Australian National University

NATURAM PRIMUM COGNOSCERE RERUM

ANNUAL REPORT 2016

Centre for Applied Macroeconomic Analysis

Crawford School
of Public Policy

College of
Asia and the Pacific

Message from the Director

2016 was a very successful and productive year for CAMA. We had 74 new working papers added to the CAMA Working Paper Series, six CAMA newsletters were produced, we organised two public lectures, 16 seminars, one domestic conference and two international conferences. CAMA provided funding for CAMA Research Associates to attend a number of international conferences and workshops and 23 new research associates were added to CAMA in 2016.

CAMA is a network of scholars. The success of CAMA draws directly on the active participation of researchers around the world who believe in excellence in research and public policy and contributing to public goods. I would like to thank everyone in CAMA for their contributions and their support.

Warwick McKibbin
Director, Centre for Applied Macroeconomic Analysis

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Centre for Applied Macroeconomic Analysis – an overview

The Centre for Applied Macroeconomic Analysis (CAMA) is located in Crawford School of Public Policy at The Australian National University. It was established in 2003 to bring together economists working on applied macroeconomic and financial market issues throughout Australia and across the globe. CAMA's objectives are to advance research and postgraduate training in applied macroeconomic and financial issues.

CAMA was founded by Professor Warwick McKibbin who is also the current director. The deputy director is Professor Ippei Fujiwara. Former directors include Professor Renée Fry-McKibbin and Professor Shaun Vahey and deputy directors include Professor Heather Anderson, Professor Mardi Dungey and Professor Renée Fry-McKibbin.

Research programs

The research activities of the Centre are built around a series of research programs headed by a program director (or directors). The program director is responsible for organising research in the area of the program. Proposals for new programs are welcome and will be considered by the executive committee. Proposals should be directed to the CAMA director. It is envisaged that programs will be active for three years after which they are reviewed for activity, relevance and contributions to the academic and policy communities.

CAMA Research Programs
Behavioural macroeconomics and complexity
Climate change and energy
Commodities and the macroeconomy
Growth, demographics and productivity
Finance and the macroeconomy
Globalisation and trade
Macroeconomic policy frameworks
Macroeconomic theory
Model uncertainty and macro-econometrics
Multi-country models and methods
Open economy macroeconomics

Behavioural macroeconomics and complexity

Directors	Corrado Di Guilmi and Timo Henckel
Research Advisor	Prof Dr Cars H Hommes
Research Associates	See complete list under **Staff and Associates - Research Associates**

Behavioural macroeconomics seeks to refine our understanding of the discipline by accounting for relevant features of human behaviour that are absent in the standard economics framework. Instead of assuming a hyper-rational representative agent, the basis for analysis are empirically well-documented psychological and sociological factors such as cognitive bias, fairness concerns, herding, and social status. Acknowledging the growing econometric and experimental evidence that human behaviour often fails the predictions of the rational expectations, full-information paradigm, this research program provides an umbrella for all research dedicated to melding the insights from behavioural economics and psychology with modern macroeconomics in a sound and rigorous way.

An integral part of this research agenda is the problem of aggregation and the presence of agent heterogeneity, which considers the economy as an adaptive nonlinear network that generates complex, emergent behaviour. Salient features of this approach include dispersed interaction of agents, multiple levels of organisation and interaction, bounded rationality, continual adaptation of agents' behaviours, actions and strategies, deep, unquantifiable uncertainty and persistent out-of-equilibrium dynamics.

The emphasis is both on theoretical and empirical models:

- Theoretical behavioural models will analyse the positive and normative macroeconomic implications of behavioural phenomena including, for example, prospect theory, hyperbolic discounting, adaptive learning, bounded rationality, habit/status concerns, money illusion, and endowment effects. Models of complexity analyse the properties of emergent behaviour, with a large emphasis on solution and simulation methods, including combinatorial mathematics, statistical mechanics and nonlinear computational algorithms. Many of these fall under the heading of agent-based models.
- Empirical models will use behavioural theory and complexity models to improve our statistical understanding and forecasting abilities of the macroeconomy and to analyse policy regimes and institutional features. These models are not only supposed to refine our understanding of individual choice but also help us understand and design better economic institutions and enhance overall welfare analysis.

The program seeks to foster a strong and growing network of researchers enthusiastic about behavioural macroeconomics and complexity. Activities will include workshops/conferences, collaboration with other CAMA research programs, and graduate courses/seminars on this topic.

Climate change and energy

Directors	Barbara Buchner and Warwick McKibbin
Research Associates	See complete list under **Staff and Associates - Research Associates**

Rapid global economic growth, particularly in China and India, has important implications for global energy use as well as causing a rapid rise in greenhouse gas emissions with implications for climate change. This program focuses on the importance of energy use and climate change as well as the associated policy responses on the macro-economy.

This program focuses on:

- methodologies for projecting long term energy use and carbon dioxide emissions
- the relationship between macroeconomic performance and energy use
- the role of relative prices in energy demand and macroeconomic outcomes

- the macroeconomic consequences of alternative energy polices
- the macroeconomic consequences of alternative climate change strategies and
- the design and impact of alternative emission permit trading systems.

Collaborative work in this project is linked to the ANU Climate Change Institute and the ANU Energy Change Institute.

The Climate Change and Energy program of CAMA is included in the Think Tank Map.

Commodities and the macroeconomy

Directors	Paul Cashin and Renée Fry-McKibbin
Research Associates	See complete list under **Staff and Associates - Research Associates**

The implications of demand for resources by emerging market economies and understanding the special features of commodity economies are currently issues for policymakers and investors. Emerging markets in particular are an important driver of the most recent commodity price cycle. This program seeks to understand commodity cycles and their financial market and macroeconomic effects, as well as the interactions between the three from both an emerging and developed country perspective.

The program focuses on:

- understanding trends and cycles in commodity markets
- currency, equity and commodity market linkages
- global business cycle linkages and the role of emerging markets
- oil price shocks and their transmission through the macroeconomy
- food price shocks and their pass through to the macroeconomy and poverty implications
- policy responses to relative price movements
- the macroeconomics of sovereign wealth funds.

Finance and the macroeconomy

Directors	Mardi Dungey and Renée Fry-McKibbin
Research Associates	See complete list under **Staff and Associates - Research Associates**

Financial market developments impact directly and indirectly on real economy outcomes, particularly in the short term, and developments in the macroeconomy affect financial markets, systems and institutions. This program brings together work on financial interactions with an assessment of the impact of markets and institutions on the economy and implications for policy. It includes assessment of broader trends in the macroeconomy and finance. Areas of investigation include:

- the role of international financial markets in transmitting shocks between economies, including during periods of financial stress
- regional and global financial cooperation and architecture, with a particular focus on East Asia
- financial markets, institutions and systems, including the integration of financial markets, electronic finance, harmonisation of financial systems and the nexus between finance and economic growth and development
- policy dialogue and the interaction between policy decisions, such as fiscal and monetary policy and structural policies, and financial development, including a focus on East Asia.

Globalisation and trade

Directors	Martin H Davies and David Vines
Research Associates	See complete list under **Staff and Associates - Research Associates**

The linkages between countries are influenced by their macroeconomic policies. These policies can be conducted so as to reduce risks and increase the likelihood of good outcomes.

The objective of this program is to undertake research into design of policies in three areas. The first of these is the overall framework of macroeconomic policy, including the extent to which policy can influence exchange rates in a world of a high degree of capital mobility, and the integration of fiscal and monetary policy in the management of the economy. The second is the extent to which the financial system can be regulated so as to minimise the risk of currency and financial crises and to lessen the costs of such crises as occur. The third is the way in which the liberalisation of international trade can be managed so as to avoid the growth of preferential discrimination between countries and the growth of discriminatory trading blocs.

Research in this program will also be conducted into the connection between these areas: the extent to which trade liberalisation strategies demand a change to exchange rate strategies and the extent to which the need to minimise the risks of financial crises has implications for exchange rate strategies.

Growth, demographics and productivity

Directors	Bruce Chapman and Creina Day
Research Associates	See complete list under **Staff and Associates - Research Associates**

The Growth, demographics and productivity program promotes understanding of the economic growth processes for developing and developed countries. Growth in per capita

output comprises growth in "three P's", productivity, participation and population, which provide the following key areas of focus:

How do research and development (R&D) and investment in human capital sustain economic growth in OECD countries? Can policies enhance long run growth prospects? What lessons and evidence relevant to developing countries does the experience of OECD countries provide? What role do institutions play in facilitating innovation and education led growth? What are potential drags on economic growth in the form of demographic change, finite resources, trade and macroeconomic policies?

Understanding changes in patterns and determinants of labour input. How do gender wage gaps, retiring cohorts, and immigration affect labour markets? What role does education play in labour productivity? Can we identify policies to promote labour force participation and productivity?

The world's population doubled twice in the twentieth century, but is not expected to double once this century. What are the economic determinants and consequences of changes in fertility, life expectancy and demographic structure? Are these changes inevitable? How does demographic change benefit economies? What are the challenges facing ageing economies? What policies reconcile demographic change with productivity growth and employment?

Macroeconomic policy frameworks

Directors	Ippei Fujiwara and Christopher Smith
Research Associates	See complete list under **Staff and Associates - Research Associates**

Considerable progress has been made over the past 20 years in developing robust monetary and fiscal policy frameworks. For many countries these have been aimed at maintaining low and stable inflation over the medium term, and public debt sustainability over the medium to long term. Associated implications and areas of importance have been less well developed.

This program brings together analytical and policy researchers interested in evaluating and advancing work in areas such as:

- the implications of medium-term fiscal and monetary policy frameworks for: the volatilities of output, interest rates and exchange rates; short run stabilisation policies; intergenerational balance; financial stability; and external stability
- the role of governance procedures and associated institutional frameworks in sustaining the credibility of fiscal and monetary policy frameworks, including the relative roles for policy coordination and operational independence, and the role of enforcement rules in fiscal policy frameworks
- macroeconomic policy frameworks for sustainable growth and employment and

- appropriate policy frameworks for common currency regimes.

Macroeconomic theory

Directors	Bruce Preston
Research Associates	See complete list under **Staff and Associates - Research Associates**

This program brings together various research agendas in the area of theoretical macroeconomics. The emphasis is on (i) the construction of macroeconomic models that have specific decision-theoretic foundations and equilibrium concepts; and/or (ii) the use of such models to understand observed economic phenomena, analyse policy regimes and other institutional features; and/or (iii) research that refines and expands the set of tools for undertaking research in (i) and (ii).

Research in this area includes equilibrium business cycle theories, growth theory, recursive policy games, recursive contract theory, dynamic public finance, international macroeconomics, expectations modelling and learning, sunspots and multiple equilibria in general equilibrium, search theoretic foundations of labor markets and monetary theory, and dynamic political economics.

The program's activities include:

- the annual Australasian Workshop in Macroeconomic Dynamics (WMD)
- Macroeconomics Study Group
- occasional advanced workshop/courses featuring experts in the relevant field.

Model uncertainty and macro-econometrics

Directors	James Morley and Benjamin Wong
Research Associates	See complete list under **Staff and Associates - Research Associates**

This program focuses on the role of model uncertainty in empirical macroeconomics. This literature treats the 'true' model as an unobservable - an admission that has implications for many areas of macroeconomic analysis and has generated two distinct research sub-programs. One represents a renewed interest in model evaluation, comparison, selection and combinations when model misspecification is explicitly recognised. A second sub-program is based on accounting for model uncertainty explicitly in constructing predictive densities for objects of economic interest, conducting statistical inference and evaluating policies.

Multi-country models and methods

Directors	Ippei Fujiwara and Warwick McKibbin
Research Associates	See complete list under **Staff and Associates - Research Associates**

Countries are linked through trade flows and asset markets. The modeling of these interactions has been undertaken in large scale model such as: computable general equilibrium models (for trade); large scale macro-econometric models (aggregated trade and capital flows); and intertemporal general equilibrium models (trade detail and asset flows). There is also an emerging literature of smaller theoretical simulation models particularly of real business cycle and new Keynesian theories which attempt to understand global interdependence better. This program will bring together researchers interested in the linkages between countries and how these linkages impact on our understanding of economic outcomes in small open and large open economies.

Open economy macroeconomics

Directors	Martin Berka and Christoph Thoenissen
Research Advisor	Michael B Devereux, Charles Engel, and Maurice Obstfeld
Research Associates	See complete list under **Staff and Associates - Research Associates**

The objective of the Open Economy Macroeconomics (OEM) program is to further the development and testing of optimization-based OEM frameworks. The main focuses of interest of the program are:

- international transmission mechanisms in OEM frameworks
- international relative prices and the international transmission of shocks
- cooperation and monetary and fiscal stabilization policies in OEM frameworks.

CAMA RBA Shadow Board

On the first Tuesday of every month (except in January) the Board of the Reserve Bank of Australia (RBA) meets to decide on a target for the cash rate. This decision is highly significant for the wider economy and is therefore closely monitored by the financial markets.

The CAMA RBA Shadow Board consists of nine voting members and one non-voting chair, all distinguished macroeconomists, who offer their own policy recommendations one day before the official RBA decision.

A novel feature of the CAMA RBA Shadow Board is the requirement that members offer their policy recommendations probabilistically. When a central bank sets the preferred target cash rate, the decision necessarily constitutes a compromise, a careful balancing

and weighting of all salient upside and downside risks. The imprecision stems from the uncertainties associated with real-time measurements, latent variables, model type, model parameters and the inherently unpredictable nature of the macroeconomy. Whatever rate the central bank sets, there is a considerable probability that a different rate would be more appropriate.

Nevertheless, most central banks provide little quantifiable information on the uncertainty confronting policymakers. Conventional central bank communication of interest rate setting does not formalise risk considerations and the probability of extreme events. The probability that the interest rate should be substantially different from the 'most preferred' target rate receives little attention. Central banks currently record formally neither the uncertainty experienced by individual board members, nor by the board as a whole.

Each member of the CAMA RBA Shadow Board records the uncertainty by giving probabilistic assessments of the appropriate (target) interest rate for each round. The higher the percentage attached to a given interest rate, the more confident the member is that this rate is the appropriate target.

The aim of the CAMA RBA Shadow Board is to:

1. foster a lively and informed debate in the community about each interest rate decision and about macroeconomics more generally
2. show how individual policymakers can quantify the uncertainty surrounding a preferred target cash rate and how these uncertainties may be aggregated to provide a probabilistic collective view
3. generate data on probabilistic monetary policy decision-making that may be used in future research.

It is important to note that this project is not aimed at predicting RBA Board behaviour. In common with shadowing exercises in other countries (e.g. the US Shadow Open Market Committee), this is a normative exercise in stating the most suitable interest rate for current and expected economic conditions, not forecasting what the RBA will actually do.

The CAMA RBA Shadow Board (initially going by the name of PRO-POL) was conceived in August 2011 by Dr Timo Henckel, Professor Shaun Vahey, and Dr Elizabeth Wakerly, all of CAMA. Until June 2013 the logistics were handled by Mr Damien Hughes and Dr Elizabeth Wakerly.

Current members

Paul Bloxham

Paul Bloxham is Chief Economist for HSBC in Australia and New Zealand. Prior to joining HSBC, Paul Bloxham was an economist within the Reserve Bank of Australia's Economic Analysis Department where he headed up the overseas economies and financial conditions sections, as well as working on domestic forecasting and prices. Bloxham has published a number of papers, including on household finances, asset prices and monetary policy. He is also a regular commentator on local and international business television and a frequent contributor of opinion editorials to the Australian newspapers. He holds a Master degree in public financial policy from the London School of Economics.

Mark Crosby

Mark Crosby is Dean of the Global Master of Business Administration (GMBA) and interim Dean of the Global Bachelors of Business Administration (GBBA) effective 17 October 2011. Dr Crosby has held academic appointments at the University of Toronto, the University of New South Wales, and the University of Melbourne, where he was most recently the Associate Dean (International) at the Melbourne Business School. Dr Crosby has co-authored a widely-used textbook on macroeconomics, and publishes regularly in academic journals, contributes articles to the media, and has written a number of book chapters. Besides his university activities, Dr Crosby has worked or consulted widely for government and private enterprises including the World Bank, the Hong Kong Institute for Monetary Research, the Monetary Authority of Singapore, the South African Treasury, the Center for Strategic and Policy Studies in Brunei, the Commonwealth Bank of Australia, the Reserve Bank of New Zealand, and BHP Billiton. Most recently he completed a project on South Africa's current account deficit and a project on diversifying Brunei's economy. He is a frequent guest on ABC TV and writes regularly for Australian newspapers.

Mardi Dungey

Mardi Dungey is Professor of Economics and Finance at the University of Tasmania, a Senior Research Associate at the Centre for Financial Analysis and Policy at the University of Cambridge and Adjunct Professor at the Centre for Applied Macroeconomic Policy at The Australian National University. Mardi moved to the University of Tasmania in October 2008, from a position as the Deputy Director of the Centre for Financial Analysis and Policy at the University of Cambridge where she had been since early 2005. Prior to that she has held academic positions at The Australian National University

and La Trobe University. She has also worked at Econtech Consulting Group and the Reserve Bank of Australia, and held visiting positions at the IMF, University of Cambridge, Princeton University, the Federal Reserve Bank of Atlanta and Australian and New Zealand Treasuries. She speaks regularly to international forums on her research and holds a number of competitive grants. Mardi is currently a co-editor of the *Economic Record* and an Associate Editor of the *Journal of Applied Econometrics*, the *Journal of Asian Economics*, and the *Journal of Banking and Finance*.

Bob Gregory

Professor Gregory has held positions at the University of Melbourne, London School of Economics, The Australian National University, Industries Assistance Commission, Northwestern University, and visiting positions at Harvard University, the University of Chicago and University College London.

He has been closely involved in the analysis and development of Australian economic policy; a member of the Board of Management at the Australian Institute of Family Studies, principal consultant in a series of government Aged Care Reviews, member of the committee that recommended the introduction of student income contingent loans, member of the Board of the Reserve Bank of Australia and the Australian Sciences and Technology Council. Professor Gregory has been awarded the Order of Australia Medal and has an honorary doctorate from the University of Melbourne.

Timo Henckel

Timo Henckel (non-voting chair) is a Lecturer in the Research School of Economics at ANU College of Business and Economics. He is also director of CAMA Behavioural Macroeconomics and Complexity research program. He was previously an adjunct lecturer in Crawford School of Economics and Government at The Australian National University. He holds a PhD from the London School of Economics where he has also briefly taught. His research interests are in monetary economics, international macroeconomics, and behavioural macroeconomics.

Guay Lim

Guay Lim is a Professorial Research Fellow at the Melbourne Institute of Applied Economics and Social Research and an Adjunct Professor at the Department of Economics, University of Melbourne. Her research interests are in quantitative macroeconomics and macroeconometrics and her papers have been published in major international journals. She has held visiting research positions at the IMF, ECB, RBNZ, Osaka University, Brown University, Georgetown University and Fordham University. Guay is

also the head of the Macroeconomics Unit at the Melbourne Institute and they publish indicators of activity about the Australian economy on a regular basis.

Warwick McKibbin

Professor Warwick McKibbin has a Chair in Public Policy in the ANU Centre for Applied Macroeconomic Analysis (CAMA) in Crawford School of Public Policy at The Australian National University (ANU). He is also an ANU Public Policy Fellow; a Fellow of the Australian Academy of Social Sciences; a Distinguished Fellow of the Asia and Pacific Policy Society; a non-resident Senior Fellow at the Brookings Institution in Washington D.C (where he is co-Director of the Climate and Energy Economics Project) and President of McKibbin Software Group Inc. Professor McKibbin was foundation Director of the ANU Centre for Applied Macroeconomic Analysis and foundation Director of the ANU Research School of Economics. He was also a Professorial Fellow at the Lowy Institute for International Policy for a decade from 2003 where he was involved in its design and development. Professor McKibbin served for a decade on the Board of the Reserve Bank of Australia (the Australian equivalent of the Board of Governors of the US Federal Reserve) until July 2011. He has also served as a member of the Australian Prime Minister's Science, Engineering and Innovation Council, and on the Australian Prime Minister's Taskforce on Uranium Mining Processing and Nuclear Energy in Australia.

James Morley

James Morley is Professor of Economics at the University of New South Wales. He received his PhD from the University of Washington in 1999. Before moving to Australia in 2010, he was a faculty member at Washington University in St Louis (1999-2010) and a research fellow at the Federal Reserve Bank of St Louis (2004-2010). He has also held visiting positions at the Bank of Canada and the Federal Reserve Bank of St Louis and has worked regularly with the forecasting firm Macroeconomic Advisers. He is the current president of the Society for Nonlinear Dynamics and Econometrics and is a founding member of the Shadow RBA Board. His research focuses on time-series applications in macroeconomics, finance, and international finance. He has written on topics such as trend/cycle decomposition for macroeconomic data, the long-run consequences of recessions, stock market volatility and return predictability, and the adjustment of exchange rates to purchasing power parity. His articles have appeared in top academic journals, including the *Journal of Econometrics*, the *Journal of International Economics*, the *Journal of Monetary Economics*, and the *Review of Economics and Statistics.*

John Romalis

John Romalis studies international economics and macroeconomics. Romalis has published well-known papers on the determinants of international trade, and on the economic effects of tax and trade policy in journals such as the *American Economic Review*, the *Quarterly Journal of Economics*, the *Review of Economics and Statistics*, and the *Journal of the European Economic Association*. Romalis has three main current lines of research. He studies the trade and welfare implications of tariff reductions since the Uruguay Round of trade negotiations. A second line of research studies the causes of the collapse of international trade during the recent global recession. Finally, Romalis studies how firms engaged in international competition determine the quality and price of their products.

After completing degrees in economics and in law, Romalis worked negotiating contracts governing swaps and other derivatives for a commercial bank, and then moved to the economics research department in Australia's central bank. After completing his PhD in economics at the Massachusetts Institute of Technology, he joined the University of Chicago Booth faculty in 2001. John Romalis has also served as a Resident Scholar for the International Monetary Fund, has been a Faculty Research Fellow for the National Bureau of Economic Research, and had appointments at Princeton University and The Australian National University. In 2013 John Romalis moved to The University of Sydney where he was appointed the Sir Hermann Black Chair of Economics.

Jeffrey Sheen

Jeffrey Sheen is a Professor of Economics at Macquarie University. He has been on the faculty of the Universities of Manchester, Essex and Sydney, and has had a visiting appointment at the Reserve Bank of Australia. He has published his research in major international journals, and his interests span international economics, macroeconomics, labour and international finance. He obtained his PhD at the London School of Economics.

Past members

Saul Eslake

August 2011-June 2014

Saul Eslake has been Chief Economist at Bank of America Merrill Lynch Australia since December 2011. He was previously a Program Director with the Grattan Institute (a non-aligned think tank affiliated with Melbourne University) and, between 1995 and 2009, Chief Economist at ANZ Bank. He is also a non-executive director of Hydro Tasmania, and a member of the National Housing Supply Council and the Australian Statistics Advisory Council.

Mark Thirlwell

August 2011-September 2013

Mark Thirlwell is Director of International Economy Program and Fellow of G20 Studies Centre. Mark has been tracking global economic trends since he joined the Bank of England's International Divisions in 1990 where he worked as part of the Whitehall Economists Subgroup, coordinating the forecasting of major emerging markets across the Bank, Treasury, the FCO and other stakeholders. Mark subsequently joined J P Morgan as a Vice President in Economic Research with responsibility for Central Europe. Before joining Lowy, he served as Senior Economist at Australia's Export Finance and Insurance Corporation, working on sovereign risk with a particular focus on East Asia.

Publications

The CAMA Working Paper Series covers a broad range of topics in one of the eleven areas covered by the CAMA research programs. The working papers are available online and through RePec (Research Papers in Economics) and SSRN (Social Science Research Network).

CAMA Working Paper Series

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03/2016	Japan's oligopolies: potential gains from third arrow reforms	Oikawa K Ueda K
02/2016	Monetary policy and indeterminacy after the 2001 slump	Tchatoka FD Groshenny N Haque Q Weder M
01/2016	Slowdown in emerging markets: rough patch or prolonged weakness?	Didier T Kose MA Ohnsorge F Ye LS

Newsletters

CAMA published six newsletters in 2016. The newsletter is developed through the contribution of the CAMA members and it includes among other things new members, projects, awards, publications, interviews, and events. Online copies of the newsletters can be found at the CAMA website (https://cama.crawford.anu.edu.au/cama-publications/newsletter/2016).

Other publications

Many CAMA working papers are published in major international journals or edited books. Publications in journals written by the CAMA research associates in 2016 include:

Climate Change and Energy program

• Arora V, **Cai Y** and Jones A, 'The national and international impacts of coal-to-gas switching in the Chinese power sector'. *Energy Economics.*

• Bernstein P, **Cai Y**, Huntington HG, Hupman D, Tuladhar S and Yeh S, 'North American natural gas and energy markets in transition: insights from global models'. *Energy Economics.*

• **Burke PJ**, 2016, 'Undermined by adverse selection: Australia's Direct Action abatement subsidies.' *Economic Papers* 35(3): 216–229.

• **Burke PJ** and Csereklyei Z, 2016, 'Understanding the energy-GDP elasticity: A sectoral approach.' *Energy Economics* 58: 199–210.

• **Burke PJ** and Yang H, 2016, 'The price and income elasticities of natural gas demand: International evidence.' *Energy Economics* 59: 466–474.

• **Cai Y**, Finnigan JJ, Harman IN, Newth D and Porfirio LL, 'Patterns of crop cover under future climates'. *Ambio.*

• Csereklyei Z, Rubio Varas MDM and **Stern DI,** 2016, 'Energy and economic growth: The stylized facts', *Energy Journal* 37(2), 223-255.

• Filip O, **Janda K**, Kristoufek L and Zilberman D, 'Dynamics and evolution of the role of biofuels in global commodity and financial markets.' *Nature Energy*, article number 16169, November 2016, 9 pages.

• **Grafton RQ** and Kerr S, 2016, Comment: Future directions for Australasian environmental economics. *Aust J Agric Resour Econ*, 60: 688–691. doi:10.1111/1467-8489.12187.

• Halkos GE, **Stern DI**, and Tzeremes NG, 2016, 'Population, economic growth and regional environmental inefficiency: Evidence from U.S. states', *Journal of Cleaner Production* 112(5), 4288-4295.

• Kristoufek L, **Janda K** and Zilberman D. 'Comovements of ethanol related prices: Evidence from Brazil and the USA.' *Global Change Biology (GCB) Bioenergy* 2016, no. 2 vol. 8, pp. 346-356.

• **McKibbin W**, 2016, Comment 1 on 'Climate change policy and energy transition' by Fisher. *Aust J Agric Resour Econ*, 60: 706–707. doi:10.1111/1467-8489.12188.

Commodities and the Macroeconomy program

• **Baffes J** and Etienne X, 2016, 'Analyzing food price trends in the context of Engel's Law and the Prebisch-Singer Hypothesis.' *Oxford Economic Papers*, forthcoming.

• Bremer TVD, Ploeg, FVD and **Wills S,** 2016, 'The elephant in the ground: Managing oil and sovereign wealth', *European Economic Review*, Volume 82, February 2016, Pages 113–131.

• **Mohaddes K** and Pesaran H, 'Country-specific oil supply shocks and the global economy: A counterfactual analysis'. *Energy Economics*, volume 59, September 2016, pages 382–399.

• Ohashi K and **Okimoto T,** 2016, 'Increasing trends in the excess co-movements of commodity prices.' *Journal of Commodity Markets*, forthcoming.

• Senbert LW, Simbanegavi W, **Wills S**, Sovereign wealth funds and natural resource management in Africa, *Journal of African Economies*, 28 October 2016.

• **Stoeckel A** 2016, Comment 2 on 'Booming sector economics' by Freebairn. Aust J *Agric Resour Econ*, 60: 649–650. doi:10.1111/1467-8489.12186.

• Venables AJ and **Wills S**, 'Resource funds: Stabilising, parking, and inter-generational transfer', *Journal of African Economies*, 2016, pp. 1–21

Finance and the Macroeconomy program

• Abhakorn P, **Smith PN** and Wickens MR, 'Can stochastic discount factor models explain the cross section of equity returns?', *Review of Financial Economics*, 2016.

• Armstrong S and **Okimoto T**, 'Fiscal sustainability in Japan', forthcoming in *Asia & the Public Policy Studies*.

• Bohl M, Michaelis P and **Siklos P** (forthcoming), 'Austerity and recovery: Exchange rate regime choice, economic growth and financial crises', *Economic Modelling*.

• Clare A, Seaton J, **Smith PN** and Thomas S, 'The trend is our friend: global asset allocation using trend following', *Journal of Behavioral and Experimental Finance,* 2016.

• Clare A, Seaton J, **Smith PN** and Thomas S, 'Size matters: tail risk, momentum and trend following in international equity portfolios', *Journal of Investing*, 2016.

• **De Veirman E** and Levin A, 'Cyclical changes in firm volatility', forthcoming in *Journal of Money, Credit and Banking*.

• Elhorst, J Paul, Heijnen P, **Jan PAM** and Samarina A (forthcoming), 'Transitions at different moments in time: a spatial probit approach', *Journal of Applied Econometrics*.

• Glover KJ and **Hambusch G**, 'Leveraged investments and agency conflicts when cash flows are mean reverting', *Journal of Economic Dynamics and Control,* forthcoming.

• Hambusch G and **Shaffer S,** 2016, 'Forecasting bank leverage: An alternative to regulatory early warning models, *Journal of Regulatory Economics* 50, 38-69.

• **Jacobs, Jan PAM**. and Simon van Norden (forthcoming), 'Why are initial estimates of productivity growth so unreliable?', *Journal of Macroeconomics*.

• Kang W, **Ratti RA** and **Vespignani JL**, 2016, 'The impact of oil price shocks on the US stock market: A note on the roles of US and non-US oil production', *Economics Letters* 145, 176-181.

• Kang W, **Ratti RA** and **Vespignani JL**, 2016, 'Chinese liquidity increases and the US economy', *Economic Modelling*, Elsevier, vol. 52(PB), pages 764-771.

• Kang, W., **Ratti, RA**., Yoon, KH, 'Time-varying effect of oil market shocks on the stock market', *Journal of Banking and Finance*, forthcoming.

• Karagedikli O, Ryan M, Steenkamp D and **Vehbi T,** 2016, 'What happens when the Kiwi flies? Sectoral effects of exchange rate shocks on the New Zealand economy', *Economic Modelling*, Volume 52, Part B, January 2016, (CAMA WP 73/2013).

• **Kulish M** and **Pagan A,** 2016 'Estimation and solution of models with expectations and structural changes'. *J. Appl. Econ.*, doi: 10.1002/jae.2527.(CAMA WP 15/2014)

• Lütkepohl H and **Milunovich G,** 2016, 'Testing for identification in SVAR-GARCH models' *Journal of Economic Dynamics and Control*, 73, 241-258.

• **Milunovich G** and Yang M, 'Simultaneous equation systems with heteroskedasticity: Identification, estimation, and stock price elasticities', *Journal of Business and Economic Statistics*, forthcoming.

• O'Mahony B, Smyth R and **Valadkhani A**, 2016, 'Asymmetric causality between Australian inbound and outbound tourism flows', *Applied Economics.*

• **Ratti, RA** and **Vespignani JL**, 2016, Oil prices and global factor macroeconomic variables, *Energy Economics* 59, 198-212.

• **Ratti, RA** and **Vespignani JL**, 2016, 'Not all international monetary shocks are alike for the Japanese economy', *Economic Modelling*, Elsevier, vol. 52(PB), pages 822-837.

• Roshdi I, Smyth R and **Valadkhani A** 2016, 'A multiplicative environmental DEA approach to measure efficiency changes in the world's major polluters', *Energy Economics.*

• **Shaffer S** and Shahi C (forthcoming), 'CAPM and the changing distribution of historical returns', *Applied Economics Letters.*

• **Shaffer S** and Zuniga B, 2016, 'Consumer debt and unemployment', *Applied Economics Letters* 23 (17).

• Shi S, Smyth R, Vahid F and **Valadkhani A**, 2016, 'Dating the timeline of house price bubbles in Australian capital cities', *Economic Record.*

• Smyth R and **Valadkhani A,** 2016, 'The effects of the motor vehicle industry on employment and research innovation in Australia', *International Journal of Manpower.*

• Smyth R and **Valadkhani A,** 2016 'Self-exciting effects of house prices on unit prices in Australian capital cities', *Urban Studies.*

• Smyth R, **Valadkhani A** and Worthington A, 2016 'Regional seasonality in Australian house and apartment price returns', *Regional Studies.*

• Tantaopas P, Padungsaksawasdi C and **Treepongkaruna S**, 2016, 'Attention effect via internet search intensity in Asia-Pacific stock markets,' *Pacific Basin Finance Journal*.

Growth, Demographics and Productivity program

• **Alpaslan B**. 'Are human and social capital linked? Evidence from India', *Metroeconomica*. DOI:10.1111/meca.12147

• **Day C,** 2016, 'Can theory explain the evidence on fertility decline reversal?' *Australian Economic Review* 49(2): 136-45

• **Day C**, 2016, 'Non-scale endogenous growth with R&D and human capital', *Scottish Journal of Political Economy*, 63(5): 443-467.

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• **Kudrna G**, 2016 'Economy-wide effects of means-tested pensions: The Case of Australia', *Journal of the Economics of Ageing* 7, 17-29.

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Macroeconomic Policy Frameworks program

• Bai Q, **Makin AJ** and Zhang Z, 'Yen internationalisation and Japan's international reserves', *Economic Modelling*, 52(1), 452-466, 2016.

• **Dennis R** and Kirsanova T, 'Equilibrium coordination with discretionary policy making', *The Economic Journal*, forthcoming.

• **Libich J** and Machacek M (forthcoming), 'Insurance by government or against government? Overview of public risk management policies', *Journal of Economic Surveys*.

• Froyen RT and **Guender AV**, 'What to aim for? The choice of an inflation objective when openness matters', *Open Economies Review*, forthcoming.

• **Makin AJ**, 'Has excessive public debt slowed world growth?', *World Economics* 16 (4), 115-130, 2015.

• **Makin AJ** and Pearce J, 2016, 'Fiscal consolidation and Australia's public debt' *Australian Journal of Public Administration,* forthcoming.

• Mariotti F, **Mumford KA** and Pena-Boquete Y, 'Education, job insecurity and the within country migration of couples' forthcoming *IZA Journal of Migration*.

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household: Are Australian householders caring when it comes to risk sharing?' forthcoming *Australian Journal of Labour Economics.*

Model Uncertainty and Macro-Econometrics program

• **Eo Y** and Kim CJ, 'Markov-Switching Models with evolving regime-specific parameters: Are post-war booms or recessions all alike?', *Review of Economics and Statistics*, 98(5), December 2016.

• Garratt A, Lee K and **Shields K,** 2016, 'Information rigidities and the news-adjusted output gap', J*ournal of Economic Dynamics and Control*, Volume 70, September 2016, Pages 1–17.

• Müller-Dröge HC, **Sinclair TM**, Stekler HO (forthcoming), 'Evaluating forecasts of a vector of variables: a German forecasting competition'. *Journal of Forecasting* (CAMA WP 55/2014).

Macroeconomic Theory program

• Burda MC and **Weder M,** 2016: 'Payroll taxes, social insurance and business cycles', J*ournal of the European Economic Association* 14, 438–467.

• De Abreu JABM, **Maldonado WL**, Tourinho OAF, 'Cointegrated periodically collapsing bubbles in the exchange rate of 'BRICS', *Emerging Markets Finance & Trade*, forthcoming (CAMA WP 34/2014).

• Moro A, Moleshi S and **Tanaka S,** 2016, 'Does home production drive structural transformation?', *American Economic Journal: Macroeconomics*, forthcoming (CAMA WP 19/2016).

Multi-Country Models and Methods program

• **McKibbin W,** 2016, 'Macro prudential policy in an Australian context', *Australian Economic Review*, volume 49, no 1, pp86-88.

• **Tyers R,** 2016, 'China and international macroeconomic interdependence', The World Economy, 39(11): 1674-1702.

• **Tyers R,** 2016, 'Slower growth and vulnerability to recession: updating China's global impact', *Scottish Journal of Political Economy*, in press, March.

• **Tyers R** and A Walker, 2016, 'Quantifying Australia's 'three-speed' boom', *Australian Economic Review*, in press, January.

Open Economy Macroeconomics program

• Katagiri M, Kato R, and **Tsuruga T**, 'Prudential capital controls or bailouts? The impact of different collateral constraint assumptions', *Economic Theory*, forthcoming (CAMA WP 25/2014).

• **Kollmann R**, 'Discussion of 'financial intermediation in a global environment' by V. Nuguer', *International Journal of Central Banking*, 2016, Vol. 12, pp.345-351.

• **Kollmann R**, 'International business cycles and risk sharing with uncertainty shocks and recursive preferences, *Journal of Economic Dynamics and Control*, 2016, Vol. 72, pp.115-124.

• **Kollmann R**, Leeper E and Roeger W, 'The post-crisis slump', *European Economic Review*, 2016, Vol. 88, pp. 1-2.

• **Kollmann R**, Pataracchia B, Raciborski R, Ratto M, Roeger W and Vogel L, 'The post-crisis slump in the Euro area and the US: Evidence from an estimated three-region DSGE model', *European Economic Review*, 2016, Vol. 88, pp. 21-41.

• **Kollmann R** and Vogel L, 'Discussion of 'market reforms in the time of imbalance' by M. Cacciatore, R. Duval, G. Fiori and F. Ghironi', *Journal of Economic Dynamics and Control*, 2016, Vol. 72, pp. 94-97.

• **Kollmann R** and Zeugner S, 'Blanchard and Kahn's (1980) solution for a linear rational expectations model with one state variable and one jump variable: the correct formula', forthcoming, *The Manchester School*.

Books

Publications in academic books include:

Finance and the Macroeconomy program

• **Shaffer S**, 'Market power: Competition among measures,' refereed chapter in *Handbook of Competition in Banking and Finance*, to be published by Edgar Elgar (J.A. Bikker and Laura Spierdijk, editors), forthcoming.

• **Shaffer S**, 'The Panzar-Rosse Revenue Test and market power in banking: An empirical illustration,' refereed chapter in *Handbook of Competition in Banking and Finance*, to be published by Edgar Elgar (J.A. Bikker and Laura Spierdijk, editors), forthcoming.

Multi-Country Models and Methods program

• Golley J, **Tyers R** and Zhou Y, 2016, 'Contractions in Chinese fertility and saving: long run domestic and global implications', in I. Day and J. Simon (eds), *Structural Change in China: Implications for Australia and the World*, Proceedings of the April Conference of the Reserve Bank of Australia, Sydney, November: 243-280.

• **McKibbin W,** 2016 'The 2008 Global Financial turmoil: an inside-policy view', interview published in Jan Libich, 2016 *Real World Economic Policy: Insights from Leading Australian Economists*, P250-278, Cengage Learning Melbourne.

• **Lee JW**2016, 'Crisis and recovery: Learning from the Asian experience', World Scientific.

Media

In 2016, the CAMA affiliates contributed to the public debate participating in interviews with prestigious news agencies such as *The Canberra Times*, ABC news, *The Business*, *Australian Financial Review* and others.

CAMA participated on Twitter: @CAMacroAnalysis and it was mentioned on Wikipedia: (http://en.wikipedia.org/wiki/Centre_for_Applied_Macroeconomic_Analysis).

CAMA also contributed to the APPS Policy Forum. The Policy Forum is a public policy website devoted to Asia and the Pacific. It is located at Crawford School of Public Policy. Articles published by CAMA on APPS in 2016 include :

- Climate storm shows political failure
- Unreal interest rates will not create real demand

Other articles published by APPS Policy Forum can be found at http://www.policyforum.net/

Events

CAMA actively promotes events such as workshops and conferences in Australia and internationally through sponsorship, organisation and advertising. CAMA is a representative on the NBER East Asian Seminar in Economics (EASE) and the National Economic Research Organizations (NERO) network sponsored by the Organiziation for Economic Cooperation and Development (OECD) in Paris.

CAMA also hosts the CAMA Macroeconomics Brown Bag Seminars where staff, visitors and PhD students have an opportunity to present their work.

Workshops and conferences

The global economy by 2020: pressures and prospects
8 to 9 March 2016
The Brookings Institution, Washington DC, US
Various speakers.

This two-day workshop brought together leading scholars to discuss the macroeconomic issues that will likely drive the global economy towards 2020 and beyond. Some key questions addressed were: How does the current cyclical downturn resolve? What will the world look like beyond the current cycle? Is the developed world stalled in economic stagnation? Will emerging market convergence continue? How will macro policymakers respond?

Korean re-unification: prospects and implications
22 April 2016
Crawford School, ANU
Various speakers.

In this workshop, renowned Korean and international specialists in government, academia and research institutes presented their academic and policy-oriented research related to the prospects of Korean reunification and the economic consequences for the Korean peninsula and neighboring countries. They shared their insights through in-depth discussion of economic and security benefits and costs of unification and provided a direction for Korea's policy towards reunification. This workshop gave an up to date

assessment of current developments and their implications for North Korea and inter-Korean relations.

3rd Workshop of the Australasian Macroeconomics Society Joint with LAEF

17-19 August 2016
Brisbane
Various speakers

The workshop had three principal purposes. First, it was an opportunity for macroeconomists to share and discuss their results and ideas with each other, to encourage excellence and collaboration in research in macroeconomics in Australasia. Second, by bringing top international researchers, the workshop aimed to help connect researchers in Australia with top people from around the world in a two-way learning process. Third, by bringing together both theoretical and applied researchers, the workshop aimed to foster synergies between and across all modern scientific approaches to macroeconomics.

CAMA was a sponsor of the event.

Shaping the next decade: Economic trends in the global economy

22 to 23 August 2016
Crawford School, ANU
Various speakers

This two-day workshop on *Shaping the next decade: Economic trends in the global economy* was co-organised by CAMA and the Australian Treasury. Treasury funded the event completely including international airfares for the major speakers. The Workshop brought together leading scholars, senior officials of all Australian government departments and leading private sector economists from the banks and companies like BHP and Rio Tinto. Participants came from The International Monetary Fund, The World Bank, Federal Reserve Bank of Minneapolis and Korea University, to discuss the major issues facing the global economy with detailed discussion of policy options. Topics discussed included: global demographic movements and economic migration; income inequality and growth; global energy and commodity markets; convergence between advanced and emerging economies; global productivity trends; labour force participation; and global macroeconomic policy settings.

Public lectures

Institutions, individuals, and ideas: Macroeconomic policymaking in Australia from Federation to 2020
30 November 2016
Professor David Vines, University of Oxford

The ending of the global boom in primary commodity prices is leading to a significant macroeconomic rebalancing of the Australian economy. This is being implemented in a surprisingly effective manner, especially when compared with what is happening in Brazil and South Africa. In this lecture, Professor Vines argued that such a relatively smooth process has been made possible by the strong set of macroeconomic policy-making institutions which have been developed in Australia over more than a century.

His lecture had three parts. He began with a discussion of the great post World War II Reconstruction Project of the mid-to-late 1940s, led in Canberra by Prime Ministers John Curtin and Ben Chifley, the 'Seven Dwarfs', and their economist colleagues, including especially Lyndhurst Giblin, Leslie Melville and Trevor Swan. Together these people invented Australia's strikingly original form of open-economy Keynesianism, and used it to replace the gold standard that had been in place since Federation. Vines then analysed how the Hawke-Keating reforms of the 1980s overturned two further post-Federation legacies. Australia's unique system of protectionism ('protection for everybody') gave way to the liberalising influences of the Productivity Commission, and the Australian system of centralised wage-fixing ('fair wages for everybody') was replaced by inflation-targeting, administered by the Reserve Bank and by enterprise bargaining. Third, Vines described the important reforms, undertaken over the past 30 years, which have greatly liberalised the Australian financial system, as compared with what was in place a hundred years ago; he analysed the rather skillful way in which the Reserve Bank has dealt with the macroeconomic implications of these reforms.

In his lecture, Professor Vines focused not just on the policy-making institutions, but on the ideas which underpinned them, and on the extraordinarily inventive individuals who developed these ideas.

Why is US economic growth so slow?
6 June 2016
Dr Martin Baily, The Brookings Institution

The US economy has grown at only two per cent a year since the end of the Great Recession, far slower than prior recoveries. Labour force growth has been very slow, partly because of demographic changes, the aging of the workforce, and partly because of a decline in labour force participation. Productivity growth has also been very slow, with the slowdown starting in 2004, before the financial crisis and the recession. This presentation explored alternative explanations for slow growth and examined whether or not the slowdown is real or simply a problem of the mismeasurement of the economy. The presentation also looked at some comparisons between Australian and US productivity growth.

Seminars

Bellman without berge: maximum theorem for non-compact dynamic problems
4 February 2016
Akshay Shanker, PhD Student, CAMA

In this seminar Akshay Shanker provided an overview of his recent paper, *Bellman without Berge: Maximum Theorem for Non-Compact Dynamic Problems*. Compactness and continuity are critical assumptions in standard dynamic programming theory. However, when a dynamic problem involves controlling a distribution of heterogeneous agents, the state-space becomes infinite dimensional. In problems with infinite dimensional state-spaces, compactness and continuity of feasibility correspondences can fail. In his paper, Akshay established a maximum theorem for infinite horizon optimisation problems with non-compact feasible correspondences. The maximum theorem can establish existence and compactness of optimal policies and continuity of value functions. The proof used a new K-sup-compactness condition, which can be easily verified in economic models. The author applied the result to the problem of a planner maximising welfare subject to incomplete markets in an Aiyagari-Huggett model.

Assessing the synchronicity and nature of Australian state business cycles
18 February 2016
Aubrey Poon, PhD student, Research School of Economics

In this seminar Aubrey Poon provided an overview of his recent paper, *Assessing the synchronicity and nature of Australian state business cycles*. This paper estimated a time-varying Panel Bayesian vector-autoregression from Canova and Ciccarelli (2009) to assess the synchronicity and the nature of Australian state business cycles. The study found no posterior evidence that the common indicator significantly contributes to the co-movement in investment, retail turnover, employment and consumption growths across the eight Australian states and Territories. However, the common indicator found by the author, does appear to capture some interesting economic facts. Firstly, the common indicator captured the early 1990's recession and the Global Financial Crisis that the Australian economy experienced during this sample period; this suggested there is commonality across each Australian states and territories during a contraction. Secondly, the fluctuations of the common indicator closely followed the trend line of the Organisation for Economic Co-operation and Development composite leading indicators for Australia. In terms of Australian state business cycles, Aubrey Poon found evidence that on average the degree of sychronisation across the Australian States and Territories cycles has decreased about half in terms of correlation, between the 1990s to 2000s. In terms of the Global Financial Crisis, the author found that the fall in consumption growth was the main factor driving the negative effects of this crisis across the majority of states. However, it was state-specific idiosyncratic factors that were the dominant features, during this slowdown, in the South Australian and Northern Territory economies.

The week
24 March 2016
Dr Maya Eden, World Bank

Is a five-day workweek followed by a two-day weekend a socially optimal schedule? This seminar presented a model in which both labour productivity and the marginal utility of leisure evolve endogenously over the workweek. Labour productivity is shaped by two forces: restfulness, which decreases over the workweek, and memory, which improves over the workweek. The structural parameters of the model were disciplined using daily variation in electricity usage per worker. The results found by Maya suggested that increases in the ratio of vacation to workdays lead to output losses. A calibration of the model suggested that a 2-3 day workweek followed by a 1 day weekend can increase welfare.

Global oil and iron ore price shocks: what are the different economic effects in Australia?

28 April 2016
Bao Nguyen, PhD student, Centre for Applied Macroeconomic Analysis

This seminar compared the macroeconomic effects of global oil and iron ore price shocks on the Australian economy. Using a Bayesian structural VAR model with sign restrictions, Bao Nguyen identified three types of shock: supply, demand and specific demand. The main results found by the author suggested that, over the period 1990Q1 to 2014Q4, the oil shock had a relative larger impact than that the iron ore shock on output and inflation while the iron ore shock was the dominant source of interest and exchange rate movements. The effects crucially depended on the underlying sources of oil or iron ore price shifts. For example, real GDP responded negatively to the rise of oil prices driven by supply disruptions but positively to a similar shock on the iron ore market. Higher global demand for these commodities had a positive impact on the economy but the iron ore demand shock was about two times larger. However, a positive oil and iron ore price shock driven by specific demand had a temporary decline in real GDP.

External shocks and monetary policy in Sri Lanka

12 May 2016
Yashodha Warunie Senadheera, PhD student, Centre for Applied Macroeconomic Analysis

In this seminar Yashodha provided an overview of her recent paper, *External shocks and monetary policy in Sri Lanka*. External shocks transmitted through trade and financial market linkages have a considerable welfare effect on developing and emerging economies. The monetary policy regime of a country plays a vital role in minimising the social welfare losses arising from these external shocks. This seminar investigated the welfare implications of six alternative monetary policy rules in a small open economy, namely Sri Lanka, using a calibrated DSGE model with nominal rigidities, delayed exchange rate pass-through and financial frictions. The model was solved numerically by Yashodha taking second approximation of the full set of model equations. The author found that domestic goods inflation targeting minimised the welfare losses caused by foreign interest rate and foreign output shocks. The CPI inflation targeting rule came in at the second place in welfare ranking closely followed by the monetary aggregate targeting rule. Social welfare was lowest under the strict exchange rate targeting rule when the economy was affected by both types of external shocks.

Labour market flexibility and productivity
2 June 2016
Anpeng Li , PhD student, Research School of Economics

In this seminar Anpeng Li provided an overview of his recent paper, *Labour market flexibility and productivity*. The paper built a structural model to evaluate the role of labour market flexibility in determining the aggregate productivity. When the labour market is inflexible, firms cannot promptly adjust their labour as a response of shocks. The frictional resource adjustment reduced the aggregate productivity and output. The author calibrated the model based on Chinese firm-level data. Quantitative analysis showed a fairly large impact through this channel.

Sectoral concentration, bank performance and systemic risk: exploring cross-country variation
21 July 2016
Thorsten Beck, Cass Business School London.

This paper proposed a new stock return-based methodology to measure bank's sectoral specialisation and differentiation. Using these measures for a broad cross-section of banks and countries over the period 2002 to 2011, this paper was the first to empirically gauge both the short- and long-run relationship between banks' sectoral specialisation and differentiation, on the one hand, and banks' performance and stability, on the other hand, in a large cross-country sample. The authors found that (i) sectoral specialisation (differentiation) decreases (increases) volatility and systemic risk exposure, while leading to moderately higher (lower) valuation; (ii) that the long-run impact is significantly stronger than the short-run impact, suggesting the importance of bank-level time-invariant factors; and (iii) that there exists important time, cross-bank, and cross-country variation in these relationships.

Cognitive dissonance and forecaster overconfidence in a model of inflation expectations with distributional inaccuracies
28 July 2016
Professor Shaun Vahey, University of Warwick

In this seminar Shaun Vahey provided an overview of his recent paper, *Cognitive dissonance and forecaster overconfidence in a model of inflation expectations with distributional inaccuracies*. Professional forecasters and central bankers often describe and quantify the asymmetric risks associated with macroeconomic variables. In contrast, nearly all extant models of inflation expectations assume that agents know exactly the distribution of elliptical disturbances. In this presentation Shaun Vahey explored an alternative mechanism in which agents form expectations of inflation in the presence of distributional inaccuracies. Agents learn the true distribution and inflation dynamics by fitting (recursively) a Gaussian copula model to the univariate time series. Deploying

empirical cumulative distribution function (ECDF) margins, the copula learning agents (in small samples) exhibit a form of cognitive dissonance. As a result, agents misperceive extreme-event risk and have misplaced confidence in their predictions. Nevertheless, with exposure to extreme inflation events, agents better fit the tails of the unknown error distribution, consistent with the notion of adaptive learning. The implications of copula learning for expectations were explored by Shaun in an application using quarterly US inflation (GDP deflator) data.

External shocks and the Sri Lankan economy: a SVAR approach
1 September 2016
Yashodha Warunie Senadheera, PhD student, CAMA

In this seminar Yashodha Senadheera will provide an overview of her recent paper, *External shocks and the Sri Lankan economy: a SVAR approach*. This paper empirically investigated the effects of external shocks on the Sri Lankan economy using a Structural Vector Auto-Regression (SVAR) model with a block exogeneity assumption and long and short-run restrictions. Data from 1996Q2 to 2014Q4 was used in the analysis. The paper examined the impact of foreign monetary policy shocks on the domestic economy using alternative measures, namely, the effective federal funds rate and the US shadow short rate. Although domestic shocks were the primary source of macroeconomic fluctuations in Sri Lanka, foreign shocks also played a considerable role in explaining the variability in output growth and domestic inflation. Shocks to foreign output growth and oil price inflation had a notable effect on the growth of domestic output. Shocks to the effective federal funds rate explained the variance of Sri Lanka's output growth better than the shocks to the US shadow short rate. Further, the impacts of oil price inflation and the effective federal funds rate shocks on the domestic inflation were noteworthy. The foreign shocks were transmitted to the domestic economy through the trade channel as well as through the financial market channel.

The impact of inward workers' remittances in South Asia
25 October 2016
Arjuna Mohottala, PhD student, CAMA

South Asia continues to attract large inflows for worker's remittances and its macroeconomic impact over the long time horizon has not yet properly investigated. In his study, Arjuna tested the impact of workers' remittances on the real effective exchange rate (REER) using an unbalanced panel of all South Asian countries (Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka) for the period 1980-2011. Panel estimation was used by Arjuna to assess the impact of remittances on South Asia and their country-specific impacts were assessed using time series data. In addition, the impact of real interest rate differential, income differential and changes in the nominal exchange rates were examined as determinants of remittances flows. Arjuna found that

workers' remittances have had a positive impact in appreciating the REER in South Asia. The results of the country-level analysis differed from the panel data and showed that remittances have resulted in a depreciation of Bangladesh's REER while for India, the world's largest remittances recipient, remittances have not had a statistically significant impact on the growth of REER. The income differentials had played a key role in country-specific determinants of remittances flows. While mixed reactions to real interest rate differentials and income differentials were observed across SAARC countries, an appreciation of the exchange rates had continued to attract remittances flows to India, the Maldives and Pakistan.

The contribution of international shocks in a small open economy
10 November 2016
Jamie Cross, PhD student, Research School of Economics

In this seminar Jamie Cross will provide an overview of his recent paper, *The contribution of international shocks in a small open economy*. The objective of this paper presented by Jamie was to quantify the extent to which intertemporal international shocks contribute toward business cycle fluctuations in a small open economy, taken to be Australia. The foreign countries of interest were Australia's five largest trading partners namely: China, The United States of America, the European Union, Japan and the Republic of Korea. The methodology employed a novel modeling feature which allowed for fat-tailed time varying shocks in a panel VAR which allowed for time varying country and variable specific dynamics as well as cross-country interdependencies. The results found by Jamie showed that whilst Student-t specified models provided better in-sample fit as compared to traditional a Gaussian counterpart, allowing for time varying shocks revealed that otherwise determined outliers were actually significant structural instabilities within global business cycles. Economically, Jamie found particularly strong evidence of a world business cycle amongst the large countries in and around the 2007/08 financial crisis; however distinct business cycles emerged for small economies. This result found by the author was robust to the inclusion of both Canada and New Zealand in the group of small open economies. As for Australia specifically the author showed various interesting shifts among international macroeconomic relationships over time. A crude summary of the results was that international shocks contributed to an average of approximately half of domestic business cycle fluctuations over the sample period.

Chinese leadership of macroeconomic policymaking in a multipolar world
17 November 2016
David Vines, University of Oxford

In this seminar Professor Vines discussed the kind of leadership in global macroeconomic policy-making that China might provide. Professor Vines described a form of leadership, which he called 'concerted unilateralism', that enabled countries to pursue their own objectives, in a way which they would not have been able to do if they were acting on their own, and enabled them to achieve a higher level of welfare. He contrasted such leadership with a form of authoritarian leadership in which the leader imposes obligations on other countries which are to the disadvantage of those countries. He argued that China could provide leadership of the first kind, by making use of the G20 Mutual Assessment Process, or G20MAP. In the short term, Professor Vines believed that China might do this by consolidating the '2-in-5' action plan, which Australia instituted within the G20MAP when Australia was President of the G20. In the longer term, China might do this by ensuring that there is convergence between the G20MAP and China's own One-Belt, One-Road strategy for international engagement in trade and finance.

Terms of trade and the Sri Lankan economy: A sign-restricted VAR approach
24 November 2016
Yashodha Warunie Senadheera, PhD student, CAMA

In this seminar Yashodha provided an overview of her recent paper, *Terms of trade and the Sri Lankan economy: A sign-restricted VAR approach*. The deteriorating terms of trade in the past two decades has been a concern for the policy-makers of Sri Lanka. Recent literature has argued that the effect of terms of trade on an economy depends on the characteristics of the underlying shock. Hence, Yashodha's presentation examined the impact of external shocks, which caused terms of trade fluctuations, on the Sri Lankan economy using a sign restricted Vector Auto-Regression (VAR) model. Three external shocks, viz., world demand shocks, world supply shocks and globalization shocks had been considered in Yashodha's study. World demand shocks did not had a significant long-term effect on Sri Lanka's real output, but negative world supply shocks were contractionary. Conversely, positive globalization shocks increased domestic output permanently. Both positive world demand shocks and globalization shocks were inflationary while negative world supply shocks increased domestic prices initially but reduced the price levels after two quarters. World demand shocks had largely contributed to the fluctuations in trade balance since 2007, whereas the importance of globalization shocks on the imports, exports and trade balance had increased since 2010. Yashodha concluded that the contribution from globalization shocks to the variance in domestic output and price levels had increased since 2007.

Real-time macro foreign exchange rates
6 December 2016
Robin Brooks and Silvia Ardagna, Goldman Sachs & Co.

In this seminar Robin Brooks and Silvia Ardagna provided an overview of their recent paper written with Michael Cahill, *Real-time macro foreign exchange rates*. There are plenty of reasons to think that strong growth goes hand-in-hand with a strong exchange rate. But in practice, foreign exchange markets offer conflicting evidence. At the height of the Eurozone crisis – clearly a negative growth shock – the Euro stayed near all-time highs in trade-weighted terms. And though US growth since the global financial crisis had far surpassed Europe or Japan, the Dollar – with the exception of 2014 and 2015 when the ECB and BoJ were shifting aggressively towards QE – had failed to appreciate. This presentation examined the link between foreign exchange rates and growth. It made several contributions. On the macro side, it built a G10 database for first-print GDP and subsequent revisions. This was important because the data the authors saw were not what markets traded on at the time. On the markets side, the authors aligned exchange rates with the timeframe corresponding to the underlying macro data. In the case of Q1 GDP, for example, they looked at the average exchange rate between February and April, i.e. when the Q1 data flowed and GDP tracking were in process. Making these changes revealed a positive link between economic growth and exchange rates for most of the G10, including for the US Dollar. The authors then examined whether macro data helped predict moves in foreign exchange rates, building on a large academic literature. They found that macro data helped predict foreign exchange rate movements, in some cases outperforming the random walk hypothesis.

Impact of robots
12 December 2016
Anil Savio Kavuri, PhD Student, CAMA

In this seminar Anil Savio Kavuri provided an overview of his joint paper with Warwick McKibbin, *Impact of robots*. This study developed a multi-sector endogenous technical change general equilibrium framework to investigate the impact of robot development on the welfare of heterogeneous labour classes. The framework integrated leisure, endogenous technical change, elasticity of substitution between sectors, robots purchased by the consumer, robots as a form of human replacement, heterogeneous skills of labour and six stages of robot development. The last stage represented singularity with human superfluous in production. The author found that leisure played a pivotal role in ensuring welfare is unaffected or improved in almost every stage. Other observations found by the author included benefits of robots purchased by the consumer and workers being able to counter extinction from singularity.

Seminars organised with Arndt-Corden Department of Economics

Communicating monetary policy at the zero lower bound
13 July 2016
Dr Eli Remolona, Bank for International Settlements

Finding themselves at the zero lower bound, major central banks have resorted to unconventional monetary policy. An implicit part of this policy has been a tendency to surprise the markets. While such a tendency is time inconsistent, are there special circumstances in the zero lower bound that could make the tendency useful? To shed light on this question, this paper examined the impact on asset prices of policy surprises by the Fed, the ECB and Bank of Japan before and after March 2009.

Staff and Associates

Director

Professor Warwick McKibbin has a Chair in Public Policy in the ANU Centre for Applied Macroeconomic Analysis (CAMA) in Crawford School of Public Policy at The Australian National University (ANU). He is also an ANU Public Policy Fellow; a Fellow of the Australian Academy of Social Sciences; a Distinguished Fellow of the Asia and Pacific Policy Society; a non-resident Senior Fellow at the Brookings Institution in Washington D.C (where he is co-Director of the Climate and Energy Economics Project) and President of McKibbin Software Group Inc. Professor McKibbin was foundation Director of the ANU Centre for Applied Macroeconomic Analysis and foundation Director of the ANU Research School of Economics. He was also a Professorial Fellow at the Lowy Institute for International Policy for a decade from 2003 where he was involved in its design and development. Professor McKibbin served for a decade on the Board of the Reserve Bank of Australia (the Australian equivalent of the Board of Governors of the US Federal Reserve) until July 2011. He has also served as a member of the Australian Prime Minister's Science, Engineering and Innovation Council, and on the Australian Prime Minister's Taskforce on Uranium Mining Processing and Nuclear Energy in Australia.

Professor McKibbin received his B.Com (Honours 1) and University Medal from University of NSW (1980) and his AM (1984) and a PhD (1986) from Harvard University. He was awarded the Centenary medal in 2003 "For Service to Australian Society through Economic Policy and Tertiary Education".

Professor McKibbin is internationally renowned for his contributions to global economic modeling. He has published more than 200 academic papers as well as being a regular commentator in the popular press. He has authored / edited five books including *Climate Change Policy after Kyoto: A Blueprint for a Realistic Approach* with Professor Peter

Wilcoxen of Syracuse University. He has been a consultant for many international agencies and a range of governments on issues of macroeconomic policy, international trade and finance, greenhouse policy issues, global demographic change and the economic cost of pandemics.

Deputy Director

Ippei Fujiwara is Professor of Macroeconomics at Crawford School of Public Policy, associate editor of *Japan and the World Economy*, research associate at the Globalization and Monetary Policy Institute, Federal Reserve Bank of Dallas, co-director for Australia-Japan Research Centre, and the deputy director at the Center for Applied Macroeconomic Analysis (CAMA). He completed his DPhil in economics at the University of Oxford (Nuffield), and a PhD in Applied Economics at Osaka University. Professor Fujiwara worked for the Bank of Japan for 18 years before joining Crawford School of Public Policy where his research has focused on international finance, monetary economics and macroeconomics. His recent publications are in *Journal of Applied Econometrics*, *Journal of Monetary Economics*, *Journal of International Money and Finance*, *Journal of Money Credit and Banking*, *Journal of Economic Dynamics* and *Control and Macroeconomic Dynamics*.

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Tugrul Vehbi	Reserve Bank of New Zealand	Finance and the Macroeconomy program
Joaquin Vespignani	University of Tasmania	Finance and the Macroeconomy program
Yuichiro Waki	The University of Queensland	Macroeconomic Theory program
Sumila Wanaguru	Central Bank of Sri Lanka	Finance and the Macroeconomy program
Mark Weder	University of Adelaide	Macroeconomic Theory program
Peter Wilcoxen	Syracuse University	Multi-Country Models and Methods program, and Climate Change and Energy program
John C Williams	Federal Reserve Bank of San Franciso	Macroeconomic Theory program, and Model Uncertainty and Macro-Econometrics program

Name	Institution	Program
Samuel Wills	University of Oxford	Commodities and the Macroeconomy program
Justin Wolfers	University of Michigan	Behavioural Macroeconomics and Complexity program
Wing Thye Woo	University of California Davis	Multi-Country Models and Methods program
Alan Woodland	University of New South Wales	Globalisation and Trade program
Mark Wright	University of California, Los Angeles	Globalisation and Trade program
Eliza Wu	University of Technology Sydney	Finance and the Macroeconomy program
Juanyi (Jenny) Xu	Hong Kong University of Science and Technology	Open Economy Macroeconomics program
Ying Xu	The Australian National University	Finance and the Macroeconomy program
Fang Yao	Reserve Bank of New Zealand	Open Economy Macroeconomics program, Finance and the Macroeconomy program, and Macroeconomic Policy Frameworks program
Daniel Zizzo	Newcastle University	Behavioural Macroeconomics and Complexity program

Visitors

PhD visitors

Maria Carratu
University of Naples, Italy
4 October - 23 December 2016

Duygu Yalcin
University of Instanbul, Turkey
2016

Academic visitors

Robin Brooks
Goldman Sachs & Co.
6 December 2016

Matthew John Greenwood-Nimmo
University of Melbourne
21 November 2016

David Vines
University of Oxford
5 September - 2 November 2016

Jeff Borland
The University of Melbourne
22 August - 23 August 2016

John Foster
University of Queensland
22 August - 23 August 2016

Kevin Fox
University of New South Wales
22 August - 23 August 2016

Jenny Gordon
Productivity commission
22 August - 23 August 2016

Angelia Grant
Australian Treasury
22 August - 23 August 2016

Michael Kouparitsas
Australian Treasury
22 August - 23 August 2016

Peter McDonald
University of Melbourne
22 August - 23 August 2016

Ellen McGrattan
University of Minnesota
22 August - 23 August 2016

Fariboz Moshirian
University of New South Wales
22 August - 23 August 2016

Jonathan Ostry
International Monetary Fund
22 August - 23 August 2016

John Piggot
University of New South Wales
22 August - 23 August 2016

Nigel Ray
Australian Treasury
22 August - 23 August 2016

Joaquin Vespignani
University of Tasmania
22 August - 23 August 2016

M. Ayhan Kose
World Bank
19 August - 24 August 2016

Jong-Wha Lee
Korea University
17 August - 24 August 2016

Thorsten Beck
Cass Business School, London
21 July - 22 July 2016

Kyle Renner
George Washington University
10 June to 14 June 2016

Tara M Sinclair
George Washington University
10 June to 14 June 2016

Jangho Choi
KIEP, Korea
22 April 2016

Gordon Flake
Perth USAsia Centre
22 April 2016

Ari Kokko
Copenhagen Business School
22 April 2016

Sooho Lim
KIEP, Korea
22 April 2016

Thu Phuong Pham
University of Adelaide
22 April 2016

Rod Tyers
University of Western Australia
22 April 2016

Marcus Noland
Peterson Institute for International
Economics
21 April - 22 April 2016

Martin Neil Baily
The Brookings Institution
6 June - 10 June 2016

Danielle Chubb
Deakin University
22 April 2016

Moonsung Kang
Korea University
22 April 2016

Ho Yeol Lim
KIEP, Korea
22 April

Sung-wook Nam
Korea University
22 April 2016

Ju Hyn Pyun
Korea University
22 April 2016

Mark Weder
University of Adelaide
22 April 2016

Jong Wha Lee
Korea University
18 April - 26 April 2016

Funding

The table below summarizes CAMA funding for 2016 (including ARC and other research grants held within CAMA & fund raising for conferences).

Income	
Student fees	0.00
Other income	357,546.58
Internal sales	2,500.00
Transfer from other	20,000.00
Internal allocations	0.00
Operating grant	83,500.00
Investment income	56.47
Total Income	463,603.05
Expenses	
Salaries and related costs	236,245.54
Equipment - capital	0.00
Equipment - non-capital	1,825.45
Scholars expenses	0.00
Utilities and Maintenance	0.00
Travel field & survey expenses	164,175.87
Expendable research materials	0.00
Contributions	4,545.46
Consultancies	7,329.60
Consumables	1,496.62
Depn & Amort	0.00
Internal purchases	4,593.82
Other expenses	17,168.22
Contingency	0.00
Total Expenditure	437,380.58
Current year operating result	26,222.47
Transfer inflow/outflow	4,219.00
Net current year operating result	30,441.47
Prior year cash result	410,793.67
Net operating position	**441,235.14**

CAMA by numbers

In 2016 CAMA:

published **74** working papers and **6** newsletters

attracted **23** new affiliates

hosted **21** events, including **16** seminars, **2** public lectures, **1** domestic conference and **2** international conferences

received **38** visitors

was followed by **190** Twitter users and tweeted **800** times since its start in August 2014

was a team of **197** research associates

Contact

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