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A newsletter to promote the exchange of information, news and ideas among members of the New Zealand Association of Economists (Inc).

CONTENTS

EDITORIAL

John Yeabsley (john.yeabsley@nzier.org.nz)

Before detailing the contents for the latest issue I must apologise for the late publication of the previous edition of AI. Process problems have dogged production, printing and/or distribution over the last year. We are expecting these to have been remedied and normal service to be resumed.

The long interview in this issue is with Phil Barry founder and Director of TDB Advisory. He is interviewed by John Yeabsley your editor.

The short interview is with Shamubeel Eaqub now with Sense Partners.

Paul Walker's Blogwatch ranges widely as usual, with this one covering discussions from the passing of a modern giant of economics to the role of medieval guilds.

Motu's Benjamin Davies and Dave Maré probe "smart specialisation" as part of their wider work on amenities and the attractiveness of New Zealand cities.

In another of our series of individual reactions to economics books Ian Duncan discusses the economic impact of the Great War, a century on.

In a topical article, Stats NZ discusses the way they are approaching child poverty measurement.

This issue's Research in Progress comes from the Department of Economics at the University of Waikato, and new members who joined NZAE are also recorded.

Our advertisement on the back page continues to be from Survey Design and Analysis Services. They are the authorised Australia and New Zealand distributors for Stata and other software. www.surveydesign.com.au.

ABOUT NZAE

The New Zealand Association of Economists aims to promote research, collaboration and discussion among professional economists in New Zealand. Membership is open to those with a background or interest in economics or commerce or business or management, and who share the objectives of the Association. Members automatically receive copies of New Zealand Economic Papers, Association Newsletters, as well as benefiting from discounted fees for Association events such as conferences.

PAST ISSUES

All past issues are now available for downloading (or for citing in scholarly publications) free of charge from:
http://www.nzae.org.nz/blog-page/nzae-newsletters/

AN INTERVIEW WITH PHIL BARRY

with John Yeabsley (john.yeabsley@nzier.org.nz)

Q. I'm with Phil Barry, and he's a partner in a consulting firm in Wellington. After talking about that we'll go on to ask about how he became an economist and the influence it's had on his life.

A. Right. TDB Advisory is the name of the company. I set that up with two other colleagues, close on 20 years ago, now. Applied micro is the market we're in, which gives us license to do pretty well anything in terms of helping clients solve problems. Our focus is on the larger corporates, both in the public and private sector. We do a lot of work in the agribusiness, energy and infrastructure spaces, doing strategic reviews, investment, pricing and risk-management analysis, some transactional work, that kind of thing. I can say I haven't had a quiet day since setting the firm up. Before that, I was with the Treasury for many years. I had a great time there, really enjoyed it. I was lucky enough to work pretty much through the peak of the economic reform time, in the '84 to '99 period.

Q. So, how did you come to economics? What made you get into it?

A. Race horses.

Q. Don't stop.

A. The school I went to, the economics teacher there, I developed a relationship with him because we both had a mutual interest in racing. He would give me some good tips, sometimes, being part of the good old Irish Catholic mafia. But seriously, I respected him and picked up economics with him in seventh form and took a liking to it.

Q. Then you went on at university. Where did you go?

A. Victoria. I did an undergraduate there in Economics and History. Then did my Honours in Economics with some really top-class professors: for example, Bryan Philpott with his Project on Economic Planning. Victoria's honours provided me with a very rigorous training. One text I remember vividly was James Meade: those ones that translate mathematical economics into English in a very pedantic way? But it provided a very good grounding. Girol Karacaoglu persevered with me and taught me Comparative Statics. There were only two of us in the International Economics class with Girol. That was invaluable. Also Public Economics – we did some good stuff there. It was a hard year, and you get your stripes.

Q. One way or another. Then you had to look around for a job and… first professional employment?

A. Was with the Treasury, after the Honours. I had no idea who the Treasury were or what they did. I'd had a couple of odd jobs before I went, in the energy sector and so Treasury put me in the energy section. That was '82. I remember the post-election briefing in 1984 stating bluntly that energy was one of the most heavily regulated sectors of the economy. Price controls on electricity, on petrol stations, on gas - licensing requirements to own a petrol station, state ownership, central planning, etc, etc.

Q. MSLA – the Motor Spirits Licensing Authority used to be the top of Cuba Street.

A. Welcome to the wonderful world of price control. Government rationing. Central control.

Q. Yes. Especially then, of course. Indeed, '82 was the freeze.

A. That's right. I had to write an application essay to the Treasury on how to get out of the price freeze. I think they were looking for advice! But it was a great place to work - some really good people there at the time. Howard Fancy was my boss. And then there was the triumvirate of Roger Kerr, Bryce Wilkinson and Rob Cameron. I didn't realise how much I didn't know until I started working there.

Q. No. And exciting times, just in terms of what was in the air at the time? What was the feeling? The Treasury, a fantastic esprit de corps.

A. Yep. Esprit de corps, intellectual rigour. Not a lot of empiricism. Because we didn't have the time or the data. Of course there was a lot of international evidence and experience about what did and didn't work. And then we had also done the ex-post reviews of the Think Big projects and of electricity construction and planning (the McLachlan report) that were pivotal studies in providing empirical evidence of the costs imposed on the economy from attempts at central planning and state control.

Q. Looking back now, you found it valuable then working in a situation which, if you like, we had a massively interventionist economy. Good training?

A. Well, it was, because economics at universities tended to teach you about market failure. It's only when you work in the Government, I think, that you see the other side of the coin. government failure. A good economist, in my view, needs to weigh up both in any given circumstance.

Q. Then you moved on. Any other highlights in the Treasury that you want to mention?

A. Well, I was lucky enough to go to the States on a scholarship and do an MBA there at the University of Rochester specialising in finance at a top 20 finance school. I'd developed an interest in the Treasury in state-owned enterprise reform and corporate governance. Michael Jensen was lecturing there – of Jensen and Meckling's theory of the firm fame. There were some really good institutional economics, business and financial economists there.

Q. And you brought that back and did that…

A. Then the Treasury put me in as head of the macro unit!

Q: I remember.

A. So, that was a good learning experience. My first management experience too. I learnt a lot about management. I was very lucky, I had a really good team, a really good boss, Graeme Wheeler. Then I went on to health reforms, which was a very challenging one.

Q. Breaking new ground.

A. Yes. I remember at the time there was really no accepted orthodoxy world-wide about the appropriate direction of reform, and I don't know if there still is.

Q. Well, what would you take out of that today?

A. Possibly humility. But not nihilism. I think there are things you can contribute - probably more at the margin than by a wholesale first principles reform in such a complex sector. That's pretty ambitious in a sector like that.

Q. Yep, and with no success path to follow.

A: Yeah.

Q: And so, after that, we're getting close to where you start the firm.

A. Yes. I helped sell a few state-owned businesses on the way. I've always enjoyed working at the interface between the commercial and public sectors. At the Treasury I also led the first IPO of a government asset, the float of Auckland Airport. That was a complex transaction because it was 51% central government owned and the other shareholders were the seven councils in Auckland at the time, plus Infratil. So, negotiating the shareholders' agreement, managing the first IPO for the Government was a fascinating transaction to be involved in. Looking back, I think it's been a huge success too, that transfer of risk out of the public sector and introducing a much more commercial approach to managing a major infrastructure asset.

And Fonterra too. I was lucky enough to be closely involved for a few years in the dairy sector reforms that saw the removal of the old Dairy Board's monopsony and the creation of Fonterra. Farmer politics is quite unique and fierce. Looking back on that one, while Fonterra has struggled, I think the industry reform has been a success also, primarily because the industry has been unleashed and companies like A2, Synlait and Open Country have been allowed to develop and prosper. A2 of course, with around $10 billion of value, is one of the largest companies on the stock exchange now. That kind of innovation and value creation just would not have been allowed under the old command and control regime.

Q. What it's done is open up both the farming and processing sides for innovation and change.

A. Especially the processing, marketing and distribution segments of the value chain.

Q. What made you move to the private sector? Just the stirring interest in finance?

A. Yeah. Probably a bit of an entrepreneurial streak too. I came across a You Tube interview of Jack Ma, the Alibaba founder recently. He provided a nice pithy piece of career advice. His view was that in your 20s and 30s, you should stay put for a reasonable period at a job, any job really, it doesn't matter what it is, just learn from "the masters". In your 30s and 40s: experiment, find out what you're good at. In your 40s and 50s, stick to what you're good at. And in your 50s and 60s, pass on what you've learnt to the next generation. In a way, that sums up my life, actually, or my career. One of the things I've really enjoyed at TDB is having really bright, energetic young staff. We tend to get graduates straight out of the university, or even part-time undergraduates. They keep us Directors nimble and alert and also hopefully they learn a bit from working with us.

Q. A question here about Treasury culture. A really strong part of the Treasury culture, - at the time you were there - it was a great place to be a junior and to learn.

A. Absolutely.

Q: And mix and match and fight and argue and struggle.

A. Yeah. There was a vigorous debate. It was not just one mind set. There was rigour and intellectual sparring and your ideas, your thinking was well and truly tested.

Q. There was a view from the outside that it was something of a monolith. That didn't reflect at all what went on internally.

A. No, not at all.

Q: How do you think your thinking then was affected by the economic shifts of the 80s? You've talked about some of it: having a go at the health reforms. Other things that rubbed off on you?

A. Probably more managerial: the importance of team work, diversity of thought, good governance and leadership - but leadership in terms of removing obstacles and allowing people lots of rope and independence, I think, is what works best.

Q. Leadership by encouragement or from behind, if you like?

A. Yeah. Respecting the abilities of all you work with and trying to get the best out of everybody. That's one thing I've really learnt. It comes back to teamwork, direction and motivation. I try to apply that approach in the roles I'm involved in now. I often find myself nowadays chairing boards or chairing review groups and now, for my sins, I've ended up as President of New Zealand Football for a period. You need to draw on all your life experiences for that one.

Q. No, not easy, and challenging but worthwhile?

A. I think so, very worthwhile, because the potential for the game in New Zealand is enormous, the fundamentals are strong and it's a great game world-wide.

Q. In these roles – and focus on football if you want to - do you see your economic thinking and training coming through?

A. Yes, absolutely it does. It might be in terms of the theory of the firm and theory of contracting - that sort of thing. How to incentivise people to act in a way that aligns their interests with the common interest, always, is the fundamental issue. It also might be about resource allocation. For example, what is an efficient way of allocating the property rights to host the World Cup? What are the inefficient ways of doing it and what are the risks with that?

Q. Well, from the outside, FIFA looked like a bunch of amateurs running international football with systems warped by massive cash flows. That allowed people to change their behaviour in response to the money flowing around.

A. Yeah. In some ways football is a victim of its own success. Jenson's theory of free cash flow is very relevant there. So, yes, economics is very relevant to football governance and provides some great insights. It's only for a period and I've tried to focus on humble things to start: in the local game and the women's game, especially, there's huge talent and potential.

Q. To rock back a wee bit and look back then, what work have you found the most satisfying?

A. I enjoy a challenge. I enjoy problem-solving. I enjoy helping lead change, when change is going in the right direction. Some of the examples I've pointed to, like the dairy reforms and the Auckland Airport transaction. More recently, we've developed a number of interesting products at TDB. Like for Iwi - we do a pro bono annual Iwi Investment Report, reviewing the structures, investment strategies and financial performance of the main post-settlement Iwi entities. We were commercial advisors to Tainui and Ngai Tahu, in their early days, and helped lay some of the foundations there. Oh, and I'll put in a little plug here. One of the things I was proud of recently was that TDB Advisory was quoted in The Economist. That came totally out of the blue, but in our job, that's a nice sign of recognition.

Q. Too right. Well, looking back, can you draw any thoughts about your economics training and your economics background and where it's fitted into your career?

A. Oh look. It's been invaluable, it really has, and I've enjoyed it a lot. To me, economics is the science of decision-making. It's a framework for looking at what are the options and what are the pros and cons, the costs and benefits of different options. That's the kind of economics I enjoy. You can apply it in such universal settings.

Q. Business, of course, is just a big playground, because it's making decision after decision.

A. Yes - in the face of uncertainty.

Q. Because as soon as you've taken a decision, you've changed the world ahead, so the next one's never going to be the same.

A. Yes.

Q. Any final thoughts? Where you see the future of New Zealand, for instance? You mentioned Bryan Philpott. He was trying to make New Zealand a better place according to how he saw it. It's been interesting to see changes in what we think about that kind of future now.

A. Mmm. I'm an optimist. I think as an economist you are, inherently, an optimist. It's funny that they call economics the dismal science, but actually, to me, it's about understanding institutions and understanding people. When you see the potential for innovation and the pace of technological change these days you've got to be optimistic. There are big challenges – of course - with things like climate change and social inequality. On the latter, though, I find it ironic that over last 20 years there's been globally a huge reduction in the disparities of income, with a billion people coming out of poverty, largely as a result of market-based economic reforms. There are huge adjustments going on globally as a result of that change but fundamentally the story is a positive one.

Q. China's made it and India looks like it might even get there this time.

A: Yep.

Q: Well, on that optimistic note, let's stop.

THE FIVE-MINUTE INTERVIEW WITH …
SHAMUBEEL EAQUB

1. When did you decide that you wanted a career in economics?

It happened by chance rather than careful planning. I started at Statistics NZ after university and then was recommended by a lecturer at Lincoln University for the junior woodchuck position at ANZ's economics team in Wellington.

While I studied economics, I didn't have a set view to be an economist. I figured economists learn tools and frameworks to be able to think about lots of different issues.

Serendipity drove many of the next steps. I moved to Melbourne because a colleague there had moved to Goldman Sachs JBWere and ANZ had just bought National Bank - they would have too many economists in NZ. I had great mentors in Melbourne and of course had a wonderful time living in an amazing city.

I was back in Christchurch for Christmas and caught up with old ANZ colleague who mentioned a vacancy at Goldman Sachs JBWere in Auckland. So, I got in touch, flew over for an interview and moved.

Moved to NZIER in Wellington after getting married, wanting a change but it was the Global Financial Crisis and going to NY or London was out. The work was great, but what I loved most was the collegiality and being able to natter about all sorts of economic issues.

Moved back Auckland and went out on my own when our first son arrived. I wanted to be a full-time parent, with a little bit of work on the side which included governance and advisor roles. That has since morphed to a partnership with four other ex-NZIER colleagues in our new venture, Sense Partners.

2. Did any particular event or experience influence your decision to study economics?

Paul Dalziel's first year macro-economics lectures. He talked about the economy with real data and historical examples of what New Zealand went through. It was economics through the lens of history and data. It really happened. And we could look back and understand why or how it happened. It dispelled my, until then jaundiced, views on supply and demand curves and all that stuff.

3. Are there particular books which stimulated your early interest in economics?

Paul Dalziel's The New Zealand Economy without a doubt. Still have my copy from university days on my bookshelf. Many others since then, but it was my first economics love.

4. Did any teachers, lecturers or supervisors play a significant role in your early education?

So many! Paul Dalziel, Bert Ward, Lana Friesen and Amal Sanyal at Lincoln University were probably the biggest influences. Lincoln is a small place and we had a lot of access and engagement with our lecturers. I had some amazing teachers at school too who encouraged curiosity and creativity. Ian Masters and Penny Lancaster, my maths and English teachers stand out.

5. Do you have any favourite economists whose works you always read?

I am a voracious reader. I will read everything from trashy novels to academic papers. As my time has become more constrained, I tend to read 'work' stuff more narrowly on topics that I am interested in at that time, rather than a particular author.

6. Do you have a favourite among your own papers or books?

I am particularly proud of Generation Rent published by BWB Texts, co-authored with my wife Selena. The ideas perhaps aren't so new, but we brought it all together in a coherent whole. It has been the platform for a huge portion of my media and other engagement on housing issues. While a lot of people have been working on housing issues for ages, Generation Rent seems to have somehow been absorbed into the zeitgeist. Sometimes I think a snappy little phrase has more reach and impact than detailed content. Generation Rent and Zombie Towns have created more lasting reach, infamy and engagement than other work.

7. What do you regard as the most significant economic event in your lifetime?

The global financial crisis. It has challenged the status quo in economic thinking. Many of our traditional models broke down and we must think harder, more creatively and in a more multi-disciplinary way. I believe history and politics are two particularly important lenses for economics now.

8. What do you like to do when you are not doing economics?

I have two super-energetic sons. If I am not working, I am trying to keep up with them. If they let me have a bit of time, I like to cook. After the kids are in bed, and I don't have a long list of things to do, I love to read with a nice cup of tea or a glass of good red on the couch.

BLOGWATCH

By Paul Walker (psw1937@gmail.com)

Economics has lost another of its greats with **the passing of Harold Demsetz**. Demsetz died January 4th at the age of 88. Craig Pirrong notes that *A Great Passes: Harold Demsetz* <https://streetwiseprofessor.com/a-great-passes-harold-demsetz/>. Peter Boettke notes the passing of a champion of price theory and the economic way of thinking <https://www.coordinationproblem.org/2019/01/harold-demsetz-1930-2019-a-champion-of-price-theory-and-the-economic-way-of-thinking.html>. Art Carden makes the point many people feel, that Demsetz was one of those who should have won the Nobel, but didn't <https://www.forbes.com/sites/artcarden/2019/01/08/in-memoriam-harold-demsetz-1930-2019/>. Frederic Sautet notes the influence that Demsetz had on him <https://www.coordinationproblem.org/2019/01/demsetz-competition-property-rights-nirvana-economics-and-barriers-to-entry.html>. Thomas Hubbard offers an appreciation of Harold Demsetz <https://digitopoly.org/2019/01/09/harold-demsetz-an-appreciation/>. David Henderson writes on *Chicago's Lesser-Known Free Marketeer* <https://www.wsj.com/articles/chicagos-lesser-known-free-marketeer-11547411497>. Richard Epstein highlights *The Greatness of Harold Demsetz* <https://www.hoover.org/research/greatness-harold-demsetz>. Vincent Geloso writes on *The late great economist everyone should know* <https://www.fraserinstitute.org/blogs/the-late-great-economist-everyone-should-know>. Thomas N. Hubbard discusses *The ideas of Harold Demsetz, 1930-2019* <https://voxeu.org/article/ideas-harold-demsetz-1930-2019>.

Can trade protection jump-start an industry? A controversial question in trade. At the AEA's website <https://www.aeaweb.org/research/> Tyler Smith looks at recent work on testing the infant-industry argument <https://www.aeaweb.org/research/infant-industry-napoleonic-blockade>. A paper in the November issue of the American Economic Review looks back 200 years to the Napoleonic Wars and finds evidence that countries can foster industries by temporarily protecting them from foreign competitors. The 19th-century experience of France's cotton textile industry seems to vindicate those arguing for infant-industry policies. But infant-industry arguments really only work for countries not at the technology frontier. This research doesn't provide support for anyone advocating for infant-industry protection today, however. Today, it's much easier for multinational firms to move technology and people around the globe. Countries may be able to reach the technology frontier much faster in today's world. And there is still the political economy problems of actually getting protection removed when the industry is "internationally competitive" and the question of, is infant-industry protection the most efficient way of achieving the end?

Timothy Taylor at the Conversable Economist blog <http://conversableeconomist.blogspot.com/2019/02/economics-of-medieval-guilds.html> looks at **the effects of guilds on the European economy.** He notes that "Guilds played an important role in the economies of Europe from about the 11th century up through the 16th century, and a continuing if less important role up into the 19th century". One problem with them is that "[...] in many cases, including guilds, a cycle forms in which government helps certain producers receive higher profits, and then a share of those profits goes to helping government officials reach the conclusion that favoring one set of producers over consumers and other producers is a socially important goal" <http://conversableeconomist.blogspot.com/2019/02/economics-of-medieval-guilds.html>.

Taylor also comments on **What Newfangled Rent Control Looks Like** <http://conversableeconomist.blogspot.com/2019/03/what-newfangled-rent-control-looks-like.html> Rent control has evolved to become not a pure price control, but a more flexible set of rules. But the bottom line from research on these new controls is what you might expect. "Those who have rent-controlled apartments are more likely to remain there, even when they get jobs that require a longer commute. Landlords try to evade rent control rules, with some success, through methods like converting rental properties to condo ownership and being aggressive about evictions wherever possible. When rent control is in place, both the quantity and quality of rental housing tends to be lower than it would otherwise be. Current renters pay less out of pocket, but future renters have a harder time finding a place and neighborhoods with a higher proportion of renters tend to become run-down".

At VoxEU <voxeu.org> Peter T. Lesson looks at **Witch hunts in the Western World, Past and Present** <https://voxeu.org/article/witch-hunts-western-world-past-and-present> "President Trump frequently refers to Special Counsel Robert Mueller's investigation into possible Russian collusion during the 2016 presidential election as a 'witch hunt'. This column argues that competition might be behind both this current 'witch hunt' and Europe's 'witch craze', which between 1520 and 1700 claimed the lives at least 40,000 people. Today it is competition between Democrats and Republicans; in 16th and 17th century Europe, it was competition between Catholicism and Protestantism in post-Reformation Christendom".

At the American Institute for Economic Research <https://www.aier.org/> website Michael Munger asks, **Will Reducing Transaction Costs Be the End of Retail?** <https://www.aier.org/article/will-reducing-transaction-costs-be-end-retail>. A famous question Ronald Coase asked back in the 1930s is, why do we see the particular arrangements that appear in the economic world, rather than other arrangements? Or why are there firms as well as markets? His answer was simple, though that simplicity was and is deceptive. The answer is "transaction costs." This raises the question, if transactions cost fall enough will there be firms at all?

At his blog, The Money Illusion, <https://www.themoneyillusion.com/> Scott Summer tries **to make sense of Modern Monetary Theory** (MMT) and comes to the conclusion it is "wrong in a very confusing way". He writes, "There are lots of macro models out there: old monetarism, market monetarism, old Keynesianism, new Keynesianism, supply-side economics, Fiscal Theory of the Price Level, NeoFisherism, Austrian, Real Business Cycle, etc., etc. People who believe in one tend to view the others as being at least partly wrong. But where they disagree, it's usually possible to pin down some specific points of disagreement. MMT is not like that." <https://www.themoneyillusion.com/wrong-in-a-very-confusing-way/>.

At the Digitopoly blog <https://digitopoly.org/> Joshua Gans writes on, **When breaking up makes no sense.** Elizabeth Warren wants to break up Facebook, Amazon and Google. Is there any point? "But when someone comes out and says these three companies should be broken up and suggests some, in some cases, just punative ways of doing that, we have to take it seriously. Crazy policies have been proposed recently in the US and UK that no one thought could ever be done and then they just happen. I worried that a breakup rather than an innovative approach to opening up to enhance technology competition will end up being another of those things that ends up hurting many without any benefit to anyone" <https://digitopoly.org/2019/03/08/when-breaking-up-makes-no-sense/>.

At his Stumbling and Mumbling blog <https://stumblingandmumbling.typepad.com/> Chris Dillow explains why he is **Against the Output Gap** <https://stumblingandmumbling.typepad.com/stumbling_and_mumbling/2019/03/against-the-output-gap.html>. He argues that the idea of the output gap is not just a bad one, it can be a dangerous one as well.

RELATEDNESS, COMPLEXITY AND LOCAL GROWTH

by Benjamin Davies and David Maré
Motu Economic and Public Policy Research

INTRODUCTION

Current European regional policy encourages regions to build on their strengths by diversifying into activities that draw upon existing knowledge bases. This "smart specialisation" approach encourages entrepreneurship, innovation and long-term growth by fostering local interactions between workers with complementary knowledge and skills.

Balland et al. (2018) define a framework for analysing smart specialisation using the ideas of relatedness and complexity. Expanding into activities that are related to existing specialisations carries low growth risk because local workers already possess the knowledge and skills needed to conduct those activities. The highest expected economic returns are obtained through expanding into complex activities, which "form the basis for long-run competitive advantage." Balland et al.'s (2018) framework identifies low-risk, high-return development opportunities as locally under-represented activities that have high local relatedness and high complexity.

We examine the contribution of relatedness and complexity to urban employment growth in New Zealand. This allows us to evaluate the efficacy of implementing smart specialisation policies in New Zealand by identifying whether the associated mechanisms appear to influence employment dynamics.

DATA AND METHODS

Our analysis uses historical New Zealand census data aligned to current industry, occupation and urban area codes. We select 50 "cities" (urban areas) and 200 "activities" (industry-occupation pairs) with persistently high employment in census years 1981, 1991, 2001 and 2013. Our selected activities span 61 industries and nine occupations.

We recognise activities as being "related" if they require similar inputs. We infer such similarities from employee co-location patterns. These patterns reveal firms' shared preferences for using spatially heterogeneous resources, which encourage firms engaged in related activities to co-locate in order to benefit from agglomeration economies.

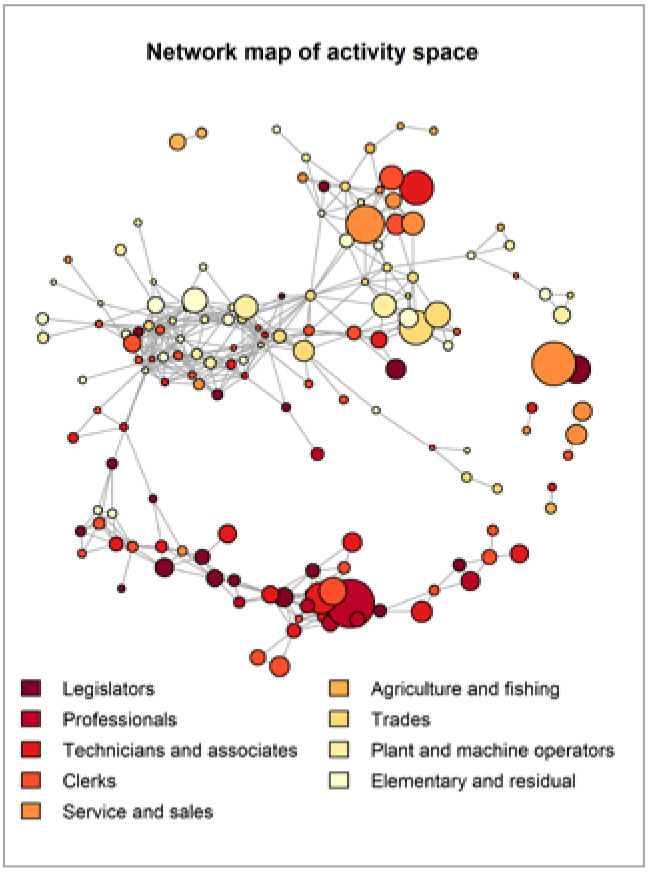
We measure activities' relatedness using weighted correlations of local employment shares. Our approach extends discrete measures used in previous studies by recognising variation in the extent of local specialisation and by adjusting for differences in employment data quality between geographic areas.

We recognise activities as being "complex" if they rely on specialised combinations of complementary inputs. For example, consulting is more complex than lecturing because consultants need local clients while lecturers do not rely as much on other activities being present locally.

We define activity complexity using the second eigenvector of the row-standardised activity relatedness matrix. Our approach generalises Calderelli et al.'s (2012) eigenvector approximation of Hidalgo and Hausmann's (2009) Method of Reflections. We use a similar approach, applied to the transpose of the city-activity employment matrix, to estimate city complexity.

MAPPING RELATEDNESS

We define an "activity space" that captures the network structure of activities based on our relatedness estimates. We describe activity space by a weighted network in which nodes correspond to activities and in which edges have weight equal to the relatedness between pairs of activities. The subnetwork induced by the 500 edges of largest weight is shown in the figure below, with nodes coloured by occupation.



At the centre of our map is a tightly connected, nest-shaped cluster of low-skill occupations in the distributive services sector. To the right of this cluster is a group of medium- to low-skill occupations in the construction, retail and healthcare sectors. These activities are ubiquitous and appear together as local relative specialisations in smaller, less diverse cities. In contrast, the lower wing of our network map comprises a cluster of high-skill occupations in the professional and information service sectors, which tend to concentrate in large cities and to have higher levels of complexity.

DO RELATEDNESS AND COMPLEXITY PREDICT EMPLOYMENT GROWTH?

More complex activities grew faster during our period of study. On average and holding local relatedness constant at its weighted mean value, a one standard deviation increase in activity complexity is associated with a 0.89 percentage point increase in local employment growth per year. This effect increases to 0.98 percentage points when we control for city complexity. More locally-related activities experienced slower growth, especially in complex cities.

Balland et al.'s (2018) framework suggests that complex activities with high local relatedness offer the strongest prospects for future growth. If this were true then we would expect a strong positive coefficient on the interaction of local relatedness and activity complexity. Our estimates show only a weak and insignificant interaction.

Relatedness appears to promote growth only in the largest and most complex cities. This result is consistent with the idea that cities are dense networks of interacting activities: the benefits of such interaction are more apparent in larger cities, where workers and firms engaged in related activities interact more frequently.

CONCLUSION

Complex activities grew faster during our period of study, especially in complex cities. However, this growth was not significantly stronger in cities more dense with related activities. Overall, we do not identify strong effects of relatedness and complexity on growth in local activity employment. It remains an open question whether the effects do not operate or whether New Zealand cities lack the scale for such operation.

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The paper "Relatedness, Complexity and Local Growth," by Benjamin Davies and David Maré, is available on Motu's website at https://motu.nz/our-work/urban-and-regional/regions/relatedness-complexity-and-local-growth/. The research was funded by Te Pūnaha Matatini, and the Better Homes, Towns and Cities National Science Challenge.

A HUNDRED YEARS ON: BEYOND THE FIGHTING TO THE ECONOMICS

by Ian Duncan

November 2018 marked the 100th anniversary of the end of World War I, a watershed event in modern history. "Europe was its cockpit, but the war's effects were felt around the world. Troops crashed across borders where goods and travellers passed peacefully the day before. International trade was pulled apart; globalisation was reversed."

Casualties included the millions killed, wounded, or displaced, but also most importantly the world economy. A recent book suggests the economic consequences may have been much more prolonged than previously understood, with impacts not just on the major powers but also reaching out to small economies like New Zealand's.

'The Economics of the Great War'[1] is a compilation of research, each chapter by a different author, divided into three main parts: Preparation for War, Conduct of the War, and Consequences of the War.

Within "Consequences" two chapters are most salient to a New Zealand economic perspective. These are Chapter 13 "Walking wounded: The British economy in the aftermath of World War 1" (Nicholas Crafts) and Chapter 20 "The first great trade collapse: The effects of World War I on international trade in the short and long run" (David Jacks).

THE ENGINE OF EXPANSION - INTERNATIONAL TRADE COLLAPSES

Jacks documents the implosion of world trade in the initial years of the War, together with important changes in the composition of trade. "World War I emerges as a clear inflection point in the evolution of the global economy. The diplomatic misunderstandings, economic headwinds, and political changes introduced in its wake can be discerned in the data as late as the 1970s."

In the period from the end of the last global conflict in 1816 through to 1900, world exports increased by a factor of roughly 30 in real terms while the ratio of world exports to GDP increased from roughly 2% to 9.3%.

Jacks attributes this sustained boom in international trade to a combination of "burgeoning incomes and declining trade costs due to maritime and overland transport revolutions, the liberalisation of commercial policy, and the development and improvement of transaction technologies, in particular the classical gold standard." This was the unheralded side of the industrial revolution: better transport and improved institutions unleashed the magic of trade.

As per Figure 1, world exports had grown at about 4% per annum 1900 and 1913. But in the first two years of the conflict, they tumbled by nearly 25% in real terms.

Figure 1: World exports, 1900–1920 (1900 US dollars, billions)

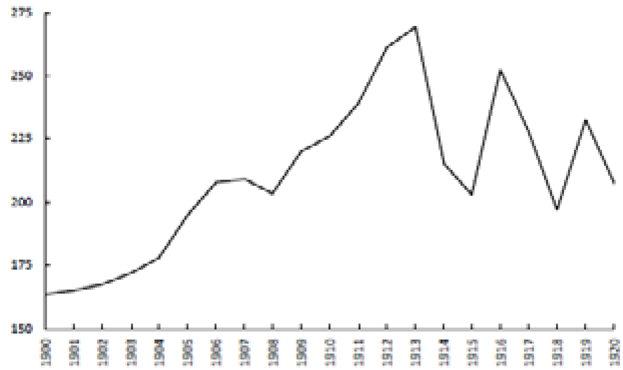


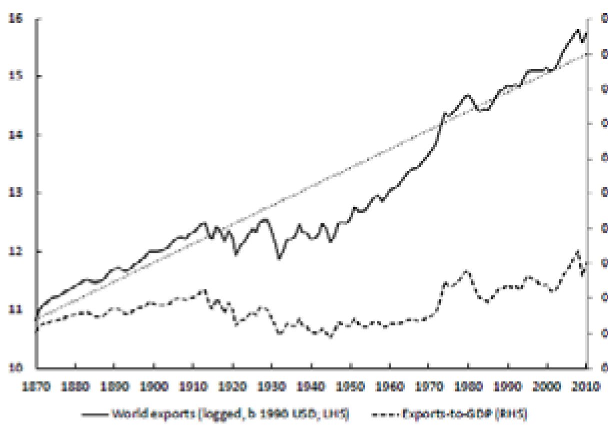
Figure 2 plots world exports over the longer run from 1870-2010. This shows the wars more immediate after effects being caught up in wider problems of global finance.

"A partial but sharp rebound into 1929 was fully reversed with the descent into the Great Depression, setting a seesaw pattern in which real trade volumes in 1950 were no greater than they were 40 years earlier and with trade costs on average 13% higher in 1939 than in 1921" (Jacks et al. 2011, as are the further quotes below).

Figure 2 also depicts the projection of the prevailing trend for the period from 1870 to 1913 (the straight dotted line). Over the course of the 20th century, World War I introduced a long period of disruption in the pace of globalisation which was only completely recovered in the 1970s and only consistently surpassed in the 1990s."

Following its disruptive effect, World War I played a decisive role in creating nation states that were not only new but with a decidedly different orientation to the world economy. "What is more, following the conclusion of World War I, many of the previously prevailing trends in trade costs confronted countervailing forces in the form of cartelisation in the transport sector, the resurrection of a hobbled gold standard, and, above all, a lingering sense of discord and distrust in international relations."

Figure 2: World exports 1870 - 2010



[1] Stephen Broadberry and Mark Harrison (eds) (2018) *The Economics of the Great War: A Centennial Perspective.* CEPR Press. A VoxEU.org eBook.

THE BRITISH ECONOMY: FROM DOMINATING THE TRADE WORLD TO STRUGGLING

In the words of Nicolas Crafts, World War 1 "was a prolonged, brutal, and expensive conflict."

Britain incurred 715,000 military deaths (with more than twice that number wounded). But economically these meant the destruction of 3.6% of its human capital, plus 10% of its domestic and 24% of its overseas assets and spent well over 25% of its GDP on the war effort between 1915 and 1918. This, of course, represented resources that were diverted from other uses like consumption and investment. Capital abroad was run down.

And, damage to the British economy continued to accrue throughout the 1920s and beyond thanks to the new setting in which the limping UK commercial sector tried to re-establish its place.

"The difficulties that beset the British economy in the 1920s came from changes in the world economic environment compared with the pre-war period, from the legacy of the war itself, and from the policy choices made in the aftermath of the war. The implications were a substantial rise in equilibrium unemployment, a big squeeze on real earnings and a need for eye-watering primary budget surpluses to preserve fiscal sustainability."

Britain's position in the world economy on the eve of World War I was predicated on the globalisation of that period – which it had, after all, driven as part of the liberal agenda. Britain was the leading capital exporter with net property income from abroad of about 9% of GDP; it accounted for 27% of the world's manufactured exports; and it had a much higher ratio of trade to GDP (54%) than other leading economies such as Germany (40%) or the US (10%). But suddenly it was all over. As Findlay and O'Rourke say, "World War I brought the liberal economic order of the late 19th century to an abrupt halt".

For example, the Smoot Hawley Tariff Act passed in 1930, increased US import duties by as much as 50%. It led to retaliation by other countries and contributed to a 66% decline in world trade between 1929 and 1934.

In addition to the impact of increased protectionism on external trade, the British economy was subject to severely deflationary policies aimed at achieving consistency between the real exchange rate and external and internal balance. A crucial part of the policy failure was the return to the gold standard at the pre-war level.

Crafts estimates that Britain may have suffered an annual loss of about 11% of GDP in the decade following the end of the War, an economic cost "far greater than is generally recognised."

WHAT ABOUT THE FARTHEST DOMINION? – IMPLICATIONS FOR NEW ZEALAND

New Zealand emerged from World War 1 in reasonable economic shape. Its economy had been protected, even enhanced, by the bulk-purchase arrangements with Britain at fixed prices (the Bareme). Despite labour shortages, farmers had been favoured by the certainty of sustained high prices. Infrastructure had been expanded to meet wartime needs. But not all sectors of the economy benefited from the war, and this resulted in industrial disharmony. But as a committed member of the Empire New Zealand was tightly hitched to the metropole – the UK. And as the mother country reeled away from the war through the 1920s and into the 30s, the small dominion struggled to maintain a way of life. In particular, New Zealand was heavily exposed to the collapse in commodity prices in the early 1930s. New Zealand was still recovering from these blows in the 1940s.

The shadow of 1914 reached a long way into the twentieth century.

CHILD POVERTY MEASUREMENT AT STATS NZ

Contact: Diane Ramsay, Principal Statistician, at diane.ramsay@stats.govt.nz

BACKGROUND

The Child Poverty Reduction Act 2018 <http://www.legislation.govt.nz/act/public/2018/0057/latest/whole.html?search=qs_act%40bill%40regulation%40deemedreg_child+poverty_resel_25_h&p=1#LMS8294> passed into law in December 2018. This Act reflects Government's intent to achieve a significant and sustained reduction in child poverty. The Act's stated purpose is to: encourage a focus on child poverty reduction by successive governments and society, facilitate political accountability against published targets, require transparent reporting on levels of child poverty, and create a greater commitment to action by the Government to address the well-being of all children.

While the bill does not itself define 'child poverty', it does specify four primary measures followed by six supplementary measures.

1. Low income: less than 50% median equivalised disposable household income before housing costs (BHC) for the financial year
2. Low income: less than 50% median equivalised disposable household income after housing costs (AHC) for the base financial year
3. Material hardship
4. Poverty persistence [Note: reporting not required until the financial year beginning 1 July 2025]
5. Low income: less than 60% median equivalised disposable household income before housing costs (BHC) for the financial year
6. Low income: less than 60% median equivalised disposable household income after housing costs (AHC) for the financial year
7. Low income: less than 50% median equivalised disposable household income after housing costs (AHC) for the financial year
8. Low income: less than 40% median equivalised disposable household income after housing costs (AHC) for the financial year

9. Severe material hardship

10. Low income and hardship: less than 60% median equivalised disposable household income after housing costs (AHC) for the financial year and material hardship.

POVERTY

The concepts and definitions to be used to produce these measures were published by Stats NZ in February 2019 see Measuring child poverty: Concepts and definitions <https://www.stats.govt.nz/methods/measuring-child-poverty-concepts-and-definitions>.

Poverty is essentially about household resources being insufficient to meet basic needs. In richer countries poverty is commonly defined as exclusion from a minimum acceptable standard of living in one's own society because of inadequate household financial and material resources.

In practice, household incomes have traditionally been used to measure resources, with low incomes used as a measure of income poverty. The limitations of this approach are well-known (e.g. financial and physical assets are an important part of a household resources for funding consumption, and income doesn't capture the impact of government or in-kind services, for example free health care or support from outside the household). Monitoring trends in low incomes is nevertheless an important exercise as many low-income households have very limited or no financial or other assets, and their income is therefore the main resource available for survival.

Over the last two decades growing use has been made of non-income measures (NIMs) to more directly measure material standard of living, and material hardship. For the purpose of measuring material hardship as defined in the Act, at Stats NZ we use the DEP-17 index as developed by the Ministry of Social Development. This index covers 17 items focused on the low living standards end of the spectrum and includes questions about 'enforced lack of essentials', 'economised, cut back, or delayed purchases a lot', 'in arrears more than once in last 12 months', and 'financial stress and vulnerability'. A household's DEP-17 score is the sum of the deprivations the respondent identifies with. A household is in material hardship if their DEP-17 score is 6 or more.

The Child Poverty Reduction Act specifies a range of measures and thresholds to better capture the fuller picture of low-income trends and experiences of material hardship.

USING THE HOUSEHOLD ECONOMIC SURVEY

Until now, Stats NZ's Household Economic Survey (HES) has been the data source for measuring poverty statistics. It is a random sample survey of 3,000 to 5,500 households, of which around one-third are households with dependent children. It is well suited to, and delivers valuable information for, purposes such as the overall distribution of household income and material well-being, and relativities between different groups.

However, when the focus is on very short-term changes, especially year on year, or when more precision is required in a given year, the relatively small sample size of HES means that there are sizeable uncertainties around estimates for each year. These make it difficult to know whether observed changes from year to year are real changes or just reflect the chance variation that inevitably arises from using samples.

We also tend to have lower response rates from households with lower socio-economic status, which means that these households are often underrepresented in the sample, especially in years when the response rate is low.

In 2018 Stats NZ received additional funding from Government to improve the data source for measuring child poverty. This funding allowed: a substantial increase in the sample size of HES (to 20,000 households), a move to using administrative (admin) data for income rather than collecting income directly from respondents, and improvements to the survey design and operation to ensure a good representation of lower socio-economic households in the survey.

We implemented these improvements in the 2018/19 survey year, which collected data between July 2018 and June 2019. Results from this survey will be available in early 2020.

ESTIMATING THE 2017/18 BASELINE RATES

The Act requires the government to set and gazette reduction targets for the primary measures by 20 June 2019. To do this, and for having start rates for the other measures, baseline rates are needed for 2017/18. To meet this timing, the challenge for Stats NZ was to use existing data sources to produce 2017/18 baseline rates that were robust enough to use in the context of the target-setting, monitoring and accountability requirements of the Act.

Our approach to improving the robustness of the 2017/18 baseline estimates involved three elements:

- using admin data from IRD and MSD for income information rather than rely on survey information – to improve the accuracy of household income estimates.
- increasing the sample size by pooling the Household Labour Force Survey (HLFS) information (with admin income data) with the HES – to reduce sample error
- using a revised set of benchmarks for calculating weights for converting sample numbers into population estimates – to reduce sample variability and to help address non-response bias at the lower end

Not all elements were able to be applied to each type of measure:

- The full treatment was able to be applied only to BHC income measures
    - the pooled HLFS-HES dataset created a sample of close to 20,000 and this reduced sample error from around 2.5% to 1.1% for 50% BHC rates, a significant improvement
    - admin data was used as the source of income information.

- For AHC incomes:
  - admin data was used for the income component of the AHC income, but as there is no housing cost information in the HLFS or admin data, the sample size was limited to that of the HES (5,500 in 2017/18)
  - revised weights helped somewhat in reducing sample variability and addressing under-representation due to sample bias.
- For material hardship estimates:
  - the HLFS or admin data do not have material hardship information, so the sample was limited to that of the HES (5,500 in 2017/18)
  - only the revised weights element could be applied to the material hardship estimates.

We use admin income data from the Integrated Data Infrastructure (IDI)[1] to replace the income collected directly from respondents in HES and also to provide income for HLFS respondents. Despite best efforts to obtain data from respondents, HES survey data will always be subject to some uncertainty. This is due to respondents not being able to remember or not disclosing all sources of income over the year to the interviewer. Salary and wages, government transfers (including Working for Families Tax Credits) and self-employment income are all sourced from the admin data. Non-taxable income, investment income, overseas income and irregular income such as director's fees or royalties are still sourced from the respondent's responses to the HES questions.

The data in the IDI is about individuals. It is not always straightforward to understand relationships between family or household members beyond assuming that respondents with the same address in the admin data form a household. Using the address allows us to form households with the correct membership, when compared with census data, about 50 percent of the time. This is not good enough to create household income, which relies on having correct membership of the household. Therefore, we used the household and family composition information collected in HES and HLFS to provide the household structure and relationships we need. The HLFS collects the same household structure information that HES does and can therefore provide a bigger pool of respondents. However, it doesn't collect housing costs information or material hardship measures so cannot expand the sample for these measures.

The release on April 2nd https://www.stats.govt.nz/news/child-poverty-statistics-released shows the outcome of this work. It provides revised estimates for the 9 measures with a timeseries where possible. Sample errors are provided to show the level of uncertainty that remains with some of the measures and to ensure that target setting takes into account this uncertainty.

FINDINGS FOR THE 2017/18 FINANCIAL YEAR:

- 16 percent of children lived in households with an income that was less than 50 percent of the median equivalised disposable household income, before housing costs are deducted.
- 23 percent of children lived in households with an income that was less than 50 percent of the median equivalised disposable income, after housing costs are deducted, in the 2017/18 year (the base financial year).
- 13 percent of children lived in households that experienced material hardship (that is, have a score of six or more items on the material hardship index).

FUTURE RELEASES AND MONITORING

As mentioned above the 2018/19 HES survey, with a sample size of 20,000 households is currently being collected for the July 2018 to June 2019 year. Results from this survey, covering the 9 measures above, will be published in early 2020.

The 2018/19 survey, and future surveys, will include the replacement of survey income data with admin data where possible. In the medium term we are looking to reduce respondent load and improve quality in our surveys by reducing the questions on income that survey respondents are required to answer.

Now that the official 2017/18 baseline rates have been released, the Government will use these to set final targets and gazette them by 20 June as required by the Child Poverty Reduction Act. The table below shows the official Stats NZ baseline rates for 2017/18, and the interim 10-year targets announced by the government last year based on officials' best estimates in 2017 of the 17/18 baseline rates.

	official 17/18 baseline rate	10-year target as announced last year
50% median income before housing costs -relative	16%	~5%
50% median income after housing costs - fixed	23%	~10%
Material hardship	13%	~7%

Annual reporting by the Government Statistician on these measures will allow the Government to monitor progress towards meeting these targets, thereby meeting the purposes of the Act.

[1] The IDI is a large research database that holds microdata about people and households. It contains full tax data related to individuals, including data provided by employers for each employee, self-employed income and some investments income. Data from the Ministry of Social Development includes benefits paid and the accommodation supplement. For more information on the IDI see www.stats.govt.nz/integrated-data/integrated-data-infrastructure/

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2019 Conference important dates:

Wednesday 20th February: First notice of conference sent out

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Friday 22nd March: Final notice of conference sent out

Monday 25th March: Conference registration opens

Monday 1st April: Abstracts Due

By Monday 22nd: April Notification of acceptances

Monday 13th May: Registration deadline for presenters

Monday 13th May: Deadline for early-bird registration

Monday 10th June: Full papers due for entries to prizes

Wednesday 3rd July: Conference start

Friday 5th July: Conference end

PhD Workshop: Tuesday, 2nd July; venue TBD

2019 Conference keynotes:

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Patricia Apps (Prof. Public Econ. Sydney)

Prasanna Gai (Prof. Econ. Auckland)

Stephen Jenkins (Prof. Econ. and Social Policy, LSE)

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RESEARCH IN PROGRESS (UNIVERSITY OF WAIKATO)

Omoniyi (Niyi) Alimi, Teaching Fellow

Niyi's research focuses on the role of socio-demographic factors on the distribution of income. He is currently examining the determinants of internal migration in New Zealand, and the role of immigration on the changes in the distribution of income in urban areas. Besides migration issues, Niyi is also examining the role of assortative matching on the distribution of income in New Zealand.

Sayeeda Bano, Senior Lecturer

Sayeeda's research concerns intra- and inter-industry international trade, international trade in services, economic integration, trade policy and balance of payments issues. Current projects include the New Zealand J-curve, New Zealand-India trade in agricultural and manufactured products, intra-industry trade between New Zealand and Australia, the China-New Zealand Free Trade Agreement, Halal bovine meat exports, the Trans-Pacific Partnership (CPTPP), and intra-indigenous and inter-indigenous trade and growth.

Michael Cameron, Associate Professor

Myk has a wide research agenda that includes topics on the nexus of population, health, and development economics. He is currently leading projects investigated alcohol policy and alcohol outlet density (with Bill Cochrane, Michael Livingston, Matthew Roskruge, and others), and involved in ongoing MBIE-funded projects on kaumatua health and wellbeing (with John Oetzel and others), and migration and diversity (with Jacques Poot, Paul Spoonley, and others). He also has ongoing research projects on residential landlord decision-making (with Steven Lim), willingness-to-pay for healthcare in the context of HIV (with Ric Scarpa and others), and sub-national stochastic population projections (with Jacques Poot).

Zack Dorner, Lecturer

Zack's research is focused on the environment in lab experiments and highly applied settings. For experiments, his focus is on individual decision making around environmental/public goods, particularly under risk and ambiguity. His more applied work is primarily contributing to an evidence base to support the development of freshwater policy with the Ministry for the Environment.

John Gibson, Professor

John is working on survey experiments on the measurement of household consumption and poverty in the Pacific (jointly with SPC and the World Bank), on patterns of urban development based on earth observation data, and is finishing off work with various collaborators on how consumers respond on the quality margin and the quantity margin when they are confronted with (tax-induced) price changes.

Gazi Hassan, Senior Lecturer

Gazi's research area is strongly focused towards the understanding of the consequences of remittances in source country economies. His current research applies the instrumental variable methodology used in the context of natural experiments to harness the randomisation of a treatment to estimate the causal effects of remittances on some important economic phenomenon. Examples include estimating the effect of remittances on private adaptive expenditures of coastal households affected by cyclones; gauging the causal impact of remittances on the adoption of clean energy in developing countries; and estimating the causal effect of remittances on homicide rate of the non-oil producing countries.

Mark Holmes, Professor

Mark's research is based on applied macroeconomics, the analysis of energy and commodity markets, and real estate economics. He is currently working on a number of projects that include the regional analysis of unemployment-vacancies in a Beveridge curve setting, futures market efficiency for commodities, convergence club formation in interest rates and house prices.

Dan Marsh, Senior Lecturer

Dan's main research interests are in the area of environmental and natural resource economics with a focus around reducing the environmental impact of agriculture in New Zealand. Dan is now based in UK for half of the year where he has been working on natural capital approaches to improved decision making. Recent projects include a natural capital account of the National Nature Reserves managed by Natural England and a natural capital approach to natural flood management in Devon.

Susan Olivia, Senior Lecturer

Susan's research interests are in development economics, applied microeconometrics, and the intersection of econometrics and machine learning. Much of her research uses large-scale administrative and survey data as well as geographic data, including satellite data. Her recent and ongoing projects include an impact evaluation of community-led sanitation program in Indonesia, modelling economic activity in Indonesia from space, implications of quality, quantity and price for taxing cigarettes, crowd-sourced price data collection, inter-generational income mobility in Indonesia and the socio-economic impacts of floods on Jakarta.

Ric Scarpa, Professor

Ric's research has focussed on environmental benefit analysis and on methods to derive economic values for nonmarket goods, especially environmental and public goods. In particular, he has focussed on stated and revealed preference data analysis, especially on survey design for contingent valuation and choice experiments. His more recent research on choice data analysis is applied to food labelling and obesity, medicines (HIV), choice of renewable energy provider, residential and business water consumption choices and on more fundamental issues of choice processes and their econometric representation (attribute non-attendance).

Frank Scrimgeour, Professor

Frank is currently working on projects in financial economics and natural resource economics. This includes work with Leon Li on the relationship between sovereign bonds and credit swaps; with Muhammad Cheema on oil prices and stock market anomalies; with PhD students on the design and performance of agricultural institutions – especially in the dairy industry both within NZ and in other countries. A long-standing interest in the economics of pollution control in agriculture is currently focused on interactions between erosion control policies, water quality policies and climate change policies.

Anna Strutt, Associate Professor

Anna's research is primarily applied quantitative international policy analysis, often using computable general equilibrium (CGE) models. Much of her current research focuses on improved modelling of the impact of non-tariff measures (NTMs) on international trade flows. She is also working on how changes in fuel and carbon prices may affect New Zealand's key agro-food sectors.

Steve Tucker, Associate Professor

Steve's research applies experimental economic methods to different fields of economics. One of his main areas of interest is to explore the behaviour of asset markets. More specifically, he is investigating institutional market features and their ability to mitigate price bubble formation, which will assist policy makers in designing market mechanisms to not only prevent asset market bubbles, but also to avoid other unexpected consequences that could potentially have severe negative impacts on the economy. Steve also has long-standing research interests in understanding individual motivations within social dilemmas and institutional features to enhance social outcomes.

Ou Wang, Lecturer

Ou's research focuses on food marketing, consumer behaviour and value chain analysis. Previously, he completed research projects related to value chain and consumer analysis for the shellfish industry, traditional food, European food (e.g. European beer) and e-commerce food shopping. He is interested in future research opportunities and collaboration in consumer and value chain analysis for the agri-food industry.

Other Economics researchers at Waikato include Selin Guney and Les Oxley.

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"Welfare Economics in Product Markets and the Environment"

Raj Chetty
Harvard University, Keynote Address
"Improving Equality of Opportunity: New Insights from Big Data"

Robert Gordon
Northwestern University Debate
"The Future of Potential Output Growth in the U.S. Economy"

John Taylor
Stanford UniversityDebate
"The Future of Potential Output Growth in the U.S. Economy"

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NEW MEMBERS

For 2019 up to 1 April.

Salahaddin Kako, Damon Mathfield (Tauranga City Council), **Sophie Hale** (Motu), **Bronwyn Bruce-Brand** (Motu), **Tom Fraser** (The Treasury), **Niven Winchester** (Motu), **Lynn Riggs** (Motu), **Elodie Blanc** (Motu), **Andrew Binning** (The Treasury), **Harrison Steiner-Fox** (The Treasury), **Karam Shaar** (The Treasury), **Gulnara Huseynli** (MBIE), **Shaan Badenhorst** (Motu), **Andrew Schoultz** (Aurecon Group), **Reece Pomeroy** (Productivity Commission), **Natalie Labuschagne** (The Treasury), **Anh Thi Ngoc Nguyen** (Otago University), **Stefania Mattea** (University of Waikato), **Merewyn Groom** (Berl), **Philip Caruana** (Ministry of Transport), **Daniel Voica** (Massey University), **Michael Fletcher** (Victoria University of Wellington), **Joel Hernandez** (NZ Initiative), **Nazila Alinaghi** (Victoria University of Wellington)

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