

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

For the year ended 31 December 2009

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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 organisations. 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 organisations 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 the 2009 Calendar Year

The following were the objectives for 2009:

- 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.

Performance against agreed objectives:

In 2009 CEPA staff:

- produced 9 journal publications; 9 conference papers; 7 working papers; 3 book chapters; and several other publications;
- were involved in the supervision of 12 PhD students and 4 Honours students;
- worked on 2 funded research projects;
- presented 3 short courses and a number of seminars; and
- served in journal editorial roles and made various other contributions to the profession.

Governance

The governance of the Centre is mainly through the Executive Committee consisting of the Director (Professor C.J. O'Donnell) and the three senior staff members of the Centre (Professors D.S. Prasada Rao, Knox Lovell and Tim Coelli).

The Committee met irregularly, often to prepare tenders for consulting projects and interim and final reports for research projects.

The Director consulted 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

Senior Staff

Professor D.S. Prasada Rao

Professor Knox Lovell

Professor Tim Coelli

Other staff

Dr Mohammad Alauddin

Associate Professor Necmi Avkiran

Associate Professor Phil Bodman

Associate Professor Renuka Mahadevan

Professor John Quiggin

Associate Professor Alicia Rambaldi

Professor John Foster

Professor Harry Campbell

Dr Grace Lordan

Postdoctoral Fellow

Dr Antonio Peyrache

Dr Lifen Wu

Research Associates

Dr George Battese

Dr Howard Doran

Publications List for Calendar Year 2009

Books and Monographs

Prasada Rao, D.S. (ed.) *Purchasing Power Parities of Curriencies: Recent Advances in Methods and Applications*, Edward Elgar Publishing Ltd. In Print, 2009, pp.400.

Book Chapters

Dwyer, L, D.S. Prasada Rao and Peter Forsyth (2009) “ Purchasing Power Parities and Price Competitiveness of International Tourist Destinations” in Prasada Rao (ed.) *Purchasing Power Parities: Recent Advances In Methods And Applications*, Edward Elgar Publishing Company, 367-388.

Prasada Rao, D.S., (2009) "Generalised Elteto-koves-Szulc (EKS) and Country-Product-Dummy (CPD) Methods for International Comparisons" in Prasada Rao (ed.) *Purchasing Power Parities: Recent Advances In Methods And Applications*, Edward Elgar Publishing Company, 86-120.

Sakuma, I., D.S. Prasada Rao and Y. Kurayabashi (2009), “Additivity, Matrix Consistency and a New Method for International Comparisons of Real Income and Purchasing Power Parities” in Prasada Rao (ed.) *Purchasing Power Parities: Recent Advances In Methods And Applications*, Edward Elgar Publishing Company, 142-159.

Journal articles

- D. Petrie, K.K. Tang and D.S. Prasada Rao (2009) "The Income-Climate Trap of Health Development: A Comparative Analysis of African and Non-African Countries" *Social Science and Medicine*, 69(7): 1099-1106.
- Feenstra, R., Hong Ma and D.S. Prasada Rao (2009), "Consistent Comparisons of Real Incomes Across time and Space", *Macroeconomic Dynamics*, 13 (Supplement 2), 169-193.
- Iyer, K.G., A.N. Rambaldi, K.K. Tang (2009), "How Trade and Foreign Investment Affect the Growth of a Small but not so Open Economy: Australia?" *Applied Economics*, Vol. 41, 12, 1525:1532.
- Lovell, C. A. K., Rodríguez-Álvarez, A., Wall, A. (2009) "The effects of stochastic demand and expense preference behaviour on public hospital costs and excess capacity". *Health Economics*, 18: 227–235.
- Lovell, C. A. K., R. A. Cuesta., J. L. Zofio (2009) "Environmental Efficiency Measurement with Translog Distance Functions: A Parametric Approach", *Ecological Economics* 68:8-9 (June), 2232-42.
- Lovell, C. A. K., S. H. Lim (2009) "Profit and Productivity of U.S. Class I Railroads", *Managerial and Decision Economics* 30:7 (October), 423-42.
- Mosheim, R., Lovell, C.A.K (2009) "Scale Economies and Inefficiency of U.S. Dairy Farms", *American Journal of Agricultural Economics* 91:3 (August), 777-94.
- Peyrache, A. and T.J. Coelli (2009), "Testing procedures for detection of linear dependencies in efficiency models", *European Journal of Operations Research*, 198, 647–654.
- Tang, K.K., D. Petrie and D.S. Prasada Rao (2009) "Measuring health inequality with realization of potential life years (Reply)" *Health Economics*, 18: S1, S55-S75.

Conference papers

- Arocena, P., D. Saal and T.J. Coelli (2009), "Measuring Economies of Horizontal and Vertical Integration in the US Electric Power Industry: How Costly is Vertical Unbundling?", *paper presented at EWEPA Conference, Pisa, Italy, June 2009.*
- C. A. Knox Lovell., J. E. Lovell (2009) "Productivity Decline: A Detective Story" Keynote Speaker *Taiwan Productivity and Efficiency Conference, Academia Sinica, Taipei, Taiwan*
- Diewert, E, Rao D.S. Prasada, K. Zieschang (2009) "National Growth Rates versus Implicit Growth Rates from the ICP" presented at the invited topic organised session: *Temporal and Cross-Sectional Consistency in Purchasing Power Parities*, at the 2009 Joint Statistical Meetings, Washington D.C. 1-6 August 2009.
- Feenstra, R., Hong Ma and D.S. Prasada Rao (2009) "Consistent Comparisons of Real Incomes across Time and Space" *Paper presented at the International Workshop on International Comparisons of Real Income* held in Davis, California, 7-8 May, 2009.
- Nauges, C., C. O'Donnell and J. Quiggin (2009). "Uncertainty and Technical Efficiency in Finnish Agriculture". *53rd Annual Conference of the Australian Agricultural and Resource Economics Society*, Cairns, Australia, 11-13 February.
- O'Donnell, C. J. (2009). "Measuring and Decomposing Agricultural Productivity and Profitability Change". *53rd Annual Conference of the Australian Agricultural and Resource Economics Society*, Cairns, Australia, 11-13 February.
- O'Donnell, C. J. and Rao D.S. Prasada (2009) "Estimating Posterior Probability Density Functions for Exact Index Numbers", *Proceedings of the International conference on Frontiers of Interface between Statistics and Sciences*, AIMSC and University of Hyderabad, 30 Dec, 2009 – 2nd Jan, 2010.
- Rao D.S. Prasada, A. N. Rambaldi and H. Doran (2009) "An Econometric Approach to Construct World Tables of Purchasing Power Parities and Real Incomes: Analytical Properties and Tables for 1970-2005" presented at the invited topic organised session: *Temporal and Cross-Sectional Consistency in Purchasing Power Parities*, at the 2009 Joint Statistical Meetings, Washington D.C. 1-6 August 2009.
- Rao D.S. Prasada, and G. Hajarghasht, (2009) "Stochastic Approach to Multilateral Index Numbers of International Comparisons of Prices and Real Incomes", *Proceedings of the International conference on Frontiers of Interface between Statistics and Sciences*, AIMSC and University of Hyderabad, 30 Dec, 2009 – 2nd Jan, 2010.

Working papers

- Arocena, P., D. Saal and T.J. Coelli (2009), “Measuring Economies of Horizontal and Vertical Integration in the US Electric Power Industry: How Costly is Vertical Unbundling?”, Aston Business School Working Paper 0917, University of Aston.
- Hoang, V.N and T.J. Coelli (2009), “Measurement of Agricultural Total Factor Productivity Growth Incorporating Environmental Factors: A Nutrients Balance Approach”, CEPA Working Papers, No. 3/2009, School of Economics, University of Queensland.
- Nguyen, H. And T.J. Coelli (2009), “Quantifying the effects of modelling choices on hospital efficiency measures: A meta-regression analysis”, CEPA Working Papers, No. 7/2009, School of Economics, University of Queensland.
- Nguyen, K. and Lordan, G. (2010) “Labour efficiency of Queensland public hospitals under the historical cost payment” CEPA working paper 2010
- Peyrache, A. and T.J. Coelli, (2009), “A Multiplicative Directional Distance Function”, CEPA Working Papers, No. 2/2009, School of Economics, University of Queensland.
- Rambaldi, A.N., D.S.P Rao and K. R. Ganegodage (2009) "Spatial Autocorrelation and Extrapolation of Purchasing Power Parities. Modelling and Sensitivity Analysis" CEPA Working Paper Series. ISSN 1832-4398, WP01/2009, School of Economics, University of Queensland.
- See, K.F. and T.J. Coelli (2009), “The Effects of Competition Policy on TFP Growth: Some Evidence from the Malaysian Electricity Supply Industry”, CEPA Working Papers, No. 6/2009, School of Economics, University of Queensland.

Other Publications

- O'Donnell, C. J. (2009). Submission by the Centre for Efficiency and Productivity Analysis. *House of Representatives Standing Committee on Economics Inquiry into Raising the Level of Productivity Growth in the Australian Economy*
<http://www.aph.gov.au/house/committee/economics/productivity/Subs/Sub11.pdf>.

Research Students Associated with Centre

Degree		Name	Enrolled	Submitted	Awarded
Honours	F/T	Linh Huynh Tu	02/08	11/09	12/09
Honours	F/T	Hiresh Devaser	02/09	11/09	12/09
Honours	F/T	Sarah Maniatis	02/09	11/09	12/09
Honours	F/T	David Warner	02/09	11/09	12/09
PhD, ongoing	F/T	Brett Ryder	08/04		
PhD, ongoing	F/T	Duncan Maclaine	02/06	Withdrawn	
Ph.D. ongoing	P/T	Barry Golding	03/03		
Ph.D. ongoing	F/T	Nick Rhode	03/06		06/10
Ph.D. ongoing	F/T	Andrew Hodge	02/07		
Ph.D. ongoing	P/T	Briege Allan-Greer	03/03		
Ph.D. ongoing	P/T	Franklin Soriano	03/03		
Ph.D. ongoing	F/T	Kim Nguyen	07/06	16/10	
Ph.D. ongoing	P/T	Roger Carrington	06/06		
Ph.D. ongoing	F/T	Vincent Hoang	02/07	02/09	
PhD. Ongoing	F/T	Adeline Ofori-Bah	02/08		
PhD. Ongoing	F/T	See Kok Fong	06/07	01/09	
PhD. Ongoing	F/T	Shankar Sriram	02/07		
PhD. Ongoing	F/T	Hieu Phan Sy	02/07		

Research Grants and Contracts Awarded

- Title: *Construction of Consistent Panels of Real Gross Domestic Product and its Components at Current and Constant Prices*

Investigators: Rao, Rambaldi and Doran

Post Doctoral Staff: Ganegodage

Funding: ARC Discovery (2009-2013) \$249,882.00 + 50% Professorial Fellowship

- Title: *State-contingent analysis of productivity, efficiency and innovation;*

Chief Investigators (in order): O'Donnell, Quiggin, Chambers.

Funding: ARC Discovery (2008-2010) \$437,599.

Seminars

Coelli, T.J. *Measuring Economies of Horizontal and Vertical Integration in the US Electric Power Industry: How Costly is Vertical Unbundling?*, University of Rome, 16 June 2009.

Coelli, T.J. *Measuring Economies of Horizontal and Vertical Integration in the US Electric Power Industry: How Costly is Vertical Unbundling?*, Bocconi University, Milan, 18 June 2009.

O'Donnell, C.J. *Measuring and Decomposing Agricultural Productivity and Profitability Change*. Macquarie University, November.

Rambaldi, A. *Extrapolations of Purchasing Power Parities using Multiple Benchmarks and Auxiliary Information: A New Approach*, Departament d'Economía Aplicada. Universitat Autònoma de Barcelona, on 25 May 2009.

Rao, D.S.P., *Consistent Comparisons of Real Incomes across Time and Space*. Australian National University, September.

Rao, D.S.P., *Consistent Comparisons of Real Incomes across Time and Space under Non-homothetic Preferences* University of Western Australia. October.

Rao, D.S.P., *Extrapolation of Purchasing Power Parities Using Multiple Benchmarks and Auxiliary Information: A New Approach*. Curtin University, October.

Short Courses

O'Donnell, C. J. (2009). Bayesian Econometrics. Universidad de Autonoma Barcelona 13-15 January.

O'Donnell, C. J. (2009). *Efficiency and Productivity Analysis*. University of Queensland. September. 4 days.

Rao, D.S.P (2009). Efficiency and Productivity Analysis, International Islamic University Malaysia, Kuala Lumpur. 3 days.

Conferences

D.S.P Rao Organised a Session on Stochastic Approach to Index Numbers in the International conference on Frontiers of Interface between Statistics and Sciences, *AIMSC and University of Hyderabad*, 30 Dec, 2009 – 2nd Jan, 2010.

Significant External Service

Coelli, T.J.

- Associate Editor, *Journal of Productivity Analysis*
- Member of Editorial Advisory Board, *Agricultural Economics*

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
- Member of Editorial Board, *Socio-Economic Planning Sciences*

O'Donnell, C.J.

- Member of Australian Bureau of Statistics (ABS) Productivity Measurement Reference Group (PMRG)
- Associate Editor, *Journal of Productivity Analysis*
- Immediate Past President, Australian Agricultural and Resource Economics Society
- President, Australian Agricultural and Resource Economics Society
- ARC OzReader

Rambaldi, A.

- Member of Standing Committee of the Australasian Region of the Econometric Society

Rao, D.S.P.

- Editorial Board: Review of Income and Wealth; *Journal of Productivity Analysis*
- Member of Interim Technical Advisory Group for the International Comparison Program at the World Bank, February- June, 2009
- Appointed Member of Technical Advisory Group for the International Comparison Program at the World Bank, July 2009 – 2012.
- ARC Oz Reader
- External PhD Examiner: Indian Statistical Institute, August, 2009; Curtin University, Perth, November, 2009.

Visitors to the Centre:

Professor Colin Cameron, *University of California - Davis*

- 20 to 23 July 2009

Professor Emili Grifell-Tatjé, *Universitat Autònoma de Barcelona*

- 8 January to 11 February 2009
- 16 July to 1 September 2009
- 2 November to 12 December 2009

Professor Erwin Diewert, *University of British Columbia*

- 18 to 28 November 2009

Agreed objectives for 2010 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 efficiency and productivity analysis in a particular industry sector (e.g. health).



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



*Acting Head of School
Professor C.J. O'Donnell*