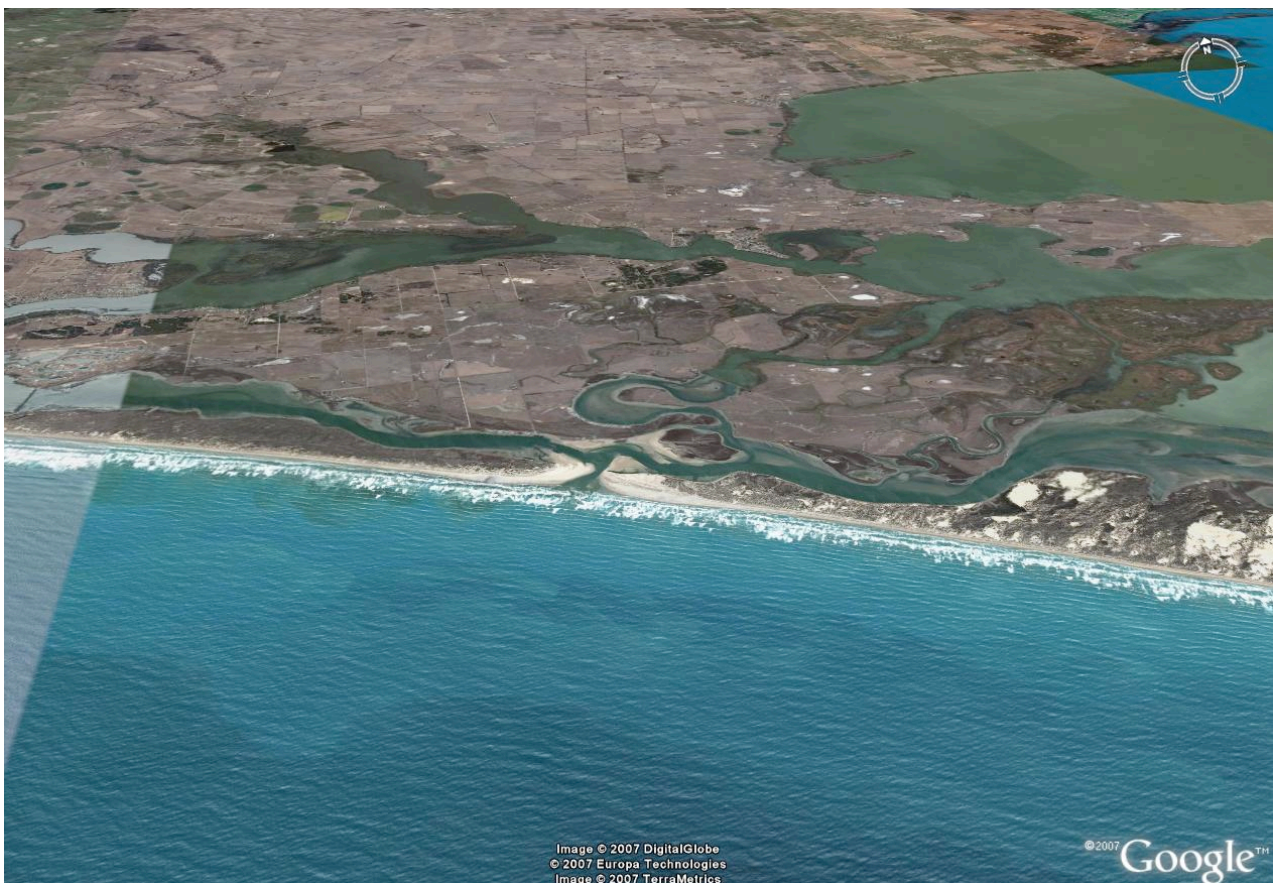


R I S K A N D S U S T A I N A B L E M A N A G E M E N T G R O U P

*Schools of Economics and Political Science, University of
Queensland*

ANNUAL REPORT 2006



School of Economics, The University of Queensland, Brisbane, Queensland 4072

• telephone: +61 7 3346 9646 • fax: +61 7 3365 7299 • email j.quiggin@uq.edu.au

Website: <http://www.uq.edu.au/rsmg>

Weblog: <http://www.johnquiggin.com/rsmg/wordpress/>

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Foreword

The severe drought conditions of 2006 have brought water resources, climate change and related issues to the forefront of public consciousness, resulting in a need for urgent policy responses. At the same time, gaps and limitations in our understanding of the relevant issues have become more evident. The Risk and Sustainable Management Group has sought to respond to these issues both by contributing to the immediate debate over water policy and by the development of improved models and theoretical frameworks within which a sustainable long-term response may be formulated.

Acknowledgements

The Group has had another highly successful year in 2006, reflected in the recent announcement that our funding under the Federation Fellowships scheme is to be renewed for a further five years. Primary credit for this must go to the enthusiasm and energy of the members of the team.

The University of Queensland has provided a very supportive environment for research. The assistance of the Schools of Economics and of Political Science and International Studies, the Faculties of Business, Economics and Law and of Social and Behavioral Sciences, the Office of Research and Postgraduate Studies and the Vice-Chancellor has been particularly valuable.

Numerous private and government bodies engaged in research have provided helpful assistance. Particular thanks go the Murray–Darling Basin Commission for provision of data, advice and permission to use images in this report, and to the Australian Bureau of Agricultural and Resource Economics for its encouragement in the development of collaborative research programs.

Above all, the Group thanks the Australian Research Council and the Australian government for the generous financial support given to the research reported here.

Highlights of 2006

Developing Research Linkages

In the course of 2004 and 2005, Risk and Sustainable Management Group (RSMG) established itself as one of the most productive and influential economic research groups in Australia. The Group was listed in the top 25 economics research institutions in Australia by the IDEAS bibliographic database. Excluding complete departments and faculties, the Risk and Sustainable Management Group was ranked seventh in Australia in terms of research output, ahead of much larger centres and groups.

The Group's research output reached a new high in 2006 with sixteen journal articles and eleven book chapters, again comparing favourably with much larger centres and groups.

With the Group successfully established, a central focus for 2006 was the development of research linkages with other groups, particularly those concerned with sustainable management of the Murray–Darling Basin.

A range of international collaborations has been developed and maintained

- John Quiggin has worked on the theory and policy implications of risk and uncertainty with colleagues including Professor Robert G. Chambers of the University of Maryland and Professor Simon Grant of Rice University, Houston, Texas.
- Nanni Concu has continued his collaboration with the Università di Sassari (IT) on the sustainable management of tourism in the Mediterranean Islands.

Collaboration with other Australian institutions

- Mark Neal was invited to apply economics to the scientific data resulting from the world's largest agricultural experiment on the forages for the dairy industry. The experiment was based at the University of Sydney, and was funded by both industry and government. This work was presented to the American Dairy Science Association meeting in Minneapolis during July 2006.

Collaboration has also been pursued within the University of Queensland.

- In 2006, RSMG initiated the 'Economic Research Group' seminar series. The aim of the seminars was to encourage collaboration between staff and postgraduate students to discuss the work they were undertaking in an informal setting. In 2006 twelve seminars were held.
- In 2006, the groundwork was established for a joint seminar series with the Ecology Unit at the University of Queensland. The seminar series started in 2007. The aim of this series is to highlight the issues economists and ecologists consider when undertaking their work. This provides

RSMG with an informal link to the Research Hub for Applied Environmental Decision Analysis run by Professor Hugh Possingham.

- Mark Neal was involved with the ARC Centre for Complex Systems (ACCS) on a project that demonstrated how grid computing could be used in economics. This work was presented at the Australian Agricultural and Resource Economics Conference in 2007.

Awards

In May 2007, the work of the Group was recognised by the award of a second Federation Fellowship to Professor John Quiggin, with funding to support a further five years of research.

Ms. Tran Thu Trang, a Summer student working with the group on the impacts of climate change received the AARES Undergraduate Prize for the best Honours thesis in Agricultural and Resource Economics at the University of Queensland.

The Risk and Sustainable Management Group

Establishment

The Risk and Sustainable Management Group (RSMG) was formally established in May 2004, as a joint initiative of the School of Economics and the School of Political Science and International Studies in the University of Queensland. Funding has been provided by the Australian Research Council and the University of Queensland.

Work towards the establishment of the Group began in August 2003, when Professor John Quiggin took up an Australian Research Council Federation Fellowship to work on the project 'Sustainable reform of the Murray–Darling system: property rights, uncertainty and institutions'. The Group also encompasses Professor Quiggin's ARC Discovery Project DP0342974 'Risk and Australian Public Policy'.

In May 2007, it was announced that Professor Quiggin had been awarded a second Federation Fellowship, allowing the work of the Group to continue for a further five years.

Aims

The aim of the Federation Fellowship project, and the core aim of the Risk and Sustainable Management Group, is to use recent developments in the analysis of property rights and the theory of choice and production under uncertainty to provide a rigorous basis for the use of the precautionary principle in the management of complex economic–ecological systems. These developments will be applied to the design, modelling and evaluation of policies designed to promote ecologically, economically, and socially sustainable reform of the Murray–Darling system.

The aim of the Discovery Project is to formulate fundamentally new approaches to the theory of risk and uncertainty and to analyse their role in the design and management of complex projects and policy initiatives, particularly those connected with globalisation and microeconomic reform.

More generally, the aim of the Group is to show how the latest advances in economic theory can help to illuminate the major issues in the Australian public debate, from the role of government and the market to the assessment of standards of living, and to bridge the gap between economics and other social sciences.

Staff

John Quiggin: Federation Fellow



John Quiggin is a Federation Fellow in Economics and Political Science at the University of Queensland. Professor Quiggin is prominent both as a research economist and as a commentator on Australian economic policy. He has published over 800 books and book chapters, research articles, newspaper articles, conference papers and reports in fields including environmental economics, risk analysis, production economics, and the theory of economic growth. He has also written on policy topics including unemployment policy, micro-economic reform, privatisation, competitive tendering and the management of the Murray–Darling river system.

Professor Quiggin has been an active contributor to Australian public debate in a wide range of media. He is a regular columnist for the Australian Financial Review, to which he also contributes review and feature articles. He frequently comments on policy issues for radio and TV. He was one of the first Australian academics to present publications on a website (now at <http://www.uq.edu.au/economics/johnquiggin>). In 2002, he commenced publication of a weblog (now at <http://johnquiggin.com>) providing daily comments on a wide range of topics.

David Adamson: Research Officer



David Adamson takes primary responsibility for the coding and maintenance of the Excel version of the Murray–Darling Model. His areas of expertise include: cost–benefit analysis of research and development programs, impact assessment of agricultural pest management issues, quarantine risk analysis and MS Excel model development.

Giovanni B. (Nanni) Concu: Post Doctoral Research Fellow



Nanni Concu began work with the Group in October 2005. He also holds the position of External Researcher with the Università di Sassari (Italy). Nanni completed his doctorate in January 2005 at the University of Western Australia. He is now undertaking a valuation study of Queensland's Vegetation Management Act 2004. He is also developing a GIS platform to integrate biophysical and economic data to map the market and non-market values of vegetation in the Queensland Murray–Darling Basin.

Mark Neal: Post Doctoral Research Fellow



Mark Neal began work with the Group in October 2005. He completed his PhD at the University of Sydney, examining the economics of New Zealand dairy production through the optimisation of a whole-farm model. Advanced techniques including evolutionary algorithms and distributed computing were used in the optimisation approach. He has previously worked at the Productivity Commission. His current work includes analysing the potential costs of regulation designed to improve environmental outcomes and the optimal input choice for a range of farm systems.

Thilak Mallawaarachchi: Senior Research Fellow (20 per cent appointment)



Thilak Mallawaarachchi, Ph.D., worked part-time on this project on secondment from his full-time position as a Senior Policy Officer at the Natural Resource Management Division of the Department of Agriculture, Fisheries and Forestry. His research encompasses economic, environmental and social aspects of resource management and focuses on using integrated modelling tools that link scientific data with economic frameworks to facilitate learning and problem solving. He received the Australian Agricultural and Resource Economics Society Ph.D award in 2001 for bioeconomic modelling combining mathematical programming and choice modelling.

Nancy Wallace: Research Assistant

Nancy Wallace: Areas of expertise: editorial and bibliographic, document management, research administration and reporting.

Research outcomes

To meet its objectives, the work of the Group has been divided into three programs:

- Murray–Darling Basin Program
- Risk and Uncertainty Program
- Australian Public Policy Program.

Each program encompasses a number of research projects.

Murray–Darling Basin Program

Objective

The objective of this research program is to apply new developments in economic theory to the design, modelling and evaluation of policies designed to promote ecologically, economically, and socially sustainable reform of the Murray–Darling system.

Project: Murray–Darling Basin Model

2006 saw the completion of a simulation model of land and water allocation in the Murray–Darling Basin, incorporating a state-contingent representation of uncertainty.

The first application of the model was to the design of property rights in the presence of uncertainty. The results were presented at the Australian Agricultural and Resource Economics Society Conference held in Sydney in February 2006. Further results were presented at the International Association of Agricultural Economics conference held on the Gold Coast in August 2006.

Project: Institutions and Property Rights

In the policy component of the project, the main focus has been on the design of water rights in the presence of uncertainty. Three journal articles were published in 2006. A number of submissions to public inquiries and newspaper articles have also been published.

Risk & Uncertainty Program

Objectives

The aim of this project is to develop fundamentally new approaches to the theory of risk and uncertainty and their role in the design and management of complex projects and policy initiatives. The results will be applied to the issues of sustainable management of the Murray–Darling Basin and to analyses of Australian public policy, as described under those programs.

Project: Unforeseen Contingencies

The main objectives of theoretical research in the project were to develop models capable of representing choice under uncertainty in the presence of unforeseen contingencies, and to apply these models to derive an improved understanding of the ‘precautionary principle’, commonly advocated as a guide to decisionmaking in relation to environmental problems where the consequences of alternative courses of action are not fully understood. Work in this project has been undertaken jointly with Professor Simon Grant of Rice University, Texas and Jeff Kline of Bond University. A paper describing the main results was presented to a number of international conferences in the course of 2006.

The project produced two conference papers and several working papers during 2006.

Project: State-Contingent Production

This project continues a long-standing collaboration with Professor Robert G. Chambers of the University of Maryland, College Park. The central idea is to represent production under uncertainty using the representation of uncertain outputs as state-contingent production bundles, as first proposed by Arrow and Debreu in their Nobel prize-winning general equilibrium model. This approach can be integrated with modern methods of production theory, such as the application of duality theory.

Areas of application have included drought policy, agency theory and finance theory. The current focus is on empirical estimation on the integration of production and finance theory and on applications to comparisons of efficiency.

New collaborators in 2006 include Dr Maria Racionero of the Australian National University and Chris O’Donnell of the University of Queensland

Four journal articles arising from the project were published in 2006, with several more in press or accepted for publication.

Australian Public Policy Program

Objectives

The aim of this program is to show how the latest advances in economic theory can help to illuminate the major issues in the Australian public debate, from the role of government and the market to the assessment of standards of living. The project will also help to bridge the gap between economics and other social sciences.

Project: Risk and Public Policy

Risk plays a central role in public policy today. The aim of this project is to examine the role of risk and risk management in policy areas ranging from criteria for public investment to reform of the criminal justice system. Areas studied in 2006 included asset price instability and the risk premium for equity.

The project produced four journal articles, two book chapters and a number of reports and submissions during 2006.

Project: Microeconomic Reform

Microeconomic reform has played a central role in Australian public policy for more than two decades. The aim of this project is to provide a critical analysis of the assumptions underlying microeconomic reform, the progress of microeconomic reform in particular sectors of the economy and the effects of microeconomic reform on productivity, employment, and living standards. Areas studied in 2006 included productivity and labour market reform.

The project produced four journal articles, nine book chapters and a number of reports and submissions during 2005.

Communication

An important object of the Group has been to make current research widely available as rapidly as possible. In addition to journal articles and conference papers, a variety of methods have been used to reach the broadest possible academic and journal articles.

Web Site and Blog

A website has been developed at:

<http://www.uq.edu.au/rsmg>

It provides reprints of journal articles and working papers, annual reports, information on staff activities and useful links. A weblog,

<http://www.johnquiggin.com/rsmg/wordpress>

provides regularly updated information on topics related to the work of the Group.

Working Papers

A working paper series has been established for each of the projects listed above, and registered with RePeC, the main online repository for working papers in economics. More than fifty working papers are now available. A complete set of papers is available at:

<http://www.uq.edu.au/rsmg/publications-rsmg>

The Group has also been active in public presentations, conferences, research seminars and contributions to print and electronic media.

Public Inquiries

It is important that research should be relevant to public policy. Members of the Group regularly make submissions to Parliamentary and other public inquiries. Although informed by research, views expressed in such submissions are those of the individual concerned.

Media

Professor Quiggin is a regular contributor to the Australian Financial Review and frequently writes on topics related to the work of the group. In addition, he regularly provides comments on policy issues for radio, television, magazines and online publications

List of publications

Book Chapters

- Bell, Stephen and Quiggin, John (2006), 'Employment policy: unemployment and labour market insecurity' in McLelland, Alison and Smyth, Paul (eds) *Social Policy in Australia: Understanding for Action*, Oxford University Press, Melbourne, pp.147–160.
- Chapman, Bruce, Freiberg, Arie, Quiggin, John and Tait, David (2006), 'Criminal reparations: using the tax system to collect fines', in Chapman, Bruce (ed.), *Government Managing Risk: Income Contingent Loans for Social and Economic Progress*, Palgrave Macmillan, Sydney, pp.140–156.
- Quiggin, John (2006), 'Economic constraints on public policy' in Moran, Michael, Rein, Martin and Goodin, Robert E. (eds), *Oxford Handbook of Public Policy*, Oxford University Press, Oxford, pp. 526–539.
- Quiggin, John (2006), 'Risk, discounting and the public sector' in Pannell, Dave and Schilizzi, Steven (eds) *Economics and the Future: Time and Discounting in Private and Public Decision Making*, Edward Elgar, Cheltenham, UK, pp. 57–68.
- Quiggin, John (2006), 'Five observations on financing health care', in Grewal, Bhajan S and Kumnick, Margarita (eds) *Engaging the New World: Responses to the Knowledge Economy*, Melbourne University Press, Melbourne pp. 222–237.
- Quiggin, John (2006), 'Globalisation: macroeconomic management and public finance' in Islam, Iyanatul and Hossain, Moazzem (eds), *Globalisation and the Asia–Pacific: Contested Perspectives and Diverse Experiences*, Edward Elgar, Cheltenham, UK, pp. 60–72.
- Quiggin, John (2006), 'Economic blogs and blog economics' in Bruns, Axel and Jacobs, Joanne (eds), *Uses of Blogs*, Peter Lang Publishing, New York, pp. 69–79.
- Quiggin, John (2006), 'Republican war on science: introduction to a seminar', in Holbo, John (ed.), *Looking For a Fight: Is There a Republican War on Science?*, Parlor Press, West Lafayette, Indiana, pp. 3–4.
- Quiggin, John (2006), 'Worldwide war on science', in Holbo, John (ed.), *Looking For a Fight: Is There a Republican War on Science?*, Parlor Press, West Lafayette, Indiana, pp.14–22.
- Quiggin, John (2006), 'War over science or war on science', in Holbo, John (ed.), *Looking For a Fight: Is There a Republican War on Science?*, Parlor Press, West Lafayette, Indiana, pp. 79–81.

- Quiggin, John (2006), 'The end of the public sector debate', in Sheil, Christopher (ed.), *The State of the States: The State of the Public Sector*, Evatt Foundation, University of New South Wales, Sydney, pp. 49–61.

Journal Articles: Refereed

- Bell, S. and Quiggin, J. (2006), 'Asset price instability and policy responses: the legacy of liberalization', *Journal of Economic Issues*, XL(3), 629–649.

- Freebairn, J. and Quiggin, J. (2006), 'Water rights for variable supplies', *Australian Journal of Agricultural and Resource Economics*, 50(3), 295–312.

- Grant, S. and Quiggin, J. (2006), 'The risk premium for equity: implications for resource allocation, welfare and policy', *Australian Economic Papers*, 45(3), 253–268.

- Hazeldine, Tim and Quiggin, John (2006) 'No more free beer tomorrow? Economic policy and outcomes in Australia and New Zealand since 1984', *Australian Journal of Political Science*, 41(2), 145–159.

- Quiggin, J. (2006), 'Blogs, wikis and creative innovation', *International Journal of Cultural Studies*, 9(4), 481–496.

- Quiggin, J. (2006), 'Public–private partnerships: options for improved risk allocation', *University of New South Wales Law Journal*, 29(3), 289–293.

- Quiggin, John (2006), 'Repurchase of renewal rights: a policy option for the National Water Initiative', *Australian Journal of Agricultural and Resource Economics*, 50(3), 425–435.

- Quiggin, John (2006), 'Stories about productivity', *Australian Bulletin of Labour*, 32(1), 18–26.

- Quiggin, John (2006), 'Urban water supply in Australia: the option of diverting water from irrigation', *Public Policy*, 1(1), 14–22.

- Quiggin, John and Chambers, Robert G. (2006), 'Capital market equilibrium with moral hazard and flexible technology', *Journal of Mathematical Economics* 42, 358–363.

- Quiggin, John and Chambers, Robert G. (2006), 'Supermodularity and risk aversion', *Mathematical Social Sciences*, 52, 1–14.

- Quiggin, John and Chambers, Robert G. (2006), 'The state-contingent approach to production under uncertainty', *Australian Journal of Agricultural and Resource Economics*, 50(2), 153–169.

- Racionero, M. and Quiggin, J. (2006), 'Fixed wages and bonuses in agency contracts: the case of a continuous state space', *Journal of Public Economic Theory*, 8(5), 761–777.

Journal Articles: Other

- Quiggin, John (2006), 'From Working Nation to Work Choices', *Parity*, 19(4), 23.
- Quiggin, John (2006), 'A question of adequacy', *Company Director*, 21(11), 12–13.
- Quiggin, John (2006), 'Urban water supply in Australia', *Issues*, No. 76, 41–44.

Working Papers

Murray–Darling Program[ISSN: 1832-4266]

- Neal, Mark and Fulkerson, Bill (2006), "'One size fits all?": the relationship between the value of genetic traits and the farm system', Murray–Darling Program Working Papers M06-1, Risk and Sustainable Management Group, University of Queensland, Brisbane. 20 February. (34 pages)
- Adamson, David, Mallawaarachchi, Thilak and Quiggin, John (2006), 'State-contingent modeling of the Murray Darling Basin: implications for the design of property rights', Murray–Darling Program Working Paper M06-2, Risk and Sustainable Management Group, University of Queensland, Brisbane. 21 February. (24 pages)
- Quiggin, John (2006), 'Urban water supply in Australia: the option of diverting water from irrigation', Murray–Darling Program Working Paper M06-3, Risk and Sustainable Management Group, University of Queensland, Brisbane. 22 February. (23 pages)
- Alauddin, Mohammad and Quiggin, John (2006), 'Agricultural intensification, irrigation and the environment in South Asia: issues and policy options', Murray–Darling Program Working Paper M06-4, Risk and Sustainable Management Group, University of Queensland, Brisbane. 28 April. (33 pages)
- Adamson, D., Mallawaarachchi, T. & Quiggin, J. (2006), Water use and salinity in the Murray–Darling Basin: a state-contingent model, Murray–Darling Program Working Paper M06-5, Risk and Sustainable Management Group, The University of Queensland, Brisbane. 15 June.
- Bell, S. and Quiggin, J. (2006), The metagovernance of markets: the politics of water management in Australia, Murray–Darling Program Working Paper M06-6, Risk and Sustainable Management Group, The University of Queensland, Brisbane.
- Neal, Mark, Neal, James and Fulkerson, Bill (2006), 'Choosing the best forage species for a dairy farm: the whole-farm approach', Murray–Darling Program Working Paper M06-7, Risk and Sustainable Management Group, University of Queensland, Brisbane. 24 July. (34 pages)
- Concu, Giovanni B. (2006), 'Conservation policies, environmental valuation and the optimal size of jurisdictions', Murray–Darling Program Working Paper M06-8, Risk and Sustainable Management Group, University of Queensland, Brisbane. 24 November. (29 pages)

- Pezzey, John C.V., Jotzo, Frank and Quiggin, John (2006), 'Fiddling while carbon burns: why climate policy needs pervasive emission pricing as well as technology promotion', Murray–Darling Program Working Paper M06-9, Risk and Sustainable Management Group, University of Queensland, Brisbane. 12 December. (13 pages)

Risk and Uncertainty Program [ISSN: 1832-4258]

- Chambers Robert G. and Quiggin, John (2006), 'Dual approaches to the analysis of risk aversion', Risk and Uncertainty Program Working Paper RO6-1, Risk and Sustainable Management Group, University of Queensland, Brisbane. 15 June. (32 pages)
- O'Donnell, Chris, Chambers Robert G. and Quiggin, John (2006), 'Efficiency analysis in the presence of uncertainty', Risk and Uncertainty Program Working Paper RO6-2, Risk and Sustainable Management Group, University of Queensland, Brisbane. 26 May. (32 pages)
- Grant, Simon, Kline, Jeff and Quiggin, John (2006), 'Lost in translation: honest misunderstandings and *ex post* disputes', Risk and Uncertainty Program Working Paper RO6-3, Risk and Sustainable Management Group, University of Queensland, Brisbane. 10 August. (23 pages)

Australian Public Policy Program [ISSN: 1832-424X]

- Quiggin, John (2006), 'Blogs, wikis and creative innovation', Australian Public Policy Program Working Paper PO6-1, Risk and Sustainable Management Group, University of Queensland, Brisbane. 10 February. (21 pages)
- Bahnisch, M. and Quiggin, J. (2006), 'IR reform: choice and compulsion', Australian Public Policy Program Working Paper PO6-2, Risk and Sustainable Management Group, The University of Queensland, Brisbane. 1 March. (30 pages)
- Quiggin, John (2006), 'Cities, connections and cronyism', Australian Public Policy Program Working Paper PO6-3, Risk and Sustainable Management Group, University of Queensland, Brisbane. 16 January. (19 pages)
- Quiggin, J. (2006), Stories about productivity, Australian Public Policy Program Working Paper PO6-4, Risk and Sustainable Management Group, The University of Queensland, Brisbane. 1 March. (13 pages)

Conference Papers

- Adamson, David, Mallawaarachchi, Thilak and Quiggin, John (2006), 'State-contingent modelling of the Murray–Darling Basin: implications for the design of property rights', Paper presented at the 50th Annual Conference of the Australian Agricultural and Resource Economics Society, Sydney, 8 February.

- Concu, Giovanni B. (2006), 'Conservation policies, environmental valuation and the optimal size of jurisdictions', Paper presented at the 50th Annual Conference of the Australian Agricultural and Resource Economics Society, Sydney, 8–10 February.
- Venn, Tyron and Quiggin, John (2006), 'Accommodating indigenous cultural values in resource assessment: Cape York Peninsula and the Murray–Darling Basin', Paper presented at the 50th Annual Conference of the Australian Agricultural and Resource Economics Society, Sydney, 10 February.
- Neal, Mark and Fulkerson William J., (2006), 'One size fits all?: The relationship between the value of genetic traits and the farm system', Paper presented at the 50th Annual Conference of the Australian Agricultural and Resource Economics Society, Sydney, 14 February.
- Quiggin, John (2006), 'Learning and Discovery', Paper presented to the 12th International Conference on the Foundations and Applications of Utility, Risk and Decision Theory (FUR XII 2006), Rome, 26 June and Workshop on Risk, Utility and Decision (RUD), Paris, 30 June.
- Quiggin, John (2006), 'Employment in remote Aboriginal communities: a regional development perspective', Invited paper presented to a session on 'Applied econometrics in small populations: issues for measuring indigenous disadvantage' at the Australasian Meeting of the Econometric Society, Alice Springs, 5 July.
- Adamson, David (2006), 'Implementing economics into biosecurity risk analysis: avoiding the pitfalls of uncertainty', Paper presented at the Society for Risk Analysis Conference, University of Melbourne, 17–19 July.
- Concu, Giovanni B. (2006), 'Investigating distance effects on environmental values: a choice modelling approach', Paper presented at the 26th Conference of the International Association of Agricultural Economists, Gold Coast, 12–16 August.
- Quiggin, John (2006), 'Risk and uncertainty in agricultural economics and agricultural policy', Symposium No. 3 at the 26th Conference of the International Association of Agricultural Economists, Gold Coast, 14 August.
- Quiggin, John (2006), 'The uncertain future of water policy', Keynote address to the 35th Australian Conference of Economists, Curtin University of Technology, Perth, 27 September.

Presentations

- Quiggin, John (2006), 'Consumption as a lifestyle choice', Presentation to the Ideas Festival, presented by the Queensland Government and sponsored by Griffith University and the Brisbane Airport Corporation, Brisbane, 30th March.

- Quiggin, John (2006), 'Who will serve?: who will be the worker of the future?', Presentation to the Ideas Festival, presented by the Queensland Government and sponsored by Griffith University and the Brisbane Airport Corporation, Brisbane, 1st April.
- Quiggin, John (2006), 'Gross National Happiness', Presentation to the Ideas Festival, presented by the Queensland Government and sponsored by Griffith University and the Brisbane Airport Corporation, Brisbane, 2nd April.
- Quiggin, John (2006), 'The non-economics of information', Presentation to the CCI Researcher Symposium sponsored by the ARC Centre of Excellence for Creative Industries and Innovation, Queensland University of Technology, Brisbane, 18th May.
- Quiggin, John (2006), 'Behavioral economics and modern decision theory' , Presentation to a Round Table Discussion on Challenges and Criteria for Behavioral Economists at the 12th International Conference on the Foundations and Applications of Utility, Risk and Decision Theory (FUR XII 2006), Rome, 25 June.
- Neal, Mark, Neal, James and Fulkerson, William. J. (2006), 'Choosing the best forage for a dairy farm: the whole farm approach', Presentation at the American Dairy Science Association Meeting, Minneapolis, 11 July.
- Quiggin, John (2006), 'Can private–public partnerships be made to work?' Paper presented to the University of Queensland/Australian Property Institute Property Conference, Customs House, Brisbane, 21 July.
- Adamson, David, Mallawaarachchi, Thilak and Quiggin, John (2006), 'Climate change, water availability and adaption in the Murray–Darling Basin', Presentation to the Pre-conference Policy Workshop On 'Water Resources Policy' at the 26th Conference of the International Association of Agricultural Economists, Gold Coast, 12 August
- Neal, Mark(2006), 'The potential cost to New Zealand dairy farmers from the introduction of nitrate-based stocking rate restrictions', Poster presentation at the 26th Conference of the International Association of Agricultural Economists, Gold Coast, 15 August.
- Quiggin, John (2006), 'Setting the right framework', Presentation to the Smart Traffic 2006 conference on 'Solutions for Managing Tomorrow's Transport', Brisbane, 22 August.
- Quiggin, John (2006), 'Averting an era of water wars', Presentation to the Australian Davos Connection's Australian Leadership Retreat, Hayman Island, 26 August.
- Quiggin, John (2006), 'Responding to climate change in the Murray Darling Basin', Presentation to the 9th International Riversymposium, Brisbane, 6 September.

- Quiggin, John (2006), 'Complexity, climate change and the precautionary principle', ARC Centre for Complex Systems Research Week Lecture, Brisbane, 18 September.
- Quiggin, John (2006), 'Marking up the Infrastructure Scorecard: Smart State's development under the Office of Urban Management', Phillips Fox Seminar Series Breakfast on '*Infrastructure Spending Scorecard*', hosted by the Property Council of Australia (Queensland Division), Brisbane, 10 October.
- Concu, Nanni (2006), Presentation on 'Valuing benefits of native vegetation using Choice Modelling', THECA Forum *Ensuring the Future: Biodiversity Protection and Sustainability*, Brisbane Botanic Gardens, 4 November 2006.
- Quiggin, John (2006), 'Response to the Stern Review: the economics of climate change', Presentation to the Eleventh International Health Summer School's International Symposium on Environmental Health, Climate Change and Sustainability, School of Public Health, Queensland University of Technology, Brisbane, 21–22 November.
- Quiggin, John (2006), 'The National Water Crisis', Presentation to the Forum for Economic Realism, Brisbane, 30 November.
- Quiggin, John (2006), 'Megaprojects and risk: the Australian context', Symposium on 'Megaprojects and risk: achieving sustainable public and private outcomes', hosted by Griffith University's Urban Research Program, Brisbane, 1 December.
- Quiggin, John (2006), 'A state-contingent model of the Murray–Darling Basin', Presentation to a meeting of the Australian Agricultural and Resource Economics Society, Canberra, 4 December.
- Quiggin, John (2006), 'A state-contingent model of the Murray–Darling Basin', Presentation to a meeting of the CSIRO, Canberra, 5 December.
- Quiggin, John (2006), 'The economics of addressing chronic poverty in the community', Panel discussion at the Development Colloquium on 'Addressing Poverty: Pro-poor Growth and Financial Inclusion in Asia Pacific', Canberra, 5 December.
- Quiggin, John (2006), 'A state-contingent model of the Murray–Darling Basin', Presentation to a meeting of the Murray–Darling Basin Commission and the National Water Commission, Canberra, 6 December.
- Quiggin, John (2006), 'The uncertain future of water policy in Australia', Presentation to a meeting of the Productivity Commission, Canberra, 6 December.

- Quiggin, John (2006), 'Preparedness and overpreparedness', Presentation to a mini-conference on Responsive Government: A Discussion of Contemporary Issues in Emergency Management, sponsored by the Queensland Department of Emergency Services, Brisbane, 11 December.

Book Reviews

- Adamson, David (2006), Review of William Blomquist, Edella Sclager and Tanya Heikkila's *Common Waters, Diverging Streams: Linking Institutions and Water Management in Arizona, California, and Colorado*, Resources for the Future, *Australian Journal of Agriculture and Resource Economics*, 50 (3), 466–68.
- Quiggin, John (2006), 'Crude awakening', Review of Paul Roberts' *The End of Oil: On the Edge of a Perilous New World*, Mariner Books, *Australian Financial Review*, 24 February, Review p. 3.
- Quiggin, John (2006), 'War on science', Review of Chris Mooney's *The Republican War on Science*, Basic Books, *Australian Financial Review*, 7 April, Review pp. 4; 5; 9.
- Quiggin, John (2006), 'When co-operation trumps competition', Review of Yochai Benkler 's *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, Yale University Press, (528 pp.), *Australian Financial Review*, 16 June, Review p. 8.
- Quiggin, John (2004), Review of Richard Waterhouse's *The Vision Splendid: A Social and Cultural History of Rural Australia*, Freemantle Arts Centre, *Economic Analysis and Policy*, 33(2), 227–9.

Submissions to Public Inquiries

- Adamson, David (2006), 'Introducing capital to the equation', Submission to the Technical and Administrative Services, Plant Biosecurity, Biosecurity Australia, 'Revised Draft: Import Risk Analysis Report for Apples from New Zealand', Brisbane, March. (14 pages)
- Quiggin, John (2006), 'Water reform in Australia: strengths and limitations of market-based mechanisms', Submission to the Productivity Commission Research Study on 'Rural Water Use and the Environment: the Role of Market Mechanisms', Brisbane, 17 March. (12 pages)
- Quiggin, John (2006), 'Assessing the costs and benefits of reducing emissions of greenhouse gases', Invited response to an Oxford Institute of Economic Policy (Oxonia) Distinguished Lecture by Sir Nicholas Stern (Head of the Stern Review on the Economics of Climate Change and Head of the Government Economic Service (UK Treasury)), Brisbane, 17 March. (14 pages)
- Quiggin, John (2006), 'Improving public infrastructure contracts with the private sector: lessons from the Cross City Tunnel', Submission to the NSW Parliament's Joint Select Committee on the Cross City Tunnel, Brisbane, 20 March. (29 pages)

Community service, outreach and media

Entries in this section are for Professor John Quiggin, except where otherwise noted.

Invited Public Lectures

- Quiggin, John (2006), 'Economics: the hopeful science', Presentation to BrisScience (Brisbane's science public lecture series), Brisbane, 31 July.
- Presentation of the 27th Annual Archbishop Sir James Duhig Memorial Lecture on 'The Cultural Development of Australian Society', St Leo's College Student Club, St Leo's College, University of Queensland, Brisbane, 7 September 2006.
- 'Complexity, climate change and the precautionary principle', ARC Centre for Complex Systems Research Week Lecture, Brisbane, 18 September 2006.

Community Service and Outreach

- David Adamson conducted a confidential report for the Department of Education, Science and Training to review a Cooperative Research Centre (CRC) program application, completed 29 September 2006.
- Meeting with Queensland Treasury, Brisbane, about urban water pricing, 5 January 2006.
- Interview with documentary filmmaker Peter Hegedus from Soul Vision Films (currently completing his doctorate at Griffith University in visual arts focusing on film production) about the US economy and US hegemony, Brisbane 18th January 2006.
- Meeting with Tom Richman and the Coordinator-General's (Queensland) Office, Brisbane, about Private-public partnerships, 2 February 2006.
- Meeting with Queensland Council of Unions, Brisbane, about their budget submission, 9 March 2006.
- Presentation to the Australian Labor Party's Inquiry into the Financing and Provision of Australian Infrastructure, Brisbane, 17 March 2006.
- Launch of the Annual Report of the Risk and Sustainable Management Group, School of Economics, University of Queensland, 1 June 2006.
- Presentation on 'The economics of climate change: What will be the economic effects of climate change, and how much will it cost to do something about it?', BEL Faculty Board Forum, University of Queensland, Brisbane, 7 June 2006.

- Presentation on 'Democratic media' to the Students of Sustainability Conference, University of Queensland, Brisbane, 11 July 2006.
- Presentation of opening welcome for a conference entitled 'Road to where? The politics and practice of implementing welfare-to-work', presented by the School of Social Work and Applied Human Sciences, University of Queensland, Brisbane, 17 July 2006.
- Presentation of keynote address on 'Economics and the environment' to the UQ Economics Schools Day, Brisbane, 20 July 2006.
- Presentation on 'Why study economics' to Indooroopilly State High School Economics students, Brisbane, 26 July 2006.
- Meeting with Tyson Barker from Strategic Marketing Partners to do a podcast for *Business Matters* on 'Small to medium enterprises in south-east Queensland', University of Queensland, Brisbane, 13 September 2006.
- Presentation on 'How can the Greens economic policy mirror its social and environmental imperatives?' at the Annual State Conference of the Greens (Qld), Brisbane, 30 September 2006.
- Meeting with Senator Ursula Stephens (Labor Senator for NSW) and Shadow Parliamentary Secretary for Water and Science to discuss 'Policy Options for the National Water Initiative', Brisbane, 26 October 2006.
- Presentation at the launch of the RSMG Carbon Credits Initiative, Risk and Sustainable Management Group, University of Queensland, Brisbane, 26 October 2006.
- Presentation on 'Some preliminary views' to the Construction Forestry Mining Energy Union (CFMEU)'s Progressive Ideas Forum on 'Combatting the Right Wing Think Tank Monster: the Way Forward', Sydney, 16 November.
- Presentation on 'The National Water Crisis' to the Forum for Economic Realism, Brisbane, 30 November 2006.

Editorial Boards

Editorial Boards: Journal of Risk and Uncertainty; Australian Economic Papers; Journal of Economic and Social Policy; Australian Journal of Agricultural and Resource Economics; Economic and Labour Relations Review

Australian Financial Review

- 'Environmental evolution', 5 January 2006, p. 46.
- 'TV policy a grim picture', 19 January 2006, p. 54.
- 'Asleep on the jobs growth', 16 February 2006, p. 70.
- 'Resigned to the status quo', 2 March 2006, p. 62.
- 'Public missing out again', 16 March 2006, p. 62.
- 'Healthy dose of growth', 30 March 2006, p. 62.
- 'Water rules won't wash', 20 April 2006, p. 62.
- 'No room to manoeuvre', 27 April 2006, p. 62.
- 'Budget manages to hold the line', 15 May 2006, p. 63.
- 'Pricing a change of climate', 25 May 2006, p. 62.
- 'Public debt a useful instrument', 8 June 2006, p. 63.
- 'Taking Iceland's hot tip', 22 June 2006, p. 70.
- 'Climate denial has had its day', 6 July 2006, p. 70.
- 'Add to CV: bankruptcy', 20 July 2006, p. 78.
- 'Doors shut for young families', 3 August 2006, p. 71.
- 'Make Telstra public again', 17 August 2006, p. 63.
- 'Let's commit to the young', 31 August 2006, p. 62.
- 'The party of no return', 14 September 2006, p. 62.
- 'Cheap water's high cost', 28 September 2006, p. 62.
- 'Pay attention: there's a cost', 12 October 2006, p. 70.
- 'Iraq exit will also be costly', 26 October 2006, p. 70.
- 'Protecting our interests', 9 November 2006, p. 70.
- 'A question of probability', 23 November 2006, p. 62.

- 'Family farms alive and well', 7 December 2006, p. 62.
- 'Ready, set, go dither', 21 December 2006, p. 46.

Media Interviews

- ABC Radio (Brisbane), '2005 — the hottest year in Australia', 4 January 2006.
- *Canberra Times* '2005 — the hottest year in Australia', 4 January 2006.
- Radio 4KG (Brisbane), 'Climate change', 4 January 2006.
- ABC Radio National (AM), 'The Asia-Pacific Climate Forum', 12 January 2006.
- Documentary filmmaker Peter Hegedus from Soul Vision Films, Brisbane, 'The US economy and US hegemony' 18 January 2006.
- Stuart Washington, *Business Review Weekly*, 'The NSW economy and budget', 24 January 2006.
- Ticky Fullerton, ABC (Four Corners), 'Wheeling and dealing: Are private tollways in the public interest?', 26 January 2006 (went to air 20 February 2006).
- 2SER (Sydney Community Radio), 'Bali 9 and drug policy', 16 February 2006.
- ABC Radio (Rockhampton), 'Tax cuts', 20 February 2006.
- ABC Radio (Brisbane), 'The AWB scandal', 23 February 2006.
- ABC Regional Radio (New South Wales), 'Government asset sales', 24 February 2006.
- ABC Radio (Adelaide), 'The Iranian oil bourse', 1 March 2006.
- ABC Radio (Queensland), 'Global warming' 1 March 2006.
- ABC Radio (Queensland), 'Employment and unemployment', 1 March 2006.
- *Daily Telegraph*, 'The current account deficit', 6 March 2006.
- *Courier Mail*, 'Private-Public Partnerships', 30 March 2006.
- ABC (Rockhampton), 'State funding', 31 March 2006.
- ABC Radio (Western Qld), 'Middle class welfare', 21 April 2006.
- Tony Murphy (4BC), 'Petrol prices, interest rates and household budgets' (pre-record), 27 April 2006.
- *The 7.30 Report*, 'Water pricing and restriction', 8 May 2006.

- ABC Radio (Brisbane), 'Pre-Budget report: 2006-07 Federal Budget', 9 May 2006.
- 10 May 2006: Interviews on the 2006-07 Federal Budget with:
- ABC Radio (Wide Bay); ABC Radio (Rockhampton); ABC Radio (Coast Radio); Radio 4GR; and Radio 2CC (Canberra).
- Andrew Green (Radio Adelaide), 'Chinese Wikipedia', 12 May 2006.
- ABC (Radio National), 'Privatisation', 31 May 2006.
- ABC (Radio National), 'Queensland Budget', 6 June 2006.
- *Cairns Post*, 'Queensland Budget', 6 June 2006.
- Radio 4GR (Toowoomba), 'Queensland Budget', 7 June 2006.
- Cairns Easy Mix FM, 'Queensland Budget', 7 June 2006.
- *Courier Mail*, 'Queensland Budget', 8 June 2006. **2006**
- *7.30 Report*, 'Emissions trading', 13 June 2006. **2006**
- ABC (Radio National), 'Private infrastructure', 14 June 2006. **2**
- ABC Radio (Sunshine Coast), 'Inflation', 27 July 2006.
- Fleur Anderson (*Australian Financial Review*), 'Interest rates', 30 July 2006.
- *Queensland Times*, 'Consumer debt', 1 August 2006.
- ABC Radio (Mackay), 'Interest rates', 3 August 2006.
- ABC Radio (Brisbane), 'Roads', 17 August 2006.
- *Courier Mail*, 'Global warming', 29 August 2006.
- Channel 10, 'Trade', TTN (The Total News) Kid's Economics Program, 29 September 2006.
- Community Radio (Brisbane), 'Inflation and the Fair Pay Case', 26 October 2006.
- ABC (Radio National), 'Water policy', 1 November 2006.
- Channel 10, 'The impact of global warming', 3 November 2006.
- ABC (Landline), 'Ord River Scheme: second stage', 7 November 2006.
- *Courier Mail*, 'Unemployment', 9 November 2006.

Research Grant: Federation Fellowship FF0348232

Title

Sustainable reform of the Murray–Darling system: property rights, uncertainty and institutions

Project Summary

The project will develop tools for the modelling of uncertainty in the absence of probabilities and with imperfect knowledge about possible events. It will also formalise and assess the precautionary principle for the sustainable management of complex systems. Finally, the project will apply these tools to analyse and improve policies for the reform of property rights, institutions and land and water management in the Murray–Darling system. The project will assist in the formulation of sustainable responses to problems of drought and irrigation-related salinity in the Murray–Darling system.

Project Objectives

The aim of this project is to use recent developments in the analysis of property rights and the theory of choice and production under uncertainty to provide a rigorous basis for the use of the precautionary principle in the management of complex economic–ecological systems. These developments will be applied to the design, modelling and evaluation of policies designed to promote ecologically, economically, and socially sustainable reform of the Murray–Darling system.

Objectives for 2006

Application of formal model of choice under uncertainty to issues including the precautionary principle.

Further development of simulation model of the Murray–Darling Basin, with applications including assessment of price responsiveness of water demand.

Continued policy work including contributions to public inquiries and media discussion of water-related issues

Progress for 2006

Analysis of formal model of choice under uncertainty was extended and deepened. Achievements included a formal analysis of choice allowing for incorrect beliefs and the occurrence of events previously unconsidered or considered impossible. The need for such an analysis has long been recognised, but the difficulties of modelling such a situation have been considerable. The initial application was to problems of ambiguity and contracting, with the central idea that ambiguous contracts arise when the parties have incompatible models of the world.

An application to the precautionary principle is under way. The central idea is that the precautionary principle is a heuristic response to the presence of unforeseen, normally adverse contingencies. This in turn suggests the possibility of an analysis of the concept of resilience in ecosystems and its relevance to problems such as climate change.

Murray–Darling work has responded to developments in the public debate with an increased focus on urban–rural water trade and problems associated with climate change and drought. The model has been extended to encompass these issues, and results were presented at the Australian Agricultural and Resource Economics Society conference in February 2007.

In addition to the modelling work described above, several articles on water policy have been completed (including joint work with Professor John Freebairn) and several have been accepted for publication in the Australian Journal of Agricultural and Resource Economics. Substantial contributions have been made to public debate in a variety of forums, including public inquiries and media. There has been particular interest in a proposal for repurchase of renewal rights for irrigation water.

The incorporation of state-contingent production in the Murray model has been undertaken and the results were presented at the Australian Agricultural and Resource Economics Society conference in February, along with an application to the modelling of property rights in the National Water Initiative.

In addition to the modelling work described above, several articles on water policy have been completed (including joint work with Professor John Freebairn) and several have been accepted for publication in the Australian Journal of Agricultural and Resource Economics.

Objectives for 2007

Further applications of fundamental developments in theory of choice under uncertainty.

Extension of Murray–Darling model to allow for climate change and pest and weed management.

Continued contribution to public policy.

Research Grant: Discovery Project DP0342974

Title

Risk and Australian public policy

Project Summary

This project will develop fundamentally new approaches to the theory of risk and uncertainty and their role in the design and management of complex projects and policy initiatives. The results will be applied to the central economic policy choices facing Australia; those connected with globalisation and microeconomic reform.

This project will show how the latest advances in economic theory can help to illuminate the major issues in the Australian public debate, from the role of government and the market to the assessment of standards of living. The project will also help to bridge the gap between economics and other social sciences.

Project Objectives

- Develop fundamentally new approaches to the theory of risk and uncertainty.
- Analyse the role of risk in Australian public policy.
- Develop new techniques for the analysis of standards of living.

Objectives for 2006

- Apply model of choice under uncertainty in the presence of unforeseen contingencies to issues including the precautionary principle.
- Continue analysis of Australian public policy issues in relation to risk and uncertainty.

Progress

- Applications of new developments in risk theory to issues have been commenced including precautionary principle and ambiguity in contracting.
- Research has been undertaken on a wide range of public policy issues involving risk and uncertainty. Among topics covered in journal publications in 2005 were the risk premium for equity and public-private partnerships

Objectives for 2007

- Complete analysis of precautionary principle
- Continue analysis of Australian public policy issues in relation to risk and uncertainty.

