The Input and Output Correspondences
    2.2 Subsets of The Input and Output Correspondences
    2.3 Production Functions
    2.4 Special Production Structures
    2.5 The Graph and Its Subsets

3) Radial Input Efficiency Measures
    3.0 Introduction
    3.1 Radial Input Efficiency Measures
    3.2 The Farrell Input Measure of Technical Efficiency
    3.3 The Weak Input Measure of Technical Efficiency
    3.4 The Overall Input Efficiency Measure
    3.5 The Input Congestion Measure
    3.6 The Allocative Input Efficiency Measure
    3.7 Linear Programming Example

4) Radial Output Efficiency Measures
    4.0 Introduction
    4.1 Radial Output Efficiency Measures
    4.2 The Farrell Output Measure of Technical Efficiency
    4.3 The Weak Output Measure of Technical Efficiency
    4.4 The Overall Output Efficiency Measure
    4.5 Measuring Output Loss Due to Lack of Disposability
    4.6 The Allocative Output Efficiency Measure
    4.7 Calculating Output Efficiency: A Linear Programming Example

5) Hyperbolic Graph Efficiency Measures
    5.0 Introduction
    5.1 Hyperbolic Graph Efficiency Measures
    5.2 The Farrell Graph Measure of Technical Efficiency
    5.3 The Weak Graph Measure of Technical Efficiency
    5.4 The Overall Graph Efficiency Measure
    5.5 Measuring Input-Output Loss Due to Lack of Disposability
    5.6 The Allocative Graph Efficiency Measure
    5.7 Generalized Hyperbolic Graph Efficiency Measures
    5.8 Linear Programming Example

6) A Comparison of Input, Output, and Graph Efficiency Measures
    6.0 Introduction
    6.1 Comparison of Radial Input and Output Measures
    6.2 Graph Measures Compared to Input and Output Measures

7) Nonradial Efficiency Measures
    7.0 Introduction
    7.1 The Russell Input Measure of Technical Efficiency
    7.2 The Russell Output Measure of Technical Efficiency
    7.3 The Russell Graph Measure of Technical Efficiency
    7.4 Comparison of Russell Measures

10) References

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The Econometric Approach: Stochastic Frontier Analysis

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II. The Measurement of Productivity Change

1) Background

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3) The Mathematical Programming: Malmquist Indexes

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IV. Productivity and Profitability

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V. Productivity and Regulation

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VI. Productivity Growth Measurement with Time Series Data

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VII. Other Applications

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