



MOTU

Research Update

Motu: Economic and Public Policy Research

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IS NEW ZEALAND AN ECONOMIC STATE OF AUSTRALASIA?

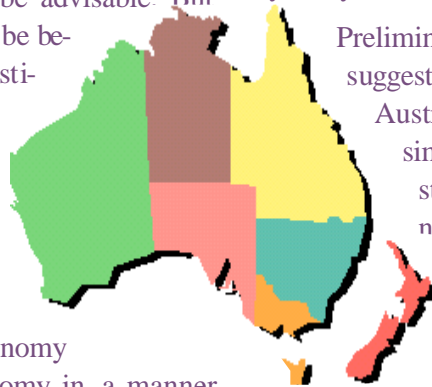
Motu has recently been awarded a Marsden grant by the Royal Society of New Zealand, to research the relationships between the New Zealand economy and those of the individual Australian states and territories. The Principal Investigator for the study is Arthur Grimes with input from Suzi Kerr, Dave Maré and Motu research analysts.

If trends and fluctuations across the trans-tasman economies exhibit similar characteristics, unified economic and financial institutions may be optimal. If they are dissimilar, separate institutions may be advisable. But how similar do developments have to be before it is efficient to adopt common institutions?

One yardstick is to compare New Zealand developments with those occurring in Australian states and territories, which already share common economic and financial institutions. If the New Zealand economy relates to the federal Australian economy in a manner similar to a typical Australian state economy, there is *prima facie* evidence to investigate closer economic and financial linkages. This study makes relevant comparisons using labour market, price and production data. It extends understanding of how the New Zealand economy relates to that of Australia as a whole and to its individual parts, providing valuable background for policy discussion.

To date, only limited work has been conducted comparing New Zealand with individual Australian states and territories regarding the nature of, and adjustment to, economic shocks. However, this is a more natural com-

parison than the national comparison, given the sizes of the entities – New Zealand has 20% of Australia's population, 14% of its GDP and would be the fourth largest economy in Australasia. Australian states are subject to idiosyncratic shocks causing divergences in short and long run performance, but they nevertheless share common economic institutions (laws and regulations, stock-market, currency, etc). Their experience compared with that of New Zealand, in each case relative to the Australian federal economy, could therefore inform future policy analysis in New Zealand.



Preliminary work conducted for the current study suggests that New Zealand is not one of the core Australian states (NSW and Victoria) but is similar in certain respects to the peripheral states (WA, SA, Queensland and Tasmania). The research task now is to take this preliminary analysis to a higher level of sophistication, to produce a body of knowledge that can reliably inform future policy analysis.

The work complements the regional work that Motu is conducting on the effect of economic shocks within New Zealand. The FRST programme, *Understanding Adjustment and Inequality* considers regions within New Zealand while the Marsden-funded research considers New Zealand as one region within a wider economic zone. Together, the programmes should provide significant information on the processes of regional adjustment that are relevant to New Zealand.



For more information see:
www.motu.org.nz/nz_aus.htm

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LETTER FROM THE DIRECTOR

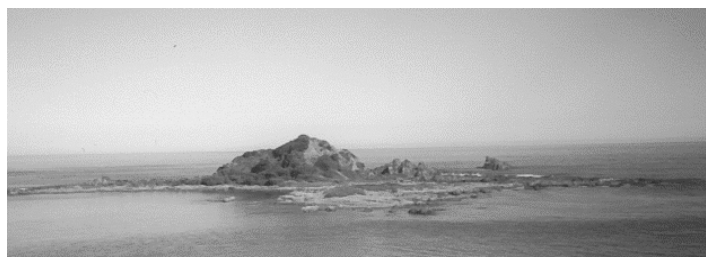
Motu recently celebrated its 2nd Anniversary with a lively function reflecting our joy at shedding our training wheels and entering a new phase of development. Our programmes have gained increased depth and coherence through a few critical grants. We now have four major areas of research: adjustment and inequality; international regional adjustment; land use and climate change; and New Zealand fisheries management. These are funded by two long-term grants from the Foundation for Research Science and Technology, one from the Marsden Fund, a fellowship from the Lincoln Institute for Land Policy and support from the Ministry of Fisheries. The new programmes are discussed in more detail on pages 4, 1, 5, and 3 respectively.

Over the next year our new challenge is to build strong networks among New Zealand researchers working on issues close to our work programmes. We ran a research network meeting on fisheries at the International Institute for Fisheries Economics and Trade Conference in August. We are running a researcher and policy maker meeting on land use and climate change in November and plan a research workshop for collaborators in our project on Adjustment and Inequality in the first half of 2003. We continue to build and enhance our research databases and are working on mechanisms to make these more available to other researchers.

We are sorry to say goodbye to Ann Sullivan who is now stepping down from our Board of Trustees and thank her for her strong contribution during

our set-up phase. We are very pleased to welcome Apryll Parata and Steve Thompson to the Board. Apryll heads the Education Practice at Gardiner Parata and will provide invaluable links to the Maori community and insights on education issues. Steve is the CEO of the Royal Society of New Zealand and was previously Chief Executive of FRST. His extensive experience in research management is helping us mature from a vigorous seedling into a robust, productive research institute. We hope that as we mature we can provide shelter for other researchers to develop (maybe given our Island Bay location a windbreak would be a better analogy!) and also begin to spread seeds to flourish in fertile ground elsewhere. We would not have reached this point without help and support from a wide range of people and institutions. We hope and plan to repay your confidence and generosity by continuing to work toward our vision of an intellectually stimulating institute that promotes high quality research and well-informed and reasoned debate on public policy issues.

Suzi Kerr: Director of Motu



QUOTA MARKETS: ARE FISHERS RATIONAL



Fisheries worldwide continue to suffer from the negative consequences of open access. In 1986, New Zealand responded by establishing an individual transferable quota (ITQ) system that by 1998 included 33 species and more than 150 markets for fishing quotas. Do these markets work well and provide benefits for fishers?

Recent Motu work with Resources for the Future has assessed these markets in terms of trends in market activity, price dispersion, and the fundamentals determining quota prices. Using data on all markets over 15 years, we find evidence of economically rational behavior. We find that the 'law of one price' holds reasonably well. Price dispersion falls over time and is in the same range as other markets for common goods such as concrete, calculators and fuel oil, between 5 and 30 percent. While fishers do pay different amounts for the same thing, the variance in what they pay is no worse than in many other markets. As another indicator of rational behaviour, we look at the ratio of lease prices to quota asset prices. We expect this to be similar to the relationship between rent and residential property prices, i.e. the ratio should be about the rate of interest. We find that the 'implicit hurdle rate' in the quota market is similar to general market interest rates and falls as they fall. It is slightly higher than the real interest rate; this is expected because of the risk involved in owning quota. We also construct a regression model to identify the relationships between lease and sale prices and fishing output and input prices, ecological variability, and market interest rates. Controlling

for these factors, our results show an increase in quota prices, consistent with increased profitability. Overall, the results suggest these markets are operating reasonably well, implying that Individual Transferable Quotas can be effective instruments for efficient fisheries management.

Figure 1- The Law of One Price

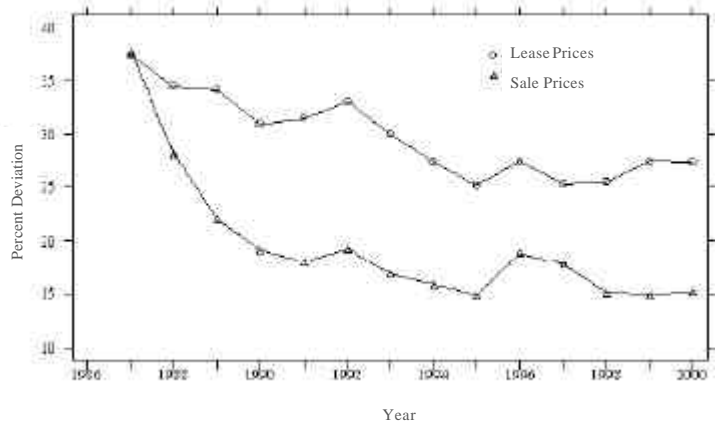
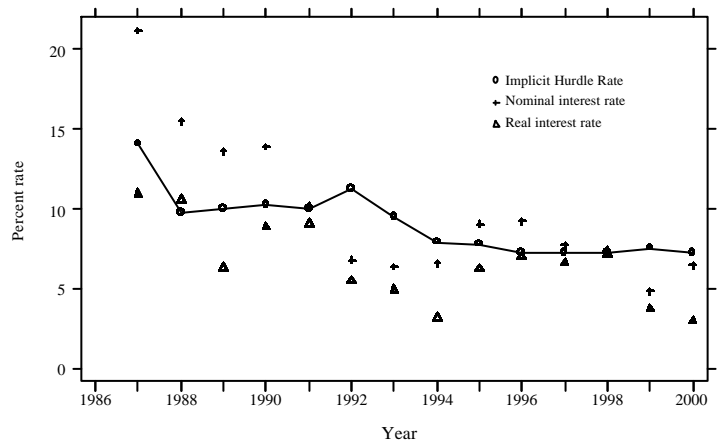


Figure 2- Implicit Hurdle Rates in Fishing Quota Markets



For more information see:
www.motu.org.nz/nz_fish.htm

UNDERSTANDING ADJUSTMENT AND INEQUALITY

Motu has commenced a major new programme extending our research on inequality and regional adjustment and bringing an increased emphasis on building research networks and infrastructure in New Zealand. This is a 5-year project funded by the Foundation for Science Research and Technology.

The programme has two main research objectives. The first objective is to understand the implications of location for community, family and individual well-being. Why do people and firms locate where they do?, Who changes location and why?, and How quickly do overall communities adjust to economic shocks? Some communities have responded positively to economic shocks by seizing the new opportunities, enriching their members, and attracting new migrants. Others have struggled to adapt and face rising levels of unemployment, welfare dependence, and loss of their young and vital citizens, exacerbating the downward spiral. Individual responses to the shocks are shaped by community characteristics so shocks can lead to both positive and negative dynamic feedbacks that ripple through communities.

The second objective is to identify the determinants of unequal opportunities and outcomes and understand their evolution and underlying causes. Why do people and households have the characteristics they do?, and How do these characteristics affect their levels of income, consumption



and well-being? As well as learning about and from the changes in inequality during New Zealand's recent past, our research will also shed light on the likely evolution of inequality in future.

In the first two years we will focus on three main issues: how individuals respond to changing economic conditions by migrating within New Zealand; job creation and destruction; and 'neighbourhood effects' or how community characteristics affect individuals. We will also considerably enhance research datasets, build a strong network of active researchers in New Zealand and abroad. We plan to strengthen the channels by which we disseminate our research to ensure that high quality research is undertaken and it is utilised effectively in decision-making.



For more information see:
www.motu.org.nz/adjust_inequality.htm

LAND USE, CLIMATE CHANGE AND KYOTO: HUMAN DIMENSIONS RESEARCH TO GUIDE NZ POLICY

Motu is excited to announce our new research programme funded by the Foundation for Research Science and Technology. In what we hope will be a 5-year programme, we aim to improve our understanding of human-induced land-use change processes, explore their implications for the environment, and model possible management systems at a national policy level. Our work will create an integrated simulation model that combines empirically-based economic modelling of land-use choices with natural science input from a range of collaborators in Landcare Research, IGCI (University of Waikato), and Forest Research among others. It



will build on our experience in Costa Rica (www.motu.org.nz/costa_rica.htm) and allow us to simulate a variety of potential policies. Our team is closely linked with the international research and policy community and our work addresses a global gap in understanding of land use processes and the appropriate policies to address land use and climate issues at national and international levels. We have an explicit component of policy design and analysis. This will be based partly on theory and international experience and also will use our model directly.



For more information see:
www.motu.org.nz/land_use_nz.htm

DAVE AT ESSEX

Motu Senior Fellow, Dave Maré is currently a Visiting Fellow at the Institute for Social and Economic Research (ISER) at the University of Essex in Colchester, England. ISER is a leading research institute specialising in the production and analysis of longitudinal data. ISER's interdisciplinary research programme brings together economists, sociologists, statisticians and other social scientists. The Institute's objective is to understand how individuals' behaviour, beliefs and life changes are structured over time by the household and family environment and patterns of employment, income and consumption.

Dave's main focus while at ISER is on how peoples' past work and life experience affects their earnings. He is analysing data from the British Household Panel Survey, which has interviewed the same 10,000 people each year since 1991. New Zealand is currently just starting a similar large panel survey (Survey of Family Income and Employment - SoFIE), but it will be several years before such analyses will be possible here.

While based in England, Dave is also taking the opportunity to attend conferences and seminars and strengthen his and Motu's links with colleagues in the Northern hemisphere. Dave's fellowship runs from July 2002 to February 2003.

Dave is contactable by email at dave.mare@motu.org.nz.

RENEWABLE ENERGY AND CLIMATE POLICY

Internationally, development of renewable energy is touted as a major component of any climate change and sustainable development agenda. At the recent World Summit on Sustainable Development in Johannesburg, many states were pushing for a renewables target in developing countries. Does New Zealand need an explicit 'renewables policy' and if so what should it look like?

Motu and East Harbour Management Services have just released a report on renewable energy and climate change policy in New Zealand. New Zealand should not simply copy policies from abroad. A large amount of our energy is already produced from renewable sources, e.g. hydro and geothermal. Also, direct local benefits that are felt in many other countries from the reduction in air pollution associated with renewables uptake are not so apparent here. Renewable energy can be associated with other local problems; hydro dams disturb ecosystems, associated rivers, and lakes; wind turbines can be noisy and unsightly. These factors mean that technologies that are attractive to other countries may be less attractive here. Also, because of our size, we are unlikely to produce fundamental innovations in renewable energy technology. Some renewable development is likely to be efficient however.

We find that ratifying the Kyoto Protocol and imposing a carbon tax will affect the uptake of renewables only at the margin. Do we need to go beyond a carbon tax and specifically encourage renewables? The carbon tax leaves two holes. First 'competitiveness at risk' industries will be exempt from the tax and thus may face inefficiently weak incentives to utilise renewable options. To compensate for this, Negotiated Greenhouse Agreements could include pressure to explore and use renewable energy in industries where it has potential. 'Projects' in these industries could provide incentives for renewable energy use.

Second, market failures and regulatory barriers that hinder efficient development and adoption will not be resolved by a tax. The renewable energy sector is mostly characterised by a large number of small/medium players who do not have the resources to individually fund work that collectively needs to be undertaken. This particularly affects the adaptation of technologies to



New Zealand conditions, and early adoption, which has learning benefits but is also risky. 'Projects' could be used to help industry learn about potentially viable renewable energy technologies, adapt them to New Zealand conditions and disseminate information about NZ experiences with these technologies.

In the electricity sector, renewable energy sources often provide unreliable or irregular supply to the grid and may need two-way flow. They require different connection rules that large conventional suppliers may not be interested in developing. Small companies with renewable interests may need to be more actively represented in decision-making on regulatory and interconnection rules. Resource consents are also a major issue for most renewable options. Duplication of effort and confusion could be avoided if a credible source could provide standardised information on the local impacts of renewable energy. Small companies cannot do this alone; industry associations might be encouraged to provide this service with some help from government. Finally, while some uncertainty is unavoidable, if government can reduce uncertainty in climate change policy where Treaty claims are unresolved and where property rights are not defined, more good projects might be feasible.



For more information see:
www.motu.org.nz/climate.htm

PROPERTY TAXATION IN NEW ZEALAND

For the past year, Motu has conducted research for a study on *Land Taxes and Revenue Needs as Communities Grow and Decline: Evidence from New Zealand*. The study is funded by the Lincoln Institute of Land Policy based in Massachusetts. Motu has just been awarded funding by the Lincoln Institute to continue the research for a second year.

Work so far has included building a comprehensive database of the income and expenditures since 1991 of New Zealand's 74 Territorial Local Authorities (TLAs). Income is broken down by its source (rates, user charges, etc); expenditure is broken down into non-discretionary expenditure (e.g. water supply) and discretionary expenditure (e.g. recreation services). The rating basis chosen by each TLA has been documented. Two-thirds of TLAs levy rates based on land value (LV), also known as unimproved value; the remainder levy rates based on capital value (CV), also known as improved value (Auckland City bases rates on annual rental value (ARV), which is similar to capital value). The chart demonstrates the pattern of rating bases across New Zealand.

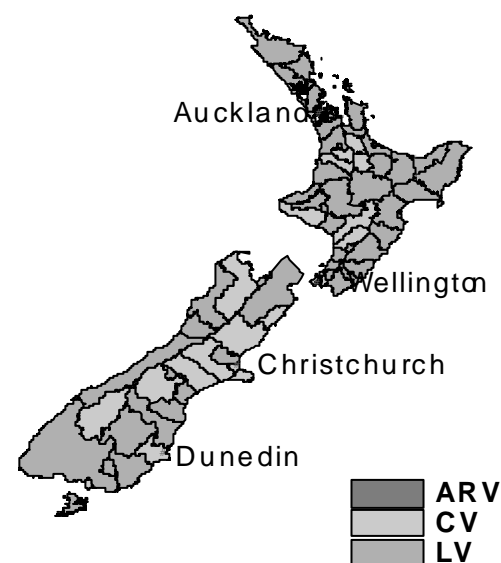
This chart raises questions which have ramifications for local authorities' rating choices: What determines a TLA's choice between using LV or CV as its rating base?; How volatile are land and capital values, and what ramifications does this volatility have for local authorities' revenues?; What are the key influences on land and capital values and how do these influences affect TLA incomes?

In a forthcoming paper, led by Billy McCluskey, the history of property taxation and the current choice of rating basis by TLAs is examined. The traditional "big-4" cities (Auckland, Wellington, Christchurch, and Dunedin) all use CV (or ARV) as a rating basis while most rural areas use LV. This might suggest an urban-rural split. However, other large cities (e.g. Hamilton City) still use LV

as a rating basis. Is this an historical artifact and might these TLAs be expected to change in future? One contribution of the study is to examine the pattern of TLAs which have recently changed their rating basis to assess whether growing urban areas are more likely to shift towards a CV basis and if so, why that might be the case. The paper also examines how expenditure and revenue patterns have changed over time and what factors have driven these changes.

Future work includes compiling a large database of land and capital values based on valuation and sales data across New Zealand at TLA and finer levels. This data will be used in 2003 to investigate the impact of economic and demographic shocks on land and capital values (commercial, industrial, rural and housing). This latter work also contributes to Motu's FRST-funded programme on Understanding Adjustment and Inequality since the nature of property price adjustment is a crucial determinant of how shocks impact on communities and how communities and individuals adjust to those shocks.

Local Authority: Rating Systems



For more information see:
www.motu.org.nz/land_taxes.htm

RECENT PUBLICATIONS

Carroll, N., D. Hyslop, D. Maré, J. Timmins, and J. Wood (2002)	“An Analysis of New Zealand’s Business Demography Database” <i>New Zealand Economic Papers</i> Vol. 36 (1) pp 59-62.
Newell, R., J. Sanchirico, and S. Kerr (2002)	“An Empirical Analysis of New Zealand’s ITQ Markets” <i>Paper presented at IIFET 2002: Fisheries in the Global Economy</i> . International Institute of Fisheries Economics & Trade Conference, Wellington, New Zealand.
Carswell, F., G. Harmsworth, S. Kerr, R. Kirikiri, and I. Turney (2002)	“A Framework for Engagement of Maori Landowners in “Carbon Farming” Using Indigenous Forest Regeneration” <i>Motu and Landcare Research Manuscript</i> .
Grimes, A. (2002)	“Managing Small Open Economies: Exchange Rate Systems & Real Sector Shocks” in: <i>Kyung Tae Lee (ed.) Globalization and the Asia Pacific Economy</i> Routledge, London pp 226-244.
Grimes, A. and J. Rolfe (2002)	“Optimal Defence Structure for a Small Country” in: <i>Defence and Peace Economics</i> 13 (4) 271-286.
Kerr, S., A. Pfaff, and A. Sanchez (2002)	“The Dynamics of Deforestation: Evidence from Costa Rica” <i>Motu Manuscript</i> .
Kerr, S., R. Shuguang Liu, R. Flint Hughes, and A. Pfaff (2002)	“Carbon Dynamics and Land Use Choices: Building a Regional Scale Multidisciplinary Model” <i>Motu Manuscript</i> .
Newell, R., J. Sanchirico, and S. Kerr (2002)	“Fishing Quota Markets” <i>Resources for the Future Discussion paper</i> 02-20.
Straker, G, S. Kerr, and J. Hendy (2002)	“A Regulatory History of New Zealand’s Quota Management System” <i>Motu Manuscript</i> Chapters 1-4.



For a complete list of Publications and to download many of these see:
www.motu.org.nz/pub.htm

MOTU FRIENDS

Motu is a non-profit organisation and we depend on grant support and donations from individuals and companies to achieve our goals. Your support will be greatly appreciated.

Motu aims to enhance the economic research and policy environment in New Zealand by carrying out high quality independent research, teaching through universities and other institutions, training junior research staff, facilitating networks of researchers, hosting foreign researchers and organising small conferences and dialogue groups.

It is our belief that objective research and analysis is a critical foundation for making informed policy decisions and we are committed to wide dissemination of our work. Should you wish to become a friend of Motu: please visit our website: www.motu.org.nz/friend_page.htm and complete the form; or email us at info@motu.org.nz

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