

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

For the year ended 31 December 2014

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* assessments of the effects of microeconomic reform and deregulation on productivity and efficiency;
- to provide technical advice to private and public sector 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 2014 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.
- Run the Asia-Pacific Productivity Conference
- Deliver at least two short-courses on introductory and/or advanced productivity and efficiency analysis methods.

Performance against agreed objectives:

In 2014 CEPA staff:

- produced twenty journal publications, twenty-three conference/workshop papers, seven working papers, and two other scholarly works associated with the UQ International Comparisons Database (UQICD).
- were involved in the supervision of seven PhD students;
- hosted fourteen international visitors;
- applied for external research funding through the ARC (unsuccessfully)
- ran the Asia-Pacific Productivity Conference
- presented and/or organised eight short courses and workshops;
- 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 usually meets once a 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

Associate Professor Necmi Avkiran

Professor Knox Lovell

Associate Professor Celine Nauges

Dr Antonio Peyrache

Associate Professor Alicia Rambaldi

Professor D.S. Prasada Rao

Associate Professor Valentin Zelenyuk

Postdoctoral Fellows

Dr Renuka Ganegodage

Publications List for 2014 Calendar Year

Journal Articles

- Avkiran N. K. (2014) Probing organizational efficiency. *International Journal of Organizational Analysis* 22(2):149-160.
- Avkiran N.K. and A. McCrystal (2014) Intertemporal Analysis of Organizational Productivity in Residential Aged Care Networks: Scenario Analyses for Setting Policy Targets. *Health Care Management* 17(2):113-125.
- Avkiran N.K. and A. McCrystal (2014) Dynamic Network Range-adjusted Measure vs. Dynamic Network Slacks-based Measure. *Journal of the Operations Research Society of Japan* 57(1):1-14.
- Avkiran N.K. and L. Cai (2014) Identifying distress among banks prior to a major crisis using non-oriented super-SBM. *Annals of Operations Research* 217(1):31-53.
- Chowdhury, A. Laporte and W. Wodchis and V. Zelenyuk (2014) Analysis of productivity, efficiency and technological changes in hospital services in Ontario: How does case-mix matter? *International Journal of Production Economics*. 150, pp. 74-82.
- Ganegodage, K. R. and Rambaldi, A. N. (2014), Economic consequences of war: evidence from Sri Lanka. *Journal of Asian Economics* 30: 42-53. DOI:10.1016/j.asieco.2013.12.001.
- Grifell-Tatjé, E. and C.A.K. Lovell (2014) Productivity, Price Recovery, Capacity Constraints and their Financial Consequences. *Journal of Productivity Analysis* 41(1):3-17.
- Laurenceson, J.S. and C.J. O'Donnell (2014). New Estimates and a Decomposition of Provincial Productivity Change in China. *China Economic Review* 30:86–97.
- Li, D., L. Simar and V. Zelenyuk (2014) Generalized nonparametric smoothing with mixed discrete and continuous data. *Computational Statistics and Data Analysis*. DOI:10.1016/j.csda.2014.06.003
- Mayer, A. and V. Zelenyuk (2014) Aggregation of Malmquist productivity indexes allowing for reallocation of resources. *European Journal of Operational Research* 238:3, pp. 774–785.
- O'Donnell, C. J. (2014). Econometric Estimation of Distance Functions and Associated Measures of Productivity and Efficiency Change. *Journal of Productivity Analysis* 41(2):187-200.
- Park, B., L. Simar and V. Zelenyuk (2014) Categorical data in local maximum likelihood: theory and applications to productivity analysis. *Journal of Productivity Analysis*. DOI:10.1007/s11123-014-0394-y

- Petrie, D., K.K. Tang and D.S. Prasada Rao (2014) Measuring Health Inequality with Realization of Conditional Potential Life Years (RCPLY). *Social Indicators Research* 10/2014; DOI: 10.1111/1475- 4932.12141. 2014.
- Rambaldi, A. N. and C.S. Fletcher (2014) Hedonic Imputed Property Price Indexes: The Effects of Econometric Modeling Choices. *The Review of Income and Wealth* Series 60, Supplement Issue. S423-S448. DOI: 10.1111/roiw.12143
- Rohde, N., K.K. Tang, L. Osberg and D.S. Prasada Rao (2014), Economic Insecurity in Australia: Who is Feeling the Pinch and How? *Economic Record*. 10/2014; DOI: 10.1111/1475- 4932.12141.2014
- Warner, D., D.S. Prasada Rao, D. Chotikapanich and W.E. Griffiths (2014) Global Inequality Levels and Trends, 1993-2005: How sensitive are these to the choice of PPPs and real income measures? *Review of Income and Wealth*. Vol.60, Issue Supplement 2, pp. S281-S304.
- Zelenyuk, V. (2014) Aggregation of Scale Efficiency. *European Journal of Operational Research*. <http://dx.doi.org/10.1016/j.ejor.2014.06.038>
- Zelenyuk, V. (2014) Directional vs. Shephard's distance functions. *Optimization Letters*. 8:8, pp. 2185-2189.
- Zelenyuk, V. (2014) Scale efficiency and homotheticity: equivalence of primal and dual measures. *Journal of Productivity Analysis* 42, pp.15-24.
- Zelenyuk, V. (2014) Testing Significance of Contributions in Growth Accounting, with Application to Testing ICT impact on Labor Productivity of Developed Countries. *International Journal of Business and Economics*. 13(2):115-126.

Conference/Workshop Papers

- Avkiran, N. (2014) An illustration of dynamic network DEA in commercial banking including robustness tests. *Paper presented at the 12th International Conference on Data Envelopment Analysis*, Kuala Lumpur, Malaysia, 14-17 April.
- Avkiran, N. (2014) Knowledge of campaign finance regulation and attitudes towards politics. *Paper presented at the Australasian Finance & Banking Conference*, Sydney, 15-18 December.
- Fissel, B., C. O'Donnell, R. Felthoven and S. Kaperski (2014) Evaluating Changes in Total Factor Productivity in the Amendment 80 Catcher-Processor Fishery. *Paper presented at the Asia-Pacific Productivity Conference*, Brisbane, QLD, 8-11 July.

- Huynh, L. T. , A. N. Rambaldi and D. S. P. Rao (2014) Econometric Estimation and Aggregation of PPP Panels for Components of GDP *Paper presented at the 33rd IARIW General Conference*, Rotterdam, Netherlands, 24-30 August 24-30.
- Huynh, L.T., A. N. Rambaldi and D.S.P. Rao (2014) A New Approach to Inter-Country Comparisons of Real Expenditures *Invited paper presented at the Workshop on Inter-Country and Intra-Country Comparisons of Prices and Standards of Living*, Arezzo, Italy, 1-3 September.
- Lovell, C.A.K. (2014) Approximating Fisher Indexes. *Paper presented at the CEPA One-Day Workshop*. Brisbane, 3 October.
- Li, D., L. Simar, and V. Zelenyuk (2014) Generalized nonparametric smoothing with mixed discrete and continuous data. *Paper presented at the 7th International Conference of the ERCIM on Computational and Methodological Statistics (ERCIM 2014)*. Pisa, Italy, 6-8 December.
- Mayer, A. and V. Zelenyuk (2014) An Aggregation Paradigm for Hicks-Moorsteen Productivity Indexes. *Paper presented at the 12th International Conference on Data Envelopment Analysis*, Kuala Lumpur, Malaysia, 14-17 April.
- O'Donnell, C. and A. Lashitew (2014) A Cost Frontier Approach to Analysing Productivity Change in Ethiopian Manufacturing. *Paper presented at the Asia-Pacific Productivity Conference*, Brisbane, QLD, 8-11 July.
- O'Donnell, C.J. (2014). An economic approach to identifying the drivers of productivity change in the market sectors of the Australian economy. *Paper presented at the Econometric Society Australasian Meeting*, Hobart, Tasmania, 1-4 July.
- O'Donnell, C.J. (2014). An economic approach to identifying the drivers of productivity change in the market sectors of the Australian economy. *Paper presented at the North American Productivity Workshop*, Ottawa, Canada, 4-7 June.
- O'Donnell, C.J. (2014). Technologies, markets and behaviour: Some implications for estimating efficiency and productivity change. *Paper presented at 58th Annual Conference of the Australian Agricultural and Resource Economics Society*, Port Macquarie, NSW, 5-7 February.
- O'Donnell, C.J. (2014). Technologies, markets and behaviour: Some implications for estimating efficiency and productivity change. *Paper presented at the Asia-Pacific Productivity Conference*, Brisbane, QLD, 8-11 July.
- Park, B.U. and L. Simar and V. Zelenyuk (2014) Non-Parametric Approach to Dynamic Time Series Discrete Choice Models. *Paper presented at the Workshop on Advances in*

Empirical Finance, Financial Econometrics and Macroeconometrics, The University of Queensland, 18-19 November.

Park, B.U. and L. Simar and V. Zelenyuk (2014) Non-Parametric Approach to Dynamic Time Series Discrete Choice Models. *Paper presented at the European Econometric Society Meeting*. Toulouse, France, 25-29 August.

Park, B.U. and L. Simar and V. Zelenyuk (2014) Non-Parametric Approach to Dynamic Time Series Discrete Choice Models. *Paper presented at the 7th International Conference of the ERCIM on Computational and Methodological Statistics (ERCIM 2014)*. Pisa, Italy, 6-8 December.

Rambaldi, A.N., R. R. J. McAllister, and C. S. Fletcher (2014) Unobserved Components Approach to Separating Land from Structure in Residential Property Prices. *Invited paper presented at the Inaugural Conference of the Society for Economic Measurement*. Chicago 20 August 2014.

Rao, D.S. Prasada, A. N. Rambaldi, B. M. Balk (2014) Purchasing Power Parities, Price Levels and Measures of Regional and Global Inflation *Invited paper presented at the Workshop on Inter-Country and Intra-Country Comparisons of Prices and Standards of Living*, Arezzo, Italy, 1-3 September.

Rao, D.S.P. (2014) How has ICP 2011 changed our perception of global inequality and poverty? *Paper presented at the Workshop on Improvements in Price Index Methodology and Practice: The International Comparisons Program (ICP) and the Measurement of Movements in House Prices*. University of Graz, 17 December.

Simar, L., I. van Keilegom, and V. Zelenyuk (2014) Nonparametric Least Squares Methods for Stochastic Frontier Models. *Paper presented at the Asia-Pacific Productivity Conference*, Brisbane, QLD, 8-11 July.

Simar, L., I. van Keilegom, and V. Zelenyuk (2014) Nonparametric Least Squares Methods for Stochastic Frontier Models. *Paper presented at the New Zealand Econometric Study Group Meeting*, 20-21 February.

Tran, T.H.Y, A. N. Rambaldi and A. Peyrache (2014) Estimation of Production Functions Under Severe Endogeneity Conditions. *Paper presented at the CEPA One-Day Workshop*. Brisbane, 3 October.

Zelenyuk, N. and V. Zelenyuk (2014) Regional and Ownership Drivers of Bank Efficiency. *Paper presented at the Australasian Finance & Banking Conference*, Sydney, 15-18 December.

Zelenyuk, N. and V. Zelenyuk (2014) Regional and Ownership Drivers of Bank Efficiency. *Paper presented at the 1st Conference on Recent Developments in Financial Econometrics and Applications*, Geelong, 4-5 December.

Working Papers

- Fare, R., H. Fukuyama, S. Grosskopf, and V. Zelenyuk (2014) Decomposing Profit Efficiency using a Slack-based Directional Distance. *Centre for Efficiency and Productivity Analysis Working Papers*, WP09/2014. University of Queensland
- Mayer, A., and V.Zelenyuk (2014) An Aggregation Paradigm for Hicks-Moorsteen Productivity Indexes. *Centre for Efficiency and Productivity Analysis Working Papers*, WP01/2014. University of Queensland
- O'Donnell, C. (2014) An Economic Approach to Identifying the Drivers of Productivity Change in the Market Sectors of the Australian Economy. *Centre for Efficiency and Productivity Analysis Working Papers*, WP02/2014. University of Queensland
- Peyrache, A. (2014) Cost Constrained Industry Inefficiency. *Centre for Efficiency and Productivity Analysis Working Papers*, WP04/2014. University of Queensland
- Simar, L., I. Van Keilegom and V. Zelenyuk (2014) Nonparametric Least Squares Methods for Stochastic Frontier Models?. *Centre for Efficiency and Productivity Analysis Working Papers*, WP03/2014. University of Queensland
- Simper, R., M.J.B. Hall, W.B. Liu, V.Zelenyuk and Z.Zhou (2014) How Relevant is the Choice of Risk Management Control Variable to Non-parametric Bank Profit Efficiency Analysis? *Centre for Efficiency and Productivity Analysis Working Papers*, WP12/2014. University of Queensland
- Zelenyuk, N. and V. Zelenyuk (2014) Regional and Ownership Drivers of Bank. *Centre for Efficiency and Productivity Analysis Working Papers*, WP11/2014. University of Queensland

Other Scholarly Work

- Rao, D.S. Prasada, A. N. Rambaldi, L. T. Huynh, H. E. Doran and K. R. Ganegodage (2014) *UQ International Comparisons Database: UQICD Version 2.1.0*, School of Economics, The University of Queensland, St Lucia, QLD 4072, Australia. 2014.
- Rao, D.S. Prasada, A. N. Rambaldi, K. R. Ganegodage, L. T. Huynh, and H. E. Doran (2014), *UQICD v2 User Guide*. The University of Queensland.
<https://ideas.repec.org/p/qld/uq2004/534.html>

Research Students Associated with Centre

Degree		Name	Enrolled	Submitted	Awarded
PhD. ongoing	F/T	T. Nguyen	02/13		
PhD. ongoing	F/T	Kelly Trinh	07/13		
PhD. ongoing	F/T	L.T. Huynh	01/11		
PhD. ongoing	F/T	T.H.Y Tran	n.a.	n.a	12/14
PhD. ongoing	F/T	S. Ahmad	06/09	12/13	06/14
PhD. ongoing	F/T	T.T. Pham	n.a.		
Ph.D. ongoing	P/T	R. Carrington	06/06	02/14	06/14

Seminars

Lovell, C.A.K. *Imperfect Optimisation*. Aalto University, Helsinki, Finland, 4 April.

O'Donnell, C.J. *An Economic Approach to Identifying the Drivers of Productivity Change in the Market Sectors of the Australian Economy*. Centre for Efficiency and Productivity Analysis, University of Queensland, 25 July.

O'Donnell, C.J. *An Economic Approach to Identifying the Drivers of Productivity Change in the Market Sectors of the Australian Economy*. Sustainable Minerals Institute, University of Queensland, 24 July.

O'Donnell, C.J. *Technologies, markets and behaviour: Some implications for estimating efficiency and productivity change*. University of Ottawa, 3 June.

Rao, D.S.P. *Purchasing Power Parities, Price Levels and Measures of Regional and Global Inflation*. STATEC, Luxembourg, 26 September.

Rao, D.S.P. *Levels and trends in regional and global inequality and poverty, 1993 - 2011: How sensitive are these to the choice of PPPs and Real Incomes?* Maastricht University, 2 October.

Rao, D.S.P. *Dramatic Revisions to the size of the World Economy and Levels of Inequality and Poverty: Reconciling the 2005 and 2011 International Price Comparisons*. University of Graz, 5 November.

Short Courses

- Fare, R. and S. Grosskopf (2014) *Joint Production and Externalities*, University of Queensland, Australia, 7 July.
- O'Donnell, C. (2014) *Applied Productivity and Efficiency Analysis*, Victorian Department of Education and Early Childhood Development, 28-30 April.
- O'Donnell, C. (2014) *Introduction to Productivity and Efficiency Analysis*, University of Queensland, Australia, 7 July.
- Sickles, R. (2014) *Stochastic Frontier Analysis*, 20 September – 2 October.
- Simar, L. and V. Zelenyuk (2014) *Bootcamp on the Bootstrap: Introduction to Bootstrap Methods*, University of Queensland, Australia, 7 July.
- Zelenyuk, V. (2014) *Productivity and Efficiency Analysis: Theory and Practice*, University of Queensland, Australia, 22-24 July.

Conferences and Workshops

- Asia-Pacific Productivity Conference*, University of Queensland, Australia, 8-11 July.
- Workshop on Inter-Country and Intra-Country Comparisons of Prices and Standards of Living* (jointly with University of Florence), Arezzo, Italy, 1-3 September.
- Advanced Efficiency and Productivity*, University of Queensland, 3 October.

Significant External Service

Avkiran, N.

- Guest Editor of a special issue of *OMEGA (The International Journal of Management Science)* on Network DEA in the Service Sector.
- Member of the Scientific Committee for 12th International Conference on Data Envelopment Analysis, Kuala Lumpur, Malaysia, 14-17 April.

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 Conference
- Co-editor (with T.-T. Fu & C. Huang) of a special issue of the *Journal of Productivity Analysis* containing selected papers from the 2010 Asia-Pacific Productivity Conference.

O'Donnell, C.J.

- Co-Editor, *Journal of Productivity Analysis*
- Member of Editorial Board, *Empirical Economics*
- Member of Organizing Committee, Asia-Pacific Productivity Conference

Peyrache, A.

- Associate Editor, *Journal of Productivity Analysis*
- Co-Chair of Organizing and Scientific Committees, Asia-Pacific Productivity Conference (APPC)
- Co-editor (with V. Zelenyuk) of a special issue of the *Journal of Productivity Analysis* containing selected papers from the 2014 Asia-Pacific Productivity Conference.

Rao, D.S.P.

- Elected Member of the Council of the Society for Economic Measurement (since 2013).
- Elected Member of the Council of the International Association for Research in Income and Wealth (for the period 2012-2018).
- Member, Results Review Group for ICP 2011, World Bank (for the period 2013-2014).
- Associate Editor, *Journal of Productivity Analysis*
- Co-Editor, *Review of Income and Wealth* (from 1 August, 2014)
- Member of Editorial Board, *Review of Income and Wealth* (until 30 July 2014)
- Member of Organizing Committee, Asia-Pacific Productivity Conference
- Organised two sessions on the International Comparison Program at the General Conference of the International Association for Research in Income and Wealth, Rotterdam, 24-30 August.

Zelenyuk, V.

- Associate Editor, *Journal of Productivity Analysis*
- Co-Chair of Organizing and Scientific Committees, Asia-Pacific Productivity Conference (APPC)
- Co-editor (with A. Peyrache) of a special issue of the *Journal of Productivity Analysis* containing selected papers from the 2014 Asia-Pacific Productivity Conference.

Visitors to the Centre:

Christine Amsler

Michigan State University

4 June – 1 August

Bert Balk

Erasmus University

6 July – 16 July

Philippe Bontems

Toulouse School of Economics

26 April – 9 May

Christophe Bontemps

Toulouse School of Economics

29 September – 10 October

Erwin Diewert

University of British Columbia

17 October - 1 November

Rolf Fare

Oregon State University

6 – 11 July

Emili Grifell-Tatjé

Universitat Autònoma de Barcelona

18 June – 15 August; 20 September – 30 October

Shawna Grosskopf

Oregon State University

6 – 11 July

Heikki Kauppi

University of Turku, Finland

18 January – 14 February

Subhash Ray

University of Connecticut

17 July - 25 July

Peter Schmidt

Michigan State University

4 June – 1 August

Robin Sickles

Rice University

1 July – 30 October

Leopold Simar

Universite Catholique de Louvain

30 June – 13 July

Marcel Timmer

University of Groningen

28 June – 15 July

Agreed objectives for 2015 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 one or more 3-day short-courses on productivity and efficiency analysis methods.
- Run one or more 1-2 day workshops on productivity and efficiency topics.



Centre Director
Professor C.J. O'Donnell

Head of School
Professor Rodney Strachan