

## PRE-CONFERENCE WORKSHOPS

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### **Pre-Conference Workshop 1: Applied Productivity and Efficiency Analysis**

This workshop will present methods for measuring the performance of multi-input multi-output firms. Among other things, participants will learn how Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA) can be used to decompose indexes of profitability and productivity change into measures of price change, technical change and efficiency change. The course will be aimed at graduate students, researchers, economists, statisticians and consultants working in agriculture and allied industries. Participants will be expected to have an understanding of microeconomics and regression analysis similar to that of a second-year undergraduate university student.

The presenter is Professor of Econometrics and Director of the Centre for Efficiency and Productivity Analysis at The University of Queensland. He is an Associate Editor of the *Journal of Productivity Analysis* and a former editor of the *Australian Journal of Agricultural and Resource Economics*. He is author of the DPIN software for decomposing productivity index numbers. For more details see <http://www.uq.edu.au/economics/index.html?page=15893>.

The workshop will comprise lectures on the following six topics:

- The Economics of Production: this lecture covers basic economic concepts needed for a proper understanding of productivity and efficiency measurement.
- Productivity and Efficiency: this lecture reveals that profitability change can be decomposed into the product of a total factor productivity (TFP) index and an index measuring the change in the terms of trade. Most common TFP indexes can be further decomposed into measures of technical change and technical, mix and scale efficiency change.
- Index Numbers: this lecture presents index number methods for computing TFP change when production technologies have different regularity properties and when prices are (not) available.
- Data Envelopment Analysis (DEA): this lecture deals with the computation and decomposition of Laspeyres, Paasche, Fisher, Hicks-Moorsteen and Lowe TFP indexes using linear programming methods..
- Stochastic Frontier Analysis (SFA): this lecture deals with the computation and decomposition of TFP indexes using econometric techniques.
- Advanced Methods: this lecture provides an overview of bootstrapping methods for obtaining standard errors for DEA efficiency scores; generalized method of moments and Bayesian methods for overcoming endogeneity in SFA models; and methods for estimating efficiency and productivity in the presence of risk.



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### **Pre-Conference Workshop 2:**

#### **Market design: Advances and Applications to Agriculture, Natural Resource and Environmental Policy Problems**

Market design is a field of economics that synthesises mechanism design and experimental economics to provide a new policy design methodology. This process has been successfully applied in domains of the economy where markets are missing/inefficient to design, test and create new policy mechanisms that mimic the efficiency properties of markets. The workshop will inform participants about the process of market design; include presentations describing applications of this approach in Australia; and provide a forum to consider the potential for the market design approach in the agriculture, natural resource and environment sectors of the economy.

This workshop will feature a keynote presentation on the foundations of market design and the science of policy design, followed by discussion. Parallel sessions will then be run on the applications of market design policy problems in Australia, featuring the following topics:

- A market for native vegetation offsets in Victoria
- A market for water quality in urban areas
- Creating markets for environmental goods and services
- CSIRO's applications
- A market for pollution permits for the CPRS
- A market for swing moorings/others
- Energy market design
- Comparing energy efficiency options using experimental laboratories
- Spectrum auction design
- Drought policy design

The afternoon session will focus on the future of market design, including future applications, market design and the implications for environmental accounts and developments in experimental economics relevant to market design.

### **Pre-Conference Workshop 3:**

#### **The Economics of Food, Health & Nutrition: International Comparisons, Analysis, and Roles for Government**

Issues surrounding the economics of food, health and nutrition are gaining in prominence – reports of an 'obesity epidemic' appear with increasing frequency. Governments and communities are concerned about food security and safety, the sustainability of food production systems and supply chains, food labelling and dietary changes.

The agricultural and natural resource sectors, as food producers, play a key role in contributing to food, health and nutrition outcomes. Changes in agricultural productivity, the production of new foods and functional foods, and shifts in consumer preferences pose new challenges for public policy.

Economic analysis is contributing new insights into:

- the impact of public policy settings on food, health and nutrition outcomes;
- areas where markets do and do not produce outcomes that benefit the community and;
- the impact of private and public incentives on these outcomes.

This workshop will explore relationships between agricultural and food policies, health outcomes, and the economic implications of those outcomes. Australian and international experiences will be compared.

