



Motu Research Update

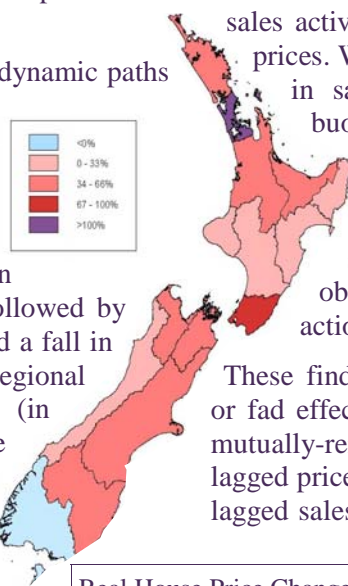
Motu Economic & Public Policy Research

www.motu.org.nz

What drives New Zealand house prices?

The housing market is critically important to a well-functioning economy. Housing is an important component of wealth for many New Zealanders; the availability of suitable housing is important for social policy.

Motu has examined the long run and dynamic paths of house prices over two decades using QVNZ data on quarterly sales prices at regional council level. The map reveals that the strongest growth in real (CPI-adjusted) house prices has been in the key urban centres: Auckland (111% growth), followed by Wellington (87%). Southland recorded a fall in real house prices of 27%. Further, regional councils with initially high prices (in 1981) have had a higher rate of price growth than those areas with initially lower prices. Growing disparity in housing wealth over time has implications for migration. Suppose a house-owner were contemplating a shift from Manawatu-Wanganui to Auckland. In 1981, the (median) owner's house in Manawatu-Wanganui was worth 66% of the median Auckland house. By 2001 the ratio was just 35%, impairing the ability to migrate in search of better work opportunities.



Real House Price Change 1981-2002

Dynamic adjustment to long run equilibrium is asymmetric. Additions to the housing stock have a downward effect on prices when they are too high, but have no effect when house prices are depressed. Lagged sales activity also has a highly asymmetric effect on prices. When the housing market is depressed, a rise in sales activity boosts prices, whereas in a buoyant market, sales activity has no effect on house prices. Curiously sales activity influences prices with a six-month lag. This suggests that prospective buyers/sellers wait four to six months between observing a lift in housing activity and taking action.

These findings raise the possibility of "band-wagon" or fad effects. Given that sales activity and prices are mutually-reinforcing and prices are strongly affected by lagged prices through capital gains expectations, and by lagged sales activity, real house prices in New Zealand tend to overshoot their long run equilibrium in response to a shift in "fundamentals" (e.g. regional economic activity). This overshooting phenomena has implications - which could be explored further in future work - for the efficiency of the housing market and for macroeconomic stability.

For more information see Motu Working Paper 03-09

Long run house prices in each region are determined by three main factors: economic activity, the housing stock and the real cost of capital (the real interest rate less the expected real regional capital gain on the house). We find that the expected capital gain appears to be based on actual capital gains in a region over the previous three years.

A 1% increase in real regional economic activity lifts house prices by just over 1%; a 1% increase in the cost of capital decreases real house prices by 0.8%; and a 1% increase in the housing stock decreases real house prices by 0.7% in the long term.

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Letter from the Director

Kia ora tatou

Motu continues to be a hive of research activity. Since our June edition, we have produced eight external publications, including five refereed articles (two in international journals) and nine working papers (see page 5). These cover issues as diverse as economic growth, wealth, choice of currencies, multidisciplinary land use modeling, migration, housing markets and industry assistance. Our working papers are now actively disseminated to research databases and libraries and the quality of their presentation continues to improve.

Two recent initiatives to communicate with the wider public stand out. In October we initiated a regular Public Policy Seminar Series (see page 5). This has been a roaring success, attracting diverse audiences of between 70 and 120 people and gaining direct media exposure. Second, Motu hosted Henry Jacoby, from the Massachusetts Institute of Technology (see page 3). Emma Brunton and Jo Hendy organised an intensive programme for him involving media contact, a visit with Pete Hodgson and with the Climate Change Office, a public seminar and a technical seminar for researchers.

We made a big splash at the New Zealand Association of Economists meeting this year, with Motu staff presenting in 10 out of 30 parallel sessions. This exposure has sparked a range of useful interactions with faculty around New Zealand. These interactions have been complemented with two programme-related research workshops. In June, researchers associated with our 'Adjustment and Inequality' programme spent two days discussing work in progress and future directions. Leslie Haines from Treasury gave us useful input on government priorities. Jeff Borland from the University of Melbourne helped to put specific research ideas in the context of the broader problem.

Our 'Climate Change, Land Use and Kyoto' team met for the third time, in Nelson in early December. Researchers from academia, crown research institutes and private research groups discussed how their ongoing separate research programmes can be integrated to create a research and policy simulation tool. We now have an extremely crude integrated model that we will continuously enhance to provide useful insights.

Some early insights from that project were shared with industry, policy and Māori in a series of meetings in June. We received useful advice that will allow us to focus and redirect our future research efforts.

Motu continues to grow. Steve Stillman, a labour economist, will be joining us as a new Senior Fellow in February. Andrew Coleman, a New Zealander, will be taking his sabbatical from the University of Michigan at Motu. He will be involved in work on currency unions, migration and rural land use as well as applying his idiosyncratic insights to everything that moves! Richard Newell from Resources for the Future in the United States, is visiting New Zealand next year on an Ian Axford Fellowship. He will have an office at the Ministry of Fisheries and will also continue his involvement in Motu's fisheries and climate change research. We all look forward to the intellectual buzz.

We are also very happy with additions to our complement of research analysts. Emma Brunton, who was a summer intern last year, has now finished her Masters degree in Environmental Economics and joined Motu as a research analyst and coordinator. She is running both the working paper series and the public policy seminar series. Izi Sin joined us in November from the Reserve Bank and is currently working in the Adjustment and Inequality programme. Sylvia Dixon has joined us temporarily as part of the same programme. We know we are benefitting from her expertise and hope she will take useful experience and insight back to the Department of Labour. Jasmine Lawrence, a recent economics graduate from Waikato, has joined us for the summer as our first māori intern.

All this growth means that we need more space. Motu is moving to town in February (see page 8 for our new location details). We will be sorry to lose our views and garden but hope to benefit from easier access to people in Wellington and the creative vibe around Cuba Mall. Responding to growth has also led to major enhancement of our management planning and control system, including initiating a strategic planning process and producing our first 'Annual' Reports, 2000-2002 and 2002/03. These record the history and progress of Motu and are now available at www.motu.org.nz/annual_reports.htm. We hope you enjoy reading them as much as we have enjoyed creating Motu.

Suzi Kerr, Director



International Visitor: Professor Henry Jacoby, Massachusetts Institute of Technology.

Henry 'Jake' Jacoby visited Motu as part of our 'Land Use, Climate Change and Kyoto' programme, funded by the Foundation for Research, Science and Technology. He gave a highly attended public lecture, 'Is There Life After Kyoto? Prospects for a Climate Regime', as well as a more technical talk for scientists and climate modellers. He met Pete Hodgson, was interviewed on Morning Report and both the Herald and Dominion Post published articles on his visit. Jake's message that we need to deal effectively with the climate change problem even if Kyoto does not go ahead, offered a productive path between the climate skeptics and those who leap wholeheartedly on the climate bandwagon.

The MIT analysis suggests that the most important contribution of policy is to reduce the risk of extremely bad events – a difficult but important message to communicate. Jake compared the 'climate gamble' to a game of roulette where policy can alter the shape of the wheel, reducing the share relating to very bad outcomes and increasing the share of less severe outcomes.

The 'real' reason for his visit was to provide

advice to the interdisciplinary group of researchers from crown research institutes, universities and private organisations who, facilitated by Motu, are engaged in the long term project of building an integrated land use and climate model that we can use to explore the implications of different policy scenarios. During the two days of our meeting, he provided insights from the MIT integrated modelling experience and international perspectives on the task we are engaged in. We hope this will provide the impetus for a stronger ongoing relationship with their team. For more information go to: www.motu.org.nz/land_use_nz.htm



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Insolvency & regional economic development

Arthur Grimes has worked with Richard Fabling, of MED's Medium Term Strategy Group, in examining the interactions of insolvency and economic outcomes at a regional level. The resulting paper, *Insolvency & Economic Development: Regional Variation & Adjustment*, is forthcoming as a Motu Working Paper.

The study uses data collected by regional offices of the Ministry of Economic Development on forced company liquidations and personal bankruptcies. It also uses Motu's property price database, linking the study to Motu's work on the determinants of regional house prices. The regional analysis, covering the 1988-2003 period, has implications for regional adjustment issues, linking the study also to Motu's FRST-funded Adjustment and Inequality programme.

The level of insolvency in each region is determined by four main factors: regional economic activity, regional property prices, inflation and private sector credit. Higher economic activity improves business conditions, so reducing the level of insolvency. Higher inflation raises the nominal value of assets held by firms, also reducing the level of insolvency. This effect disappears when we examine the effect of inflation in an earlier, high inflation, period indicating that once inflation becomes persistent, interest rates adjust, so offsetting any beneficial effect of inflation on insolvencies.

Credit represents a liability to firms, while personal property is frequently used as collateral to back loans. As credit (firm debt) rises, the likelihood of firms being unable to service their debt and becoming insolvent rises. The ratio of real private sector credit to economic activity rose 45% between 1993 and 2000. Yet the trend level of insolvencies did not rise through this period. One reason that it did not, is that real property prices also rose in most regions, giving greater collateral cover for the loans.

The importance of collateral values for determining the insolvency rate reflects modern financial theories in which shocks to collateral values can have an



important bearing on economic outcomes. We explore this issue at the regional level by examining the interactions between regional economic activity, regional property prices and regional insolvencies (plus aggregate inflation and credit).

Rises in regional economic activity and regional property prices tend to result in falls in the level of regional insolvencies. A rise in insolvencies leads to a fall in property prices and in economic activity. These latter effects may reflect New Zealand bankruptcy laws, whereby an undischarged bankrupt is not allowed to enter business alone, be a company director or take part in management of a company, normally for a period of three years after initial bankruptcy. Thus, if some factor drives up the level of insolvencies in a region, the available pool of entrepreneurial talent is diminished for a considerable period, with consequent long-lasting effects on regional economic developments. Legal arrangements regarding prospects for business rehabilitation following a firm's difficulties and regarding the effect of bankruptcy on "genuine" risk-taking entrepreneurs may be important factors in determining the degree, and persistence, of these effects.



Recent publications

- Grimes, Arthur (2003) "Economic Growth and the Size and Structure of Government: Implications for New Zealand", *New Zealand Economic Papers*, 37(1), June, 151-174; (Motu Working Paper 03-10).
- Kerr, Suzi (2003) "Motu, Excellence in Economic Research and the Challenges of 'Human Dimensions' Research" Science and Technology Policy edition of *Science Review*, the Journal of the New Zealand Association of Scientists Vol. 60 (2-3), (Motu Working Paper 03-05).
- Kerr, Suzi, Shuguang Liu, Alex Pfaff and R. Flint Hughes (2003) "Carbon Dynamics and Land-Use Choices: Building a Regional-Scale Multidisciplinary Model" *Journal of Environmental Management* Volume 69, Issue 1, September 2003, Pages 25-37 (Motu Working Paper 03-06).
- Singleton, John, Arthur Grimes, Gary Hawke and Sir Frank Holmes (2003) "Progress Report on the New History of the Reserve Bank of New Zealand", *Australian Economic History Review*, 43(1), March 83-88.
- Timmins, Jason and Maré, Dave (2003) "Moving to Jobs? Regional Employment Growth and Internal Migration 1986-2000" *Public Sector* 26(1), pp. 16-18, (Motu Working Paper 03-07).
- Grimes, Arthur (2002) "Why are New Zealanders so Wealthy?", *Competition and Regulation Times*, Issue 9, Nov, pp. 4-5, New Zealand Institute for the Study of Competition and Regulation Inc, Wellington.
- Grimes, Arthur (2002) "Living Arrangements for the Tasman Currencies: De Facto Partners, Legal Marriage or Just Good Friends" in Arthur Grimes, Lydia Wevers & Ginny Sullivan (eds), (2002) *States of Mind: Australia and New Zealand 1901-2001*, *Institute of Policy Studies*, Wellington, 271-291.

Working paper series

- 03-05. Kerr, Suzi, "Motu, Excellence in Economic Research and the Challenges of 'Human Dimensions' Research".
- 03-06. Kerr, Suzi; Shuguang Liu, Alexander S. P. Pfaff, and R. Flint Hughes, "Carbon Dynamics and Land-Use Choices: Building a Regional-Scale Multidisciplinary Model".
- 03-07. Maré, Dave and Jason Timmins, "Moving to Jobs".
- 03-09. Grimes, Arthur; Suzi Kerr and Andrew Aitken, "Housing and Economic Adjustment".
- 03-10. Grimes, Arthur, "Economic Growth and the Size and Structure of Government: Implications for New Zealand".
- 03-11. Lattimore, Ralph, "Long Run Trends in New Zealand Industry Assistance".
- 03-12. Kerr, Suzi, "Efficient Contracts for Carbon Credits from Reforestation Projects".
- 03-14. Hall, Viv and Angela Huang, "Would Adopting the US Dollar Have Led to Improved Inflation, Output and Trade Balances for New Zealand in the 1990s?".
- 03-15. Kerr, Suzi, "Indigenous Forests and Forest Sink Policy in New Zealand".

For a complete list of publications and to download papers go to www.motu.org.nz/pub.htm

Public policy seminars

Motu officially launched the Motu Public Policy Seminar series in October 2003. The series aims to disseminate the results of our research and to make existing knowledge more accessible for policy debates in New Zealand. Seminars are given by Motu staff and affiliates as well as other leading New Zealand and international researchers. The series is designed to be accessible to people not deeply involved in research (such as policy analysts) who want to keep up with research developments in particular areas, as well as to the wider public who may have an interest in a particular issue.

Upcoming Seminars

February 2004 "Technology Policy for Energy and the Environment"

Richard G. Newell, Senior Fellow at Resources for the Future, Washington D.C, Motu Affiliate and Ian Axford Fellow 2004.

March 2004 "The Impact of an Earning Subsidy on Beneficiaries: Evidence from a long-term social experiment"

Dean Hyslop, Principal Advisor, The Treasury and Motu Affiliate

All presentations and seminar schedules are available at www.motu.org.nz/teaching.htm

Financing Local Government

Some Aucklanders have revolted over sharp increases in rates demands from the Auckland Regional Council. Part of this is driven by overall increases in spending on transport – almost certainly needed given the increasing congestion in Auckland. It is also driven by how that spending is funded – i.e. who pays.

Local government primarily exists to provide local public goods (e.g. parks, libraries, environmental protection, road networks) and avoid local negative ‘externalities’ (e.g. the impacts of poorly planned development). Local government can be more responsive to local needs than central government. Some key services - water, sewage, waste and local roads - could in theory be charged for directly, for example through metering or road charges. Sometimes this happens. However in many cases this is costly and complex so is often funded through general tax revenues.



In New Zealand, nearly 60% of local government is funded from rates, which are usually levied on property values. Motu finds that while property tax revenues are small compared with total government revenues, the national property tax *base* is large relative to the local government spending it supports. Further, this tax base is growing strongly. This healthy national picture however, obscures regional variations and challenges.

In 2001, the average rates base (capital value) was \$86,407 per person, ranging from \$42,158 in Kawerau to \$218,573 in Queenstown-Lakes District. This large variation is strongly associated with similar variation in rates and expenditure per person.

Different districts do need different local services but it seems unlikely that their needs vary as strongly as actual services appear to, or that those needs are so strongly correlated with the district’s wealth.

Differences between regions are particularly visible when economic shocks hit. When the population in regions such as Kawerau and Invercargill declines, both need to adjust their service provision. However, Invercargill, which has an initially high level of expenditure and considerable savings, is able to make a smoother adjustment. Similarly, an established district such as Auckland city is able to adjust to increasing population more smoothly than a newly developing district such as Kapiti Coast, possibly because of its existing infrastructure. These findings raise questions about whether reliance on local funding for local services is efficient and equitable in a country where regions face significant, and divergent, external shocks with regularity.

This work was funded by the Lincoln Institute of Land Policy, United States. For more information go to: www.motu.org.nz/land_taxes_nz.htm

Child poverty dynamics

The Government's *Agenda for Children* identifies the elimination of child poverty as a key area for action. Motu Working Paper 03-13 being released this month presents information on the dynamics of child poverty in New Zealand. The bulk of the work was carried out in 2002, in collaboration with staff at the Ministry of Social Development.

Using information from the 1997 to 2001 NZ Income Surveys, we confirmed that New Zealand's rate of child poverty is relatively high when compared with other OECD countries for which comparable measures are available. Around 23 percent of New Zealand children are in households whose income is below 60 percent of median income. The finding of relatively high child poverty confirms the general patterns found in other published work on New Zealand child poverty, albeit using different data sources and definitions. For instance, The Ministry of Social Development's *Social Report 2003* shows a child poverty rate of 29.1 percent.

What is different about our work is that we are also able to look at poverty experience over time – what proportion of children enter or exit poverty each year. We are able to look at this issue because the dataset that we have used (the NZ Income Survey) contains longitudinal information on the same households in two consecutive June quarters. Up to half of the respondents are included in two consecutive income surveys, which allows us to see whether children are in poverty at two points in time. Consistent with overseas studies, we describe these as 'poverty transitions', even though we obviously miss transitions that are reversed within the year.

As shown in table 1, whereas 23 percent of children are in poor households at any given time, 39 percent of these (9 of the 23) escape poverty within the following year. Of course, they are replaced by a similar number of children who become poor (shown in table 1 as 11 percent of the initially non-poor). The entry and exit rates are relatively high by international standards, although there is still a substantial proportion of poor

children who are in poor households in two consecutive June quarters.

Table 1 also shows that children in single-parent households are almost twice as likely to be in poverty. They also have a lower likelihood of exiting poverty, partly because the poverty rate is higher and there are a higher proportion of children in lone-parent households

Table 1: Child poverty rates and transitions

	<i>Poverty rate</i>	<i>Poverty exit rate</i>	<i>Poverty entry rate</i>
All Children	23%	39%	11%
Child in lone parent household	47%	25%	24%
Child in couple household	18%	46%	8%

Source: NZ Linked Income Survey, pooled transitions 1997/8 – 1999/2000. Child poverty defined as children in households with income below 60% of median equivalised disposable household income.

who would require a sizeable increase in income to clear the hurdle.

Our working paper contains many more summaries of child poverty and poverty transitions, along with international comparisons. We also investigate the strength of association between the probability of children entering or exiting poverty and certain 'trigger events' such as changes in household size, changes in the number of household members in paid employment, or changes in labour earnings.

Overall, the relatively high poverty rates and transition rates imply that New Zealand children have a relatively high chance of exposure to poverty over a two-year period, as well as a slightly higher chance of escaping poverty compared with other countries.

While our study leaves many questions unanswered, it is a valuable contribution to understanding the patterns of child poverty and the factors associated with developing policies to support the government's ambitious goal of eliminating child poverty.

For more information go to:
www.motu.org.nz/income_distribution

Forest and land ownership, and deforestation liability

By sequestering carbon, forests act as a 'sink' for carbon dioxide, and can help to reduce the impact of global warming. Under an international climate change regime, countries can be rewarded and made liable for the carbon that is stored within their forests. New planting and deforestation that alter levels of carbon storage will bring accompanying rewards and liabilities. Domestic policy would ideally encourage the planting of new forest and discourage deforestation.

Domestic policy-makers need to decide who to reward for new sequestration and who to make liable for carbon loss. Options are government, owners of the forest, and owners of the forested land. Answers to seemingly simple questions such as who owns New Zealand's plantation forests, and who owns the forested land are in fact complex.



Existing forest ownership arrangements in New Zealand allow the ownership of forest to be legally separated from the land. The Ministry of Agriculture and Forestry estimates that there were around 14,000 plantation forest owners in New Zealand in 2002. The number of landowners is likely to be similar. However, initial Motu research shows that at least 37% of plantation forests are on land where land and forest ownership are separate. The groups that own land and forest are quite different.

Regulation aims to target those who control decisions, encouraging decision-makers to alter their behaviour. Domestic policy on liability should therefore target land-use decision-makers. However, where land and forest ownership are separate it is not clear who controls land-use. In the short-run it will depend on existing forest

ownership arrangements. In the long-run landowners are most likely to control land-use. If forest owners are made liable, they will assume the costs for deforestation, while perhaps not being able to control replanting/deforestation decisions.

The decision of who to make liable for carbon loss will have differing equity impacts. For example, Maori own 15% of the forested land, but only 2% of the forest. The Crown also owns much more forested land than forest. If landowners are made liable, Maori and the Crown will assume a high proportion of the costs and risks of deforestation.

Government's confirmed policy for 2008-2012 (designed in accordance with the Kyoto Protocol) will retain carbon sequestration credits with government, and government will assume liability for deforestation up to a cap of 10% of forests expected to be harvested during the period. It has not been decided who is liable if this cap is exceeded. Therefore, under current policy, and if the cap is not exceeded, allocation of rewards and liabilities is relatively simple - government receives the reward and bears the risk. To encourage carbon storage in the long-run, however, decisions need to be made.

Motu has been researching this issue as part of the Land Use, Climate Change and Kyoto programme funded by FRST. For more information go to: www.motu.org.nz/land_use_nz.htm

**Motu is moving on
1 February 2004**

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