



## MOTU RESEARCH UPDATE - ISSUE 26 - OCTOBER 2016

### Construction Productivity

Productivity has risen. Thank entry and reallocation.

The construction industry contributes a large and growing share of the New Zealand economy, with total employment rising to almost 10% and value added (GDP contribution) rising to about 9% by 2012.

A recent working paper from Motu’s Adam Jaffe, Trinh Le and Nathan Chappell looked at the productivity of construction firms using approximately 2.3 million yearly observations of 487,000 firms. This included 358,000 observations of 78,000 construction firms in the Longitudinal Business Database across the twelve years that were examined.

Labour productivity in construction firms tends to be lower than in other industries, likely due to lower average skill and lower capital intensity in construction compared to other industries. There is also significant dispersion in labour productivity, meaning that firms with the same number of workers vary widely in their “value added” (revenue minus cost of inputs other than labour and capital).

Interestingly, labour productivity dispersion is less than in other industries. There is therefore no evidence to support a conjecture that relatively poor average productivity performance in construction is due to a greater proportion of firms that significantly lag behind the best performers. Indeed, while construction has similar lower quartile labour productivity to that of most other industries, its median and upper quartile are much lower. This means that the lower overall average labour productivity in construction is associated with a relative absence of star performers, rather than with an over-abundance of productivity underperformers.

Several firm characteristics are strongly linked to labour productivity, which is:

- Higher in entrants than continuing firms.
- Negatively correlated with firm’s age in the construction industries and ‘machinery and other equipment manufacturing’.
- 19–36 percent higher for firms that contract out (due to lower labour input).
- Significantly lower in firms that have no employees other than the working proprietors.
- 0–41 percent higher for firms that belong to business groups than firms that do not.
- Higher for firms located in Auckland.

Age, entry status, Auckland location and employing status also have similar associations with multifactor productivity (MFP). However, business group membership and contracting status are less strongly linked to MFP than to labour productivity. Interestingly, exiters have lower MFP

in the construction and manufacturing industries. It is, however, important to remember that these correlations do not establish causality.

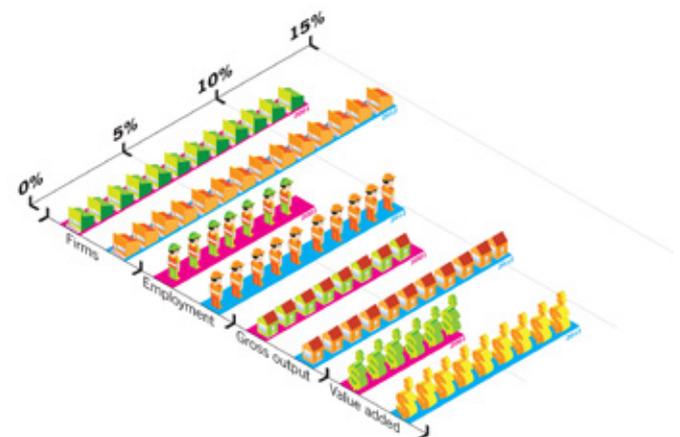
The findings that new entrants are the most productive and that age is negatively correlated to productivity are surprising. It seems that, on average, new firms either have new, productive ideas, or their proprietors work extra hard initially. Since we cannot capture the effects of innovation or effort in our explicit input measures, their effect on measured output would, instead, be captured as an increase in average productivity for newer firms.

The largest positive contributors to MFP growth in the overall construction industry were improvements by continuing firms and reallocation from low-productivity to high-productivity firms in ‘construction services’ and turnover in ‘heavy and civil engineering construction’, while the major drags were productivity slow-down by continuers in ‘building construction’ and ‘heavy and civil engineering construction’.

As in other industries, there is a considerable gap within the industry between the productivity of the best and worst performing firms. This gap is largest for the large number of firms that have no workers other than a worker-proprietor. We find no evidence, however, that the ‘problem’ of a significant tail of low-performing firms is worse in construction than in other sectors. Indeed, although comparisons of this sort across very different industries are somewhat hard to interpret, the construction sector appears to have less dispersion than other large sectors.

This article is a condensed version of “[Productivity Distribution and Drivers of Productivity Growth in the Construction Industry](#)” Motu Working Paper 16-08, by Adam Jaffe, Trinh Le and Nathan Chappell.

#### Construction Industry as Percentage of Measured Business Sector



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## Director's Letter

This has been an exciting year for Motu. In 2016, Motu's wide range of projects included:

- Finishing up a five-year Marsden-funded research project around wellbeing that delivered new measures of wellbeing applicable to both New Zealand and internationally, while providing new understanding of how policies affect wellbeing both within and across countries.
- A project for the World Bank creating a handbook for any jurisdiction wanting to design or revamp an emissions trading system.
- A framework constructed for the Ministry of Business, Innovation and Employment for quantifying the beneficial economic, social and environmental impacts of publicly funded scientific research.
- A number of papers for the Productivity Hub that aim to improve how policy can contribute to the productivity performance of the New Zealand economy and the wellbeing of New Zealanders.

At the same time, this year has also seen significant challenges for Motu's mission of informed policy debate.

Around the globe, we see multiple political movements founded on fear of the future and nostalgia for some image of the past. These movements have explicitly criticised or rejected economists and other evidence-based policy analysts as elitist, and appealed instead to group identity and other instinctive impulses as the basis for policy choices.

Here in New Zealand, we have heard some researchers from universities and Crown Research Institutes express concern about their ability to contribute to public debate. They fear that speaking out about the implications of their research for public policy issues may threaten their ability to get funding for their research or impede their career development.

Motu was founded as a public charity, in order to pursue our inter-related missions of engaging in excellent research on public policy issues, disseminating the results of that research, and building New Zealand's capability for this kind of research by training young Kiwis in research methods. Most of our research projects are funded by the government, and we insist on a clause in all our research contracts that research results will be published, subject only to appropriate concerns about non-revelation of confidential underlying data. This makes us one of the few reliable sources of truly independent analysis on policy issues.

But the parties that fund our research do not usually provide resources for disseminating the research results, to help inject the results or work appropriately into public debate. Recently, despite our contractual protections around publication, we have had tussles with several of the government agencies that fund our work over when and even whether our research results can be made public.

All of this means that Motu is more important than ever for New Zealand. We will continue to seek ways to preserve our independence, and to bolster our ability to communicate our findings and the implications of our findings without fear or favour.

If you would like to contribute to this effort, you can go to <http://motu.nz/about-us/supporting-motu/help-fund-us> and contribute to the Motu Research and Education Foundation, which provides crucial support for our outreach and education activities.



Adam B. Jaffe, Director and Senior Fellow

## Motu Developments

### Board Movements

Motu is glad to welcome several new board members to our Trust. Jo Wills is the new chair of the Motu Research and Education Foundation and also joins the Motu Economic and Public Policy Research Trust Board. She is joined on the Motu Economic and Public Policy Research Trust Board by Lesley Haines and Paul Reynolds.

### Awards and Recognition

Motu is the top-ranked economics organisation in New Zealand. It is in the top ten global economic think tanks, according to the Research Papers in Economics (RePEc) website, which ranks all economists and economic research organisations in the world based on the quantity and quality of their research publications.

Motu's five senior fellows are placed in the top thirty economists in New Zealand and Adam Jaffe is listed as the top economist in Oceania (which includes Australia).

## Motu Publications

Motu is committed to making the results of its research on key issues facing New Zealand accessible to public and private decision-makers and the general public. Subscriptions to our two publication series, the Motu Working Paper Series and Motu Notes, are both available free from our website, [www.motu.org.nz](http://www.motu.org.nz). You can also sign up to receive all our work in a particular research area.

You can also sign up for events and our newsletters: Motu News (bi-monthly) and Motu Research Update (annual). If you like shorter, more regular updates, you may prefer Motu News; if you want more substantive and less frequent updates, you will prefer Motu Research Update.

This year we have also introduced a triannual bulletin designed to inform policy analysts and researchers of upcoming research and analysis.

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## Labour market dynamics following a regional disaster

Quake! drop, cover, hold  
Then employees recover  
and subsidy helps.

Despite major upheaval and short-term job loss, on average, workers affected by the Canterbury earthquakes have bounced back. Three years on from the devastating shocks of September 2010 and February 2011, these workers are more likely to have jobs than similar workers (in Auckland and Hamilton) and are less likely to be on the unemployment benefit. They also have higher accumulated earnings than workers elsewhere. At the same time, they were less likely to be at the same employer, and more likely to have migrated to jobs in other New Zealand regions.

Impacts vary substantially by worker characteristics and by the naturally-induced geographic variation in the severity of the shock. Workers in firms that were located in badly affected areas have persistently worse outcomes. Women of prime working age and low-skilled women have persistently lower earnings than expected given their pre-earthquake characteristics, consistent with job sorting by industry and the shift in relative demand following the quakes towards construction.

From a public policy perspective, the research shows the Earthquake Support Subsidy influenced the extent of outward migration decisions for most types of workers. This is despite our finding that receipt of the ESS did not affect long-term retention of the pre-quake job under which the subsidy was gained. We interpret these findings as evidence that the subsidy achieved its goal of delaying involuntary job loss and, as a result, fewer workers made immediate decisions to leave the region - decisions that persisted over the long-run.

This paper is a companion to earlier work examining the impact of the quakes on businesses in the region. That study showed firm profitability fell by an average of 3 percentage points immediately after the second major quake. This was driven by an average decline of 9 percentage points in sales revenue, which caused a high rate of firm exit immediately following the disaster, particularly among previously poor performing (low profitability) businesses. Employment in those firms that survived recovered, though with lower worker retention than expected.

Likelihood of employment initially rose after the first major quake, before falling rapidly after the second major earthquake. The initial rise in employment is consistent with a reduced willingness to be (temporarily) out of work during the uncertain period after the first quake. In contrast, the second major quake induced substantial firm exit, making involuntary job loss a dominant driver of subsequent employment dynamics. From peak to trough, the probability of employment fell by 2.6 percentage points in the space of five months. By November 2011, however, employment had recovered and then increased significantly from January 2012. By March 2014, Greater Christchurch workers were, on average, 3.3 percentage points more likely to have a job than comparable Auckland/Hamilton workers.

Benefit receipt followed the inverse pattern with a distinct hump between April-November 2011 when involuntary job displacement was at its strongest. By March 2014, benefit receipt was 1.5 percentage points less likely for Christchurch workers than the control group.

Accumulated earnings were persistently higher for Greater Christchurch workers, initially reflecting the higher relative employment rate. Over the longer term the accumulated earnings gap continues to expand, reaching 4.4pp by the end of period. On average, employment rates over the period were only elevated by 1.4pp, suggesting other mechanisms were driving earnings up in Canterbury. Obvious candidates were the combination of reduced aggregate labour supply, and the potential need to provide financial inducement to stay in the region. The loss of assets may also have induced some workers to increase their hours worked, which manifested as higher accumulated earnings.

Workers in Christchurch were more likely to switch jobs, and job change is often associated with rapid wage growth in New Zealand. An increase in job switching started immediately following the first major earthquake before accelerating further when firms started exiting after February 2011. The estimated effect bottomed out at -6.0 percentage points in May 2012, implying a substantial loss of job-specific human capital in the Greater Christchurch area. Beyond that point the differential impact of the earthquakes reduced. This tailing off is consistent with firm-level findings that suggest some of the acceleration in firm exit in Christchurch is of firms that would have subsequently exited in later years anyway, due to poor performance. If this is true, then we expect worker separation rates to converge somewhat as firm exits in the Auckland/Hamilton population catch up over the long-run.

Changes in employer go hand-in-hand with internal migration. The migration effect is initially weaker, consistent with it being more expensive to change location than it is to change jobs. However, by March 2014, internal migration to other parts of New Zealand was 5.0 percentage points higher for Greater Christchurch workers than similar workers elsewhere.

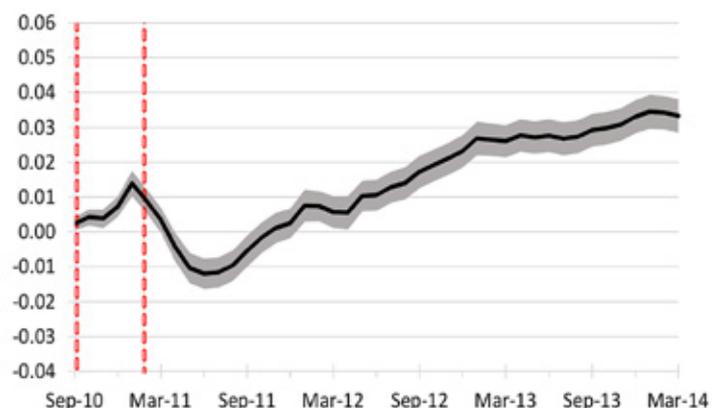
Young workers were more likely to move regions than older workers. Young female workers were the most affected, with a 7.6 percentage point greater internal migration effect than older workers. This effect stretches back to the immediate aftermath of the second major earthquake, with a 1.1pp gap in outward migration over young men (the next most affected group) already evident in March 2011. This young female-male migration gap widened over time to end the period at 6.5pp. It seems likely that these differences stem at least in part from the initial industry distribution of workers, and the subsequent shift in production towards construction, which is a male-dominated industry.

The research found differences in the short-term effect of the earthquakes depending on the geographic locations of the employer. These differences persisted in the long-run for employment and accumulated earnings, but didn't persist for benefit receipt and employer/location change. Workers in both low and high earthquake impact areas were less likely to be on a benefit in the long-run, due to the increased employment opportunities caused by the earthquakes. In the long-run, Christchurch workers were also more likely to have changed employer or region due to the quakes, regardless of whether their employer was located in a high impact area or not.

It seems initially counter-intuitive that Christchurch workers did not experience long-term losses either in terms of employment or earnings. However, these positive findings are consistent with studies of Hurricane Katrina survivors and partially result from the increased demand for labour at the same time as it was in reduced supply.

This article is a condensed version of "[Labour market dynamics following a regional disaster](#)" Motu Working Paper 16-07, by Richard Fabling, Arthur Grimes and Levente Timar.

Likelihood of Employment



The vertical red lines indicate the earthquakes. The grey shaded area indicates the 95% confidence intervals.



## Charting a Course Toward New Zealand’s Low-Emission Future

What we do matters  
The choices we make today  
Safeguard our future.

When Captain Cook set out to observe the Transit of Venus in the South Pacific, it was a part of Earth so poorly explored by westerners that European mapmakers couldn’t agree if he would find a giant continent there or not. Cook steered across miles of open ocean, fighting storms and scurvy to reach Tahiti. These days there’s similar trepidation awaiting those who try to map the future landscape of climate change solutions.

Over the last two years, Motu Economic and Public Policy Research has convened the Low-Emission Future Dialogue, engaging a group of cross-sector stakeholders in their personal capacities to create a New Zealand that responds to climate change with smart solutions that safeguard our future, enable a thriving low-emission economy, create new opportunities for our communities, and can be shared with other countries.

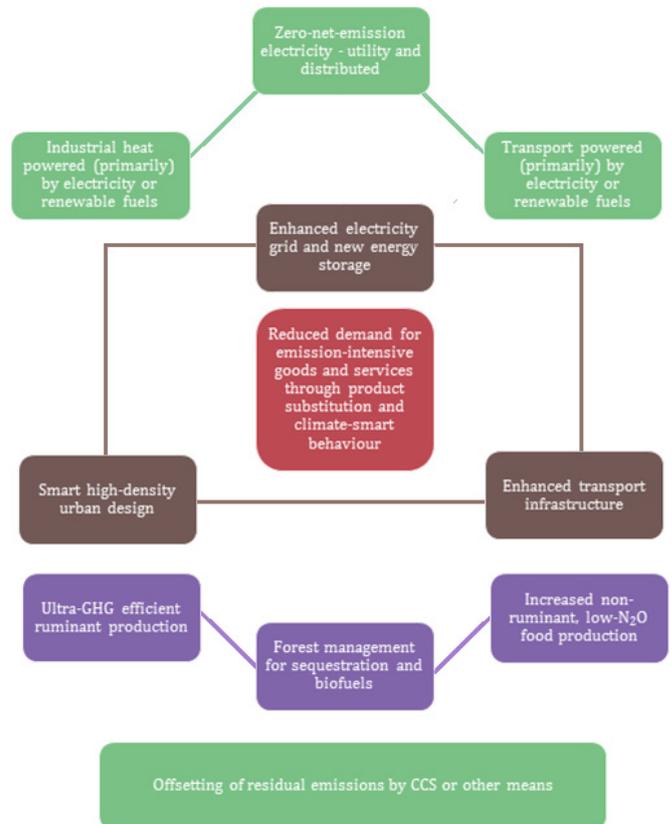
Participants in the dialogue group worked back from a broad vision for a thriving zero-net-emission economy, translating it into a range of potential sector characteristics, milestones and actions covering technology, policy, business and behaviour change that would underpin that economy. The goal was creative problem solving, not consensus on recommendations.

The documents produced by the group investigate many of the countless courses New Zealand could chart in its efforts to achieve the vision for a successful zero-net-emission economy (see diagram below). Some of them may create exciting opportunities for economic development and environmental and social co-benefits, while others may involve rough waters or stall the country in the doldrums.



Ultimately successful pathways will be adaptive, emerging over time from the interaction between domestic choices for policy and action and external drivers which are beyond our control, like major changes in technology and shifts in social norms. This journey will be supported by capacity building, experimentation, taking steps to leave potentially desirable options open, and avoiding lock-in to high-emission technologies, infrastructure and behaviour.

Our dialogue group has identified a basic framework that could underpin a zero-net-emission future (see figure across). This includes breakthroughs in technologies and practices across key sectors. These will be supported by enabling infrastructure and shifting demand away from emissions-intensive goods and services. Residual emissions can then be offset by forest sinks, carbon capture and storage (CCS), or other means.



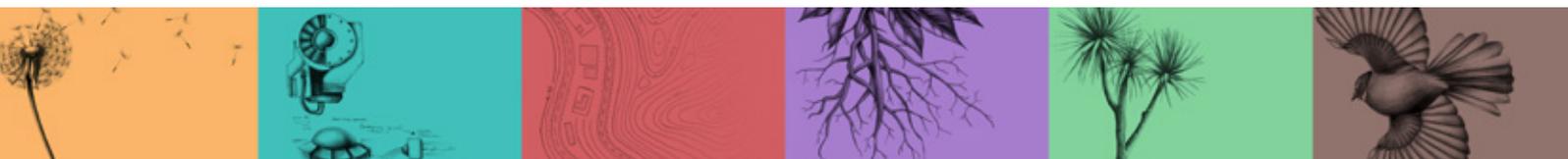
This journey of transformation will affect all New Zealanders and many different groups will have important roles to play. Constructive cross-sector processes are needed to:

- shape a series of broadly shared and accepted goals for climate change mitigation,
- enable greater policy certainty across election cycles,
- align policy with action and investment,
- safeguard vulnerable communities during the transition, and
- respond to rapid change with greater agility and coordination.

New Zealanders have a proud history of traversing wide and wild oceans and pioneering solutions to challenging problems. Let’s harness this spirit of adventure and travel forward toward a net-zero-emission future.

Motu wishes to thank the dialogue participants for their expertise and dedication, and the funders who made this initiative possible: the Aotearoa Foundation, Meridian Energy, Z Energy, the Ministry for the Environment, and the Parliamentary Commissioner for the Environment. The outcomes are a collection of ideas not necessarily endorsed by individual participants, their affiliated organisations, or programme funders.

This article is a condensed version of “[New Zealand’s Low-Emission Future: Transformational Pathways](#)” Motu Note 23, by Catherine Leining and Suzi Kerr.





## Our People

### Comings and Goings

One of Motu's crucial roles is to expand this country's economic and policy capability through the employment of up-and-coming research analysts and summer interns. In 2016, the research analyst team was joined by Kate Preston and Wilbur Townsend. Edmund Lou will begin in November this year and Sally Owen will start in March 2017. This year two of Motu's research analysts have left for work with government departments, Judd Ormsby at Treasury and Corey Allan at the Ministry of Business, Innovation and Employment.

Trinh Le, a Fellow at Motu since 2014, is currently on maternity leave. We are happy to welcome Trinh's little boy to the extended Motu family and look forward to Trinh's return in 2017.

Early in 2016, we bid farewell to Lynette Campbell, our Accounts Assistant, and welcomed Clare O'Connor as her replacement.

### Staff List

Director and Senior Fellow: Adam B. Jaffe

Senior Fellows: Arthur Grimes, David C. Maré, Dean R. Hyslop, Suzi Kerr

Fellows: Anne-Marie Brooke, Catherine Leining, Isabelle Sin, Levente Timar, Trinh Le

Research Analysts: Edmund Lou, Eyal Apatov, Kate Preston, Nathan Chappell, Wilbur Townsend

Support Staff: Grant Coppersmith, Ceridwyn Roberts, Clare O'Connor, Maxine Watene

Board of Trustees: John Hay (Chair), Adam B. Jaffe, Horia Irwin-Easthope, Jo Wills, Lesley Haines, Paul Reynolds, Peter O'Shea, Stephen Goldson, Suzi Kerr

Affiliates: Adolf Stroombergen, Andrew Coleman, Deborah Cobb-Clark, Grant Scobie, Jacques Poot, James Sanchirico, John McDermott, Les Oxley, Lew Evans, Lynda Sanderson, Malathi Velamuri, Philip McCann, Richard Fabling, Richard Newell, Robert MacCulloch, Sholeh Maani, Steve Stillman, Tim Maloney, Viv Hall

## Public Policy Seminars

Motu's Public Policy Seminar series provides a forum for informed debate on important public policy issues. Through the series, we aim to make the latest economic research more accessible to inform policy debates in New Zealand.

Our seminars are accessible to a wide audience, and are attended by people from diverse backgrounds who want to stay informed on economic, social and public policy research.

The seminars are presented by Motu Senior Fellows and Affiliates, as well as other top visiting academics from around the world. These seminars are free to the public, and there is no need to register to attend.

Since the last newsletter, we have hosted a number of Public Policy Seminars. Presentation material from these seminars, including slides and audio recordings, is available online at <http://motu.nz/resources/public-policy-seminars/past-public-policy-seminars/>.

### Subscribe!

To receive email invitations to Motu seminars, sign up at <http://motu.nz/newsletter/>.



## Motu Publications

To see more of our publications, including presentations, please visit <http://motu.nz/find-publications/>.

### Environment and Resources

“Emissions Trading in Practice: A Handbook on Design and Implementation” Partnership for Market Readiness (PMR) and International Carbon Action Partnership (ICAP). 2016.

*This handbook was prepared jointly by a team of experts from Motu Economic and Public Policy Research and Environmental Defense Fund, with significant contribution from Vivid Economics. It synthesises input from over 100 practitioners and experts from four continents, reflecting both the latest theoretical insights and best practices from existing emissions trading systems. This is the first ever handbook designed to help any country in the world design a system to suit their locally specific needs.*

“The New Zealand Emissions Trading Scheme De-link from Kyoto: Impacts on Banking and Prices” Motu Working Paper 16-13. Kerr, Suzi and Judd Ormsby. 2016.

*We find that prices within the NZ ETS behaved as theory would predict. In anticipation of the coming de-link NZ ETS participants banked (almost) all of their NZUs for future use and used cheap Kyoto units to meet (almost) all of their current obligations. The long delay between the announcement and implementation of de-linking led to a large bank of NZUs.*

“Does Money Grow on Trees? Mitigation Under Climate Policy in a Heterogeneous Sheep/Beef Sector” Motu Working Paper 16-09. Timar, Levente. 2016.

*I use simulations from the Land Use in Rural New Zealand model to consider mitigation for different classes of sheep/beef farms under climate policy. Farmers in the model can respond to carbon prices by abandoning or afforesting marginal land.*

“Lessons Learned from the New Zealand Emissions Trading Scheme” Motu Working Paper 16-06. Leining, Catherine and Suzi Kerr. 2016. *The New Zealand Emissions Trading Scheme (NZ ETS) was launched in 2008 following more than a decade of policy deliberation on how emission pricing could support New Zealand's contribution to international climate change mitigation efforts. Reflecting the unique emissions and economic profile of New Zealand, New Zealand's regulatory culture, and lessons learned from earlier environmental markets, including within New Zealand, the NZ ETS pioneered many features.*

New Zealand's Low-Emission Future: Transformational Pathways” Motu Note 23. Leining, Catherine and Suzi Kerr. 2016.

*From May 2014 through February 2016, Motu Economic and Public Policy Research convened a group of about 20 cross-sector stakeholders to explore pathways to achieving zero net greenhouse gas emissions in New Zealand. Participants engaged in their personal capacity, not as organisational or sector representatives. This document presents a synthesis of ideas that emerged during the course of nine meetings. This is the first in a series of outputs from the Dialogue process.*

“Time-Travelling on the New Zealand Emissions Trading Scheme” Motu Note 22. Leining, Catherine. 2016.

*Motu Economic and Public Policy Research has compiled an interactive timeline for the development and implementation of the NZ ETS from 2005 to 2015. It is intended as an information resource for policy makers, NZ ETS participants, researchers, and ETS practitioners from other countries who wish to learn from New Zealand's experience.*

### Urban and Regional Economics

“Higher Education Institutions and Regional Growth: The Case of New Zealand” Motu Working Paper 16-11. Apatov, Eyal and Arthur Grimes. 2016.

*We examine the relationship between the presence of Higher Education Institutions (HEIs) and local growth, using a sample of 57 New Zealand Territorial Local Authorities between 1986 and 2013. While our results suggest a positive association between university activity and growth, we find no evidence for complementarities between HEI activity and several indicators of urbanisation and innovation, nor do we find evidence that HEI presence affected the industrial (sectoral) structure of the local economy.*

“Two Countries, Sixteen Cities, Five Thousand Kilometres: How Many Housing Markets?” Motu Working Paper 16-04. Ryan Greenaway-McGrevy, Arthur Grimes, Mark Holmes. 2016.

*This paper examines whether the major cities in Australasia make up a single housing market. If there is a single housing market across both countries, then Kiwi and Aussie house prices are primarily being driven by the same forces, rather than by local factors. In addition, a single housing market would imply that macroeconomic policies in the two countries are either run on similar lines or are incapable of independently controlling real house prices, despite both countries running independent monetary and fiscal policies.*

### Population and Labour

“The Effect of Trial Periods in Employment on Firm Hiring Behaviour” Motu Working Paper 16-10 (also known as Treasury Working Paper 16/03). Chappell, Nathan and Isabelle Sin. 2016.

*The 90-day trial policy was intended to encourage firms to take on more employees, and particularly more disadvantaged job seekers, by reducing the risk associated with hiring an unknown worker. We find no evidence that the policy affected the number of hires by firms on average, either overall or into employment that lasted beyond the trial period. We also do not find an effect on hiring of disadvantaged jobseekers. However, our results suggest that the policy increased hiring in industries with high use of trial periods by 10.3 percent.*

“Labour Market Dynamics Following a Regional Disaster.” Motu Working Paper 16-07. Fabling, Richard, Arthur Grimes and Levente Timar. 2016.

*The 2010/2011 Canterbury earthquakes caused major upheaval to the people of the region. The second major quake killed 185 people, forced many from their homes, and closed Christchurch's central business district. This paper examines the consequential effect on jobs and accumulated earnings for workers in Canterbury. In addition, we examine concurrent decisions about employment location, including job-to-job transitions and regional migration.*

“The Specification of Dynamic Discrete-Time Two-State Panel Data Models” Motu Working Paper 16-01. Gørgens, Tue and Dean Hyslop. 2016.

*This paper examines dynamic binary response and multi-spell duration model approaches to analysing longitudinal discrete-time binary outcomes. We show that both of these approaches are special cases within a general framework.*



Environmental  
Protection Authority  
Te Mana Rauhi Taiao



Ministry of Business,  
Innovation & Employment



## Motu Publications cont'd

To see more of our publications, including presentations, please visit <http://motu.nz/find-publications/>.

“Economic Liberalisation and the Mobility of Minority Groups: Evidence from Māori in New Zealand” IZA Journal of Migration 5:4. Sin, Isabelle and Steven Stillman. 2016.

*Between 1984 and 1993, New Zealand undertook comprehensive market-oriented economic reforms. In this paper, we use census data to examine how the internal mobility of Māori compares to that of Europeans in New Zealand in the period after these reforms. It is often suggested that Māori are less mobile than other ethnic groups because of attachment to particular geographical locations. If this were the case, Māori may have been disadvantaged in the post-reform period because they were more likely to be living in adversely affected areas and less likely to move to pursue better employment opportunities. In contrast to the anecdotal evidence, we find that Māori are more mobile on average than similar Europeans. However, Māori who live in areas with strong networks of their iwi are slightly less mobile than Europeans. The difference between Māori who live locally to their iwi and those who do not is even more pronounced when we consider responsiveness to local labour market shocks. Non-local Māori are considerably more responsive to changes in economic opportunities than are Europeans, whereas local Māori are almost entirely unresponsive.*

### Productivity and Innovation

“Productivity Distribution and Drivers of Productivity Growth in the Construction Industry.” Motu Working Paper 16-08 Jaffe, Adam, Trinh Le and Nathan Chappell. 2016.

*The construction industry contributes a large and growing share of the New Zealand economy, with total employment rising to almost 10% and value added (GDP contribution) rising to about 9% by 2012. While aggregate statistics have raised some concerns about poor construction productivity, the New Zealand construction industry is not an underperformer when looked at through the lens of individual firms. Using firm-level data, this study finds that over the period 2001–2012, labour productivity of the average firm in the construction industry grew by 1.7 percent annually and MFP by 0.5 percent annually, compared with 0.5 and 0.1 percent annually respectively for the overall measured sector.*

“A Rough Guide to New Zealand’s Longitudinal Business Database (2nd edition).” Motu Working Paper 16-03 Fabling, Richard and Lynda Sanderson. 2016.

*New Zealand’s Longitudinal Business Database is a rich resource for understanding the behaviour of New Zealand firms. This paper provides an introductory guide to the content and structure of the data aimed at new and prospective users. Where relevant, it references other publications which provide greater detail on particular aspects of the data. It also briefly describes access protocols for researchers, and processes for updating and expanding the database.*

“Firm Productivity Growth and Skill.” New Zealand Economic Papers. Maré, David C., Dean R. Hyslop and Richard Fabling. 2016.

*This paper examines firm multifactor productivity (mfp) growth and changing skill levels of labour in New Zealand, using New Zealand microdata for 2001–2012. Strong employment growth for lower skilled workers lowered average skill by 1.8% over the period, with declining unobserved skill (–3.6%) outweighing increasing observed skill (1.8%). Consequently, skill-adjusted mfp growth (0.24% pa) was higher than unadjusted growth*

*(0.14% pa). The impact of skill adjustment was almost entirely due to changing skill composition within continuing firms. Skill dilution was strongest pre-global financial crisis (GFC), and was reversed when employment contracted in 2009 and 2010. Adjusting for skill dilution reveals stronger procyclical variation in mfp.*

“Low-quality Patents in the Eye of the Beholder: Evidence from Multiple Examiners” NBER Working Paper No 22244. De Rassenfosse, Gaetan, Adam Jaffe and Elizabeth Webster. May 2106.

*Low-quality patents are of considerable concern to businesses operating in patent-dense markets. There are two pathways by which low-quality patents may be issued: the patent office may apply systematically a standard that is too lenient (low inventive step threshold); or the patent office may grant patents that are, in fact, below its own threshold (so-called ‘weak’ patents). This paper uses novel data from inventions that have been examined at the five largest patent offices and an explicit model of the grant process to derive first-of-their-kind office-specific estimates of the height of the inventive step threshold and the prevalence of weak patents. The empirical analysis is based on patent applications granted at one office but refused at another office.*

### Wellbeing and Macroeconomics

“Subjective Wellbeing Impacts of National and Subnational Fiscal Policies.” Motu Working Paper 16-05 Grimes, Arthur, Judd Omsby, Anna Robinson, Siu Yuat Wong. 2016.

*We study the association between fiscal policy and subjective wellbeing using fiscal data on 35 countries and 130 country-years, combined with over 170,000 people’s subjective wellbeing scores. While past research has found that ‘distortionary taxes’ (e.g. income taxes) are associated with slow growth relative to ‘non-distortionary’ taxes (GST/VAT), we find that distortionary taxes are associated with higher levels of subjective wellbeing than non-distortionary taxes. This relationship holds when we control for macro-economic variables and country fixed effects.*

“Can ‘Happiness Data’ Help Evaluate Economic Policies?” Motu Working Paper 16-02 MacCulloch, Robert. 2016.

*Imagine a government confronted with a controversial policy question, like whether it should cut the level of unemployment benefits. Will social welfare rise as a result? Will some groups be winners and other groups be losers? Will the welfare gap between the employed and unemployed increase? ‘Happiness data’ offer a new way to make these kinds of evaluations. These data allow us to track the wellbeing of the whole population, and also sub-groups like employed and unemployed people, and correlate the results with relevant policy changes.*

“Income or Consumption: Which Better Predicts Subjective Wellbeing?”

Motu Working Paper 16-12 Carver, Tom and Arthur Grimes. 2016  
*The positive relationship between income and subjective wellbeing has been well documented. However, work assessing the relationship of alternative material wellbeing metrics to subjective wellbeing is limited. Consistent with the permanent income hypothesis, we find that a consumption measure out-performs income in predicting subjective wellbeing. When objective measures of consumption are combined with self-assessments of a household’s standard of living, income becomes insignificant altogether.*



Ministry for the  
**Environment**  
Manatū Mō Te Taiao





## Are New Zealand and Australia a Single Housing Market?

This paper examines whether the major cities in Australasia make up a single housing market. If there is a single housing market across both countries, then Kiwi and Aussie house prices are primarily being driven by the same forces, rather than by local factors. In addition, a single housing market would imply that macroeconomic policies in the two countries are either run on similar lines or are incapable of independently controlling real house prices, despite both countries running independent monetary and fiscal policies.

Our focus is on eight main cities in each of Australia and New Zealand. The Australian cities are Sydney, Melbourne, Brisbane, Perth, Adelaide, Hobart, Darwin, and Canberra. The New Zealand cities are the eight largest metropolitan urban areas (Auckland, Wellington, Christchurch, Hamilton, Tauranga, Dunedin, Napier/Hastings, and Palmerston North). There is an equal balance of Australian and New Zealand cities to ensure that the results are not biased towards one country. For each city we deflate the house price index by a consumer price index. We refer to these as real house price indices. Each is normalised to one at the beginning of the sample.

Our results demonstrate that there is just one aggregate source of shock that drives the non-stationary (i.e. permanent) trend component of all sixteen cities across the two countries. All other idiosyncratic shocks to city prices are stationary (i.e. temporary) and so their effects wither in the long run.

The dynamic structure of price adjustment, however, reveals a more differentiated pattern. There are three groups of cities in terms of price dynamics:

- leaders (Melbourne, Sydney, Adelaide, Canberra, Brisbane);
- followers (Perth, Hobart, Wellington, Auckland, Darwin); and
- laggards (Dunedin, Christchurch, Palmerston North, Hastings, Tauranga, Hamilton).

All leader cities are within Australia and all laggards are within New Zealand, while the (mid-group) followers comprise a mix of Australian and New Zealand cities. These results indicate that non-stationary shocks to Australasian house prices are first experienced in the major Australian cities, then flow through to the more peripheral Australian cities plus Auckland (New Zealand's largest city) and Wellington (New Zealand's capital city),

and subsequently flow through to the more peripheral New Zealand cities.

We adopt a strong and a weak definition of a single housing market. In the strong case, ratios of real house prices between all city pairs stay the same in the long run. In the weak case, house price ratios between cities will tend to diverge even though they are affected by the same long run influences. This divergence may reflect differences in supply (including regulatory policies) or migration responses that may modify the impact of identical shocks across cities.

Our results demonstrate the existence of a weak form of single housing market. This means that house prices in cities across Australasia will diverge over time, but are influenced by the same long-term factors.

These differences may be caused by differences in house-price responses to land prices, migration responses to house prices or to land-price responses to migration flows. The latter may reflect either geographical or planning constraints. These constraints may affect how much land is available and therefore how land prices respond to population flows (i.e. migration).

Our findings also have implications for macroeconomic policy. We find little evidence that the countries' independent monetary and/or other macroeconomic policies have been instrumental in determining long-run real house-price outcomes in either country. In interpreting this finding, recall that our focus is on real house prices, a relative price variable. The implication that monetary policy has been ineffective in controlling this relative price variable is consistent with standard monetary theory, i.e. with the classical dichotomy.

The next step in this research would be to analyse whether Australasian real house prices may be hostage to broader international forces. A second extension would be to examine the economic forces that determine individual cities' responsiveness to shocks and, in particular, to examine the impact of different planning regimes.

This article is a condensed version of "[Two Countries, Sixteen Cities, Five Thousand Kilometres: How Many Housing Markets?](#)" Motu Working Paper 16-04, by Ryan Greenaway-McGrevy, Arthur Grimes, and Mark Holmes.

Real House Prices, Sixteen Cities (1986q1 = 1.0)

