

Annual Report for
The Centre for Efficiency and
Productivity Analysis (CEPA)

For the year ended 31 December 2011

Annual Report for The Centre for Efficiency and Productivity Analysis (CEPA)

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Overview of the Centre (including Mission Statement)

The main purpose of the Centre is to provide a focal point for research, consultancy and training in efficiency and productivity analysis in Australia and the Asia/Pacific Region.

The principal aims and objectives of the Centre are to undertake theoretical and applied research, develop useful end-user-driven short courses and workshops and to develop computer software for use by private and public sector organizations. Specific objectives are:

- to assess and develop methods for the measurement of productivity, efficiency and economic performance;
- to apply these methods to assess the performance of firms, industries and sectors within the domestic and international economies;
- to conduct research directed towards explaining and interpreting patterns of productivity and economic growth across nations;
- to conduct ex post assessment of the effects of microeconomic reform and deregulation on productivity and efficiency;
- to provide technical advice to private and public sector and international organizations on efficiency and productivity measurement; and
- to offer short courses and workshops to researchers, managers and policy analysts from various sectors of industry and government.

Agreed objectives for 2011 Calendar Year

Agreed objectives:

- Continue to produce high quality journal publications.
- Continue to provide high quality supervision to our PhD students and encourage them to produce journal publications from their research.
- Continue to attract high profile visitors and good quality PhD students to work on projects undertaken by CEPA staff.
- Continue to seek external research funding through consultancies and grants.
- Deliver a three-day short-course on introductory and/or advanced productivity and efficiency analysis methods.
- Conduct a one-day workshop on efficiency and productivity analysis in a particular sector (e.g. regulated industries).

Performance against agreed objectives:

In 2011 CEPA staff:

- produced 16 journal publications; 14 conference papers; 13 working papers; 2 book chapters; and several other publications;
- were involved in the supervision of 5 PhD students;
- hosted 12 international visitors;
- worked on 4 research contracts;
- presented 6 short courses and a number of seminars;
- ran a workshop on efficiency and productivity in regulated industries,
- served in journal editorial roles and made various other contributions to the profession.

Governance

The governance of the Centre is through the CEPA Advisory Committee consisting of Professor C.J. O'Donnell (Director), Professor C.A.K. Lovell, Professor D.S.P. Rao, Associate Professor C. Nauges, Associate Professor A.N. Rambaldi, Associate Professor V. Zelenyuk and Dr A. Peyrache.

The Advisory Committee meets at least once each year. Members of the Committee meet informally on a more regular basis to prepare tenders for consulting projects and interim and final reports for research projects.

The Director consults with the Head of the School of Economics on all substantive matters relating to the Centre.

List of Staff Associated with Centre

Director

Professor Chris O'Donnell

Other Staff

Dr Mohammad Alauddin

Associate Professor Necmi Avkiran

Associate Professor Phil Bodman

Professor John Foster

Professor Knox Lovell

Associate Professor Renuka Mahadevan

Associate Professor Celine Nauges

Dr Antonio Peyrache

Professor John Quiggin

Associate Professor Alicia Rambaldi

Professor D.S. Prasada Rao

Associate Professor Valentin Zelenyuk

Postdoctoral Fellows

Dr Renuka Ganegodage

Research Associates

Dr George Battese

Professor Harry Campbell

Professor Tim Coelli

Dr Howard Doran

Publications List for 2011 Calendar Year

Book Chapters

- Avkiran, N.K. (2011) “Applications of Data Envelopment Analysis in the Service Sector”, in Cooper, W.W., Seiford, L.M. and J. Zhu. *Handbook on Data Envelopment Analysis* 2nd edition. Kluwer Academic Publishers. pp. 403-444.
- Nauges, C. and T. Alban (2011) “Pricing urban water services: The case of France”, in R. Q. Grafton and K. Hussey (eds.) *Water Resources Planning and Management*. Cambridge University Press. pp. 380-394.

Journal articles

- Alauddin, M. and C. Tisdell (2011) Quantitative impacts of teaching attributes on university TEVAL scores and their implications. *International Journal of University Teaching and Faculty Development* 1(2):71-88.
- Asmild, M., Lovell, C. A. K. and J. T. Pastor (2011) The Biennial Malmquist Productivity Index. *Socio-Economic Planning Sciences* 45:1 (March), 10-15.
- Avkiran, N.K. and M. Goto (2011) A tool for scrutinizing bank bailouts based on multi-period peer benchmarking, *Pacific-Basin Finance Journal* 19(5), 447-469.
- Avkiran, N.K. (2011) Association of DEA super-efficiency estimates with financial ratios: Investigating the case for Chinese banks, *OMEGA, The International Journal of Management Science* 39, 323-334.
- Brea, H., Grifell-Tatjé, E. and C. A. K. Lovell (2011) Testing the Product Test. *Economics Letters* 113:2 (November), 157-59.
- Carrington, R., Coelli, T. and P. Rao (2011) Australian private health insurance productivity growth: is there scope to limit premium increases? *The Economic Record* 87(276):125-139.
- Carson, R.T., Koundouri, P. and C. Nauges (2011) Arsenic mitigation in Bangladesh: A household labor market approach. *American Journal of Agricultural Economics* 93(2):407-414.
- Filippetti, A. and A. Peyrache (2011) The patterns of technological capabilities of countries: A dual approach using composite indicators and data envelopment analysis. *World Development* 39(7):1108-1121.

- Ganegodage, K.R. and A.N. Rambaldi (2011). The Impact of Education Investment on Sri Lankan Economic Growth. *Economics of Education Review*, 30, 1491– 1502.
- Hoang, V.-N. and M. Alauddin (2011) Analysis of agricultural sustainability: A review of exergy methodologies and their application in OECD countries. *International Journal of Energy Research*. 35(6):459-476.
- Hodge, A. Shankar, S., Rao, D.S.P. and A. Duhs (2011) Exploring the links between corruption and growth. *Review of Development Economics* 15(3):474-490.
- Laukkanen, M. and C. Nauges (2011) Environmental and production cost impacts of no-till in Finland: Estimates from observed behavior. *Land Economics* 87(3)508-527.
- Lovell, C. A. K. and W. W. Cooper (2011) History Lessons. *Journal of Productivity Analysis* 36:2 (October), 193-200.
- Nauges, C., O'Donnell, C.J. and J. Quiggin (2011). Uncertainty and technical efficiency in Finnish agriculture: a state-contingent approach. *European Review of Agricultural Economics* 38(4):449-467.
- Simar, L. and V. Zelenyuk (2011) Stochastic FDH/DEA estimators for Frontier Analysis. *Journal of Productivity Analysis* 36:1, pp. 1-20.
- Zelenyuk, V. (2011) Aggregation of Economic Growth Rates and of its Sources. *European Journal of Operational Research* 212, pp. 190–198.

Conference papers

- Avkiran, N.K. (2011) Stability of Network DEA. *Conference for the International Federation of Operational Research Societies* Melbourne, 10-15 July.
- Avkiran, N.K. (2011) Can Australian credit unions and building societies compete with commercial banks? Expanding the regulator's toolkit. *Australian Banking and Finance Conference* Sydney, 14-16 December.
- Grifell-Tatjé, E. and C. A. K. Lovell (2011) Productivity, Price Recovery, Capacity Constraints and their Financial Consequences. *Taiwan Productivity and Efficiency Conference*, Academia Sinica, Taipei, Taiwan.
- Lovell, C. A. K. and J. E. Lovell (2011) Productivity Decline in Australian Coal Mining: A Detective Story. *XII European Workshop on Efficiency and Productivity Analysis*, Verona, Italy, 21-24 June.

- Millington, H., Lovell, C. A. K. and J. E. Lovell (2011) Combining Field Research, GIS and DEA to Guide Ecosystem Management. *XII European Workshop on Efficiency and Productivity Analysis*, Verona, Italy, 21-24 June.
- Millington, H., Lovell, C. A. K. and J. E. Lovell (2011) Combining Field Research, GIS and DEA to Guide Ecosystem Management. *Advanced Lecture Workshop*, Soochow University, Taipei, Taiwan.
- Nauges, C. and C.J. O'Donnell (2011). Using stochastic frontier analysis to inform utilities regulation, with an application to the water and sanitation sector in Brazil. *XII European Workshop on Efficiency and Productivity Analysis*, Verona, Italy, 21-24 June.
- O'Donnell, C. J. (2011). The Drivers of Productivity Change in the Market Sectors of the Australian Economy: 1995-2008. *55th Annual Conference of the Australian Agricultural and Resource Economics Society*, Melbourne, 8-11 February.
- O'Donnell, C. J. and K. Nguyen (2011). Econometric Methodology for Estimating the Components of Productivity Change in Public Hospitals. *Conference for the International Federation of Operational Research Societies* Melbourne, 10-15 July.
- O'Donnell, C. (2011) The Sources of Productivity Change in the Major Sectors of the U.S. Economy. *XII European Workshop on Efficiency and Productivity Analysis*, Verona, Italy, 21-24 June.
- O'Donnell, C. (2011) Econometric Estimation of Distance Functions and Associated Measures of Productivity and Efficiency Change. *9th Biennial Pacific Rim Conference*. Western Economic Association International. Brisbane, 26-29 April.
- Peyrache, A. and A.N. Rambaldi, (2011) A State-Space Approach to Measuring Productivity. *9th Biennial Pacific Rim Conference*. Western Economic Association International. Brisbane, 26-29 April.
- Rambaldi, A.N., Fletcher, C. and R.J. McAllister (2011) Separating the Value of Land from Structure in Residential Property Prices. *Economic Measurement Group (EMG) Workshop*. Sydney, 30 November – 2 December.
- Rambaldi, A.N., McAllister, R.J., Collins, K. and C. Fletcher, (2011) Hedonic Imputed Price Indices for Land and Structure With An Empirical Application to the City of Brisbane, Australia. *Workshop on Residential Property Price Indices*, Statistics Netherlands, The Hague, 10-11 February.

Working papers

- Laurenceson, J. and C.J. O'Donnell (2011) New Estimates and a Decomposition of Provincial Productivity Change in China. *Centre for Efficiency and Productivity Analysis Working Papers WP04/2011*, School of Economics, The University of Queensland.
- O'Donnell, C. (2011) Econometric Estimation of Distance Functions and Associated Measures of Efficiency and Productivity Change *Centre for Efficiency and Productivity Analysis Working Papers WP01/2011*, School of Economics, The University of Queensland.
- O'Donnell, C.J. and K. Nguyen (2011) An Econometric Approach to Estimating Support Prices and Measures of Productivity Change in Public Hospitals. *Centre for Efficiency and Productivity Analysis Working Papers WP03/2011*, School of Economics, The University of Queensland.
- O'Donnell, C. (2011) The Sources of Productivity Change in the Manufacturing Sectors of the U.S. Economy *Centre for Efficiency and Productivity Analysis Working Papers WP07/2011*, School of Economics, The University of Queensland.
- O'Donnell, C.J., Fallah-Fini, S. and K. Triantis (2011) Comparing Firm Performance Using Transitive Productivity Index Numbers in a Meta-Frontier Framework *Centre for Efficiency and Productivity Analysis Working Papers WP08/2011*, School of Economics, The University of Queensland.
- Rambaldi, A.N. and D.S. Prasada Rao (2011) Hedonic Predicted House Price Indices Using Time-Varying Hedonic Models with Spatial Autocorrelation. *School of Economics Discussion Paper No. 432 July 2011*, School of Economics, The University of Queensland.
- Rambaldi, A.N., McAllister, R.J., Collins, K. and C.S. Fletcher (2011) Housing shadow prices in an inundation prone suburb. *School of Economics Discussion Paper No. 429 June 2011*, School of Economics, The University of Queensland.
- Rambaldi, A.N., McAllister, R.J., K. Collins and C.S. Fletcher (2011) An Unobserved Components Approach to Separating Land from Structure in Property Prices: A Case Study for the City of Brisbane. *School of Economics Discussion Paper No. 428 June 2011*, School of Economics, The University of Queensland.
- Zelenyuk, V., Curi, C., Guarda, P. and A. Lozano-Vivas (2011) Is foreign-bank efficiency in financial centers driven by home-country characteristics? *Centre for Efficiency and Productivity Analysis Working Papers WP02/2011*, School of Economics, The University of Queensland.
- Zelenyuk, V. (2011) A Note on Equivalences in Measuring Returns to Scale in Multi-output-multi-input Technologies. *Centre for Efficiency and Productivity Analysis Working Papers WP05/2011*, School of Economics, The University of Queensland.
- Zelenyuk, V. (2011) A Scale Elasticity Measure for Directional Distance Function and its Dual. *Centre for Efficiency and Productivity Analysis Working Papers WP06/2011*, School of Economics, The University of Queensland.

Zelenyuk, V. (2011) Scale Efficiency: Equivalence of Primal and Dual Measures *Centre for Efficiency and Productivity Analysis Working Papers WP09/2011*, School of Economics, The University of Queensland.

Zelenyuk, V. and L. Simar (2011) To Smooth or Not to Smooth? The Case of Discrete Variables in Nonparametric Regressions. *Centre for Efficiency and Productivity Analysis Working Papers WP010/2011*, School of Economics, The University of Queensland.

Other Publications

O'Donnell, C. J. and K. Nguyen (2011). Review of efficiency measurement methodologies to inform hospital resource allocation decisions in NSW. *An Evidence Check Rapid Review Brokered by the Sax Institute (<http://www.saxinstitute.org.au>) for the Bureau of Health Information.*

Research Students Associated with Centre

Degree		Name	Enrolled	Submitted	Awarded
Ph.D. ongoing	F/T	Shabbir Ahmad	06/09		
Ph.D. ongoing	P/T	Briege Allan-Greer	03/03		
Ph.D. ongoing	P/T	Roger Carrington	06/06		
Ph.D. ongoing	P/T	Franklin Soriano	03/03		
Ph.D. ongoing	F/T	Hieu Phan Sy	02/07	2011	2011

Research Grants and Contracts Awarded

- Title: *Productivity and Efficiency of Farms in the Northern Grains Region*
Uniquet Project No. 16874
Client: CSIRO
Investigators: O'Donnell, C.J. and A. Peyrache
- Title: *Analysis of Efficiency and Productivity in Aged Care Homes*
Uniquet Project No. 16953.
Client: Commonwealth Department of Health and Ageing
Investigators: O'Donnell, C. J. and K. Nguyen.
- Title: *Efficiency Analysis of Public Hospital Acute Admitted Services*
Uniquet Project No. 17132.
Client: Commonwealth Department of Health and Ageing
Investigators: O'Donnell, C. J., D.S.P. Rao, K. Nguyen and A. Peyrache.
- Title: *Market and Financial Trends: Medium Density Residential Development in SEQ*
Client: AEC Group for SEQ Council of Mayors
Investigators: A. Rambaldi.

Seminars

- Millington, H., Lovell, C. A. K. and J. E. Lovell (2011) *Combining Field Research, GIS and DEA to Guide Ecosystem Management*. University of Queensland
- O'Donnell, C. (2011) *Econometric Estimation of Distance Functions and Associated Measures of Productivity and Efficiency Change*. University of Rome, 15 June.
- O'Donnell, C. (2011) *Econometric Estimation of Distance Functions and Associated Measures of Productivity and Efficiency Change*. University of Toulouse, 27 June.
- O'Donnell, C. (2011) *An Econometric Approach to Estimating Support Prices and Measures of Productivity Change in Public Hospitals*. Macquarie University, 28 October.
- Zelenyuk, V. (2011) *Local Maximum Likelihood Techniques with Categorical Data*. Monash University.
- Zelenyuk, V. (2011) *Local Maximum Likelihood Techniques with Categorical Data*. University of Sydney.

Short Courses

- O'Donnell, C. (2011) *Applied Productivity and Efficiency Analysis*, Melbourne, 8 February (25 attendees).
- O'Donnell, C., Balk, B. and D. Saal (2011) *Applied Productivity and Efficiency Analysis*, University of Queensland, 26-28 September (40 attendees).
- O'Donnell, C. (2011) *Applied Productivity and Efficiency Analysis*, Asian Productivity Organisation, Tokyo, 5 October (14 attendees).
- Schmidt, P. (2011) *Panel Data Econometrics*. University of Queensland, 20-22 July (40 attendees).
- Simar, L. and V. Zelenyuk (2011) *Introduction to Bootstrap Methods With Applications to Measuring Reliability of DEA and SFA Estimates* University of Queensland, 4 November (25 attendees).
- Zelenyuk, V. (2011) *Lectures in Productivity and Efficiency Analysis*. Hong Kong Baptist University, Hong Kong, China

Conferences and Workshops

- Workshop on Productivity and Efficiency in Regulated Industries*, University of Queensland, Australia, 29 September (40 attendees)

Significant External Service

Lovell, C.A.K.

- Member of Scientific Advisory Committee, European Workshop on Efficiency and Productivity Analysis
- Member of Advisory Committee, North American Productivity Workshop
- Member of Organizing Committee, Asia Pacific Productivity Workshop

O'Donnell, C.J.

- Member of Australian Bureau of Statistics (ABS) Productivity Measurement Reference Group (PMRG)
- Member of Commonwealth Department of Health and Ageing (DoHA) Aged Care Benchmarking (ACB) Consultative Group
- Associate Editor, *Journal of Productivity Analysis*
- ARC Ozreader

Rao, D.S.P.

- Elected Member of the Council of the International Association for Research in Income and Wealth, 2010-2012.
- Appointed Member, Technical Advisory Group for the International Comparison Program 2011 at the World Bank, 2010-2012.

Visitors to the Centre:

A/Professor Christine Amsler

Michigan State University

10 July – 9 August 2011

Professor Bert Balk

Erasmus University, Netherlands

September 2011

Professor W.E. Diewert

University of British Columbia and University of NSW

17 October – 1 November 2011

Professor Robert Feenstra

University of California - Davis

3-16 April 2011

Professor E. Grifell-Tatjé

Universitat Autònoma de Barcelona

November 2011

Jan de Haan

Statistics Netherlands

21-25 November 2011

Professor Sugata Marjit

Centre for Studies in Social Sciences, Calcutta

3-20 May 2011

Professor David Saal

Aston University

22-30 September 2011

Professor Peter Schmidt

Michigan State University

10 July – 9 August 2011

Professor Robin Sickles

Rice University

9-14 December 2011

Professor Leopold Simar

Université Catholique de Louvain

October-November 2011

Professor Harry Wu

Hitotsubashi University

May 2011

Agreed objectives for 2012 Calendar Year

- Continue to produce high quality journal publications.
- Continue to provide high quality supervision to our PhD students and encourage them to produce journal publications from their research.
- Continue to attract high profile visitors and good quality PhD students to work on projects undertaken by CEPA staff.
- Continue to seek external research funding through consultancies and grants.
- Deliver a three-day short-course on introductory and/or advanced productivity and efficiency analysis methods.
- Conduct a one-day workshop on empirical applications of efficiency and productivity analysis.



*Centre Director
Professor C.J. O'Donnell*



*Head of School
Professor Flavio M. Menezes*