



MOTU RESEARCH UPDATE - ISSUE 29 - OCTOBER 2019

VALUING DIVERSITY

Birthplace diversity in New Zealand increased markedly between 1981 and 2013. The proportion of the adult population born overseas rose from 18.2 percent to 28.9 percent. The increase in the foreign-born adult population was particularly strong in larger urban areas. In Auckland, the foreign-born population share rose from 28.3 percent in 1981 to 47.3 percent in 2013.

We capture this change by measuring the probability that, in a meeting of two randomly selected individuals in the city, the two belong to different groups. This measure, known as birthplace fractionalisation, rose from 49.3 percent to 74 percent. The likelihood of randomly meeting someone from a different group in smaller urban areas increased from 21.6 percent in 1981 to 38 percent in 2013.

In this paper, our focus on birthplace diversity as the primary measure of local diversity is driven by the greater consistency of birthplace coding in the census data. To check, however, we compare birthplace diversity with our best estimates of ethnic diversity and religious diversity. We are also aware that just counting people of different cultural backgrounds does not take “cultural distance” or “affinity” between groups into account.

Overarching Results

Our findings conclude that birthplace diversity is positive for quality of business and weakly negative for quality of life. This index reflects the balance of the benefits of a richer range of social interactions, ethnic cuisines and other culturally related goods and services, with the benefits of interacting with those with whom individuals have most in common.

Increasing diversity by one standard deviation is associated with a 0.055 (5.5 points) higher quality of business index and a 0.013 (1.3 points) lower quality of living index. Overall, the positive effect on quality of business more than balances the weak negative effect on quality of life, implying that diversity has a net positive effect on people’s wellbeing.

If diversity increases by one standard deviation, wages are estimated to be 4.0 percent higher and rents are estimated to increase by 13.4 percent. This is the same effect on quality of business as a 47 percent increase in population. The negative effect on quality of life of a one standard deviation difference in diversity equates to a comparatively small 14 percent increase in population.

The estimated effect of birthplace diversity on quality of life depends on the share of expenditure consumers spend on housing. If housing expenditure is at 30 percent, the estimates imply that diversity has no effect on quality of life. If housing costs are only 15 percent of expenditure, our estimated wage and rent effects would imply a decrease in quality of life of 2 points.

If, when looking at diversity, we examine the extent to which a city’s population is culturally polarised into two large groups (with all other groups combined having a small share of the population), our data show that polarisation lowers productivity.

Location Results

The impact on business is strongest in Auckland, Wellington and Christchurch, where diversity raises the quality of business by 9.6 points. In contrast, the negative impact on quality of life is only -0.9 points.

In the 14 smaller main urban areas, the effects on quality of business are less positive (5.3 points) and the effects on quality of life are more negative (-6.9 points).

In the 93 secondary and minor urban areas with more than 1,000 residents, the likelihood of an individual randomly meeting someone from a different group is very different. These areas have lower diversity, lower levels of rents and, to a lesser extent, lower wage levels. For these areas, increased diversity doesn’t shift wage levels but it does have a positive effect on rents, and it raises quality of life by 1 point. Quality of businesses rises by just 1.5 points, suggesting that the business benefits of birthplace diversity are primarily a large-city phenomenon.

Effects are more pronounced when diversity within minority groups is a large component of overall diversity. The patterns we find are also suggestive of decreasing productive returns to diversity over time – with smaller effects in the later period (when diversity is higher) in the main urban areas. Check out the working paper on this issue at <https://motu.nz/our-work/population-and-labour/individual-and-group-outcomes/valuing-cultural-diversity-of-cities>.

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DIRECTOR'S LETTER

Before I began at Motu in March this year, I already knew of the incredible team here and that Motu ranks top in economics organisations in New Zealand. I have been a Motu Affiliate since 2002 and believed I knew the organisation well, but even in my first six months here, I have discovered the incredible variety of work our staff undertake.

I know that many people think of Motu as a climate change think tank. And while it is a world leader in that field and is now expanding into environmental economic modelling, it does so much more. It undertakes world-leading research on science policy and innovation, led by Senior Research Associate, Adam Jaffe, alongside Fellow Trinh Le. In addition, there is Arthur Grimes' influential work in well-being economics, Dave Maré's research in economic demographics, Isabelle Sin's renowned studies in labour diversity, and Lynn Rigg's burgeoning expertise in health economics in Aotearoa. Dean Hyslop is a world-leading econometrician and Anne-Marie Brook's work on the Human Rights Measurement Initiative is literally world changing.

Over the last year Motu has undertaken an exciting range of important projects. The following examples illustrate their breadth and depth:

- the beginning of a significant investment in environmental and climate modelling;
- a sequence of papers investigating quality of life and quality of business in different towns and cities within New Zealand;
- the continuation of Shaping New Zealand's Low-Emission Future, a project to help inform climate change policymaking and private-sector actions, and significantly benefit New Zealand's longer-term development;
- work with two National Science Challenges - Deep South, and Building Better Homes, Towns and Cities;
- research to increase the role that native forests can play in helping to bring economic, environmental and social benefits to Māori on the East Cape;
- the completion of the second phase of the Human Rights Measurement Initiative, including harnessing international enthusiasm and funding;
- ongoing work with Te Pūnaha Matatini, a Centre of Research Excellence focused on the characterisation and analysis of complex systems and networks; and
- nearly 40 external presentations, 30 externally published articles, 18 Motu Working Papers and, in several cases, significant media comment.

It is an honour and a privilege for me to be part of Motu's journey. I'm enjoying the personal treat of getting to know the excellent Boards of both our Trust and the Research Foundation, and our talented staff. I am also relishing the intellectual challenge of becoming familiar with the wide range of work Motu produces.

One of the things that most appeals to me is that Motu researchers value the opportunity to pursue quality research in a setting with little or no bureaucracy. We don't require five signatures when one will do. Our organisational structure is flat, and our office culture casual, committed and collegial. We're a small group that functions largely as a cooperative; we support each other as we pursue common goals in our individual ways. In addition, the small size of New Zealand means its politicians and businesspeople are accessible, and Motu's reputation opens doors. At Motu, one individual can make a genuine difference.



John McDermott, Executive Director

Motu Research

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, <http://motu.nz>. You can also sign up to receive all our work in a particular research area.

In addition, you can sign up for events and our newsletters: *Motu News* (bimonthly) 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*.

We also have a biannual bulletin designed to inform policy analysts and researchers of upcoming research and analysis. [Subscribe here.](#)

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, is available online at <http://motu.nz/resources/public-policy-seminars/past-public-policy-seminars>.

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



WARO (NOUN): COAL, CHARCOAL, CARBON

With the mānuka honey industry taking off and the Paris Agreement causing carbon prices to increase, earning an income from planting native trees may become lucrative. Māori land owners interested in sustainable development options are looking at native forest carbon farming to compliment other economic, environmental and cultural benefits flowing from letting indigenous plants grow on the whenua again.

The Waro Project is a three-year research project to figure out how more Māori land could be used for native forest regeneration and carbon farming. Establishing native forests through new plantings or regeneration resonates well with Māori landowners as they seek to balance multi-dimensional considerations and give effect to their role as kaitiaki.

East Coast hapū members and landowners have joined with Motu, Hikurangi Enterprises, and post-graduate students from Victoria University of Wellington to work together on an action research project supported by the Sustainable Land Management and Climate Change Research Programme, which is funded by the Ministry for Primary Industries.

The Waro Project has been in progress for two years. Being carbon farmers or earning an income from carbon farming is not yet a key driver in Māori land-use diversification decisions. The New Zealand Emissions Trading Scheme (NZ ETS), land-use diversification strategies and responding to perceived climate change risk are complex systems to understand and operate within. Nonetheless, when considered alongside wider aspirations for native forest land cover and co-benefits such as improved water quality, restoring rongoā and other customary resources, protecting biodiversity and strengthening climate resilience, navigating the challenges and opportunities from being in the NZ ETS should be investigated and supported.

Kaitiakitanga is central to Māori land-use and governance goals. Native forest is a preferred land cover and is recognised as a means to respond to perceived climate change risk. Collective landowner aspirations have some influence on land-use decisions and provide an opportunity to guide future land-use as well as measure the net benefit and evaluate progress. However, decision-makers need support and encouragement to comprehensively appraise their current land use and business operations. Access to capital is limited and most prefer to convert to land cover within the means and assistance they can access.

“This land comes through my grandfather, my Dad’s father. Back through our Hinerupe whakapapa. That is how this land has been passed down to us. I was brought up away from the land... so coming home now... 16 years on... wanted to change that... so it is about reconnecting to the land.”

Land-use diversification has its own specific set of challenges, and the state of governance and management operations of the landowner entity has a significant influence on being able to navigate and implement land-use change. In addition, land diversification adds a further layer of complexity to the complex dynamic of Māori land governance and the NZ ETS (respectively). Any engagement “for native forest” needs to be specific and in addition to “business as normal engagement”.

“So it’s all around the wellbeing of a place where we can connect and heal. So that’s the bigger vision. Our priority for this land. If it’s not good for that it is not happening. Although this isn’t the lease agreement. This is the bottom line.”

Starting lines for Māori land blocks to participate in the NZ ETS are diverse. The requirements of the land-use diversification process as well as governance capability are key factors. Maintaining relationships throughout land-use diversification is important and should be led by the governance members.

“Relationships with our wider whānau – that needs to be managed really well. I don’t see so much risk, I only see opportunity.”

Of overwhelming concern is the fact that the NZ ETS is poorly understood. For owners of blocks who had signed up, the compliance requirements to claim credits was unknown. There are perceived encumbrances that can deter landowners/decision-makers from fully investigating the NZ ETS and native forest as a landuse option. This relates to legislative restrictions – particularly for post-settlement governance entities and with regard to the intergenerational decision-making nature of Māori land governance.

“Yes, a huge issue for me is that their measuring tool is lacking and one-sided. They haven’t conclusively studied how they (natives) sink.”

Relationships and collaboration are important values for landowners/decision-makers. Being able to present various contract options advances landowner awareness of the flexibility that is possible and of how they can better participate in the NZ ETS.

“And we are passive again and we don’t know the business... I’m trying to figure out if there’s a way you can do both, like you have a broker find you the partner and then you directly engage with them – like a mortgage broker. But they are not doing all the talking for you.”

For more information about the Waro Project head to the website at <https://waro.nz>.



HUMAN RIGHTS MEASUREMENT: A QUIZ

In June, the Human Rights Measurement Initiative (HRMI) team completed a series of meetings, workshops and public events in New York, Tunis, Geneva and London. We began many of our events with a quiz. So, now's the time to find out what you know about human rights performance in different countries:

Q1: In which country are these people in the word cloud below at particular risk of torture and ill-treatment?

Q2: Which of these countries is not one of the top performers in economic and social rights?

- South Korea Costa Rica The Netherlands Thailand Mexico

Q3: On which of these civil and political rights does Australia clearly outperform New Zealand? The right to:

- Freedom from torture Freedom from arbitrary arrest and detention Participate in government Freedom of expression and opinion

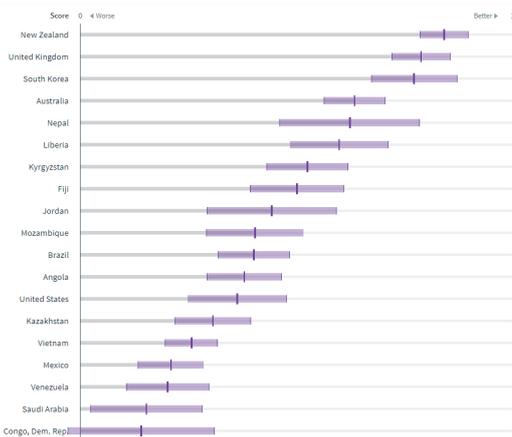
The quiz highlights a key tension in our human rights measurement work: it's important and engaging, but also complex. The word cloud on the right referenced in Q1 is generated by answers to our human rights expert survey. Each year we seek out human rights practitioners – lawyers, researchers, journalists, and so on – and ask them to fill out a detailed questionnaire about the situation in the country on which they are an expert. In 2019 we did this in 19 countries, asking questions about rights contained in core United Nations treaties.

People are asked to say how often, on a scale from never to constantly, each of seven civil and political rights was violated in their country in the previous year. Then we ask them which kinds of people are at particular risk of violations of each right. That's where the word cloud comes from. The numbers in brackets are the percentages of respondents who said these people were at particular risk. It tells us what people were thinking about when they answered the question. It isn't necessarily the full picture: there may be other groups at risk who are not mentioned.

- Indigenous people (89%)**
- Refugees or asylum seekers (68%)**
- Detainees or those accused of crimes (53%)**
- People of particular ethnicities (42%)
- People with disabilities (42%)
- People who are homeless (42%)
- People with particular religious beliefs or practices (32%)
- People from particular cultural backgrounds (26%)
- Children (26%)
- People with low social or economic status (26%)
- People of particular races (21%)
- People engaged in or suspected of terrorism (21%)
- Immigrants (21%)
- People in particular geographic locations (16%)
- Foreign nationals outside of the state's territory (16%)
- People with specific medical conditions (16%)
- People of particular nationalities (11%)
- Older people (11%)
- People who protest or engage in non-violent political activity (11%)
- People with less education (11%)
- LGBTQIA+ people (5%)
- People engaged in or suspected of political violence (5%)
- Other people (5%)

So which country was that word cloud for? If you answered 'Australia', you are correct. You can see all our results for Australia on [our data website](#), including further information respondents gave about who was at risk.

Q2 is about economic and social rights. We measure these using a completely different method, with data that have already been collected and pairing these figures with information about a country's income.



The most important thing to know is that our scores are produced by comparing a country's achievement against the best results of the last 20 years of any country at the same income level. This means we can show how well a country is using its available resources to realise its people's human rights. Four of the countries in Q2 are among the top performers for their income level. Mexico is not.

To find the answer to Q3, we invite you to explore the comparison graphs on [our website](#), showing the relative performance of our 19 survey countries, including New Zealand and Australia. As in the chart to the left, you'll see each country's score displayed in the centre of a purple 'uncertainty band' showing the range of scores we think are most likely, based on our team's advanced statistical analysis of the survey data. A longer band means there is a bigger range of scores that are most likely to represent the true performance of the country, and a band tends to be longer if a) there was a smaller sample of experts and/or b) the survey respondents gave more different, divergent answers.

You can see from the chart above that there is no overlap between the New Zealand and Australia bars, so we are sure that New Zealand outperforms Australia on this right. You can use the 'Rights' menu on our data website to find the only one where Australia is clearly doing better than New Zealand. You may also be surprised – or not – about the results of some of the other countries.

One last question for you - Q4: Is there help available in understanding and using HRMI's data?

This is a very brief introduction to some of the insights our data can give researchers, journalists and advocates about the human rights performance of countries. All HRMI's work is freely available for others to use, and the HRMI team is always available to help with understanding and using it. Check out <https://humanrightsmmeasurement.org>.

Answers

- A1: Australia A2: Mexico A3: Explore the rights menu [here](#) A4: Yes!





OUR PEOPLE

Comings and Goings

The biggest change in Motu this year has been in staffing at the management level. In March, we welcomed a new Executive Director in John McDermott. John is well known in Aotearoa and internationally as a macroeconomist and has been a Motu Affiliate since 2002. His depth of knowledge and careful management are making important inroads to business and industry. In April, founding Senior Fellow Suzi Kerr left Motu to take up a position as Chief Economist of Environmental Defense Fund in the USA. Suzi's career move can be viewed as part of Motu's rising influence on the international stage. We look to our continuing relationship with former Motu Director Adam Jaffe as an inspiration for how we can work with our distinguished alumni.

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.

In 2019, Motu was rated tenth in the world for climate change work internationally, and second for think tanks outside of Europe and North America in the standardised Think Tank Rankings by the International Center for Climate Governance.

Capacity Building

One of Motu's crucial roles is to expand economic and policy capability. In 2018, we launched a new scholarship for rangitahi Māori who are just beginning to study quantitative economics at university. We also build capacity through the employment of up-and-coming research analysts and summer interns.

In 2019, the research analyst team was joined by Bronwyn Bruce-Brand and Shaan Badenhorst. We have also invited several local and international interns to spend time at Motu.

Staff List

Executive Director: John McDermott.

Senior Fellows: Arthur Grimes, Dean Hyslop, Dave Maré, Isabelle Sin, Niven Winchester.

Fellows: Élodie Blanc, Trinh Le, Lynn Riggs, Levente Timar.

Policy Fellows: Anne-Marie Brook, Angela Halliday (until November 2018), Catherine Leining.

Senior Research Associate: Adam Jaffe

Research analysts: Shaan Badenhorst (from March 2019), Bronwyn Bruce-Brand (from January 2019), Ben Davies, Sophie Hale, Edmund Lou (until September 2018), Sally Owen (until April 2019), Kate Preston (until April 2019), Dom White.

Support staff: Pela Arathimos, Catherine Chong (from July 2019), Grant Coppersmith, Hannah Griffin, Thalia Kehoe-Rowden, Ceridwyn Roberts, Tilomai Solia-O'Hara (from June 2019), Maxine Watene.

Affiliates

Deborah Cobb-Clark, Andrew Coleman, Lew Evans, Richard Fabling, Viv Hall, Sholeh Maani, Robert MacCulloch, Tim Maloney, Philip McCann, Richard Newell, Les Oxley, Jacques Poot, James Sanchirico, Lynda Sanderson, Grant Scobie, Steven Stillman, Adolf Stroombergen, Julia Talbot-Jones, Malathi Velamuri.



MOTU PUBLICATIONS

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

Motu Working Papers

19-16 Maré, David C and Richard Fabling. 2019. "Competition and productivity: Do commonly used metrics suggest a relationship?"

19-15 Hall, Viv B and C John McDermott. 2019. "Changes in New Zealand's business insolvency rates after the Global Financial Crisis."

19-14 Hyslop, Dean, Trinh Le, David C Maré and Steven Stillman. 2019. "Housing markets and migration – Evidence from New Zealand."

19-13 Coleman, Andrew. 2019 "Liquidity, the government balance sheet, and the public sector discount rate."

19-12 Winchester, Niven, Dominic White and Catherine Leining. 2019. "A community of practice for economic modelling of climate change mitigation in New Zealand."

19-11 Fleming, David, Suzi Kerr and Edmund Lou. 2019. "Cows, cash and climate: Low stocking rates, high-performing cows, emissions and profitability across New Zealand farms."

19-10 Cortés-Acosta, Sandra, David A. Fleming, Loïc Henry, Edmund Lou, Sally Owen and Bruce Small. 2019. "Identifying barriers to adoption of 'no-cost' greenhouse gas mitigation practices in pastoral systems."

19-09 Kerr, Suzi, and Catherine Leining. 2019. "Paying for mitigation: How New Zealand can contribute to others' efforts."

19-08 Kerr, Suzi, and Catherine Leining. 2019. "Uncertainty, risk and investment and the NZ ETS."

19-07 Leining, Catherine and Suzi Kerr. 2019. "Managing scarcity and ambition in the NZ ETS."

19-06 Grimes, Arthur, Kate Preston, David C Maré and Shaan Badenhorst. 2019. "The contrasting importance of quality of life and quality of business for domestic and international migrants."

19-05 Maré, David C and Jacques Poot. 2019. "Valuing cultural diversity of cities."

19-04 Kerr, Suzi, Steffen Lippert and Edmund Lou. 2019. "Financial transfers and climate cooperation."

19-03 Fabling, Richard and David C Maré. 2019. "Improved productivity measurement in New Zealand's Longitudinal Business Database."

19-02 Sin, Isabelle and Judd Ormsby. 2019 "The settlement experience of Pacific migrants in New Zealand: Insights from LISNZ and the IDI."

19-01 Davies, Benjamin and David C Maré. 2019. "Relatedness, complexity and local growth."

18-16 Hendy, Jo, Anne-Gaelle Ausseil, Isaac Bain, Élodie Blanc, David Fleming, Joel Gibbs, Alistair Hall, Alexander Herzig, Patrick Kavanagh, Suzi Kerr, Catherine Leining, Laëtitia Leroy, Edmund

Lou, Juan Monge, Andy Reisinger, Jim Risk, Tarek Soliman, Adolf Stroombergen, Levente Timar, Tony van der Weerdan, Dominic White and Christian Zammit. 2018. "Land-use modelling in New Zealand: Current practice and future needs."

18-15 White, Dominic, Niven Winchester, Martin Atkins, John Ballingall, Simon Coates, Ferran de Miguel Mercader, Suzie Greenhalgh, Andrew Kerr, Suzi Kerr, Jonathan Leaver, Catherine Leining, Juan Monge, James Neale, Andrew Philpott, Vincent Smart, Adolf Stroombergen, and Kiti Suomalainen. 2018. "Energy- and multi-sector modelling of climate change mitigation in New Zealand: Current practice and future needs."

18-14 Preston, Kate, David C Maré, Arthur Grimes and Stuart Donovan. 2018. "Amenities and the attractiveness of New Zealand cities."

Motu Notes

#37 Pohatu, Pia, Sophie Hale and Leo Mercer. 2019. "Māori land owners' decision-making processes around native forest regeneration."

#36 Fleming, David, Pike Brown, Sandra Cortés-Acosta, Cecile de Klein, Robyn Dynes, Loïc Henry, Suzi Kerr, Jorie Knook and Bruce Small. 2019. "Barriers to adoption of no-cost agricultural mitigation practices."

#35 Timar, Levente. 2019. "Climate and land-use change: A synthesis of LURNZ modelling."

#34 Leining, Catherine and Suzi Kerr. 2019. "Outfitting the NZ ETS in post-Paris style: Top ten list for 2019."

#33 Hale, Sophie and Suzi Kerr. 2019. "Contracts for native forest carbon: perspectives from large-scale emitters."

#32 Cortés Acosta, Sandra. 2019. "Carbon farming on Māori land: insights on the decision-making process."

#31 Jo Hendy, Suzi Kerr, Angela Halliday, Sally Owen, Anne-Gaelle Ausseil, Rob Burton, Kenny Bell, Neil Deans, Blair Dickie, James Hale, Sophie Hale, Wageed Kamish, Jane Kitson, Brett Mullan, Rata Rodgers, Suzanne Rosier, Belinda Storey and Christian Zammit. 2018. "Drought and climate change adaptation: Impacts and projections."

Journal Articles

Motu's work also appeared in many prestigious international journals, including: *NBER*, *Nature Biotechnology*, *Econometrics*, *Journal of Business and Economic Statistics*, *Climate Change Economics*, *Journal of Human Rights*, *Australian Economic Review*, *Science and Public Policy*, *New Zealand Population Review*, *Resilience and Urban Disasters*, *International Migration*, *Social Indicators Research*, *Review of Income and Wealth*, *New Zealand Economic Papers*, *Agenda* and *Journal of Air Transport Management*.



QUALITY OF LIFE AND BUSINESS FOR DOMESTIC AND INTERNATIONAL MIGRANTS

Our research examined the flow of migrants to, from and within New Zealand. It tested whether the choice made by migrants on where to live is influenced by quality of life or quality of business.

Migrants are defined as ‘domestic’ if they were in New Zealand five years prior (regardless of their official immigration or citizenship status), and ‘international’ if they were not in New Zealand five years prior. The international category includes both migrants who were new to New Zealand and New Zealanders returning home after living overseas.

Our data covers migration flows between 31 main and secondary urban areas in New Zealand, derived from censuses between 1986 and 2013. We incorporate migration flows between urban areas and rural New Zealand, and also between urban areas and international locations. We look only at the working population aged 30-59.

Quality of life and quality of business measures are derived from wage and rent data constructed for each urban area for each census wave. This brings together two well-grounded models from urban economics literature – the gravity model of migration and the amenity values of cities – within a single modelling framework.

We control for the effects of population and of distance between locations in our analysis. We also discuss how we have dealt with issues of selection effects (where people already live), choices over the course of life (e.g. changes in preference over the course of a career), and measurement error (quality of life and quality of business measures are volatile for smaller locations).

In 2013, Auckland had the highest quality of business, closely followed by Wellington and then by Christchurch and Hamilton. Smaller places, on average, had a higher quality of life than did larger locations, with Queenstown being the most favoured area in this respect; however, some smaller urban areas have relatively low quality of life.

Some locations have changed substantially over time. For instance, Ashburton has moved substantially upwards as a place for business, while Levin has moved downwards; and Auckland’s quality of life has declined since 1986. These kinds of changes enable us to better test the influence of these variables on migrants’ location choices.

We find that locations with a high quality of life attract migrants from other urban areas, but do not attract international migrants. In addition there is reduced migration from rural areas to attractive urban areas.

Locations with a high quality of business do not attract domestic (urban or rural) migrants, but do attract international migrants. A one standard deviation increase in quality of business in a location increases international migration by approximately one-third. The attractiveness of quality of business holds even when we control for population (the gateway city phenomenon). Meanwhile, people (of the 30-59 age group) tend to leave locations with high quality of life and/or high quality of business.

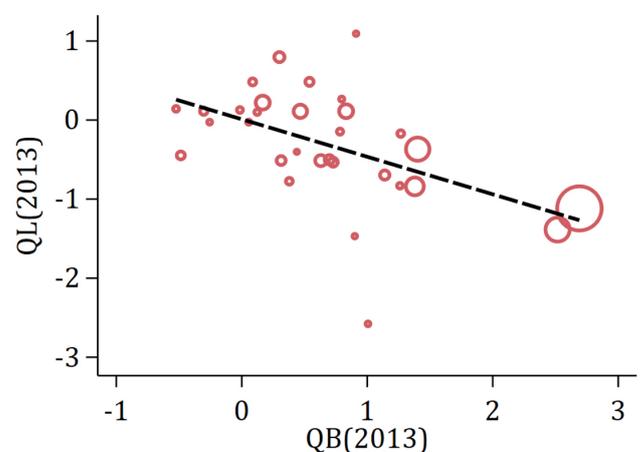
A one standard deviation increase in a location’s quality of business is estimated to increase international migration into that location by approximately one-third, while raising domestic residents’ migration out of that location by approximately one-fifth.

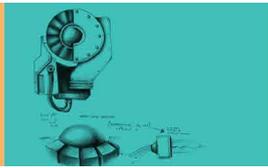
An explanation for this set of findings (albeit one that we do not test directly in this study) may be that a location which improves its quality of business attracts international migrants, which places upward pressure on house prices. This both crowds out rural residents from migrating to these locations and encourages residents of these locations to move elsewhere. Similarly, a location that improves its quality of life will see its house prices rise, incentivising residents of those locations to move away.

International migrants are more attracted to cities that are based on productive amenities (quality of business), whereas domestic migrants are more attracted to places with consumption amenities (quality of life). From a (local) policy perspective, therefore, when city officials are deciding on the type of city amenity to enhance (e.g. a port that facilitates business or a concert hall that facilitates consumption), they are implicitly choosing the type of migrant that they attract as well as the type of city that may result.

For more on this paper, check out the Motu website at <https://motu.nz/our-work/urban-and-regional/housing/housing-markets-and-migration-evidence-from-new-zealand>.

2013 QL and QB measures for 31 urban areas





SOLUTIONS FOR FRESH WATER MANAGEMENT

In the last three years, issues of declining water quality and over-allocation of fresh water have surged in importance both inside and outside of government. Eighty-two percent of New Zealanders now say they are extremely or very concerned about the state of New Zealand's waterways.

The unease of voters and policy-makers is well founded. According to government data, 60 percent of New Zealand's rivers and lakes are now unswimmable, and most regions have at least one river or aquifer that is either fully allocated or over-allocated, or likely to become so in the next one to five years. This directly undermines New Zealand's claim to be "100% pure". Further pressures on our water resources will be driven by economic development, population growth, and climate change. Decisions on freshwater policy will have flow-on effects for urban and rural development, biodiversity conservation, and renewable energy production.

So what is to be done? Although technology may offer some opportunities to address issues of declining water quality and over-allocation, it is the human component of water management that is likely to determine the relative security of New Zealand's water future. To conserve our freshwater resources, we must engage experimentation, innovation, information sharing, dialogue and collaboration across sectors and stakeholders to increase the likelihood that New Zealand delivers freshwater policy that improves the wellbeing of all New Zealanders.

Unfortunately, by not simultaneously addressing issues of quality and allocation, the new National Policy Statement misses the opportunity to capture the full suite of benefits that could arise from implementing an integrated water governance framework across New Zealand. It also misses the opportunity to create direct action on the holistic values of Te Mana o te Wai.

International water governance models that take an integrated approach to quality and quantity issues consistently deliver greater net benefits to users and managers alike. This is because recognising the interrelationship between scarcity and quality is vital to the health and resilience of freshwater systems.

The interrelationship between scarcity and quality is vital to the health of Aotearoa's freshwater systems. Limited water supply intensifies issues concerning water quality. For example, low water levels can lead to warmer stream temperatures. This can result in increased algal growth, and induce shifts in macroinvertebrate communities, which are a common measure of stream health. Similarly, declining water quality can incentivise users to move away from traditional water sources, opening up previously untapped water sources to new pressures.

Climate change is only likely to exacerbate these effects. In historically arid areas, such as the east coast of the South Island, precipitation is forecast to reduce, leading to even more challenges for water quality and allocation. In other areas, increased levels of rain and snowfall could worsen water quality as increased runoff from rural and urban areas enters waterways.

The effects on biodiversity are also expected to be notable. Taonga such as native fish are likely to become further range-restricted as a result of increasing temperatures. In addition, disruption of freshwater habitats and communities may cause extinctions to some of our local species and shifts in species distribution.

Safeguarding Te Mana o te Wai requires stewardship of both water quality and quantity, thereby presenting an opportunity to improve outcomes for both communities and biodiversity in the face of climate change.

In contrast, taking a piecemeal approach to water quality and quantity risks placing regulatory emphasis on issues that may not deliver the greatest net benefits for all New Zealanders. For instance, directing resources towards cleaning up rivers and streams that are under increasing allocation pressures is likely to achieve only a second-best return for communities and biodiversity.

Although addressing scarcity will not be easy in the New Zealand context, developing a dynamic and integrated fresh water governance framework will help ensure that the benefits can be felt by New Zealand communities and its biodiversity.

New Motu Work Programme

Motu Economic and Public Policy Research is launching a new freshwater management work programme. This is supported by the Aotearoa Foundation and we are looking for additional funding to enable its implementation. The freshwater management programme will apply rigorous research and stakeholder dialogue to develop practical, evidence-based economics and policy solutions to freshwater management challenges in New Zealand.

The long-term outcome from our work will be strategic and sustainable freshwater management underpinned by an integrated policy framework that is dynamic, intergenerational and grounded in evidence. We know that achieving this is possible, but there is no quick-fix. Instead priority must be given to conducting robust research, socialising the results, and ensuring that we build technical, institutional, and social capacity in freshwater economics and policy in New Zealand. The multi-year work programme will be implemented in stages and deliver specific outputs at each stage.

The work programme is led by Julia Talbot-Jones, Motu Affiliate and Lecturer at Victoria University of Wellington. You can contact Julia on julia.talbot-jones@vuw.ac.nz.