Annual Report for The Centre for Efficiency and Productivity Analysis (CEPA) For the year ended 31 December 2015

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Contents

OVERVIEW OF THE CENTRE (INCLUDING MISSION STATEMENT)	2
AGREED OBJECTIVES FOR 2014 CALENDAR YEAR	3
AGREED OBJECTIVES:	3
PERFORMANCE AGAINST AGREED OBJECTIVES:	3
GOVERNANCE	4
LIST OF STAFF ASSOCIATED WITH CEPA	5
PUBLICATIONS LIST FOR 2015 CALENDAR YEAR	6
Books	6
SELECTED JOURNAL ARTICLES BY CEPA RESEARCHERS	6
SELECTED CONFERENCE/WORKSHOP PRESENTATIONS BY CEPA RESEARCHERS	8
WORKING PAPERS OF CEPA	10
OTHER WORKING PAPERS	10
OTHER SCHOLARLY WORK	11
RESEARCH STUDENTS ASSOCIATED WITH CEPA	11
SELECTED SEMINARS AND OTHER PRESENTATIONS BY CEPA RESEARCHERS	12
NEW GRANTS OBTAINED BY CEPA RESEARCHERS	13
Intensive Courses	14
CONFERENCES AND WORKSHOPS ORGANIZED BY CEPA RESEARCHERS	16
SIGNIFICANT EXTERNAL SERVICE BY CEPA RESEARCHERS	17
VISITORS TO THE CENTRE:	18
AGREED OBJECTIVES FOR 2016 CALENDAR YEAR	19

Overview of the Centre (including Mission Statement)

The Centre is an integral part of the School of Economics of The University of Queensland, who is also the main donor of the Centre and its activities (through employing some of the staff involved in CEPA, co-funding its visitors, handling finances, etc.).

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, and thus advance and promote the research in the field of efficiency and productivity. The revenues obtained through such activities are then typically used to fund the public good type activities for the local productivity and efficiency research community, through (co-)funding visits of external top scholars to visit CEPA, organizing and (co-)funding workshops and conferences, etc.

The principal aims and objectives of the Centre are to undertake theoretical and applied research, develop useful end-user-driven intensive 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.

Due to the work of scholars united by the Centre, the RePEc ranks the School of Economics of UQ in the top-3 (and the Centre itself in the top 11) in the world in the field of Efficiency & Productivity, above Harvard, Yale, etc. (This ranking facts are as of 23 December 2016, and similar ranking was in 2015; for further details see: https://ideas.repec.org/top/top.eff.html).

Agreed objectives for 2015 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 CEPA International Workshop
- Deliver at least two short-courses on introductory and/or advanced productivity and efficiency analysis methods.

Performance against agreed objectives:

In 2015, researchers associated with CEPA

- published over 17 journal publications,
- produced over 13 working papers.
- made over 13 conference/workshop presentations,
- gave over 16 seminar presentations
- were involved in the supervision of 9 PhD, Honours and Masters students;
- hosted 9 international visitors;
- applied for external research funding through the ARC (unsuccessfully)
- ran the Two-day Workshop, with the first day focusing on Productivity and Efficiency and the second day focusing on Non-parametric Econometrics
- presented and/or organised two intensive courses;
- 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.A.K. Lovell, Associate Professor C. Nauges, Professor C.J. O'Donnell (Director till 3 November 2015), Dr A. Peyrache, Associate Professor A.N. Rambaldi, Professor D.S.P. Rao, and Associate Professor V. Zelenyuk (Director since 4 November 2015).

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 CEPA

Director (since 4 November 2015)

Associate Professor Valentin Zelenyuk

Advisory Board

Professor Knox Lovell

Associate Professor Celine Nauges

Professor Chris O'Donnell (Director till 3 November 2015)

Dr Antonio Peyrache

Associate Professor Alicia Rambaldi

Professor D.S. Prasada Rao

Associate Professor Valentin Zelenyuk

Associated Researchers

Associate Professor Mohammad Alauddin

Associate Professor Necmi Avkiran

Associate Professor Phil Bodman

Professor Harry Campbell

Dr. David Kai Du

Professor John Foster

Dr Renuka Ganegodage

Associate Professor Renuka Mahadevan

Professor John Quiggin

Emeritus Professor Clement Tisdell

Professor Kimberly Zieschang

Publications List for 2015 Calendar Year

Books

Lovell, C.A.K. and E. Grifell-Tatjé Productivity Accounting. New York: Cambridge University Press.

Selected Journal Articles by CEPA Researchers

Avkiran NK, Alpert K (2015) "The influence of co-authorship on article impact in OR/MS/OM and the exchange of knowledge with Finance in the twenty-first century," <u>Annals of Operations Research</u>, 235(1), 51-73.

Avkiran NK, (2015) "An illustration of dynamic network DEA in commercial banking including robustness tests," *OMEGA: The International Journal of Management Science*, 55, 141-150.

Curi, C., Lozano-Vivas, A. and V. Zelenyuk (2015) "Foreign bank diversification and efficiency prior to and during the financial crisis: Does one business model fit all?" *Journal of Banking & Finance* 61:S1, pp. S22-S35.

Färe, R., H. Fukuyama, S. Grosskopf and V. Zelenyuk (2015) "Decomposing profit efficiency using a slack-based directional distance function," *European Journal of Operational Research* 247:1, pp. 335-337.

Färe, R. and Zelenyuk, V. (2015) "Pricing of decision-making units under non-constant returns to scale," *Journal of the Operational Research Society* 66, 172-173.

Filippetti A., Peyrache A. (2015), "Technology or investment? An enquiry into the Chinese model of growth at the region level," *Innovation and Development* Vol 5, Pag 39-58.

Fissel, Benjamin E., Felthoven, Ronald G., Kasperski, Stephen and O'Donnell, Christopher (2015) "Decomposing productivity and efficiency changes in the Alaska head and gut factory trawl fleet," *Marine Policy*, 62 337-346. doi:10.1016/j.marpol.2015.06.018

Lovell, C.A.K., H. K. Millington and J. E. Lovell "A Framework for Guiding the Management of Urban Stream Health", *Ecological Economics* 109 (2015), 222-33.

Fletcher, Cameron S., Rambaldi, Alicia N., Lipkin, Felix and McAllister, Ryan R. J. (2015) "Economic, equitable, and affordable adaptations to protect coastal settlements against storm surge inundation," *Regional Environmental Change*, 16 4: 1023-1034. doi:10.1007/s10113-015-0814-1

Ganegodage, K.R. A. N. Rambaldi, D. S. P. Rao & K. K. Tang (2015), "A New Multidimensional Measure of Development: The Role of Technology and Institutions" *Social Indicators Research* Published online: 13 October 2015. DOI: 10.1007/s11205-015-1139-7

Maitra, C. and D.S. Prasada Rao (2015), "Poverty-Food Security Nexus: Evidences from a Survey of Urban Slum Dwellers in Kolkata", *World Development*, DOI: 10.1016/j.worlddev.2015.03.006.

Park, B.U, L. Simar, and V. Zelenyuk (2015) "Categorical data in local maximum likelihood: theory and applications to productivity analysis," *Journal of Productivity Analysis* 43:2, pp. 199-214.

Peyrache A. (2015), "Cost Constrained Industry Inefficiency," *European Journal of Operational Research* 247, pp. 996-1002.

Rao, D.S. Prasada and G. Hajargasht (2015), "Stochastic Approach to Computation of Purchasing Power Parities in the International Comparison Program (ICP)," *Journal of Econometrics* 191(2), pages 414-425. Elsevier

Rohde, N., C. D'Ambrosio, K.K. Tang and D.S. Prasada Rao (2015), "Estimating the Mental Health Effects of Social Isolation," *Applied Research in Quality of Life* DOI:10.1007/s11482-015-9401-3

Simper, R., M. J. B., Hall, W. Liu, Z. Zhou and V. Zelenyuk (2015) "How relevant is the choice of risk management control variable to non-parametric bank profit efficiency analysis? The case of South Korean banks," *Annals of Operations Research*, Available online 14 August 2015, DOI:10.1007/s10479-015-1946-x

Zelenyuk, V. (2015) "Aggregation of Scale Efficiency," *European Journal of Operational Research* 240:1, pp.269-277.

Selected Conference/Workshop Presentations by CEPA Researchers

Rambaldi, Alicia. N., McAllister, Ryan R. J. and Fletcher, Cameron (2015). Using Smoothing Methods in the Computation of Hedonic Imputed Price Indexes for Properties and their Land and Structure Components. In: Society for Economic Measurement Annual Conference, Paris, France. 22-24 July.

http://repository.cmu.edu/cgi/viewcontent.cgi?article=1002&context=sem_conf

Tranh, T. H. Y., Rambaldi, A. N. and Peyrache, A. (2015). Estimating Economic Relationships under Measurement Error: An Application to the Productivity of US Manufacturing. In: The 2nd Conference of the International Association for Applied Econometrics (IAAE 2015), Thessaloniki, Greece. 25-27 June 2015. https://editorialexpress.com/cgibin/conference/download.cgi?db_name=IAAE2015&paper_id=271

O'Donnell, C.J. Maize Productivity and Input Subsidies in Malawi: A State-Contingent Stochastic Production Frontier Approach, Australian Conference of Economists, Queensland University of Technology, 7-10 July 2015

O'Donnell, C.J. Maize Productivity and Input Subsidies in Malawi: A State-Contingent Stochastic Production Frontier Approach, XIV European Workshop on Efficiency and Productivity Analysis, Helsinki, Finland, 15-18 June, 2015

O'Donnell, C.J. An Economic Analysis of Productivity Change in the OECD, CEPA/SoE-AIBE Joint Workshop on Advances in Economic Measurement, University of Queensland, 1-2 October, 2015

O'Donnell, C.J. Using Information About Technologies, Markets and Firm Behaviour to Decompose a Proper Productivity Index, Workshop on the Econometrics and Statistics of Efficiency Analysis: Recent Developments and Perspectives, Lecce, Italy, 20-21 June, 2015

Rao, D.S. Prasada, B.M. Balk and A.N. Rambaldi, (2015), "On measuring regional or global growth and inflation" Presented at the 14th meeting of the Ottawa Group on Price Indices, Urayasu City (Tokyo), 20-22 May 2015; and at the Second International Conference of the Society for Economic Measurement (SEM), OECD, Paris, 22-24 July 2015.

Rao, D.S. Prasada and Reza Hajargasht (2015)' "Stochastic Approach to the Measurement of Purchasing Power Parities of Currencies and Real Expenditures and the Estimation of Standard Errors", Second International Conference of the Society for Economic Measurement (SEM), OECD, Paris, 22-24 July 2015.

Rao, D.S. Prasada (2015), "Application of PPP exchange rates for the measurement and analysis of regional and global inequality and poverty", Presented at the World Statistics Conference, 26-31, July, 2015, Rio de Janeiro.

Zelenyuk, V. "Regional and Ownership Drivers of Bank Efficiency: Importance of Model Specifications" with Natalya Zelenyuk. 27th Australasian Banking and Finance Conference, Sydney 2015.

Zelenyuk, V. "Non-Parametric Approach to Dynamic Time Series Discrete Choice Models" with Byeong U. Park and Léopold Simar. 11th International Conference of WEAI, January 8-11, 2015 hosted by Victoria University of Wellington and Massey University, Wellington

Zelenyuk, V. "Nonparametric Least Squares Methods for Stochastic Frontier Models" with Leopold Simar and Ingrid Van Keilegom, presented at XIV European Workshop on Efficiency and Productivity Analysis, Helsinki, Finland, 15-18 June, 2015

Zelenyuk, V. "Nonparametric Least Squares Methods for Stochastic Frontier Models" with Leopold Simar and Ingrid Van Keilegom, presented at LECCEWEPA (Workshop on the Econometrics and Statistics of Efficiency Analysis: Recent Developments and Perspectives), Lecce, Italy, 20-21 June, 2015

Working Papers of CEPA

CEPA WP01/2015: Rolf Färe, Hirofumi Fukuyama, Shawna Grosskopf, Valentin Zelenyuk, "Cost Decompositions and the Efficient Subset"

CEPA WP02/2015: Hien Thu Pham, Shino Takayama, "Revisiting the Missing Middle: Production and Corruption"

CEPA WP03/2015: E. Grifell-Tatjé, C. A. K. Lovell, "Decompositions of Profitability Change Using Cost Functions: A Comment"

CEPA WP04/2015: Claudia Curi, Ana Lozano-Vivas, Valentin Zelenyuk, "Foreign bank diversification and efficiency prior to and during the financial crisis: Does one business model fit all?"

CEPA WP05/2015: Kelly D.T.Trinh, Valentin Zelenyuk, "Bootstrap-based testing for network DEA: Some Theory and Applications"

CEPA WP06/2015: E. Grifell-Tatjé, C. A. K. Lovell, "Exact Relationships between Fisher Indexes and Theoretical Indexes"

CEPA WP07/2015: Hideyuki Mizobuchi, "Productivity Indexes under Hicks Neutral Technical Change"

CEPA WP08/2015: Natalya Zelenyuk, Valentin Zelenyuk, "Productivity Drivers of Efficiency in Banking: Importance of Model Specifications"

CEPA WP09/2015: Hideyuki Mizobuchi, "Multiple Directions for Measuring Biased Technical Change"

CEPA WP10/2015: Hien Thu Pham, Antonio Peyrache, "Industry Inefficiency Measures: A Unifying Approximation Proposition"

CEPA WP11/2015: Kelly D.T.Trinh, Valentin Zelenyuk, "Productivity Growth and Convergence: Revisiting Kumar and Russell (2002)"

CEPA WP12/2015: Kai Du, Andrew C. Worthington, Valentin Zelenyuk, "The dynamic relationship between bank asset diversification and efficiency: Evidence from the Chinese banking sector"

Other Working Papers

Rao, D.S.P., A.N. Rambaldi, B. Balk, 2015. "On Measuring Regional or Global Growth and Inflation" Discussion Papers Series 552, School of Economics, The University of Queensland, Australia.

Other Scholarly Work

Fletcher, Cameron S., Taylor, Bruce M., Rambaldi, Alicia N., Harman, Ben P., Heyenga, Sonja, Ganegodage, K. Renuka, Lipkin, Felix and Mcallister, Ryan R. J (2015). Equity, economic efficiency and institutional capacity in adapting coastal settlements. In Jean P. Palutikof, Sarah L. Boulter, Jon Barnett and David Rissik (Ed.), Applied Studies in Climate Adaptation (pp. 208-215) Chichester, West Sussex, United Kingdom: John Wiley and Sons. doi:10.1002/9781118845028.ch23

Rambaldi, A. UQICD version 2.1.1(http://uqicd.economics.uq.edu.au). Released on 6 November, 2015. UQICD provides purchasing-power-parity exchange rates, internationally comparable real incomes and its components (C, I and G) for 181 countries from 1970-2012

Research Students Associated with CEPA

Degree		Name	Enrolled	Submitted	Awarded
PhD. ongoing	F/T	Thanh Nguyen	02/13		
PhD. ongoing	F/T	Kelly Trinh	07/13		
PhD. ongoing	F/T	L.T. Huynh	01/11		
PhD. ongoing	F/T	H.T. Pham	n.a.		
PhD. ongoing	F/T	L.T. Huynh	01/11		
Honours	F/T	Daniel Pool	n.a.	2015	2015
Honours	F/T	Rhys Downham	n.a.	2015	2015
Masters	F/T	Duc Manh Pham	2014	2015	2015
Masters	F/T	Yan Meng	2014	2015	2015

Selected Seminars and Other Presentations by CEPA Researchers

Lovell, C.A.K. INRA (Institut National de la Recherche Agronomique), Clermont-Ferrand, France, "Imperfect Optimisation"

Lovell, C.A.K. Universidad Miguel Hernandez, Elche, Spain, "Productivity Measurement in Radial DEA Models with Multiple Constant Inputs"

Lovell, C.A.K. International Workshop on Efficiency & Productivity, Alicante, Spain, "Exact Relationships between Fisher Indexes and Theoretical Indexes"

Lovell, C.A.K. International Workshop on New Developments of DEA & SFA, Nankai University, Tianjin, China, "Recent Developments in Productivity Analysis"

Lovell, C.A.K. Taiwan Efficiency & Productivity Conference, Taipei, Taiwan, "Productivity and Financial Performance"

O'Donnell, C.J. Econometric Estimates of Productivity and Efficiency Change in the Australian Northern Prawn Fishery, Northeast Fisheries Science Centre, Woods Hole, MA, 14 May, 2015

O'Donnell, C.J. Using Information About Technologies, Markets and Firm Behaviour to Decompose a Proper Productivity Index, Department of Agricultural and Resource Economics, University of Connecticut, 3 April, 2015

O'Donnell, C.J. Using Information About Technologies, Markets and Firm Behaviour to Decompose a Proper Productivity Index, Department of Economics, University of Connecticut, 14 April, 2015

O'Donnell, C.J. Using Information About Technologies, Markets and Firm Behaviour to Decompose a Proper Productivity Index, Isenberg School of Management, University of Massachusetts, Amherst, 17 April, 2015

O'Donnell, C.J. Using Information About Technologies, Markets and Firm Behaviour to Decompose a Proper Productivity Index, Department of Economics, Union College, Schenectady, NY, 6 May, 2015

O'Donnell, C.J. Using Information About Technologies, Markets and Firm Behaviour to Decompose a Proper Productivity Index, Charles H. Dyson School, Cornell University, 7 May, 2015

O'Donnell, C.J. Using Information About Technologies, Markets and Firm Behaviour to Decompose a Proper Productivity Index, Department of Economics, Binghamton University, 8 May, 2015

O'Donnell, C.J. Using Information About Technologies, Markets and Firm Behaviour to Decompose a Proper Productivity Index, Monash University, 4 September, 2015

O'Donnell, C.J. Is Productivity Growth Bad? John Dillon Memorial Lecture, UNE Business School, 11 September, 2015

Rambaldi, A. "Estimating Economic Relationships under Measurement Error," Presented at the UNSW School of Economics Seminar Series, 28 August 2015 (joint work with Y Tran and A Peyrache)

Zelenyuk, V. "Regional and Ownership Drivers of Bank Efficiency: Importance of Model Specifications" Department of Econometrics of University of Auckland, New Zealand, March 2015.

New Grants obtained by CEPA Researchers

2015-2016. 18115BNE LGAQ Econometric Analysis of the Determinants of SEQ Housing Prices. Local Government Association of QLD via AEC Group Pty Ltd. 24,750 (by A/Professor Alicia Rambaldi)

"Towards improvements in productivity and efficiency" from Australian Institute for Business and Economics (AIBE) of the University of Queensland, 2015. (by A/Professor Valentin Zelenyuk)

Intensive Courses

Title: Productivity and Efficiency Analysis: Theory and Practice

Dates: 22 - 24 July 2015

Place: UQ

Delivered by: Associate Professor Valentin Zelenyuk

Organizer: Associate Professor Valentin Zelenyuk

In this three-day intensive course on efficiency and productivity analysis, Day 1 was dedicated to an introduction to the subject and was especially useful for those who have no or little background in the area. During this first day, students developed a general understanding of the main concepts used in the research area of productivity and efficiency analysis. This Day 1 was a stepping-stone to the following two days of the course, where these concepts were covered in more detail to give students better understanding for better use in both empirical and theoretical research. Day 2 covered topics of primal and dual characterizations (main results and relationships to efficiency analysis), dual characterizations (main results and relationship to efficiency analysis), DEA and FDH - static and dynamic cases. Day 3 covered topics of measurement of scale (theory and practice), aggregation in efficiency and productivity analysis and slack-based measures. The course consisted of nine lectures and three computer lab tutorials.

The course aimed at and attracted about 20 participants: graduate students, researchers, economists, statisticians and consultants from private and public sector organizations, regulatory authorities, regulated firms, infrastructure industries (e.g., electricity, gas, railways), service industries (e.g., education, health), and industries with branch structures (e.g., banks, credit unions, franchises, retail chains).

Title: Applied Nonparametric Econometrics

Dates: **28 - 30 September 2015**

Place: UQ

Delivered by: Associate Professor Chris Parmeter

Organizer: Associate Professor Valentin Zelenyuk

About the Speaker: Chris Parmeter is Associate Professor at the University of Miami, USA, with research interests in applied nonparametric methods, hedonic modeling, stochastic frontier analysis, efficiency and productivity, and growth empirics. He is the author of many articles in top refereed journals, including Journal of Econometrics, Empirical Economics, Journal of Productivity Analysis, International Journal of Corporate Governance, Oxford Bulletin of Economics and Statistics and European Economic Review. His CV can be downloaded from: http://www.bus.miami.edu/ assets/files/faculty-cv/economics/Parmeter CV 10 14.pdf

The course aimed at and attracted about 15 participants: graduate students, researchers, economists, statisticians and consultants from private and public sector organizations, regulatory authorities, regulated firms, infrastructure industries, service industries, and industries with branch structures.

This course exposed students to the current practice of applied nonparametric methods. These methods are designed to overcome misspecification issues that dominate applied economic research. Using nonparametric methods can shed light on new issues that were previously hidden due to ad hoc model specifications imposed in the analysis. This class provided hands on instruction to students in state-of-the-art nonparametric methods designed specifically to assist students with empirical issues that arise in the application of these techniques. The basic concepts of smoothing were covered, complemented with numerous examples and illustrations through the open source software R. This combination of class instruction and computer tutorials assisted students in developing a sound foundation to apply nonparametric methods in their own research agendas. This course was based on the book recently co-authored by the lecturer, Henderson and Parmeter (2015, Cambridge University Press). The course consisted of nine lectures and three computer lab tutorials.

Title: Index Number Methods for International Comparisons

Dates: 7 – 15 July 2015

Place: UQ

Delivered by: Institute for Statistics, Beijing Normal University, Beijing

Delivered by: Professor Prasada Rao

Organizer: Professor Prasada Rao

The course aimed at English speaking audience in China: graduate students, researchers, economists, statisticians and consultants from private and public sector organizations, regulatory authorities, regulated firms, infrastructure industries, service industries, and industries with branch structures.

Conferences and Workshops Organized by CEPA Researchers

2-Day Workshop on Advances in Economic Measurement

Title: Advances in Economic Measurement

1-2 October 2015

Place: UQ

Organizer: Associate Professor Valentin Zelenyuk

Co-sponsored by AIBE (via grant of V. Zelenyuk).

This workshop gathered together about 40 participants: leading economic scholars, professional economists, early career researchers and graduate students interested in learning new methods and techniques for the economic measurement of efficiency and productivity. Keynote and invited expert speakers presented on recent theoretical innovations, as well as various interesting applications for economic measurement.

The title of the first day of the Workshop was Advances in Efficiency and Productivity Analysis & Applications and it featured presentations of CEPA expert speakers (Knox Lovell, Chris O'Donnell, Alicia Rambaldi, Antonio Peyrache, Valentin Zelenyuk).

The title of the second day of the Workshop was Advances in Non-Parametric Econometrics & Applications, with a focus on banking and finance.

The Workshop featured two *Keynote speakers*:

- Professor Jiti Gao, Monash University
- Associate Professor Chris Parmeter, University of Miami

and two *Invited speakers*:

- Associate Professor Xibin Zhang, Monash University.
- Dr. Xiaohui Zhang, Murdoch University

Significant External Service by CEPA Researchers

Lovell, C.A.K.

• Organising Committee, Asia Pacific Productivity Conference (for APPC 2016 in China)

O'Donnell, C.J.

- Co-Editor, Journal of Productivity Analysis
- Co-Editor, JPA
- Associate Editor, Empirical Economics

Peyrache, A.

• Co-editor of a special issue of the *Journal of Productivity Analysis* containing selected papers from the 2014 Asia-Pacific Productivity Conference.

Rambaldi, A.

• Editorial Board. Review of Income and Wealth

Rao, D.S.P.

- Member, Council of Society for Economic Measurement
- Member, Council of the International Association for Research in Income and Wealth
- Associate Editor, Journal of Productivity Analysis
- Co-Editor, Review of Income and Wealth
- Guest Editor of a Special Issue on International Comparisons of Prices and Real Expenditures for *Social Indicator Research*.
- Member, Research Evaluation Committee, Economics and Commerce, ARC ERA, 2015.
- Member of the Interim Technical Advisory Group for the International Comparison Program (ICP), World Bank, 2015 2016

Zelenyuk, V.

- Director of CEPA (since 4 November 2015)
- Associate Editor, Journal of Productivity Analysis
- Co-editor of a special issue of the *Journal of Productivity Analysis* containing selected papers from the 2014 Asia-Pacific Productivity Conference.
- Chair of the Research Committee/Research Director for the School of Economics of UQ (till 31 December 2015)

Visitors to the Centre:

Hideyuki Mizobuchi

Ryukoku University, Japan 1/4/15 to 31/3/16

Professor Rajiv Banker

Temple University 1/12/15 to 7/12/15

Bert Balk

Erasmus University 24/11/15 to 4/12/15

Erwin Diewert

University of Bristish Columbia and UNSW 19/10/15 to 31/10/2015.

Israfil Roshdi

University of Auckland 29/10/15 to 30/10/15

Byeong Uk Park

Seoul National University 29/09/15 to 11/10/15

Chris Parmeter

University of Miami 20/09/15 to 3/10/15

Chen Jie

Nanjing Institute of Technology 15/11/14 to 15/7/15

Joseph Allendorf

University of Bonn 1/3/15 to 31/7/15

Agreed objectives for 2016 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 intensive short-courses on productivity and efficiency analysis methods.
- Run one or more 2-3 day workshops on productivity and efficiency topics.

Centre Director A/Professor Valentin Zelenyuk Head of School Professor Rodney Strachan