The Institute for Governance and Policy Studies, School of Government at Victoria University of Wellington

POLICY Quarterly

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Global Development in the Twenty-first Century

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VICTORIA UNIVERSITY OF WELLINGTON TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

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Editorial Note

This issue of *Policy Quarterly* leads with a stimulating contribution by the distinguished Australian economist, Professor Ross Garnaut. Professor Garnaut was the 2015 Sir Frank Holmes Fellow in Public Policy, hosted by the Institute for Governance and Policy Studies in the School of Government at Victoria University of Wellington. The article in this issue is based on his Sir Frank Holmes Memorial Lecture on 25 February on 'Global Development in the Twenty-First Century'. Given the nature and significance of Professor Garnaut's lecture, it seemed fitting to invite several leading New Zealand economists to offer their reflections. Accordingly, I am delighted to publish commentaries by Emeritus Professor Gary Hawke, Dr Grant Scobie and Dr Geoff Bertram. I have invited Professor Garnaut to respond to these commentaries, if he wishes, and any such response will be carried in the August issue.

Professor Garnaut has made an immense contribution to public life in Australia over many decades – as an academic, senior policy adviser, diplomat and businessman. He has also been an influential voice on a range of important international policy issues, not least trade liberalization and anthropogenic climate change.

On the latter topic, his article in *Policy Quarterly* highlights both the gravity of the problem, but also the potential for global greenhouse gas emissions to be reduced rapidly over the next few decades. One reason for such optimism is the decline in the short-to-medium term costs of climate change mitigation – certainly relative to the costs projected by most analysts only a few years ago. As Garnaut points out, 'the costs of new, low-carbon technologies are falling faster than anticipated, especially with large-scale production of capital goods in China and deployment in many countries'. The cost of solar power, in particular, has declined dramatically in recent years, and both solar and wind power are now competitive with modern coal and gas-powered electricity plants in many countries. Further substantial falls in the cost of some renewable energy sources are expected. Ultimately, this will be highly important, not least politically, since it will undermine one of the core objections to swift decarbonisation of the energy and transport sectors.

Against such optimism, two matters deserve note. First, with almost every passing week the news from scientists on the harmful impacts of climate change gets grimmer. Recent findings suggest that parts of the East Antarctic and West Antarctic ice sheets are melting more quickly than previously estimated. Several teams of scientists, for instance, have concluded that a collapse of the West Antarctic ice sheet has already commenced, and may well be unstoppable. A rise in the sea level from this source alone could exceed three meters. Meanwhile, there are currently droughts of historic proportions in California and Brazil, and projected El Niño conditions during 2015 could well contribute to severe bleaching of many coral reefs with damaging implications for the marine environment globally.

Second, despite the available scientific evidence, political resistance to concerted mitigation efforts remains strong in some countries. In the US, many influential Republicans continue to live in denial, with the Chair of the Senate's Committee on Environment and Public Works, Jim Inhofe, maintaining that anthropogenic climate change is a 'hoax'. Closer to New Zealand, the Australian Prime Minister, Tony Abbott, wants his country to be an 'energy superpower' – not a renewable energy superpower, but a *fossil fuel* superpower. In his view, there are 'few things more damaging to our future than leaving coal in the ground'. At the opening of a new $4.2 billion Caval Ridge coalmine in Queensland in mid-October 2014, he declared that 'coal is good for humanity', 'vital for the future energy needs of the world' and should not be demonized. The opening marked, he asserted, 'a great day for the world' … 'The trajectory should be up and up and up in the years and decades to come'. No, he was not referring to global temperatures! Nor did he mention carbon capture and storage.

Fortunately, Abbott's vision of a coal-driven future for Australia looks increasingly untenable. For one thing, China is in the process of pursuing a new economic paradigm where low-carbon technologies will ultimately be dominant. For another, a growing number of major international banks – such as Barclays, Citi, HSBC, Morgan Stanley and BNP Paribus – are refusing to fund large new coal mines in Australia, including the related infrastructure for such mines (e.g. railway networks and port facilities).

Meanwhile, in New Zealand the National-led government has an unconditional target to reduce greenhouse gas emissions by 50% by 2050 compared with 1990 levels. Unfortunately, it has no long-term strategy to achieve this target – as Adrian Macey (our former Climate Change Ambassador) pointed out in a previous issue of *Policy Quarterly*. Not merely has the government rendered the emissions trading scheme largely ineffective, it continues to support various high-emissions initiatives, such as the expansion of dairying, increased tourism and deep-sea oil and gas exploration. At some point – and possibly soon – the conflict between the goals of a high carbon future and a low-carbon future will become politically unsustainable.

Aside from the stimulating contributions of Professor Garnaut and his commentators, this issue of *Policy Quarterly* also includes important articles on a range of other contemporary policy concerns. These include the governance of our National Parks in an era of increasing commercial imperatives, the use of predictive analytics in policy-making, the nature and implications of governmental decentralisation, the future of social housing, protecting the interests of future generations, and the implications of residential sorting for inequality. I trust that all readers find something in this issue to stimulate their hearts, minds and imaginations!

Jonathan Boston (Co-editor)

Ross Garnaut

Global Development in the Twenty-first Century

I am glad to be here at Victoria University of Wellington giving this lecture in honour of Professor Sir Frank Holmes. Frank hosted my first visit to New Zealand 40 years ago, when, with Les Castle, he organised an early conference in the Pacific Trade and Development series that continues today. Four years later he was the leader of the New Zealand group that joined John Crawford, Peter Drysdale, Stuart Harris and me at the Pacific Community Seminar at the Australian National University, a precursor of the Pacific Economic Cooperation Council, and therefore a forebear of APEC. Frank made large contributions to the establishment and extension of closer economic relations between Australia and New Zealand in the 1980s through to the early years of this century. I discussed Asia–Pacific cooperation with Frank on many occasions in Australia, New Zealand and elsewhere in the Asia–Pacific. Frank was more comfortable with preferential trade than I ever became, and we learned about another view from each other. We can all be grateful for Frank's contribution to ensuring that New Zealand was a participant in the deepening of Asia–Pacific economic integration through the last quarter of the 20th into the current century.

Ross Garnaut is Professorial Research Fellow in Economics at the University of Melbourne. He was the 2015 Sir Frank Holmes Visiting Fellow in Policy Studies at Victoria University of Wellington. He has published widely on a diverse range of economic issues, including development economics, macroeconomics, trade policy, climate change policy, the Australian economy and China"s economic development.

This article is based on the text of the fourth Sir Frank Holmes Memorial Lecture delivered at Victoria University on 25 February 2015.

In a different field, I remember extensive discussions with Frank about currency union with Australia around the turn of the century. Our host institution this evening, then the Institute of Policy Studies at Victoria, had just published his book with Arthur Grimes and Roger Bowden, *An ANZAC Dollar* (Holmes, Grimes and Bowden, 2000). This took Frank back to his 1950s roots in public policy, working on money and banking. His proposal for currency union with Australia was dismissed too swiftly by leaders of Australian policy institutions that then were justifiably pleased at having avoided recession through a few turbulent years in the Asia–Pacific economies when New Zealand had twice succumbed.

New Zealand was to have one more recession avoided by Australia, in the aftermath of the great crash of 2008. It is now riding higher, as my own country grapples with the end of the China resources boom. Macroeconomic stability is an elusive goal for a small economy with strong export specialisation in commodities, and I fear that New Zealand's medium-term future will not be as comfortable as the present. New Zealand has felt more bumps than Australia since the deep recessions of 1991–92, but Australia is currently feeling a bigger bump. There may come a time for Australians and New Zealanders to consider with more open minds the merits of being part of a bit bigger (for Australia) or substantially bigger (for New Zealand) currency area, joining two neighbouring countries of modest size with integrated labour and financial markets, free and intense bilateral trade and overlapping cycles in terms of trade. The recent experience of the European monetary union would push us towards more systematic analysis of stabilising fiscal policy as preparation for monetary union. That would be no bad thing.

Frank Holmes was a New Zealand leader of what my recent book, *Dog Days: Australia after the Boom*, calls the independent centre of the polity (Garnaut, 2013). He saw great value in careful and transparent analysis of the public interest, separate from any vested or partisan political interest. The success of public policy in any democracy in these troubled times depends on the strength of a strong independent centre.

Younger people here this evening may need reminding of how natural it is to raise the big issues in global development in New Zealand. Just 50 or so metres from here, in the Cabinet room of the Old Government Buildings we are reminded of the contributions of the New Zealand governments of the late 19th and early 20th centuries to ideas that were then at the frontier of thinking about developed countries. We are reminded of William Pember Reeves, who took knowledge from that Cabinet room into his influential foundational directorship of the London School of Economics (Reeves, 1902). A couple of decades later a young refugee from continental Europe's capitulation to Nazism, Karl Popper, found in New Zealand the place to write one of the most compelling and important books on political philosophy to emerge from the last century (Popper, 1945). And I would include in the great New Zealand contributions to understanding modern global development J.B. Condliffe's brilliant and authoritative *The Commerce of Nations,* written to provide guidance from the history of economic thought and economics to an unsettled world after the Second World War (Condliffe, 1951).

> … I am going to argue that there is some prospect that the 21st century will see most of humanity living at material standards that are broadly comparable with those of the developed countries.

Modern economic growth and its maturation

Tonight I am going to argue that there is some prospect that the 21st century will see most of humanity living at material standards that are broadly comparable with those of the developed countries. I call that the maturation of modern economic growth. I see the maturation of modern economic growth as the only stable end-point of the process that began in Britain a quarter of a millennium ago. Any outcome short of that is not a resting place, but a point of disequilibrium and disruption. We do not know to what heights the increase in productivity and living standards will take the developed countries from now on, but whatever they may be, the maturation of economic growth will involve most of humanity living at that level.

I will provide some evidence this evening that capital may become much more abundant and labour much more scarce through the 21st century, supporting the maturation of global development. The same forces – abundant capital and scarce labour – that support rapid growth in living standards in the developing countries will make it possible to secure relatively equitable distribution of income in the world as a whole and eventually in each of its parts.

But the maturation of global development has to climb over some daunting barriers. This evening I briefly discuss three barriers that at this stage seem to be particularly challenging: the reconciliation of much higher average living standards with the maintenance of the reasonable climate stability that is necessary for the continuation of global economic growth; the avoidance of economic development success in parts of the world being overwhelmed by development failure elsewhere; and the maintenance of effective government in the public interest in high-income market economies as wealthier private interests become less inhibited and more effective in influencing policy. My treatment of the barriers is necessarily brief, so that I do little more than highlight critical issues for continuing research.

Modern economic growth is young. We are still learning how it works. Modern economic growth is disturbing and painful. It does not take root anywhere until there is a widely shared view within the society that the benefits are worth the pain. It changes beliefs as well as political and social relationships and institutions. It puts down the mighty from their seats and elevates new elites. It enhances the power of states in the territories of which it has taken deep roots, and disturbs the international political order.

Modern economic growth is beneficent. In countries which have enjoyed its fruits for many generations it raises the material comfort, knowledge, health, longevity, and capacity for communication across humanity of most ordinary citizens to levels unknown to the elites of earlier times. Modern economic growth is restless. It never stays on one course for long, disturbing what we thought we knew about it with each new turn, and providing great challenges for every generation. Condliffe's account of modern economic development from Adam Smith to the Second World War is a story of events shaping and changing the nature of global development generation by generation (Condliffe, 1951).

The challenges of modern economic development are more than usually difficult in the early 21st century. Gone is a contemporary basis for what had become a presumption in the developed countries, that the majority of people in each new generation would enjoy higher living standards than those in any generation that had lived before. Gone is any basis for assuming that our democratic institutions are easily reconciled with the effective operation of a market economy; and that only democracies are able to ride modern economic growth to high standards of living. And now, with anthropogenic climate change, we see more clearly than ever before that failure to change the composition of growth to take account of external environmental costs of private decisions will disrupt the beneficent process.

Three groups of countries

Obviously every country is unique, but we have to think in broader categories if we are to make sense of the world as a whole. I find it useful to think about three groups of countries: developed, developing and underdeveloped. In the developed countries, almost a billion people enjoy the high living standards that come from full absorption of the benefits and effects of modern economic growth. For all our problems, the developed countries of 2015 are good places to be. I will argue this evening that China is heading rapidly towards a place among the developed countries, so we will soon be talking about roughly a third of humanity's seven billion members, with a majority of them in China. In the developed countries excluding China, average output and expenditure (the mean of the domestic distribution) has been moving upwards at a snail's pace in the 21st century; and the average for ordinary people (the median) is no longer moving up at all.

The developing countries (without China) contain over half of the world's people, with most in South and South East Asia and a majority of the rest in Latin America. These have placed their feet on one or other of the multiple escalators of modern economic development and are moving towards the income levels and material standards of living of the developed countries at varying rates. Most countries that get on an escalator keep moving, but at different paces and with occasional jerks in the machinery – sometimes with a stalling of the mechanism for a few years or even a decade.

And then there are the underdeveloped countries, which have not put their feet on an escalator. In the underdeveloped countries, on average there was hardly any growth in living standards over the last quarter of the last century. The average is looking a bit stronger in the 21st century so far. Here we are talking of around a seventh of humanity. We find useful insights into this part of the human development experience in Paul Collier's book *The Bottom Billion* (2007). Most of the bottom billion are in Africa. Increasing numbers are in the immediate region of Australia and New Zealand.

Challenges in the developed countries

The central challenge arises from the stagnation in living standards for all but the rich in all the substantially-developed countries since the great crash of 2008. In the United States, average living standards of people at the median of the income distribution are no higher, and perhaps lower, now than three decades ago. The cessation of growth in living standards for ordinary people has several interrelated sources. One is a historic slowing of productivity growth in the 21st century. A second is the demographic change that follows from the combination of increased life expectancy and fertility below population-replacement levels that is present in all the developed countries. Ageing seems to reduce capacity for innovation, and to reduce incentives to invest. A third, influenced by the first two, is a tendency for private savings to run ahead of investment, causing employment to fall more rapidly than the labour force. A fourth is the effect of globalisation of production of a wider and wider range of economic activities, and of the deployment of capital. Globalisation has been helpful to the increase in developed-country as well as global production, while transferring income from labour in the developed to the developing

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countries and of resources from the public revenues to the owners of capital. A fifth is a weakening of redistributive fiscal interventions to moderate the inequality of incomes and wealth that emerges from market exchange.

While there are differences across developed countries and time in the widening of income inequality and the slowdown in economic growth, the similarities are more powerful than the differences in the 21st century so far. China is different, as it completes the 'catch-up' with the productivity levels and living standards of the established developed countries, but it will be subject to similar pressures and constraints once it is there.

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A closer look at productivity growth in the developed countries

Productivity growth in the developed countries at the frontiers of modern economic activity has been proceeding less rapidly since 2000 than at any time since the early days of modern economic development a quarter of a millennium ago. This has been the subject of considerable discussion in the economic literature. One famous paper has suggested that we may not see again the rises in productivity and therefore of living standards of earlier periods of modern economic development (Gordon, 2012).

In Australia, New Zealand and other English-speaking countries, as well as Spain, the consequences of low productivity growth were masked for a while by an extraordinary housing and consumption boom from the turn of the century to the great crash of 2008. That was unsustainable. It was funded by our banks borrowing abroad in wholesale markets. It came to an end in cataclysm in the large developed countries. The great crash didn't end badly in Australia, and led to recession but not cataclysm in New Zealand. The better end in the Tasman neighbours was partly a result of quick-footed policy, but that policy was only viable because of Australians' special fortune in being beneficiaries of the Chinese economic response to the crash (Garnaut, 2013). New Zealand benefited as well from Australia's fiscal and monetary expansion.

China's resources boom postponed the effects of declining productivity on Australian living standards until China's pattern of growth changed again from about 2011. A new Chinese model of growth emphasised greater equity in income distribution and reduced pressure on the natural environment.

There are many things we do not understand about the marked slowing of productivity growth in the developed countries. There is even a question of whether we are measuring productivity properly. Over recent years and decades we have been introduced to new commodities and new services that greatly improve the quality of life, without those qualitative factors being influential in the productivity statistics.

A closer look at low real interest rates and deficient demand

Nevertheless, measured well or poorly, the reality of low and – in the case of Australia, since 2005 – negative total factor productivity growth of the traditional kind has reduced incentives for business investment. Levels of business investment in all of the developed countries have been low this century, and especially since the crash of 2008. This has placed downward pressure on employment. All developed countries have experienced since the great crash a combination of rising savings and lower business investment, and therefore a tendency towards reduced demand, higher unemployment and lower economic growth. This has been responsible for part of the widening of inequality.

One consequence of higher savings and lower investment is lower interest rates. Low official interest rates have been reinforced by 'quantitative easing' in, at various times, Britain, continental Europe, Japan and the United States, where central banks are providing assets that can be turned into cash as they buy back government bonds from the private sector. Quantitative easing has been putting more money into the community with a view to reducing interest rates and encouraging business activity.

There is a fair bit of evidence that low official short-term interest rates and quantitative easing are a temporary and minor part of a bigger story: that we have entered a world in which long-term interest rates are much lower on an ongoing basis than they used to be. The most commonly traded long-term government security in most countries is a ten-year bond. The interest rates on ten-year bonds are lower in real terms than they have ever been in almost all of the developed countries. On Friday 20 February 2015, when I was preparing this text, the nominal ten-year bond rate was 2.11% in the US; 1.76% in the UK; 0.36% in Germany; 0.39% in Japan; 2.57% in Australia; and 3.32% in New Zealand. That is the rate, before deducting inflation, at which the private sector is prepared to lend to government on a ten-year basis. The average in real terms weighted by size of economy is around zero. We have not been in this territory before.

A closer look shows that we were heading into this unusual territory before the financial crisis. There is reason to doubt whether quantitative easing has had a large influence on long-term interest rates. Recently we saw long-term bond rates fall in the United States as the Federal Reserve brought quantitative easing to an end. This suggests to me that extraordinarily low contemporary short-term rates reflect perceptions that there has been a permanent lift in the volume of long-term savings relative to long-term investment.

The one certain economic consequence of quantitative easing has been to promote capital outflow and a lower exchange rate in the countries in which it has been applied.

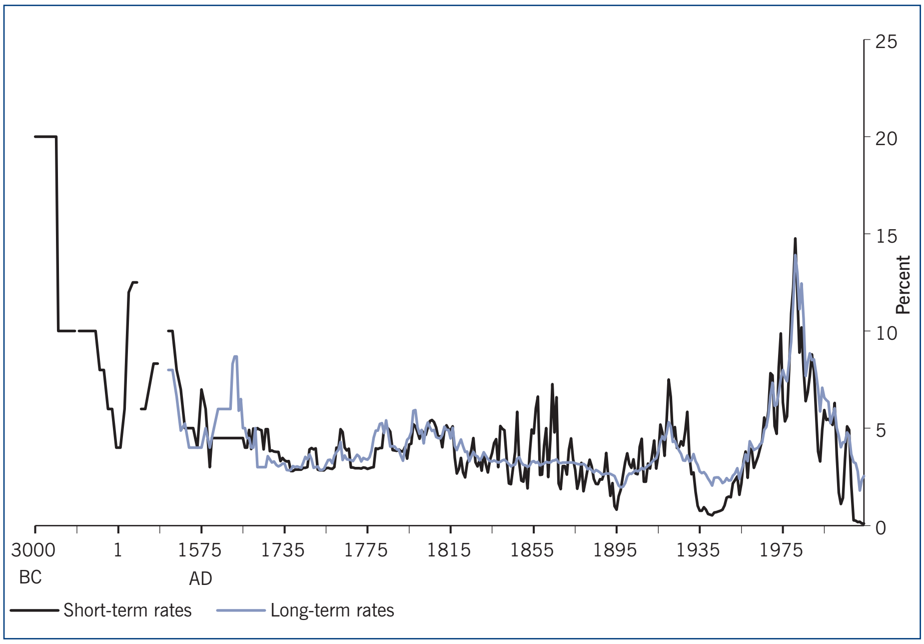
To illustrate how unusual today's real long-term interest rates are compared with anything that has come before I am taking two graphs from a paper presented in February 2015 by the Bank of England's chief economist (Haldane, 2015). Figure 1 presents data on nominal sovereign bond rates back to the days when Elizabeth I was raising funds to defend the realm against the Spanish Armada. Figure 2 reveals the distinctive nature of the contemporary real interest rates: near zero.

Being in a world of near-zero real interest rates has large consequences. One is a potentially favourable influence on the distribution of income within societies. The celebrated recent book by the French economist Thomas Piketty, *Capital in the Twenty-first Century* (2014) has been widely read and discussed in New Zealand, as it has elsewhere (Bertram, 2014, 2015). It has been the best-selling economics book of our time – for the first couple of years after publication, the best-selling economics book ever. Piketty argues that we are heading towards a world of widening inequality in income distribution because the rate of interest is going to exceed the rate of growth. Those who already own a large amount of capital will be accumulating it at a high interest rate. He presents much historical data which shows a tendency for rates of return on low-risk investment, like government bonds or land, to be around 4–5% in real terms, right back to the 18th century. Piketty asserts that real returns on low-risk long-term assets will remain near those levels. With rates of growth (and he has in mind mainly rates of growth in developed countries) falling below that level, it follows that we will see inequality growing wider and wider. There is no logical reason why inequality will not come to equal and exceed that of the Belle Époque in Europe in the late 19th and early 20th centuries.

That view puts Piketty at odds with the greatest public intellectual of the 20th century. John Maynard Keynes argued that we could expect negligibly low returns on investment in the long-term future – a century forward from when he was writing in the 1930s (Keynes, 1931, 1936).

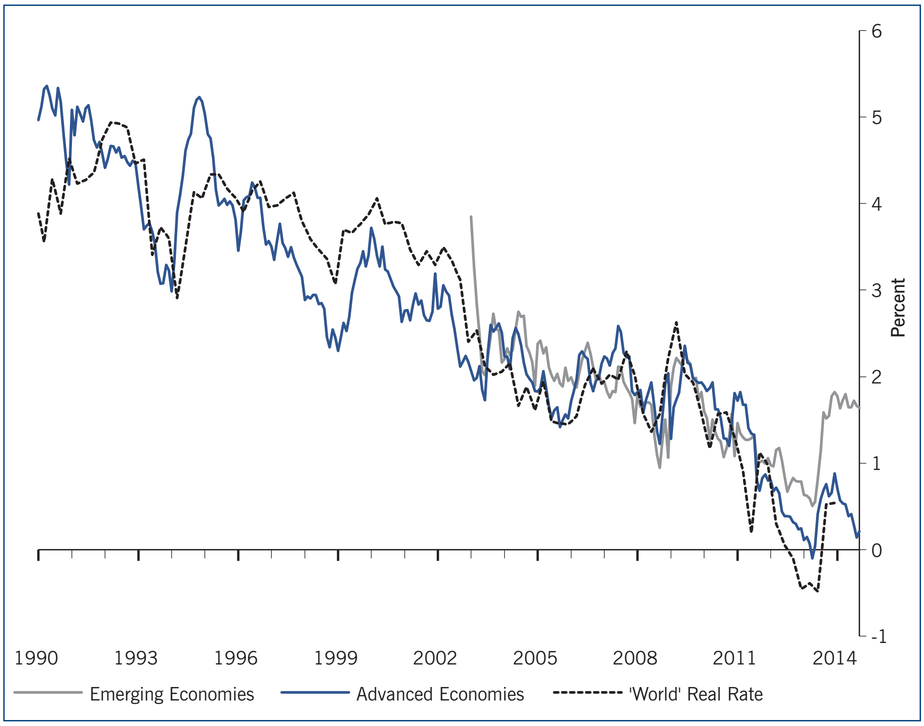
Piketty's challenging analysis is right in drawing attention to large increases in inequality in the distribution of income and wealth in the late 20th and early 21st centuries. It is right in drawing attention to the need for international cooperation in the taxation of capital if these tendencies are to be corrected without political disruption in the democracies. It is right as well in drawing attention to the increasing role of capital in the policy-making process in the developed democracies, which is weakening the effectiveness of fiscal interventions that moderated income inequality in the developed economies in the golden quarter-century after the Second World War. But recent developments in global

Figure 1: Short and long-term interest rates



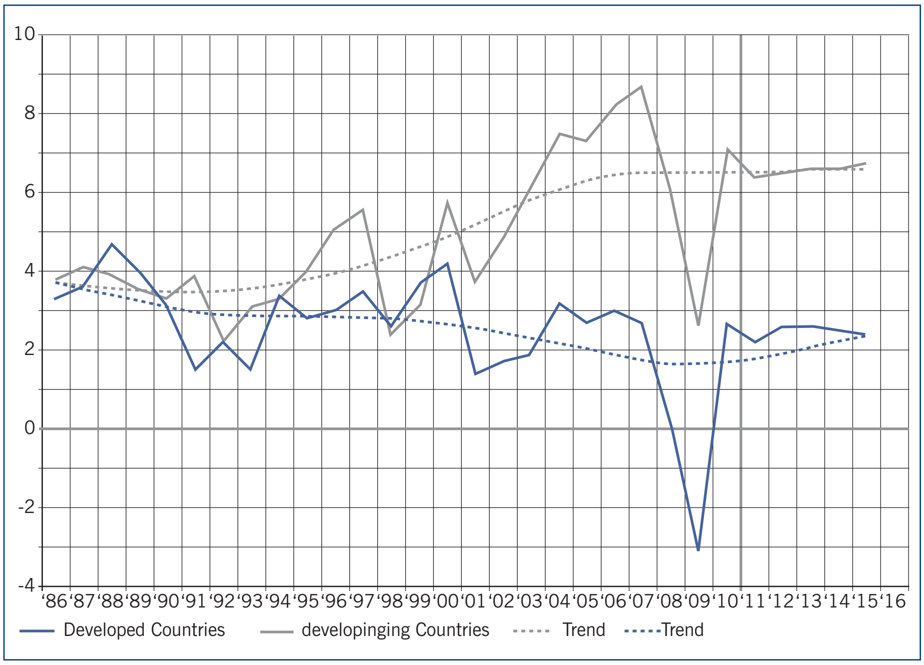
Source: Haldane, 2015

Figure 2: Long run real rates in advanced and emerging economies



Source: Haldane, 2015

Figure 3: Global growth rates, developed and developing countries 1986 to 2016



Source: IMF, 2014

capital markets suggest to me that Keynes is right and Piketty wrong on the particular question that will be most important in shaping global development in the 21st century.

Keynes expects people, and especially the wealthy, to save a substantial proportion of their incomes in future as they have in the past. So, he says, if we do not make a mess of modern economic development with war or unnecessary depressions – and he wrote *The Economic Consequences of the Peace* (1919) to show us how to avoid the former and *The General Theory* (1936) the latter – then the long-term future for the global economy is one of abundance of output and capital. The abundance will cause the rate of return on capital to fall to low levels. People who have a lot of capital will not have enormous incomes simply as a result of that ownership. This world will see 'the euthanasia of the rentier'. For those who are interested in access to the important things of life there will be an abundance, so that questions of inequality will not matter very much.

I can't avoid noting that Keynes invented the important concept of 'positional goods', which in their nature are available only to some. Keynes' personal list of the things that were important would have included access to the London Opera, Russian ballet and French champagne, which, in their nature, are available in limited supply. For personal access to these, he may have had to rely on the tastes of most of the population being different from his own.

Keynes' world is almost the opposite of the world that Piketty anticipates in his book.

If Keynes was right and Piketty wrong on this one big question, why did inequality increase so much in the 21st century to date, as rates of return fell? Because rates of return did not fall if we include capital gains, as Picketty does, with good reason. But much of the increase in wealth and income at the top of the distribution in this century so far that is reasonably measured by Picketty reflects once-and-for-all increases in asset values associated in one way or another with the decline in interest rates themselves.

Low interest rates have helped to lift investment and growth in employment and output, but have not increased them enough to achieve anything like full employment. Governments have been reluctant to expand expenditure funded by borrowing in response to weak domestic demand, despite the unprecedentedly low costs of borrowing. This is partly motivated by concern over long-term problems of servicing government debt – a real concern for highly indebted countries if there are reasonable prospects of a return to higher interest rates or to difficulties in borrowing abroad. To the extent that weak domestic demand is the product of high savings associated with ageing and population decline, it is prudent for governments to limit the increase in indebtedness, except where debt raises future incomes and capacity to service debt. This has focused attention on public investment in productivity-raising infrastructure at home, and income-earning investment in public infrastructure abroad. Public investment abroad to raise domestic demand and employment is especially important in countries experiencing population decline, where the opportunities for investment in income-generating infrastructure at home are more limited.

Capital outflow to income-generating infrastructure investment in developing countries can therefore be helpful to maintaining growth in employment and output in the developed countries. It goes along with low real exchange rates and high net exports. It is a point of high complementarity between current requirements for prosperity in the developed countries, and the requirements for strong growth in the developing countries.

The developed country to watch most closely as an influence on capital flows from developed to developing countries from now on is China. China already has much larger savings in absolute terms than any developed country. Its savings, investment and capital flows are likely to dominate global totals in the 2020s at least as thoroughly as those of the United States immediately after the Second World War, or the United Kingdom immediately before the First World War.

The developing countries

The average rates of growth in productivity and output have held up in the developing countries despite the fall from early in this century and the further step down with the great crash of 2008 in the developed countries. Figure 3 from the International Monetary Fund (IMF, 2014) tells the story. Developed-country real purchasing power grew rapidly in the 1980s, but then eased back through the 1990s to the great crash. Growth since 2008 has been at a crawl and is not expected to change trajectory in the foreseeable future.

Figure 3 demonstrates the marked change in the trajectory of developing relative to developed growth from the beginning of the 21st century, growing wider from 2008.

Developing Asia was the standout performer in the last quarter of the 20th century, nearly trebling output in the 1980s (an increase in real purchasing power of 183.5%), easing a little in the 1990s with the Asian financial crisis (an increase of 144% over the decade) and accelerating in the early 21st century (an increase of 129% in the eight years to the great crash of 2008). This is 'catch-up growth' in full stride. Asian developing country growth performance was strongly influenced by China, but has held up despite the deceleration of Chinese growth since 2011 (an increase of 68% between 2008 and 2014).

Latin American was slower than developed-country growth in the 1980s (an increase of 71.5% over the decade), but held up much better in the 1990s (67%). It accelerated in the early 21st century (an increase of 60% in the eight years to 2008). It has eased since the great crash (an increase of 28% in the six years to 2014), having been knocked back more by the end of the China resources boom than by the stagnation in the developed world.

The 'catch-up' momentum has been especially powerful in the large Asian developing countries, most importantly, after China, India and Indonesia. India has almost matched China since 2011, and may soon do so. Indonesia restored strong growth impressively within a few years of the 1997–99 crisis and depression, and subsequent democratic transition.

Most developing countries following export-oriented industrialisation strategies were held back to some extent by Chinese competition through the 1990s and early 21st century. The new model of Chinese growth and associated increase in relative Chinese costs and withdrawal from global markets for labour-intensive goods, and the expansion of opportunities for developing countries for a wide range of goods and services in the China market itself, provide a highly favourable environment for growth in the developing countries, and especially in developing Asia.

Unlike China, many of the rapidly growing Asian developing countries, including India and Indonesia, have experienced budget, and sometimes external payments, constraints on growth which have made it difficult to provide the infrastructure required for rapid development. This highlights the complementarity between developed and developing country requirements for maintaining strong growth in employment and output in the period ahead.

The underdeveloped countries

The bottom billion include all of Australia's and New Zealand's island neighbours in an arc of instability, intensifying poverty, high fertility and population growth, from Papua New Guinea to Fiji. Collier did not include Papua New Guinea in his bottom billion in 2007, and the persistence then of the struggle for good governance within the leadership justified his hesitation at that time. Regrettably, there is a Gresham's law of corruption in a country with weak institutions. When the currency has been debased, bad money drives out good. The good is forced out of circulation until there has been transformational institutional change.

My observations from experience of development in the island countries of the south-west Pacific correspond with those of Collier in Africa and support his main conclusions. Underdevelopment has its origins in problems of governance, which are far-reaching and intractable. Making headway on the problems of governance sets a path to development, but it is hard to get started. Democracy is often an illusion until institutional weaknesses have been removed by education and drawing on external institutions. The exploitation of valuable natural resources can temporarily create the statistical illusion of development, but is usually associated with kleptocratic capture of economic benefits by a small elite that can corrode established institutional strengths.

The magnitude of the challenge does not mean that progress is impossible – just difficult, requiring institutional stability, wisely directed institution-building over long periods, and often intrusive external support. A number of bottom billion African countries are making headway in the 21st century so far, including Ethiopia with large Chinese support for infrastructure and agricultural and industrial development.

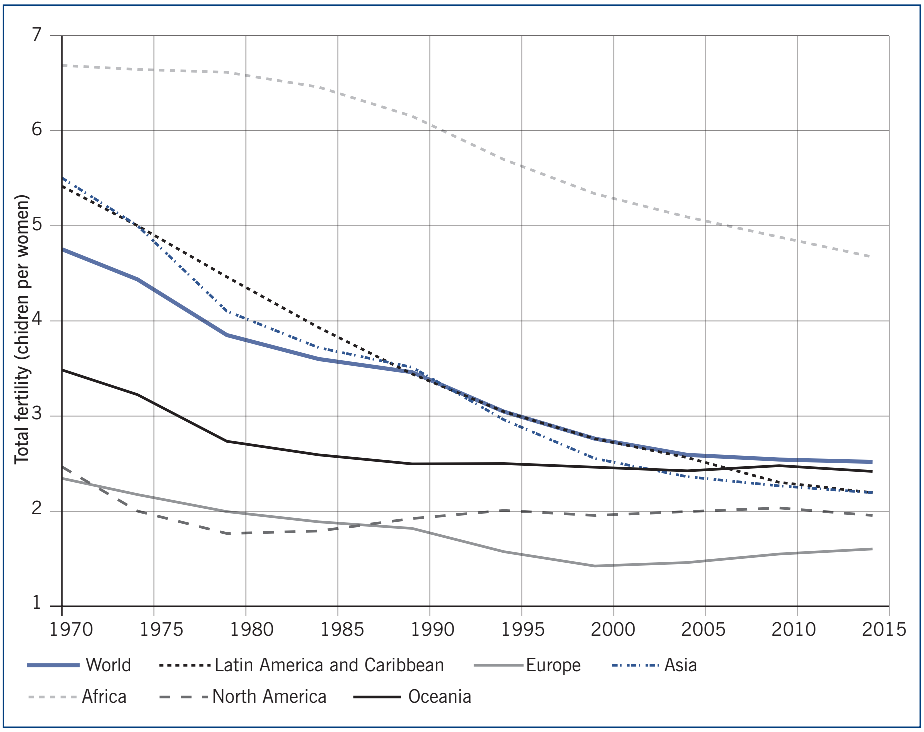
A number of bottom billion African countries are making headway in the 21st century so far, including Ethiopia with large Chinese support for infrastructure and agricultural and industrial development.

The bottom billion are more important than their current numbers suggest because much higher fertility makes them a rapidly increasing proportion of humanity. We could be confident that the global population will be on a downward path within a few decades despite increasing longevity only if a large proportion of the bottom billion were headed towards entry into the ranks of the developing countries.

International support for development in the bottom billion must take the form of transfers rather than income-earning investments and be justified on development and security grounds. It can contribute to lower real exchange rates and net exports, and therefore to employment in the developed countries, but not to future income for an older population in the developed countries.

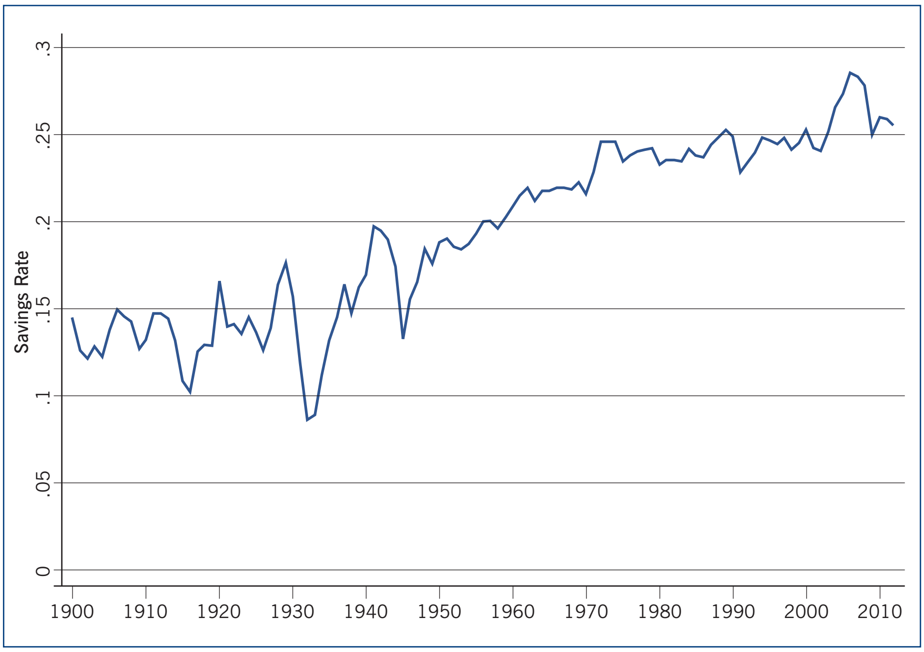
Whether humanity achieves the maturation of global economic development with all of its benefits for all of humanity depends on getting the

Figure 4: Levels of total fertility (births per woman), for the world and major areas, 1970 to 2015



Source: United Nations, 2014

Figure 5: Secular trend in global savings rate



Source: Eichengreen, 2015

people of the underdeveloped countries onto the economic development escalator. That is a hard task. Omitted, we cannot even be certain that the proportion of people on earth enjoying high living standards will increase over time, even if countries like China and Indonesia and India are growing strongly.

The good news is that the sub-Saharan African economic story is looking much stronger in the 21st century so far. Growth is proceeding rapidly in the countries in sub-Saharan Africa – a majority of these countries – that are not experiencing extreme political disorder. Real purchasing power more than doubled in sub-Saharan Africa between 2000 and 2008 and increased almost by half in the six years after that. High terms of trade from the China resources boom helped, but strong growth has survived the shift to the new model of economic growth in China.

Bringing global development to maturation

I have outlined powerful forces favouring the maturation of global development in the 21st century, lined up against the three barriers to which I have drawn attention. Most importantly, the slower growth of population and labour force and the prospects of absolute decline later in this century, and the high and rising rate of global savings out of a growing world income hold out the prospect of persistently low costs of capital and high and rising incomes of ordinary people everywhere. These developments are favourable both for the rapid catching up of the developing and, should domestic conditions permit, underdeveloped countries, and for equitable distribution of the fruits of economic growth. They are reinforced by a tendency for technological change to be capital-augmenting in the early 21st century – the prices of capital goods are falling faster than those of consumer goods, so that a given amount of capital stretches further.

I will run through these favourable developments for the maturation of global economic growth, and then discuss the three barriers.

Natural increase in population has ceased in the third of humanity in the developed countries including China. It is rapidly decelerating towards zero in the more than half of humanity in the developing countries. It is decelerating but remains high in the rapidly increasing seventh of humanity in the underdeveloped countries. Through a long transition to stable or declining world population, longer life expectancy can keep population growth positive for generations after fertility has fallen below replacement levels. But in the end it is fertility that drives long-term global population and labour force growth.

Figure 4 tells the story of declining fertility. It is customary to think that fertility of about 2.1 represents replacement level. The true replacement rate falls with reduced female child mortality and rises with natal masculinity. Rising ratios of males to females at birth in China and South Asia in particular have been the dominant source of a decrease in the zero population growth level of fertility in recent years.

Fertility in the developed regions of the world is now below replacement. It is falling rapidly towards replacement and can be expected relatively soon to fall to and below that level in the developing countries. It has fallen from about 6.7 to 4.7 in Africa since 1970, but is still high enough there and in the rest of the bottom billion for the time being to hold fertility in the world as a whole well above replacement – about 2.6 at present.

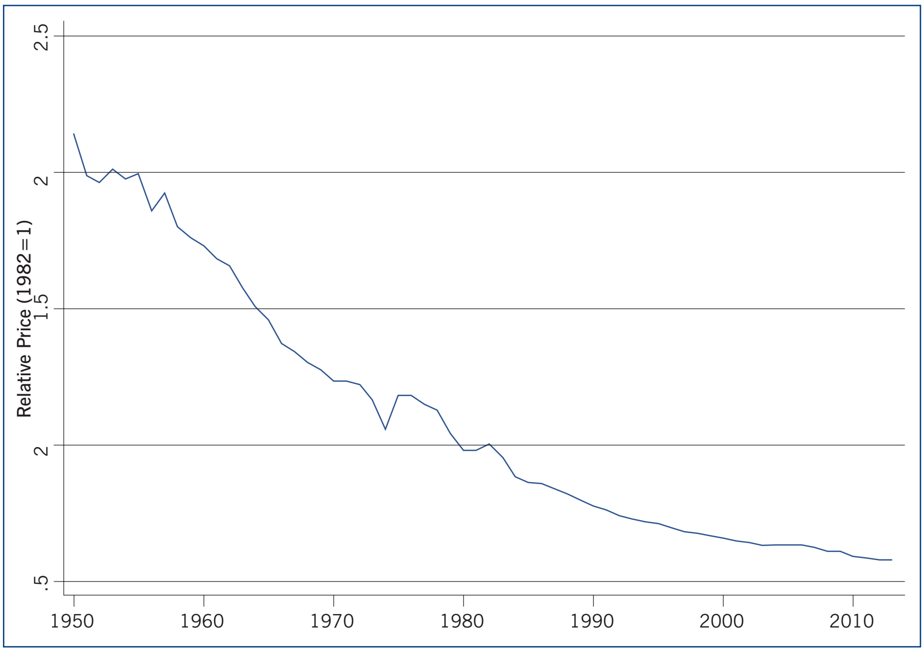
The experience of global development and demographic arithmetic tell us that continuation of early 21st-century economic success in Africa would see global fertility fall below replacement levels within a couple of decades. The global labour force would begin to fall not long after that, and global population reach its peak and begin to decline not long after the middle of the century.

Figure 5, from a recent paper by Barry Eichengreen (2015), shows the tendency for global savings rates to rise over decades. Low labour force growth and high rates of increase in the stock of capital through rising savings are favourable both for rapid growth in average incomes and for falling inequality. Figure 6, also from Eichengreen, reveals a powerful tendency for the relative costs of capital goods to decline over time. This means that recent economic growth has been capital-augmenting, with the potential to facilitate rapid global economic growth and increases in the labour share of rising income.

How do we reconcile the presence of powerful forces promoting low returns to capital and increasing scarcity of labour and higher labour incomes in the world as a whole, with the tendency towards stagnant or declining standards of living and greater inequality in the developed countries to which Piketty has drawn attention, and which we have observed is a threat to democratic government?

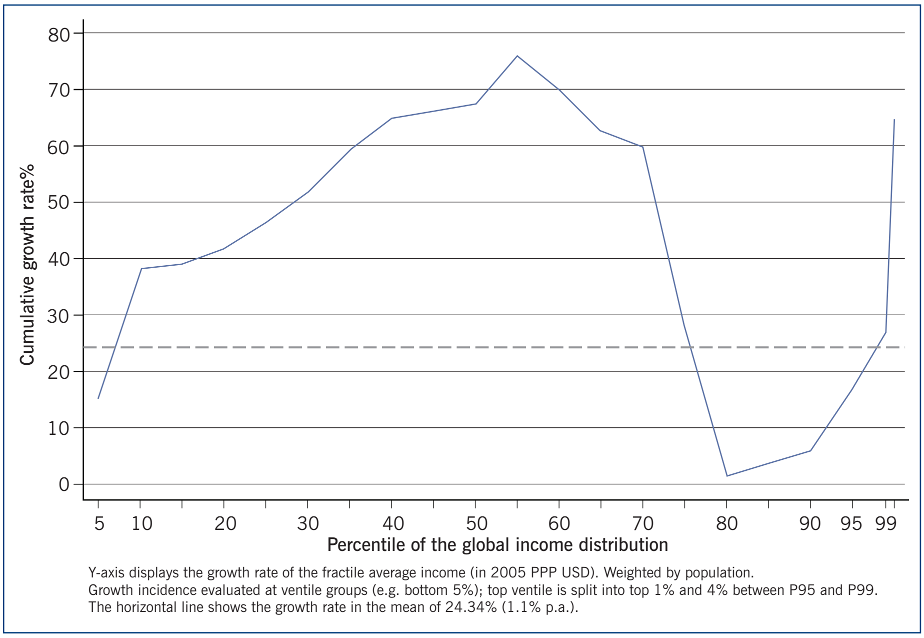
Reference has already been made to the once-and-for-all contribution made to increased inequality of wealth and income by falling interest rates in the early 21st century. Figure 7, prepared by two World Bank researchers (Lakner and Milanovic, 2013), helps us to understand the complex interaction of national and global developments. It focuses on the three decades up to the great crash of 2008, so misses the deterioration in median incomes and widening dispersion of incomes in developed countries since then.

Figure 6: Secular trend in global savings rate



Source: Eichengreen, 2015

Figure 7: Global growth incidence curve 1988 to 2008



Source: Lakner and Milanovic, 2013

Over the three decades the dispersion of global incomes as measured by a global Gini coefficient narrowed slightly. There were huge variations in the increase in incomes for people at different places in the global distribution of income over the three decades. People near the middle of the distribution and right at the top did extremely well – the middle corresponding to workers in China and the rapidly growing Asian developing countries, the top to the 1% in developed countries to which Piketty draws attention and their counterparts all over the world. People around the 80th and 90th percentiles – well off on a world scale, corresponding to workers in the developed countries – did poorly, as did members of the bottom billion in the low percentiles of the chart.

So, at the global level, the recent pattern of development has favourable features: developing countries are growing strongly and catching up rapidly with the developed; many in the bottom billion are showing signs of having joined modern economic development; and global income distribution is not becoming more unequal. There is a problem in developed countries of domestic demand being too weak to maintain full employment and high economic activity, but the best solution – investment abroad in income-generating infrastructure with support from high net exports and a low real exchange rate – is closely complementary to what is required for growth to remain strong in developing countries. At the highest level of generality, humanity has reasonable prospects for the maturation of global development in the 21st century, with more equitable distribution of greatly increased global incomes.

Three barriers to maturation of global development

Let us return to the three barriers to the maturation of global development.

First, anthropogenic climate change. Established patterns of consumption and investment place great pressure on the environment. The pressure that is most likely to truncate modern economic development through the 21st century is anthropogenic climate change. At the most optimistic end of the range of possibilities defined by the science, the raising of average consumption and investment levels per person to those of the developed countries without radically reducing the carbon emissions intensity of economic activity would create serious headwinds for global development through the second half of the 21st century. More likely, steady progress towards the maturation of global development without large reductions in carbon intensity would change global temperatures, and therefore have consequences for other things, to an extent that was inconsistent with the domestic and international political stability upon which economic growth depends (Stern, 2007; Garnaut, 2008, 2011; Christoff, 2013).

Radically reducing the carbon intensity of economic activity has a cost, which itself generates some headwind for global economic growth, especially in the early decades of the century. Early assessments suggested that the costs of reducing carbon intensity to levels that substantially reduced climate risks were of manageable dimension, especially if these were achieved through general and economy-wide interventions rather than through regulatory action (Cline, 1992; Nordhaus, 1994, 2008; Stern, 2007; Garnaut, 2008, 2011).

Four developments point to substantially lower costs of mitigation of climate change than suggested by earlier assessments. First, a focus on energy efficiency has reduced quickly and considerably the amount of energy applied to each unit of economic activity. Electricity use has fallen significantly in recent years in all the established developed countries, and electricity intensity has fallen sharply in China. Second, the costs of new, low-carbon technologies are falling faster than anticipated, especially with large-scale production of capital goods in China and deployment in many countries. Third, study of health and other co-benefits of decarbonisation is strengthening commitment to reducing use of fossil fuels in the biggest users (Global Commission on the Economy and Climate, 2014; Garnaut, 2014; Chen et al., 2013). Fourth, international cooperation on climate change mitigation has been strengthened as major countries have groped towards a more practical approach built around 'concerted unilateral mitigation' rather than an unrealistic search for comprehensive, legally binding agreements.

We are a long way from being on a trajectory of emissions growth that is likely to be consistent with the continuation of modern economic growth in the 21st century. But we have travelled far enough along the path of reducing the emissions intensity of economic activity in recent years to be confident that the means are available to reconcile all of humanity having high standards of living with climate stability. The questions are about the capacity of domestic and international political systems to deploy policies that reconcile economic growth with the maintenance of the natural environment that sustains it.

On inclusive development across the whole of humanity, as with climate change mitigation, recent developments are hopeful on an issue that has the potential to block the maturation of global development. The classical economists thought that sustained increases in living standards of ordinary people were unlikely because they would generate an increase in population that swamped the increase in production (Malthus, 1798, 1840; Ricardo, 1817). That was more or less how population and living standards had interacted through human history until the mid-19th century. The experience of modern economic growth has taught us that higher and more secure incomes and the greater self-confidence and education of women which accompany them lead to large reductions in fertility. That is followed, with a lag, by slower labour force growth and, all other things being equal, by increases in labour incomes.

On the exclusion of the bottom billion and its effects on global population as a barrier to the maturation of global development in the 21st century, I once would have been as pessimistic as the

The experience of modern economic growth has taught us that higher and more secure incomes and the greater self-confidence and education of women which accompany them lead to large reductions in fertility.

classical economists. The awful arithmetic is that the size of the global labour force and population can continue to rise if a seventh and growing proportion of humanity continues to have high fertility, even if the developed and developing countries together have population decline. The recent success of economic growth and the early stages of declining fertility in much of sub-Saharan Africa gives the developed countries the chance to reinforce success with intelligent support. China's immense increase in trade and investment in Africa is controversial. Overall, it seems to have been effective in reinforcing stronger economic performance (Johnston, forthcoming, 2015).

The special challenge for Australia and New Zealand is that some of the most intractable elements of the bottom billion are in our own neighbourhood, in Papua New Guinea, the Solomons, Vanuatu and Fiji. It may be that the barrier to the maturation of modern economic development is removed in the decades ahead, while leaving a deep problem for our immediate region. We have a special responsibility in this region and to date have not handled it well. For the maturation of global development to be as beneficial for Australia and New Zealand as it is for the world as a whole, we will have to put much greater effort into understanding what is necessary to overcome the high barriers to participation in modern economic development in our own backyard.

Concluding note on political systems

That leaves the central barrier to the maturation of global development: the restoration of effective economic policy in the public interest in the old developed countries, and its establishment in China as a developed country, which will be influential on the quality of government everywhere.

Some of the problems of developed countries since the great crash of 2008 have been exacerbated by failure of economic analysis. These are the most easily corrected. The recent G20 heads of government meeting in Australia focused on promotion of higher levels of public investment in income-generating infrastructure – at home, where there is productive potential for it, and in successful developing countries. Effective investment abroad will improve the economic prospects of developed and developing countries alike. China has gone furthest in developing the institutions for large increases in international investment, but others may follow.

Modern economic growth and reconciling equity with growth both require effective government. Sustaining high productivity growth requires government to be strong enough to unwind anti-competitive arrangements that accumulate over time in any economy; to provide a wide range of public goods and to tax external costs of private decisions in order to reconcile the functioning of a market economy with continued growth in the public interest; and to run fiscal and monetary policy consistently with economic stability. And effective government is required to run tax and expenditure policies that constrain inequality in income distribution within limits that are consistent with political support for growth-sustaining policy. This is a huge challenge for the developed countries, and I can do no more than underline its importance in my concluding remarks.

Larry Diamond has recently written about a 'democratic recession' since 2006 in the world as a whole, driven partly by 'the decline of democratic efficacy, energy, and self-confidence in the West' (Diamond, 2015). He notes as integral parts of the problem the ever-increasing costs of election campaigns, and the surging roles of non-transparent money in politics. Contemporary democracy in developed countries is for the time being failing in a struggle against the weight of vested interests to implement policies that are necessary for the maintenance of established standards of living for ordinary people.

Recent commentators on the role of vested interests in lowering the quality of economic policy in the public interest (Stiglitz, 2012; Krugman, 2003; Sachs, 2012; Garnaut, 2013) have related the general phenomena highlighted by Diamond specifically to economic policy. These are not new concerns, having been voiced by economists who recognised the transformative benefits of democratic capitalism. Schumpeter in his classic *Capitalism, Socialism and Democracy* noted that the means at the disposal of private interests in a democracy 'are often used to thwart the will of the people', and 'to interfere with the working of the mechanism of competitive leadership' (Schumpeter, 1942). In the early post-war period Condliffe cautioned that, 'It is always dangerous to entrust the final decisions of social policy to those who stand to gain from an immediate course of action' (Condliffe, 1951). What makes these concerns more immediate today is the more overt and less constrained interventions by vested interests in the developed countries' policy-making process, their evident success in influencing policy in the early 21st century, and the associated decline in aggregate economic performance and the skewed distribution of incomes and wealth.

> The problem of vested interests corrupting policy-making in the public interest is not confined to the democracies.

For the developed countries, and clearly for my own country, the reform of democracy has to begin with tight and effective constraints on corporate, including trade union, funding of political campaigns and parties.

The problem of vested interests corrupting policy-making in the public interest is not confined to the democracies. The struggle of a new general secretary, Xi Jinping, to exclude corrupt influences on policy has been a dominant political focus of the new party and state leadership that came to office in late 2012 and early 2013 in China. The current Chinese leadership's hopes are more easily exclaimed than implemented, and it would be surprising if they were straightforwardly successful. The contemporary association of developed countries with democracy will soon change if I am right about China joining the ranks of developed countries through the 2020s. Most of the world's high-income people will then live in a country whose government professes to govern for the people, but avowedly not by the people.

Whether humanity sees the maturation of modern economic development through the 21st century depends above all on whether we can find effective systems of government for the people through the 21st century. Whether government by the people becomes dominant in the world, or is confined to a few places in which it put down deep roots a long time ago, will be determined over much the same time. The prospects for both the maturation of global economic growth and government by the people will be strongly influenced by the strength of the independent centre of the democratic developed countries, to which Frank Holmes contributed so much in New Zealand.

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Gary Hawke

Economic Policy, External and Internal, and Public Policy

Ross Garnaut delivered a Holmes Lecture superbly crafted to honour Frank Holmes. With his background in all of academic economics, policy development, diplomacy and business governance, as well as a longstanding personal acquaintance with Frank, Ross is as well qualified as anybody for a Holmes Lecture, and he more than delivered on his qualifications.

Ross's economic theory is deployed discreetly. Not only does his lecture have diagrams but no equations, but also most of the theorising is implicit. It is, however, sophisticated and carefully developed. Perhaps the influence of economic theory is most apparent in the concept of 'maturation' of economic growth, the eventually spreading of economic growth across all societies, with an implicit end-point when all have a common real per capita income and rate of growth. This is the standard economic concept of equilibrium, quickly related to both the various long-run tendencies of classical economics and the more recent creations of dynamic equilibria. It is an analytical device; it is not simple-minded description. It promotes exploration of possible disruption of a smooth transition to equilibrium, and what are offered as counter-examples to equilibrium analysis are often misconceived. Ross has used a similar device in earlier work: one of the most interesting ideas in his work on climate change, albeit often ignored, was the identification of equal per capita emissions as an equilibrium. Discussion about blame for historic emissions and fair entitlements to emission-generating development could fruitfully have been avoided by wider understanding of the

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role of equal per capita emissions.

Ross does not always use the equilibrium notion. One area from which it is absent, more prominent in his earlier work, and in his most recent book, on the Australian economy (Garnaut, 2013), than in the Holmes Lecture, is the choice of interest rate for evaluating investment projects. High interest rates imply that costs and benefits in the distant future have little impact on current decisions; their present value is discounted to close to zero. That is uncongenial to those who advocate attaching weight to the welfare of distant generations (or who opportunistically use the interests of distant descendants to justify imposition of their own preferences). But choice of the appropriate interest rate is not arbitrary or even simply a value to be determined by a political process. It involves assessment of community preferences with the aid of equilibrium devices such as Ross deploys effectively elsewhere. There is no simple solution – determining community preferences is inevitably complicated and contentious – but imposition of a personal preference is no solution.

Interest rates are a major link between economic theory and policy analysis. Ross pursues several aspects, all persuasively. He very effectively limits any echoes of Piketty's argument in the title of his Holmes Lecture, 'Global development in the 21st century', since he expects interest rates to be low, preferring the analysis of Keynes' 'Economic possibilities for our grandchildren' (Keynes, 1931, pp.358-74). The sufficiency of an excess of interest rates over the rate of growth to generate inequality is dubious – there is an argument that an equilibrating process will equate the two, but it is interesting mainly for directing attention to departures from the conditions under which the argument is valid. Accounting for capital losses is not simple, and nor are the distributional consequences of funds supporting pension entitlements. Following Keynes, Ross sees a likelihood that savings will tend to outrun the desire to invest, although he relies on ageing rather then satiation. Keynes expected material desire to be satisfied so that working hours would be diminished, but subsequent experience has been dominated by rising aspirations at least keeping pace with increased production. Should we perhaps expect that the balance of investment plans and desired savings will also change? Perhaps by an equilibrating process?

... journalistic commentary is dominated by suggestions that the present generation is unusual in not being able to look forward to future generations being better off than current experience.

It certainly seems unlikely that there will be any reversal in the demographic trends which create an expectation for savings intentions to exceed investment plans. The dominant demographic force is fertility and incentives are heavily weighted towards continued reduction in fertility. The material welfare of households is not promoted by children; social norms increasingly restrict child labour everywhere; and parents more and more recognise that the life chances of their children depend on expensive inputs, both time and diversion of household resources. There is little reason to doubt Ross's expectation of continued spread of a general experience of ageing. The 'modern economic growth' about which he writes is not the 'modern economic growth' which Kuznets discerned as the historical norm when he was writing nearly 50 years ago. Kuznets then found a generally positive association between population growth and growth of real per capita incomes (Kuznets, 1966). Fertility caught up with declining mortality, and came to dominate the spreading of higher income levels both within developed countries and as growth spread internationally.

It is not impossible that we will be surprised. Expectations of declining populations were widespread in the 1930s, as analysts established that population growth rates had been declining from the 19th century, the trend being led in rich countries. Then, as now, analysts explained the trend through the rising relative cost of children, their lesser value as sources of labour and their greater requirements of investment. But from the 1940s to the 1960s the trend was reversed, and a surge in fertility produced the baby boom generation which features in current discussion. Analysis of the baby boom is complex, but the central intuition is that after the experience of the Great Depression in the 1930s, parents in newly-formed households confidently expected that they would be able to provide children with better starts in life than they had themselves experienced, sufficiently so as to permit them to have larger families.

Currently, journalistic commentary is dominated by suggestions that the present generation is unusual in not being able to look forward to future generations being better off than current experience. It is not very secure, but surveys in several countries suggest that it is widespread. If it is reversed, could we see some repetition of the baby boom? Perhaps, but it looks like a very long shot indeed.

Other mechanisms to reverse declining fertility have been suggested. Many women who delay childbearing until late in their 30s encounter difficulty in conceiving and pregnancy, and medical advice is increasingly insistent that the best years for childbearing are much younger. The direct impact of such advice is likely to be small, given widespread scepticism of medical authority outside a strictly clinical context, but an underlying concern with social institutions which constrain childrearing at earlier ages may well be strengthened. It has long been common to contrast Italy and Sweden: in countries where, as in Italy, women are mostly forced to choose either family or employment fertility will be lower than in countries, such as Sweden, where employment conditions and accessibility of child care are more conducive to combining childrearing with advancement in a career. The impact of responses such as different gender allocations of responsibilities for childrearing, or flexible hours of work, have been limited, and a substantial impact would have to come from changes in occupations such as the law and finance away from using long hours of concentrated work to screen for rapid professional advancement. Quick change cannot be expected.

Hence the demographic trends expected by Ross Garnaut are strongly based. But perhaps the link between ageing and economic growth will change? Ross is well aware of possibilities such as more creative use of mature and aged workers, but, while prejudice should always be challenged, there can be little doubt that age generally reduces both initiative and enthusiasm for change – and it is effective management of change rather than 'structural reform' that should be the focus. Any weakness in the link between ageing and economic growth is likely to be directly in the savings–investment nexus.

The proposition that ageing generates increased desired saving is not unqualified. It is more true of individuals of working ages than it is of the aged, who dissave, and is therefore less than self-evident in the aggregate. Total savings may be unchanged as those in employment save more but the aged dissave more quickly and for longer. (In reality, private savings may be outweighed by public saving trends.) At an international level, the extraordinary saving of Chinese in recent times and the current trends in Chinese economic strategy mean that the savings propensity there is likely to decline, and China is sufficiently large to affect world totals.

Pessimistic expectations about the propensity to invest are usually derived from productivity trends, and eventually from assessments of technology change. The reading is contested. Debate has been most intense in the US, and even there it may be read as favouring those who see less a decline in the impact than changes in its incidence. Economic historians are accustomed to tracing the productivity gains of the iron and steel industry in the classical industrial revolution, observing the introduction of major technology innovations such as the blast furnace, and then recognising that most productivity gains came from incremental improvements between major innovations rather than directly from their introduction. We should expect the same to be true of current innovations such as the internet, and the sensors and robots that are starting to have significant impacts. We should also be careful to avoid assessing technology trends from trends in machines. Even though technology changes fastest when it involves management of machinery through repetitive tasks which can readily be taught, the greatest impact of technology has historically tended to come from organisational changes, often at a more aggregate level than individual firms. These are usually less readily observable and more likely to be recognised only in retrospect.

Ross gives an optimistic view of future development in any case. He notes especially the impact of technology change on carbon emissions, through improvements in the carbon intensity of production, cost-reducing innovations in low-carbon technologies, the incentives of desirable health effects, and realistic mobilisation of international cooperation. (Ross treats reductions in the cost of low-emission technologies as part of mitigation and criticises reliance on adaptation at the expense of mitigation, but the categorisation is not important. Technical progress is.) The successful mechanisms are all much less visible than periodic accounts of failed international conferences, which have many of the characteristics of circuses. In *Dog Days*, Ross observes that informal understandings 'were probably more ambitious than they would have been in a notionally legally binding agreement negotiated by all countries. Formal negotiations make country representatives defensive' (Garnaut, 2013, p.185). His pragmatism is appealing. So would be its extension to considering the future balance of investment and savings intentions.

Anybody who follows Asian discussions will be aware that 'inclusive growth' looms much larger there than it does in standard 'Western' discussions.

Ross is interested in 'inclusive development across the whole of humanity'. Anybody who follows Asian discussions will be aware that 'inclusive growth' looms much larger there than it does in standard 'Western' discussions. It is not just a concession to political activists, or a contrivance which is useful for evading prescriptions for change. Rather, it reflects an ultimate aim of community-building, the construction of a harmonious as well as prosperous society. Perhaps the single most important point in the Holmes Lecture is the quotation and discussion around chart 7 taken from the World Bank policy research working paper by Lakner and Milanovic. Distributional issues are global, not parochial. Broad trends in technology have generated incomes for many (but not all) of the world's relatively poor, and the relatively disadvantaged in the three decades shown in this chart were 'people around the 80th and 90th percentiles – well off on a world scale, corresponding to workers in the developed countries'. Most of the attributions of responsibility to specific government interventions in individual countries look almost trivial.[1] Indeed, Ross saw some parallel with Heinz Arndt's query whether societies for the relief of genteel ladies were ever socially desirable. However, distributional issues have to be taken seriously, for moral reasons and to ensure that societies remain conducive to progress. Ross remains optimistic, as is implicit in his 'maturation' concept. He specifically ruled out any suggestion that Africa or anywhere else has to remain poor.

To find a single government with major influence we look to China. Ross draws on all his diplomatic experience, and the knowledge his access has made available to him, to create a very positive picture of China's development. In his book *Dog Days* he has more room for qualifications than he did in the Holmes Lecture, or even in the seminar in Wellington where he discussed China's new development model. The book therefore includes: 'The big currents of economic development are inherently uncertain. China may fail in the implementation of its ambitious structural reform' (Gartnaut, 2013, p.270). But he is surely right that success is more likely than any of the scenarios painted by those who cannot refrain from expecting Armageddon in some form.

The implications for Australia and New Zealand are profound. We benefited from Chinese demand, for minerals in the case of Australia, dairy produce in the case of New Zealand. New Zealand is now better placed than Australia, since China's 'new development model' will reduce emphasis on construction and on the 'metals' sector, which grew at phenomenal rates, while Chinese demand for dairy products is likely to continue to grow. An emphasis on services, such as education, is less biased in favour of New Zealand, and 'dairy products' involves much more than 'farm products', with other inputs able to be sourced from elsewhere than New Zealand. These are important direct influences from China, but their distributional consequences may well be dwarfed by the subjection of all low-skilled employment in New Zealand and Australia to competition from India and eventually Africa, and increasing competition from the booming Chinese education sector for what is now relatively sheltered educated labour in New Zealand and Australia.

It is easy to endorse Ross's call for strengthening of the 'independent centre' in the policy community, as Frank Holmes would certainly do, but we may doubt whether the greatest challenge comes from using political and policy institutions for private interests.

In pursuing the implications of such analyses, Ross puts a lot of weight on exchange rates. He is not afraid to use standard 'Keynesian' analysis. For example, he describes the Chinese policy response to the global financial crisis as 'Keynesian'. The term was originally used in circumstances such as the Second World War, when community cohesion had a strong extraneous source, and continued in the 1950s and 1960s when the state was widely accepted as the embodiment of collective will. It became contested as the stagflation of the 1970s generated more intense rivalry within societies, and government interventions were as much likely to be anticipated and countered as accepted as expressions of collective interest. The implication if Ross's analysis of China's experience is correct is that its government is more likely to be accepted as acting in the collective interest than is now usual for governments of 'Western' economies.

Trust in governments may be engendered in various ways, through voluntary acquiescence earned by experience or through fear, or perhaps Ross was simply relying on older analysis. The latter possibility seems to be the case with his insistence on the real exchange rate in his criticism of Australian economic policy in response to the resources boom and the subsequent 'dog days'. International competitiveness is always important, but in the contemporary international economy it cannot be related only to the prices of traded goods and services. Exchange rate changes must also be related to international investment, both valuation of stocks of cross-border capital flows and impacts on revenue flows across borders from outward and inward international investment. Ross is surely right that in Australia, as in New Zealand, concern about Chinese investment is mostly xenophobic, just as were earlier worries about Japanese investment, or even earlier antagonism to American investment. But those international investment flows mean that it is no longer adequate to think only about domestic incomes, the real exchange rate, and competitiveness of exports.

Ross's principal concern is less with economic policy than with public policy in general. His target is 'more overt and less constrained interventions by vested interests in the developed countries' policy-making process, their evident success in influencing policy in the 21st century, and the associated decline in aggregate economic performance and the skewed distribution of incomes and wealth'. It is a theme much discussed in the US, and *Dog Days* develops the analysis for Australia with several persuasive accounts of specific interests unduly influencing the policy process. The Australian examples of mining interests gaining strategic political positions or manipulating the policy process are even more blatant than any well-documented concerns in the US, where the greatest worry is the implicit collaboration established through major contributions to campaign funding. (New Zealand experience is trivial by comparison, but it is easy to think of phrases like 'eternal vigilance'. Ross is concerned about corporate funding of politics in both Australia and the US, and he includes trade union funding in that.)

It is easy to endorse Ross's call for strengthening of the 'independent centre' in the policy community, as Frank Holmes would certainly do, but we may doubt whether the greatest challenge comes from using political and policy institutions for private interests. There is now more assertiveness of specific interests of all kinds, including activists who dress themselves as guardians of the public interest, and who exploit any opportunity to advance their enthusiasm at the expense of deliberative policy analysis which considers unintended consequences and focuses on feasible alternatives rather than some alleged utopia which can be reached in one easy step. Ross drew to our attention the caution in Condliffe's 1951 *The Commerce of Nations*: 'It is always dangerous to entrust the final decisions of social policy to those who stand to gain from an immediate course of action.'

In this regard as in others, Ross skilfully links his interest in Australia to understanding of the wider world. Tension between political and economic development is a standard component of analysis of contemporary China, but it is not often related to worrying trends in governance in developed democracies. Yet both are concerned with governing in the interests of the public. Democracy is more than the existence of elections and alternation of power among parties. China's sensitivity to its public, obviously limited in some respects, is shown by responsiveness to the health effects of pollution, and its thinkers will now be less concerned with American election strategies than with watching whether the Singaporean approach to securing order and harmony as well as material prosperity will survive loss of the direct influence of Lee Kuan Yew.

In all of the employment of economic theory, sophisticated even when not entirely convincing, the discussion of economic strategy, and the deeper issues of public policy, Frank Holmes would have found much to approve in this lecture, and more to engage with further. We benefit from the interaction of Ross and Frank.

1 Hwok-Aun Lee in 'Some Malaysian inequality measures more equal than others' (*East Asia Forum*, 26 February 2015) suggests that 'Malaysians are simply conflating the general economic environment with inequality', and this has applicability much wider than Malaysia.

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Grant M. Scobie

Commentary on 'Global Development in the Twenty-first Century'

The Danish physicist Neils Bohr wryly observed: 'Prediction is very difficult especially if it's about the future.' In that sense, Professor Garnaut set himself a very challenging task. However, reflecting the depth of his scholarship, he has not fallen into the trap of prediction. Rather, he has offered nuanced projections; the difference is more than semantic.

In his speech to the Republican State Convention in Springfield, Illinois in June 1858, Abraham Lincoln started by observing: 'If we could first know *where* we are, and *whither* we are tending, we could then better judge *what* to do, and *how* to do it.' Garnaut's reflections on global economic prospects in the rest of the 21st century are very much in the spirit of this observation. The starting point is an understanding of where we are now, and Garnaut has drawn on his wealth of knowledge and experience to establish that starting point. From there he leads us to 'whither we are tending'. This requires an understanding of how economic, social and political forces will shape the way societies develop, and, critically, how they interact. For this we need to appreciate 'how the world works'. And Garnaut offers much insight into the economic and political dimensions of global development. But then comes the really hard part: judging what to do and how to do it. What role will national and international policies play? What should those policies be? To what extent will they even matter for the long-term outcomes? Here Garnaut recognises the limits of our understanding and is suitably cautious.

That productivity gains, complemented by expanded world trade and capital flows, have been important for underpinning the growth in living standards for much of the world is undisputed. In recent decades, two key forces have principally driven the rate of economic growth: a rapidly growing labour supply and higher productivity. Increasingly, however, we have evidence

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that the rate of improvement in productivity has been slowing down. And that slowing is not solely a phenomenon of very recent times, but rather one that has been underway since the 1950s; although here Garnaut rightly acknowledges that measurement issues still potentially cloud the true picture of productivity change.

Significant impulses to long-term economic growth have come in the past from so-called general purpose technologies (Lispey, Carlaw and Bekar, 2005). The standard examples are the steam engine, railroads, the internal combustion engine, steel and electricity. These technologies typically lead to fundamental changes in the way societies operate.

More recently, we would surely have to add information technology (ICT) to our list. It is now easier to complete a retail purchase from 10,000km away than it is to drive 5km on a congested road and then search for parking. Brokerage services, accounting, banking and insurance can all be effected online from just about anywhere on the planet at a fraction of the real cost of engaging in physical contact with providers. Every aspect of modern life in both the home and commercial worlds is centred on the use of this technology, the real cost of which continues to fall. And there is good evidence that the adoption of ICT has been widespread, and notably so in the poorer regions of the underdeveloped world. With a smartphone a Masai herdsman can have an eye test and order prescription spectacles, conduct banking, call for emergency medical aid, contact family, obtain market prices, receive warnings of natural hazards – in short, be as globally connected as a bond trader in Frankfurt.

We might, therefore, reasonably expect that the transfer of technology to less developed areas will be increasingly facilitated, resulting in gains in productivity and leading inexorably towards convergence with wealthy nations – 'the only stable end-point' of modern economic growth, as Garnaut argues. But, despite the technological advances, we are left with the conundrum so aptly captured by Robert Solow's 1987 quip: 'You can see the computer age everywhere but in the productivity statistics.'

Garnaut creates the sense that the global economy will follow somewhat evenly along the paths he suggests in each of the three blocks of countries he identifies. However, it is highly likely that the future course will be punctuated with shocks; we know from the past that this has always been the case and it would be challenging to mount a credible argument that such shocks will diminish in future.

We can distinguish two types of shocks: natural disasters, and political perturbations whose origins lie in the very process of economic growth. For natural disasters we can invest in preparedness, avoid policies that favour locating in risky zones, and improve the systems of rapid deployment of emergency relief. The second type represents a greater challenge, and typically has wider ramifications than the more localised impact of natural disasters. Garnaut acknowledges the challenges for economic growth in the Pacific, where failed states have become the rule. While economic growth has picked up in parts of sub-Saharan Africa, the record is spotty at best, and the political instability that characterises the Ivory Coast, Nigeria, Sudan and the Congo is not an encouraging backdrop for sustained growth. But more worrying still is the instability in the Middle East, across North Africa and through Syria, Iraq and Afghanistan. Today, real per capita GDP in Iraq is lower than it was in 1950. The prospects for return to any serious rate of sustainable economic growth across the region would seem remote.

But it is not only in Africa and the Middle East that tensions can disrupt the path of economic growth. Garnaut logically gives centre stage to China in his analysis of world economic growth. Of its growing importance there can be no doubt. Depending on which estimates you prefer, China is already the world's largest economy, with some 17% of global GDP; its economy is about three times the size of Japan's and four times the size of Germany's. Of course, this is not a new state of the world. In 1700 China and India each generated about 25% of global GDP; in 1820 China alone accounted for 33%.

A large share of the total growth in world GDP recently has been due to China. One view is that sustained high growth in China (and India) will, via trade and commodity prices, have positive spillovers and pull the rest of the world along. However, there may be grounds for some scepticism about whether China will converge with the income levels of the rich nations, especially by the 2020s as Garnaut suggests. A recent paper (Pritchett and Summers, 2014) argues that the recent periods of high economic growth in China are to some extent an aberration. By analysing the data on economic growth across a large sample of countries, the authors find a strong reversion to mean, and a tendency among the more rapidly growing economies to experience sharp discontinuities. They build a strong case that a) forecasts for continued high rates of growth in China are overly optimistic, and b) China will

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inevitably have those discontinuities, the probability of which is heightened by the presence of an autocratic political structure. The authors conclude:

> It is impossible to argue that either China or India have the kinds of 'quality institutions' that have been associated with the steady dynamic of growth in the currently high productivity countries. The risks of 'sudden stops' are much higher with weak institutions and organizations for policy implementation. China and India have very different modalities of this risk, but both have tricky paths to continued prosperity. (Pritchett and Summers, 2014, p.58)

If China were to succeed in sustaining its model of governing for, rather than by, the people, it would surely become a significant outlier from the association of democracy and economic well-being.

We simply do not know how the interaction of the economic and political forces will play out in China, but I would argue that it is unlikely to be resolved without some ructions along the way. And given its size, those perturbations, however minor, will inevitably send waves, varying from ripples to tsunamis, to the wider world economy. We have already seen the consequences of boom and bust arising from changes in the level and pattern of import demand in China. Australia is feeling a chill wind as

A fundamental challenge not mentioned by Garnaut is the capacity of the world to feed itself.

Will China's growing domination in world trade lead to calls for greater protection in importing countries? China now produces more steel than the rest of the world combined, and anti-dumping investigations or cries for protection are already underway in the United States, the European Union, India, Korea and Australia. Such moves have the potential to result in a weakening of free trade and a consequent slowing of growth and misallocation of global resources.

History suggests that rising incomes and greater economic freedom go hand in hand with greater political freedom. Can China continue its unprecedented economic growth (even at more modest rates) and at the same time manage the inevitable tensions that build as a consequence of becoming a wealthier, more powerful and globally connected society? Is the Platonic guardians model a political structure for China that is sustainable in the long term? Some might look to the 'one-party democracy' of Singapore as a model that China might emulate – although comparing a city state to a nation as enormous and diverse as China would seem to stretch credibility.

China's growth strategy moves beyond its energy- and metal- intensive phase, while New Zealand has had its own commodity boom driven in good measure by exports to China. But these bumps and hollows could pale into insignificance alongside the ramifications of a major political 'realignment'. The rest of the world, living with an enormous economic powerhouse, is analogous to Canada cohabiting with the US. When asked by a journalist from the US about that relationship, Prime Minister Trudeau responded: 'Living next to you is in some ways like sleeping with an elephant. No matter how friendly and even-tempered is the beast, if I can call it that, one is affected by every twitch and grunt.'

A fundamental challenge not mentioned by Garnaut is the capacity of the world to feed itself. To date the record has been impressive. In 1961 food for the global population of 3.5bn came from 1.4bn hectares. Fifty years later the population had doubled to 7bn and agricultural land use had risen only to 1.5bn hectares. The growth of agricultural productivity has been truly remarkable, and has had widespread benefits: real agricultural prices fell by some 70% during the 20th century.

With little or no possibility for further expansion in land area, the world will be fed only through sustained growth in agricultural productivity. New developments in production and processing might well contribute to the required growth of productivity. Precision farming, zero tillage, genetic modification, biological control and microbial fertilisers are just some of the innovations that will drive future productivity. However, none of this will happen easily; there are both political and environmental challenges. Deforestation, desertification, agricultural run-offs, falling ground water levels and declining water quality are just some of the potential barriers to sustained agricultural productivity growth.

In summary, Garnaut well recognises the headwinds that global economic growth may encounter: his top three candidates are climate change, lagging growth among the world's poorest, and the capture of the policy-making process by vested interests. To those I would add the capacity to feed ourselves and, above all else, the potential global economic ramifications that might stem from political perturbations in China. The first will require sustained investment in research and development, supported by polices that price resources at marginal social cost and deal with environmental externalities. Avoiding the second will require uncanny political management by the Chinese leadership, supported by robust global institutions. We can only hope that our understanding of China's rise to become the major economic and political force in the world will continue to be enhanced by those such as Professor Garnaut.

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Geoff Bertram

Garnaut versus Piketty inequality in the coming century

If something cannot go on for ever, states Herbert Stein's law,[1] it will stop. In itself this is not very informative, but it opens the way to three interesting questions: (1) why can't it go on for ever?; (2) where and when will it stop?; and (3) why? Generations of economists have applied this line of inquiry to the accumulation of wealth (or its narrower version, capital) and to its close relative, the share of national income going to the holders of wealth. Their answers have varied widely.

Adam Smith in 1776 saw no reason why accumulation could not go on for ever. David Ricardo in 1814 thought that the growing income claim of unproductive rentiers would squeeze capitalists' returns against the immovable barrier of the subsistence wage, and eventually bring capitalist growth to a halt, in the process putting a limit on wealth. Marx in the 1850s thought that accumulation carried the seeds of its own destruction: a rising capital–output ratio would drive down the profit rate and trigger intensified exploitation of labour, leading to class conflict that would destroy capitalism itself. Keynes in the 1930s predicted 'euthanasia of the rentier' as an increasing stock of wealth drove down the rate of return. In Solow's 1956 growth model, the combination of diminishing returns and the physical fact of depreciation led to the prediction that the capital–output ratio would stabilise at an equilibrium level, with total capital growing only at the economy's rate of growth. Thomas Piketty takes this one step further by arguing that the wealth/income ratio has a long-run equilibrium at a value of around five or six, while the long-run return on wealth tends to stabilise at a value above the long-run growth rate of the economy, producing a society with dramatic and sustained long-run inequality of both wealth and income. All (except the pre-Ricardian Smith) agree that in a closed-economy setting, 'too much capital', as Piketty puts it, 'kills the return on capital' (Piketty, 2014, p.215).

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In a key passage in the middle of his Holmes Lecture Ross Garnaut singles out the relationship between capital accumulation and income inequality as the 'question that will be most important in shaping global development in the 21st century'. He argues, echoing Keynes in the final chapter of *The General Theory* (Keynes, 1936) that in a world of abundant capital and output the long-run rate of return on capital must fall to negligibly low levels. Garnaut interprets Keynes' position as follows:

> abundance will cause the rate of return on capital to fall to low levels. People who have a lot of capital will not have enormous incomes simply as a result of that ownership. This world will see 'the euthanasia of the rentier'. For those who are interested in access to the important things of life, there will be an abundance, so that questions of inequality will not matter very much.

What, then, should we make of the recent increase in inequality? Garnaut interprets it as merely a short-run hiccup due to falling global interest rates. Piketty views it as empirical evidence in favour of his thesis that global inequality is on track to return to 18th-century levels. (Garnaut also, in the passage quoted above, proposes that inequality matters only in relation to 'the important things of life', by which he seems to mean essentials as distinct from luxuries and positional goods. Here I think he strains credibility, both because the possession of positional goods is a crucial part of the inequality story, and because his assumption that abundance must eventually trickle down to everyone requires an unduly big leap of faith.) While I agree with Garnaut about the importance of the issue, I think he is too quick to suggest that 'Keynes is right and Piketty wrong'. In this comment I shall try to explore this in a bit more depth.

First off, one has to bear in mind the difference between wealth and capital, a distinction that Piketty has unhelpfully obscured by using the term 'capital' to refer to the broader category of 'wealth'. Economic growth theories that predict a steady (or possibly stationary) state for the economy, with a stable equilibrium capital/output ratio, generally conceive of capital as an input to the productive process, without which growth itself cannot happen. Therefore, a fall in the rate of return on capital as it accumulates translates into a fall in the incentive to invest, which in turn slows accumulation itself.

There are three familiar limitations to this story. The first lies in the concept of capital itself, the subject of the 'Cambridge debate' in the 1960s, which I will not pursue here. The second is the brute fact of depreciation, which means that in the steady state of, for example, a Solow economy the rate of return on investment at the margin cannot fall below the rate required to incentivise replacement investment to maintain the capital stock. This in turn puts a limit on the extent to which diminishing returns can drive down the rate of return on productive capital.[2]

The third is the fact that (as Keynes, Garnaut and Piketty all acknowledge) savings do not all automatically become embodied in new productive capital. There are a wide range of forms in which wealth can be accumulated, of which productive capital is only one. Landed property and buildings are the most obvious,[3] and confer upon their owners the power to collect rent, at a rate of return which tends to rise rather than fall as productive capital accumulates relative to land (Ricardo's point).

Financial assets such as government bonds are a different form of wealth with different dynamics: excess current savings drive down the rate of interest at which new loans can be made, but in the process drive up the value of existing bonds issued in the past at higher rates. Garnaut attributes the recent rise in inequality to this mechanism: 'much of the increase in wealth and income at the top of the distribution in this century … reflects once-and-for-all increases in asset values associated … with the decline in interest rates themselves'. Hence, as existing loans expire and are rolled over at lower interest rates, even a very large portfolio of bonds will yield only a meagre income, which leads Garnaut to predict that the current level of inequality will prove unsustainable in the face of abundance of capital and a low rate of interest.

Garnaut may eventually turn out to have been right, but I would nevertheless emphasise three factors that add weight to Piketty's side of the debate.

First, Keynes' original discussion of euthanasia of the rentier (Keynes, 1936, pp.375-7) was far from all-encompassing. The rentier whose demise he foreshadowed was the 'functionless investor' who secures rents on financial assets only so long as capital remains scarce, so that the rate of interest has to be at a level sufficient to attract funds to net new investment. Keynes expected his 'euthanasia of the cumulative oppressive power of the capitalist to exploit the scarcity value of capital' (p.376) to flow from, and depend directly upon, capital abundance, which if necessary was to be secured by direct state investment sufficient to ensure capital abundance at full employment. Keynes acknowledged, though, that rent on land is different, because 'there are intrinsic reasons for the scarcity of land' which do not disappear simply because of capital abundance. Thus, only one category of rentiers suffered euthanasia in his account. For the others, Keynes was happy to see large income and inheritance taxes imposed (p.377). Euthanasia by capital abundance, in short, was a selective process which would leave much wealth untouched in the absence of high tax rates.

Second, 'land' is shorthand for a large range of bottleneck resources that are inherently in limited supply and hence command sustainable rents in a market economy. Social(ist) ownership of these resources could prevent them from becoming the basis for gross inequality of wealth and income, but under private ownership there is no obvious endogenous tendency for their value to decline, nor for their ownership to become dispersed, either of which might bring inequality down. Hence, those individuals who secure ownership at the bottlenecks can continue to ride the escalator of rising rent and 'capital gains'.[4] Just as Keynes set aside this aspect of capital abundance, so does Garnaut gloss over the future of land-based rentals and the associated inequalities.

Third, Piketty's position has a long-run historical grounding which puts a considerable onus on Garnaut to demonstrate why 'this time is different' from the two millennia up to 1900. In Piketty's theory of history, the 20th century appears as a one-off deviation from the long-run human propensity to create and sustain highly unequal societies. The deviation, in his account, was driven by an eruption of new social and political forces that broke the power

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of the old ruling elites and established a high-tax, high-wage welfare state and mixed economy. Those forces faded in the late 20th century in the face of the resurgence of financial power and neo-liberal ideology, following which the age-old disequalising forces are back and will consolidate unless democratic forces revive. Hence Piketty thinks we must 'bet everything on democracy' (Piketty, 2014, p.573); that is, on a new wave of deliberate political intervention to block the disequalising tendency of the market economy.

Garnaut, following Keynes, views the 20th century not as a short-run historical aberration but as the launching pad for a long-run growth path leading to global abundance and greater equality. In this view, the history of inequality prior to 1900 is an irrelevant distraction, and the recent sharp increase in inequality is a temporary aberration, from which the economies of the developed countries are expected to recover of their own accord as the rest of the global community completes its transitional phase of rapid growth and accumulation.

I hope, for obvious reasons, that Garnaut is right, but I did not find his argument against Piketty persuasive. The jury remains out on how the long-run accumulation story will play, and I am uneasy about bringing the authority of Keynes to bear in support of the proposition that the currently low interest rates prevailing in the global economy will necessarily prevail into the long run – that is, for the coming century – and translate into a new period of devaluation of wealth. Keynes' rentiers certainly had a thin time of it for half a century after *The General Theory* in the face of strongly interventionist policy in the advanced economies, but the story of recent decades has been one of resurrection of the rentier and consolidation of their well-funded stranglehold over policy. *Laissez-faire*, this suggests, is not likely to prove the best response to inequality.

This brings me to the question of what, if anything, Garnaut thinks we ought to do about inequality. His optimism about the long-run equalising tendency of the market economy, and consequent rejection of Piketty's extrapolation of the recent trend towards inequality, seems to point to a relaxed *laissez-faire* stance. Yet he argues for 'effective government … to run tax and expenditure policies that constrain inequality in income distribution within limits that are consistent with political support for growth-sustaining policy', seems to support Piketty's proposal for a global wealth tax, and worries about the power of vested interests. As did Keynes eight decades ago, Garnaut seems to be holding state intervention in reserve, to wield the axe if and when the free market fails to deliver on his long-run vision of euthanasia of the rentier in a world of general abundance. I was left wondering how long he would be willing to wait to see whether the falling interest rate (see his Figure 2), on which he lays such stress, can indeed be sufficient to reverse the recent rise in inequality.

1 http://en.wikipedia.org/wiki/Herbert_Stein.
2 Keynes makes this point clearly: 'it would not be difficult to increase the stock of capital up to a point where its marginal efficiency had fallen to a very low figure. This would not mean that the use of capital instruments would cost almost nothing, but only that the return on them would have to cover little more than their exhaustion by wastage and obsolescence together with some margin to cover risk and the exercise of skill and judgment' (Keynes, 1936, p.375).
3 The dominance of housing as a component of total present-day wealth is conspicuous in Piketty's statistics and in the corresponding New Zealand data (see Bertram, 2015) and fits uneasily with his mathematical model of equilibrium capital accumulation: see Rognlie, 2015 and Malpass, 2015.
4 'Capital' here obviously carries the meaning wealth.

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Valentina Dinica

Governance of National Parks at the Crossroads

New Zealand's silent reform

New Zealand's national parks are major attractions for tourism and recreation, while hosting other commercial activities considered compatible with that primary role, like grazing, commercial filming and renewable electricity production. Commercial activities can only be carried out according to the terms of legal documents referred to as 'concessions' (typically, permits, licences and leases). There are currently 14 national parks, all managed by the Department of Conservation (DOC). Most of the country's native birds, reptiles, frogs, bats and plants are unique in the world, but highly vulnerable to introduced predators and human activities. DOC has argued frequently that its conservation activities are 'heavily weighted towards the trapping and poisoning of … introduced animals'. However, 'less than 25% of conservation land receives interventions on key threats, with around 8% receiving possum, rat and stoat control' (DOC, 2014a, p.2).

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The limited availability of financial resources is an important obstacle to implementing the department's statutory biodiversity protection responsibilities. In the recent past DOC's budgetary allocations have increased slightly every year (Office of the Auditor-General, 2012, pp.14-15). However, Treasury documents show that since 2013 there has been a reduction. Table 1 shows the budgetary allocations for 2013/14 and 2014/15, and the split between DOC's main areas of statutory responsibility. The Treasury projections for the years 2015/16–2017/18 indicate that allocations (expressed as 'total funding level for planning') will remain almost static in nominal terms.[1] Given that the conservation estate managed by DOC accounts for a third of the country's area, it is quite clear that DOC is confronted with a serious financial sustainability challenge in relation to biodiversity conservation, while having a wider range of statutory responsibilities to fulfil, related to ecosystem health, recreation and tourism infrastructures, education and advocacy.

Table 1: Budgetary allocations for the Department of Conservation

Allocations per (some) activity, budgeted for or projected	2013/14	2014/15
Management of natural heritage including the maintenance, restoration and protection of ecosystems, habitats and species	$164.936m	$160.303m 37% of the Vote
Recreational (including tourism-related) facilities and services, and the management of business concessions	$148.564m	$144.993m 34% of the Vote
The protection and conservation management of historic heritage	$5.565m	$5.996m 1% of the Vote
Working with communities to protect natural and historic resources	$25.500m	$24.346m 6% of the Vote
Total budgeted	$354.877m	$338.930m

Source: Treasury, 2014a, pp.2-3

The National-led governments since 2008 and their conservation ministers have asserted that they are mindful of the importance of biodiversity conservation and ecosystem health (DOC, 2009, p.5). Nevertheless, the underlying philosophy, expressed in government strategies and policies, is that natural resources can and should be exploited for increased economic prosperity: 'The Government is helping by encouraging business to use our natural resources more effectively, and ensuring they use them responsibly. This includes improvements to the resource management systems to enable faster economic growth while maintaining strong environmental standards' (New Zealand Government, 2013, p.11). In relation to this political vision, the term 'conservation economy' was formally introduced by the conservation minister in DOC's statement of intent for 2009–12 when he wrote the following:

> In its totality, conservation plays a critical role in validating the 'clean pure' brand that is the market advantage on which our producers rely. It is increasingly clear that sound management of our natural areas produces the life-sustaining ecosystem services on which our lifestyle and prosperity depend. These are services such as freshwater yield and storage, soil fertility and stability, and carbon storage. Tourism is New Zealand's largest single foreign exchange earner, and the destinations for both domestic and international visitors are primarily around public conservation lands and waters. The businesses that support and complement tourism are major contributors to our regional economies and local communities. Once we recognise these interdependencies, we can start to capitalise on them to achieve social, economic and conservation gains. This gives meaning to the term, 'the conservation economy'. (DOC, 2009, p.5)

This text is rather unclear as to the governance arrangements that should underpin the conservation economy idea, and the full range of expected outcomes. Also unclear is the status of this idea and how it should be referred to. Is it a narrow government programme to be implemented under existing regulations? Or is it a political project with significant implications for the future governance of the conservation estate?

Section one of this article explains its connection to broader government strategies. Based on what can be gauged from government documents published a few years later, the conservation economy idea seems to have taken the form of a quite comprehensive governance reform agenda. The introduction of the term was followed by several changes to the 1987 Conservation Act and to some DOC policies and practices, required by the government, to enable easier access of businesses to the conservation estate (New Zealand Government, 2012, 2013). In addition, there have been institutional changes, which are still evolving. For example, DOC in 2013 went through the most radical restructuring in its history. This saw the establishment of partnerships managers and teams at national and regional level, to refocus the department's priorities towards public–private collaborations.[2] The new partnership approach aims to increase third-party revenues and to enhance the role of volunteering in biodiversity management (Controller and Auditor-General, 2012; Hardie-Boys, 2010).

Therefore, fundamentally the conservation economy is a proposition by the National-led governments that the expansion of economic activities into New Zealand's conservation estate can be done in an environmentally friendly manner, while addressing the challenges surrounding the financial sustainability of biodiversity conservation and the ecologically sound management of the estate. This article explains the main features of the conservation economy agenda as outlined in key government documents, presents some findings regarding its ongoing implementation and implications in terms of governance changes, and raises some concerns regarding the claimed conservation/environmental benefits from enhanced business access to the conservation estate. It is argued that, while some governance changes appear minor and have been defended based on efficiency arguments, they may have serious consequences for the long-term management of the estate and for the opportunities offered to New Zealanders to have a say in it. Given the potential magnitude and implications of this governance reform agenda, it is surprising that so far there have been no serious societal debates about the implementation of the conservation economy idea, and that media analyses have remained scarce and narrow in scope.

The empirical analyses in this article focus on national parks, paying special attention to tourism businesses as key concessionaires.[3] To support these analyses, a short overview is first offered of the legal framework guiding national park governance. 'Governance' in this article refers to all legal instruments, policies, strategies, management plans, permitting provisions and procedures, administrative arrangements, public–private collaborations/partnerships, and societal processes (such as public participation in policy processes) relevant for the particular area(s) of interest (see Meadowcraft et al., 2005 and Dinica, 2013, pp.664-5 for more detailed conceptualisations). In terms of research methods, the analysis draws on the following sources:

- all relevant conservation and environmental laws, policies and guidelines regarding national park management, and the issue, monitoring and enforcement of concessions for business in national parks;
- a selection of 12 concession contracts for tourism in national parks and 12 concession applications, to appraise the incorporation of biodiversity and environmental objectives/measures. Concession contracts are publicly available only upon request, and the selection was made by the Department of Conservation. Based on the author's request, the selection ensured good representation of older and newer contracts for a diversity of activities and facilities in three national parks: Mount Aspiring, Aoraki/Mount Cook and Westland Tai Poutini; together with Fiordland, these national parks form the UNESCO South West New Zealand Wilderness Heritage Area. Further, 12 concession applications were considered that were publicly notified on the DOC website in the period July 2013–March 2015 and concerned tourism operations throughout the conservation estate;
- publicly available documents and reports regarding DOC's legal responsibilities, budgets, restructuring and performance; and DOC media releases;
- 42 interviews.[4] The response rate for interview invitations was around 38%. Stakeholders who agreed to be interviewed included: DOC staff at head office and in three national parks; representatives of four conservation boards, regional and national user organisations (tramping, hunting and fishing organisations), and environmental and nature non-governmental organisations; representatives of tourism and recreation associations at national and regional levels, and individual tourism businesses with concessions in national parks.

> … DOC is confronted with a serious financial sustainability challenge in relation to biodiversity conservation, while having a wider range of statutory responsibilities to fulfil, related to ecosystem health, recreation and tourism infrastructures, education and advocacy.

Legal framework features

Currently, the main legal framework for national park management consists of the 1980 National Parks Act, the 1987 Conservation Act and all legal revisions of these acts. In addition, the 1953 Wildlife Act is relevant for biodiversity conservation, and some provisions of the Resource Management Act 1991 are relevant for several environmental sustainability aspects of human impacts on national parks. Under the 1980 National Parks Act (article 4.1) DOC is required to preserve 'in perpetuity …, for their intrinsic worth and for the benefit, use, and enjoyment of the public, areas of New Zealand that contain scenery of such distinctive quality, ecological systems, or natural features so beautiful, unique, or scientifically important that their preservation is in the national interest'. The hierarchy of objectives for national park management by DOC, emerging from the legal framework, is clear and, so far, has remained unaltered since the 1980s: 1) conserving nature; 2) educating the public; 3) fostering recreation; 4) allowing for tourism whenever compatible with nature conservation.

Under section 6 the 1987 Conservation Act the department's first responsibility is '(a) to manage for conservation purposes, all land, and all other natural and historic resources … (ab) to preserve so far as is practicable all indigenous freshwater fisheries, and protect recreational freshwater fisheries and freshwater fish habitats'. While paragraph (a) refers to all natural resources, particular emphasis is given to land and its ecological functions; water resources seem to require protection especially from the standpoint of ensuring healthy indigenous fisheries and recreational fishing. It is important to note that no reference is made to air quality or climate stability, which can affect the quality and productivity of soils, the quality and availability of water resources, and the health of many types of terrestrial and aquatic fauna (McGlone and Walker, 2011). From this standpoint, New Zealand's legal framework on nature protection is dated: it does not incorporate global policy developments on climate change and air pollution mitigation, and lacks a holistic approach to ecosystem health.

Secondly, the department has education and advocacy responsibilities towards the New Zealand public and tourists (sections 6b and 6d); and further, under section 6e of the Act, 'to the extent that the use of any natural or historic resource for recreation or tourism is not inconsistent with its conservation, to foster the use of natural and historic resources for recreation, and to allow their use for tourism'. Consequently, in the legal hierarchy, recreation is clearly a third responsibility for DOC, while support for tourism activities and infrastructures comes only fourth, provided that the highest-ranked objective – nature conservation – is not being compromised.

Another important feature of the current legal framework is the hierarchy of planning tools for the management of national parks and concessions. De juro, New Zealand has so far been following a system whereby concession contracts are used as tools for implementing the zoning framework set in national park management plans. Under section 17W of the Act, concessions can only be issued within the development limits, and under the terms and processes, specified in national park management plans and higher-order legal/policy tools. In their turn, national park plans cannot derogate from conservation management plans and strategies. At the national level, the latter are guided by the 2005 general policy for national parks, which in turn must be consistent with the legal framework (Controller and Auditor-General, 2012).

In terms of public participation in decision-making on concessions and national park plans, policies and strategies, two main mechanisms are available: direct input through (rather outdated) participatory mechanisms like written submissions, public hearings and public meetings; and indirect input through conservation boards and the New Zealand Conservation Authority, whose members are appointed by the conservation minister from the general public and conservation stakeholders.

The empirical findings of this study regarding the design and implementation of the conservation economy agenda indicate that it has created significant tensions in national parks governance, which risk undermining the following current governance features:

- the hierarchy of legally-set objectives guiding DOC's management of national parks;
- the hierarchy and guiding role of management strategies and plans that DOC must respect in approving concessions for business in national parks; and
- the extent and quality of public participation in decision-making processes, ranging from concessions to national park plans and strategies.

The hierarchy of objectives for national park management by DOC, emerging from the legal framework, is clear and, so far, has remained unaltered since the 1980s: 1) conserving nature; 2) educating the public; 3) fostering recreation; 4) allowing for tourism whenever compatible with nature conservation.

The conservation economy agenda and its implications for DOC's de facto priorities

In DOC's 2009–12 statement of intent, the conservation minister wrote that the document 'sets out how the Department of Conservation will contribute to the wellbeing and prosperity of New Zealanders over the medium term' (DOC, 2009, p.5). This is a surprising statement, as it has nothing in common with the hierarchy of legally-prescribed objectives for DOC, particularly with respect to national parks. The department incorporated, quite faithfully, this political priority into its work. In the same document it stated that, 'The Department contributes both directly and indirectly to economic growth, as outlined in the foreword from the Minister of Conservation' (DOC, 2009, p.10).

Since 2009 the National-led governments have designed a Business Growth Agenda, which includes a programme on Building Natural Resources. The resources programme is led by the ministers of seven ministries or departments that are either responsible for the management of natural resources (terrestrial and marine, including water, soil and air) or managing economic sectors that depend on such resources. The group includes the conservation minister, the environment minister, and the minister responsible for the current Tourism Policy Group (the minister for business, innovation and employment). An undated Cabinet paper states that the minister of finance and the minister for economic development proposed 'to organise the government's business growth agenda around the following six key inputs and associated policy issues': capital markets, innovation, skilled and safe workplaces, infrastructures, export markets, and resources, including '[p]rimary industries, energy and resources, land use, water, environment (including climate change), local government, and conservation' (Office of the Minister for Finance and Office of the Minister for Economic Development, undated, p.5). An the annex to the document summarises a 120-point action plan which includes: '6 month time limit on consenting medium term projects'; 'simplifying planning processes for resource management'; and 'introduce offsetting for pre-1990 forest land owners' (p.14). The programme aims to increase the contribution of all economic sectors relying on natural resources to 40% of national GDP by 2025: this is referred to as 'greening growth' or 'sustained growth from natural resources' (New Zealand Government, 2012, pp.5-7).

For the tourism sector, the government aims to '*Grow the number* of new business opportunities on public conservation land in order to deliver increased economic prosperity *and conservation gain*' (New Zealand Government, 2012, p.23, emphasis added). In the 2009–12 statement of intent the conservation minister wrote:

> I have directed my Department to investigate ways in which it can evolve its approach to tourism. This includes working to streamline the statutory processes in the granting of concessions. It is also about planning and developing its recreation infrastructure in ways and in places that are most likely to stimulate and support tourism, including by shifting the focus to more heavily populated areas.

Government strategies and policies suggest, therefore, a reshuffling of the de facto hierarchy of objectives for DOC, lifting tourism to the second rank.

Parliament's Local Government and Environment Committee expressed concerns during the 2010/11 estimates hearing for Vote Conservation that 'the Minister's priorities, as outlined in the Statement of Intent, were commercially focussed and inconsistent with the Conservation Act'. This concern was shared by a large number of interviewees, particularly environmental and nature NGOs, conservation board members and users of national parks. The reshuffling of the legal hierarchy of DOC objectives can also be gauged by looking at the policy priorities set in 2010–11: the first listed is '*Strengthening DOC's contribution to tourism*: The Destination Management Framework was developed to help increase people's participation in tourism and outdoor recreation activities in public conservation areas. It focuses on places that are popular, or have the potential to be' (Office of the Clerk of the House of Representatives, 2010, p.2).

New Zealand's legal framework on nature protection is dated; it does not incorporate global policy developments on climate change and air pollution mitigation, and lacks a holistic approach to ecosystem health.

Changes to the 1987 Conservation Act and approaches to public participation

In relation to the new political objectives for DOC, changes to the concessions regime have already been implemented by means of the 2010 and 2013 amendments to the Conservation Act. The amendments were justified by arguments related to DOC's efficiency in processing concession allocations, and increased business certainty (DOC, 2010, p.7), although many tourism businesses have no sunk investments in national park/conservation estate lands. The Conservation Act regulates that whenever concession activities or facilities are likely to be *high impact* and/or be requested for *a longer term*, the public should be notified and *sufficient time* allowed for responses by means of submissions and public hearings. In the pre-2010 version, 'longer term' was specified as five years; in the new one this has become ten years (revised sections 17T[4];[5]). The ten-year term was recommended to DOC in 2006 by the Tourism Industry Association New Zealand (Tourism Industry Association New Zealand, 2006, pp.20-1). Further, 'sufficient time' for public submissions was considered in the past to be 40 working days; in the new system, DOC internal procedures allow for only 20 working days (DOC, 2010). It is widely accepted that DOC took a long time to process concession applications, largely due to internal operational processes. In 2010 the department reported that 'Throughout the organisation there are approximately 100 concession applications being processed that have been in the system for over 2 years. Many of these are for low impact activities' (DOC, 2010, p.22). This raises the question: was the shortening of the time allowed for public reaction by 20 days a necessary legal measure, to address the problem of processing delays by DOC?

Under the 2010 revision of the Conservation Act the minister has been given discretion on the notification of decisions to grant a permit or licence for less than ten years, for which the likely impacts are assessed as high. While permits may not be for longer than ten years and are not renewable (section 17Z[2]), leases and licences 'may be granted for a term (which shall include all renewals of the lease or licence) not exceeding 30 years or, where the Minister is satisfied that there are exceptional circumstances, for a term not exceeding 60 years' (section 17Z[1]).

Some DOC staff seem to be struggling with understanding when input from the conservation boards and the public is required. Two of the four interviewed members of conservation boards mentioned that they seem to receive fewer concession applications for comment now compared to the pre-2010 period (Respondent A, B). In a recent report on a notified concession application, for a five-year permit to take guided walkers across the Tongariro Alpine Crossing, the following comments appeared:

> The Permissions/SLM Manager provided advice that exceptional circumstances may exist in this situation in regards to publicly notifying the application. … The Chief Legal Advisor for the Department has reviewed this application in respect of the planning documents and the need for public notification. … The Chief Legal Advisor has advised that the application does not meet the test for exceptional circumstances, and that the application should therefore be publicly notified. (DOC, 2015a, p.3)

The same report notes that 'The Tongariro National Park Management Plan states that guiding concessions for the Tongariro Alpine Crossing should be publicly notified' (ibid.).

In December 2014 the Office of the Ombudsman published its report on a complaint from a member of the Otago Conservation Board regarding the decision of 'a Department of Conservation delegate of the Minister of Conservation – to grant a new concession to Routeburn Walks Ltd, on terms permitting the concessionaire to increase from 24 to 40 the number of its overnight guided walkers entering the Routeburn Track each day' (Ombudsman, 2014, p.2). The Mount Aspiring National Park management plan was approved in June 2011 by the New Zealand Conservation Authority, following a significant participatory process that included 436 written submissions and three public hearings. The plan imposed ceilings on the total number of overnight walkers on the Routeburn Track and of independent walkers. The implication was that no more than 24 people could be accommodated per night through the monopoly concession held by Routeburn Walks Ltd. The delegated department staff decided that despite the ceiling some exceptional circumstances would apply, and Routeburn Walks Ltd was issued a concession to accommodate 40 overnight walkers. The report of the ombudsman stated:

> The decision flew in the face of the limits set in the newly promulgated Mt Aspiring Plan. There had been a careful and extensive public consultative process and general endorsement of the provisions of the new Plan. As the complainant states, the decision to approve the increase in overnight guided walker numbers makes a 'mockery' of the process of public consultation in the development of the Plan and undermines public participation.

The department was asked to cancel the concession and to apologise to the conservation board member, and it did so (DOC, 2015b).

The two examples above raise the question of whether the inclination of DOC staff to increase the processing speed and number of 'exceptional circumstance' concession approvals can be explained by problems of professional competence, or by the pressures trickling down from the political objectives of the conservation economy agenda. It seems that the inclination of some permissions staff to 'govern by exception' has not disappeared with DOC's public apology in January 2015.

How will the conservation economy agenda help solve the problem of sustainably funding a holistic environmental management of the conservation estate?

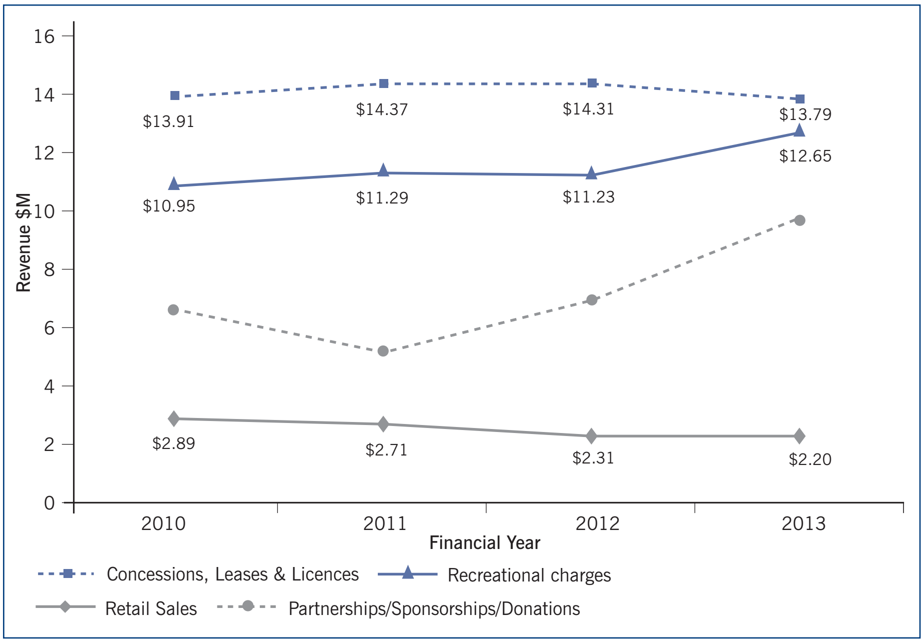
The department aims to increase the number of New Zealanders volunteering for the physical work of biodiversity conservation (also envisaged in the conservation economy agenda). The new partnerships staff, appointed since the 2013 restructuring, are to work 'with community groups, iwi, local authorities, private landowners and businesses to attract more resources to conservation' (DOC, 2013a). Thus, more is being asked of New Zealanders, while less is being offered in terms of participatory rights.

This happens in a context where international tourists (the predominant clients of tourism concessionaires) are still referred to by many interviewees as 'free-riders' on the conservation estate's front country infrastructure and icon destinations (see definitions in DOC, 2011). That infrastructure is funded primarily by taxpayers, while the backcountry recreation infrastructures used predominantly by New Zealanders remain underfinanced and risk decay or dismantling (Treasury, 2014b, p.61). The concession fees currently collected by DOC from all concession types do not represent more than 3–4% of DOC's annual budget (based on Treasury, 2014b, p.69). It is unclear how much tourism concessions contribute to this, but the overall picture is clear: New Zealanders foot most of the bill for DOC's expenses.

In its 2011–14 statement of intent DOC defined as its second medium-term priority 'increasing investment from the private sector in conservation, with a focus on sponsorships and concessions revenue' (DOC, 2011, p.35). Figure 1 shows the revenue generated by all concessions, as well as partnerships, sponsorships and donations, between 2010 and 2013. These amounts represent extremely low contributions to DOC's budgetary needs for managing biodiversity conservation successfully, let alone for a more holistic ecosystem management (see Table 1 for a comparison in terms of budgetary allocations).

The culture so far in New Zealand has been that if concessionaires avoid, rectify and mitigate environmental effects, then all should be fine.

Figure 1: Conservation revenue between 2010 and 2013



Source: Treasury, 2014a, p.60

Many other economic policy instruments have been proposed by New Zealand academics and stakeholders (Haque, 2006), but these have so far received no serious political support. A former conservation minister and influential member of the post-2009 National-led government, Nick Smith, has often dismissed the option of introducing national park entry fees, arguing that this would be illogical given that we do not pay entry fees to city parks (Kerr, 1998, p.7). The argument often made (also by many tourism businesses interviewed for this research project and several conservation board members) is that New Zealanders have a birthright to access their nature areas free of charge. It is not clear how this relates to the current legal framework, and interviews with DOC staff revealed that there is no common understanding about whether national park entry fees are feasible under the current laws.

Nevertheless, in many countries national park fees have been imposed. Often this has been done on a tier system, with higher fees for international visitors, and sometimes offering exemptions to national citizens and residents (Eagels et al., 2002). Roger Kerr, former executive director of the New Zealand Business Roundtable, argued that:

> Free entry is a subsidy. The real resource costs of using national parks are then borne by taxpayers, through expenditure of public money, or other users, through degradation of the conservation experience. Those who do not go to the parks pay for those who do. And many of the payers are much worse off financially than many of the non-paying users – surveys have consistently shown that visitors are predominantly from above-average income groups. As is so often the case with government interventions, the implicit income transfers are from poor to rich. (Kerr, 1998, p.7)

Another potentially useful financial instrument would be that based on the concept of payment for ecosystem services, in which DOC has been interested for some time. The essence of this concept is that ecosystems provide benefits – such as purifying waters and air, ensuring soil productivity and crop pollination, and as settings for nature-based tourism – that have quantifiable economic value to identifiable businesses and communities. If these benefits are measured, benefiting businesses can be asked to pay for the ecological services received. The instrument has already been applied successfully overseas (especially in developing countries) to help finance biodiversity conservation (Tallis et al., 2009). So far it has proven to be a powerful tool in recognising the market value of forest and water resources, which abound in the conservation estate (Burkharda et al., 2012). However, government documents surrounding the Business Growth Agenda have so far been silent on this.

What does the future hold for the current legal hierarchy of conservation management strategies and national park management plans?

If the government aims to address DOC's financial sustainability through more concession allocations, then mass tourism developments in national parks are inevitable, at least in the national parks used intensively by international tourists. Such a scenario would necessitate a different, more permissive planning framework in terms of conservation strategies and plans. There are signs that this shift is already happening through parallel processes of: a) the watering down of the guiding role of the current national park management plans, and b) regulatory change proposals and DOC restructuring to reduce the number of decision-making points and the available planning documents.

The concession approval which contradicted the Mount Aspiring National Park plan is just one example. The conservation economy agenda seems to have led to a shift in the balance of power between DOC and the tourism industry. This shift has also been seen in other parks, especially Fiordland and the surrounding estate, where two major infrastructural tourism projects were proposed to the conservation minister in 2011–12: a monorail-based project to link Queenstown to Milford Sound (by boat, monorail and bus); and a road with tunnel through the park's backcountry mountains linking the same areas. Both proposals received positive evaluations based on internal DOC assessments, and were open to public submissions following notification of the intention to grant the concession. While eventually both were declined (the former in an election year), they attracted major public interest, seen in the hundreds of public submissions (mostly in opposition).[5] If approved, these projects would have triggered a change in the Fiordland National Park management plan (based on sections 17W[3] and [4] of the 1987 Conservation Act).

A DOC media release in September 2014 stated that 'New conservation management strategies (CMSs) for the Department of Conservation's Northland and Waikato regions come into effect today … [These] strategies will guide DOC's work on many levels and simplify decision-making on concession applications and operational work priorities' (DOC, 2014b). This message suggests that the conservation economy agenda has already started to trickle down to conservation management strategy level. It is unclear why such interventions are needed, since the same arguments were used to justify the 2010 and 2013 amendments to the Conservation Act. As these are guidance documents for national park management plans, one should not be surprised to see attempts to include more permissive concession limits and approval processes when national park plans are up for review (or earlier).[6]

Following the 2013 radical restructuring of DOC, the number of concession allocation services has been reduced to four,[7] increasing the distance between monitoring rangers and decision-making. In a 2013 media release DOC stated, regarding its restructuring: 'the proposed structure involves: the removal of DOC's existing 11 regional conservancy boundaries and replacing them with six new regions; … the creation of a Conservation Partnerships Group; the disestablishment of 118 regional management and administration roles; the disestablishment of 22 asset management, planning and inspection positions' (DOC, 2013b). In addition, as mentioned earlier, the 2013 Conservation Board Review led by the current associate minister, Nicky Wagner, has already proposed lowering the number of conservation management strategies to three.

One may wonder why it is necessary to dismantle the existing legal framework regarding the conservation strategies, national park management plans, conservation board membership, and accountabilities and public participation, and why it is helpful to lay off so many employees, if the genuine aim of the governance changes is to increase conservation gains from more business on the conservation estate. How will the loss of expertise associated with 140 full-time equivalent positions increase conservation gains? How is the current legal framework an obstacle towards achieving biodiversity objectives? A close inspection of the Conservation Act, in the following section, reveals that important legal tools are available to the conservation minster to achieve just that, or even more: to implement wider environmental sustainability measures through concession contracts.

Where are the 'conservation gains' from the conservation economy agenda?

While the government has made considerable progress in opening up the conservation estate to businesses through the governance changes highlighted above, there are no concrete statements from government members or DOC officials, and no policy developments or legal initiatives, setting out the latter part of the equation: conservation gains, or wider environmental gains, from more tourism concessions in national parks. How is this going to work, in terms of policy and legal tools? What are the quantifiable targets? The only detectable approach so far is to rely on voluntary initiatives for biodiversity conservation, which primarily concentrate on saving icon species like the kiwi and tuatara, which have higher impacts for the marketing of sponsoring businesses. The appointed interviewee for the Tourism Industry Association New Zealand was not aware, by October 2014, of any initiatives that would aim to achieve 'conservation gains' from tourism concessionaires through concession contracts or formal public–private partnerships. Interviewees from DOC's head office also could not point towards any specific implementation plans, suggesting that it is too early for that (Respondent C, D, 2013). Reference was made to a DOC webpage listing some sponsoring/volunteering businesses, few of which, however, are tourism concessionaires.

The Building Natural Resources programme claimed that allowing more tourism businesses on the conservation estate will bring about benefits through business involvement in environmental protection, biodiversity conservation, and even the maintenance of tracks and other facilities (Treasury, 2014b, pp.12-13; New Zealand Government, 2012). Such developments would have been appreciated by the New Zealand public. From an in-depth examination of 12 ongoing concession contracts and 12 notified concession applications, a number of key observations emerge with respect to the environmental and biodiversity management aspects of tourism concessions.

> If a government cannot ask companies carrying out business in national parks – a country's most precious lands – to use the best available environmental practices, technologies and renewable resources, and to be proactive on biodiversity management, then who can it ask to do this?

DOC's requirements in contracts are typically formulated in terms of 'don'ts' rather than 'do's': the concessionaire should not break any applicable law, strategy or management plan; should not light fires, 'cut down or damage any vegetation; or damage any natural feature or historic resource on the Land' (DOC, undated, p.12); not dispose of toilet wastes near water, etc. The 'do' requirements are of the type to be expected in any commercial contract: do deal with rodents and pest insects; do 'keep all structures, facilities and land alterations and their surroundings in a clean and tidy condition'; do 'make adequate provision for suitable sanitary facilities for the Land if directed by the Grantor and for the disposal of all refuse material' (ibid., p.12).

How is the government going to achieve 'greening growth' or 'sustained growth from natural resources' with such provisions? How is the conservation minister going to achieve 'conservation gain' with more tourism concessions (New Zealand Government, 2012, p.23; Treasury, 2014b, p.3)? Section 17 ZG(2) of the 1987 Conservation Act gives him or her good tools: the minister may 'include in any concession provisions for the concessionaire to carry on activities relating to the management of any conservation area on behalf of the Minister or at any time enter into any agreement providing for the concessionaire to carry out such activities'. However, evidence of that is hard to detect. There is not much evidence of meaningful environmental requirements included in concessions, of the type recommended in international guidelines, such as actions to be undertaken regularly to achieve specific biodiversity conservation outcomes; or the use of renewable energy and fuels (at least for some minimum levels in the business); or requirements for the use of the most environmentally friendly methods of waste management, wastewater treatment and transportation (Eagles et al., 2009, pp.48-60). Interviews with concessionaires indicated that interest in environmental measures was not low, but many concessionaires said they are unlikely to implement them unless required to because their priority was making a living, and the market in national parks is already too competitive to afford voluntary measures (Respondents E, F).

The culture so far in New Zealand has been that if concessionaires avoid, rectify and mitigate environmental effects, then all should be fine. Some argue that not even this much is done properly (Parliamentary Commissioner for the Environment, 1997; Johnson and Lloyd, 2000, 2002). However, as the Youth Parliament has argued:

> Businesses could do more than just rectify damage caused by their own commercial activities. As well as protecting the conservation estate, they could enhance it … In terms of behavioural change, it is more desirable to have businesses commit to carrying out conservation action themselves, rather than just giving funding to DOC to do it on their behalf, as this is likely to result in a more meaningful commitment to environmental values by the business, its staff, and its customers. (Youth Parliament, 2013, p.5)

If a government cannot ask companies carrying out business in national parks – a country's most precious lands – to use the best available environmental practices, technologies and renewable resources, and to be proactive on biodiversity management, then who can it ask to do this?

A suitable requirement is found in the standard concession contract model uploaded at DOC's website for guiding permits, requiring businesses and their clients to adhere to the international 'leave no trace' principles at all times (see www.leavenotrace.org.nz). A requirement is also included to provide environmental and cultural interpretation to clients. The government seems to be expecting environmental initiatives and biodiversity gains to come in the form of donations and voluntary measures by concessionaires. However, government departments cannot plan work based on the expectation of donations. One Conservation Board member raised the issue of tourism concessionaires trying to negotiate lower concession fees in exchange for some voluntary biodiversity measures, arguing that 'in other countries this would be seen as corruption; in New Zealand this is seen as good business sense' (Respondent A). The term corruption is perhaps not appropriate here, but its use indicates the respondent's frustration with the situation. The main point raised is, however, a serious one: if the department feels under pressure to negotiate lower concession fees (as other interviewees believe as well), and the voluntary projects are not sufficient for the work that needs to be done, how can the current arrangements help address DOC's financial sustainability problem around biodiversity conservation? In its 2014 review of progress with the Building Natural Resources programme the government acknowledged that so far the conservation benefits are scarce:

> The picture for biodiversity is less positive, with numbers of all measured native species considerably below their pre-human level. There is a mixed picture in recent times, with some species stabilising and other continuing to fall. We will continue to work in partnership with local councils, businesses and other key groups to help protect our native species. (New Zealand Government 2014, p.83)

Concluding reflections

If more evidence is available on the conservation and environmental gains of the conservation economy agenda (more than I have been able to gather following two years of intensive research and interviews), it would be helpful for DOC, the government and concessionaires to share it with New Zealanders. Whether nature/environmentally-oriented or infrastructure maintenance-oriented, concessionaire investments in the conservation estate are likely to be highly valued by the New Zealand public. Similarly, it would be desirable for DOC and concessionaires to develop and apply proper public relations strategies, to improve both the frequency and quality of communication with members of the public, organised groups and other stakeholders.

Political decision-makers could also follow the example of genuine global leaders in greening commercial activities in national parks. For examaple, in the United States in 2011 the National

Park Service, which manages the world's first national park, Yellowstone, initiated in collaboration with tourism concessionaires its first strategic plan for sustainability. In 2012 the Yellowstone Environmental Coordinating Committee published its first annual report, outlining achievements and plans for: leadership, energy and reducing greenhouse gases, communication and education, waste reduction, reducing water and material consumption, transportation and fuel efficiency, environmental purchasing, and the environmental and social performances of tourism concessionaires and their awards and eco-labels (National Park Service, 2012). The National Park Service explains:

> Recent executive orders and acts require the Federal Government to protect resources through sustainable operations and facility adaptation. The National Park Service Green Parks Plan provides further direction for environmental stewardship, and has led to a firm commitment and support for Yellowstone's continued leadership in Environmental Stewardship. (National Park Service, undated)

New Zealanders have shown global leadership in the past, when they were among the first to join the national park designation movement. It is not too late for New Zealand to show, yet again, that it can lead the world by managing its national parks on the basis of genuine strong sustainability principles.

1 For 2015/16 the allocation to DOC's budget is $337.429; that for 2016/17 is $337.960; and that for 2017/18 is $339.064 (Treasury, 2014b, p.45).
2 The top regional position of conservator has been disestablished and replaced by that of partnerships manager.
3 Examples of activities for which tourism concessions can be issued are: hiking/walking, boating, kayaking, motorised sightseeing or thrill-seeking from air or land, climbing, fauna/flora appreciation, skiing, caving, fishing and hunting. Some activities are not allowed in New Zealand national parks, such as jet-skiing. Examples of facilities/infrastructures requiring concessions are: roads, tracks, bridges, huts, camping and picnic sites, signage, toilets and shelters.
4 These were carried out in accordance with the terms and conditions set down by the Human Ethics Committee of Victoria University.
5 See http://www.doc.govt.nz/get-involved/have-your-say/all-consultations/2012/dart-passage-tunnel-milford-dart-ltd/ and http://www.doc.govt.nz/get-involved/have-your-say/all-consultations/2012/fiordland-link-experience-monorail-riverstone-holdings-ltd/#report.
6 Currently, concession limits are sometimes used to place ceilings on the number of concessions issued and the overall number of tourists allowed to access an area (viewed as sensitive, vulnerable or under stress). To enable large-scale tourism and to accommodate massive infrastructural tourism projects of the type that have been proposed in Fiordland may require the abandonment of the current system of concessions management, or even of the Recreation Opportunity Spectrum planning approach underpinning it.
7 See http://www.doc.govt.nz/get-involved/apply-for-permits/contacts/).

Stakeholders interviewed between October 2013 and February 2015:

- Respondent A, member of Conservation Board National Park 1
- Respondent B, member of Conservation Board National Park 2
- Respondent C, DOC staff interviewed at the Wellington office
- Respondent D, DOC staff interviewed at the Wellington office
- Respondent E, concessionaire with helicopter-based activities National Park 1
- Respondent F, concessionaire with accommodation-based activities National Park 3

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Tim Hughes

Predictive Analytics for Policy and Practice

reflections from the criminal justice system

The current government is seeking to take the logic of an investment approach to welfare and apply it to other areas of expenditure. Like most sectors, the justice sector has a programme of work underway to improve its ability to make good investment decisions; in a justice sector context this primarily means applying resources where they can best reduce the long-term social and economic costs of crime.

Good investment decisions are more likely made when decision-makers are provided with quality data analytics. In particular, there is growing interest in the use of administrative data to predict which individuals, families and communities are at high risk of ongoing dysfunction, to help the targeting of resources to areas of greatest need. In this article I use examples from the criminal justice system to offer some practical suggestions for how the promise of better predictive analytics can be pursued across government while also minimising the risks. I make six suggestions:

- be specific when communicating predictive statements to decision-makers;
- consider prediction and response together;
- carefully consider the optimal degree of targeting for any given service;
- minimise any unintended side effects of acting on the basis of predictions;
- consider predictive analytics in the context of a wider information strategy;
- consider prediction in the context of a wider practice framework.

While the examples are drawn from criminal justice, the lessons are quite general and may help with the broader move towards greater use of predictive analytics in government. For example, they may be useful to analysts who are looking to exploit the opportunities provided by the Integrated Data Infrastructure at Statistics New Zealand, or those identified by the New Zealand Data Futures Forum.

There is little doubt better use of data with predictive analytics will support the development of better evidence-informed policy and practice, but there are also several risks with this approach. Some of these are familiar, such as risks to privacy.

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Table 1

	No conduct problems at age 7–9	Severe conduct problems at age 7–9
Not arrested or convicted between ages 18 and 30	453 (89%)	47 (48%)
Arrested or convicted between ages 18 and 30	55 (11%)	49 (52%)
Total	508 (100%)	96 (100%)

Others are less often discussed, such as the simultaneity between prediction and response. In this article I elaborate some of these less familiar risks and suggest how to mitigate them.

Suggestion one: be specific when communicating predictive statements to decision-makers

Some predictions are more accurate than others. This is intuitively obvious when we consider the accuracy of the weather forecast one, five or ten days into the future, and the difference between predicting high winds in general over a large area over an afternoon versus predicting a specific wind speed at a specific location at a specific time. Predictions relevant to policy and practice can differ in their accuracy just as much as predictions about the weather, but this subtlety can sometimes be unintentionally lost in communication to policy makers and practitioners.

For example, consider the familiar observation that adult offending has its roots in childhood disadvantage. This link has been explored using data from the Christchurch Health and Disability Study, a study of 1,265 people born in Christchurch in 1977. Using data which tracks these individuals to the age of 30, Jakobsen, Fergusson and Hallwood (2012) report that there are 'significant associations between early conduct problems and later crime'. Table 1 above summarises the data supporting this result.

It is clear from this table that a much higher proportion of children with severe conduct problems (52%) went on to offend as adults compared to children with no conduct problems (11%). This is the 'significant association' reported by the researcher. However, this link is far from determinative. It is striking that among those who were arrested or convicted between the ages of 18 and 30, more had no conduct problems as children (55) than had severe conduct problems (49). This implies that targeting children with severe conduct problems has the potential to address at most half of crime in adulthood.

Further, nearly half of children with severe conduct problems did not offend at all as adults. And note that 'any arrest or conviction' is a very low bar for describing someone as an offender; many of the arrests would likely have been one-offs, for petty offences. These subtleties may be lost if non-technical readers look at the phrase 'significant association between conduct problems and later crime' but are not also provided with information about the strength of that association. This is not a criticism of the Jakobsen et al. research; merely an example to illustrate how communication between researchers and decision-makers can be challenging in the area of risk prediction.

A key challenge for communication is to express predictions as fundamentally probabilistic and uncertain. In the example of the children exposed to risk factors during childhood, whether or not those risk factors go on to be manifested as offending later in life depends on a host of contingencies, such as the child's degree of success in education, the peers they associate with during adolescence, whether they develop a substance abuse problem, whether they succeed in finding a job, what community they end up living in, and so forth (Farrington and Welsh, 2005; Pratt and Cullen, 2000).

This is a general problem in criminal justice. Prediction is always imperfect, because the causes of crime are too complex to be fully specified in a statistical model. Crime does not flow deterministically from criminal traits, but is rather the product of a complex and stochastic interplay of personal, situational and other contextual factors, such as peer relationships. A recent systematic review of empirical tests of theory in crime and justice found that few studies managed to explain more than a small proportion of the variance in crime (Weisburd and Piquero, 2008). And, unfortunately, it is often the case that the outcomes we would most like to predict are those that are hardest to predict accurately. For example, rare crimes such as murder and rape cause more harm than common offences such as car theft, but the very rarity of these most serious crimes makes them much harder to predict. Predictability depends crucially on base rates, with low base-rate events being intrinsically difficult to predict (Gottfredson and Moriarty, 2006).

In a low base-rate context, even a statistical tool that improves substantially on the base rate can still have limited practical value. For example, a new tool was recently developed to support parole officers in Pennsylvania (Berk et al., 2009). The tool predicts the risk of murder for parolees. 1% of parolees in Pennsylvania are charged with murder within two years of release. The tool is able to improve upon this base rate of 1%, but among those classified 'high risk', only 7% were actually charged with murder – a false positive rate of 93%. And more murder charges (185) were laid against people in the 'low risk' group than in the 'high risk' group (137). In this case, communicating that someone is of 'high risk' of committing murder may be misleading, if it leads someone to inaccurately believe that that individual is 30%, 50% or even more likely to commit murder.

While prediction is particularly difficult in low base-rate situations, it is also true that general offending cannot be predicted beyond a certain level of accuracy. As summarised in a recent meta-analysis of risk analysis tools in criminal justice, 'the view that violence, sexual or criminal risk can be predicted in most cases is not evidence based … risk assessment tools in their current form can only be used to roughly classify individuals at the group level, and not to safely determine criminal prognosis in an individual case' (Fazell et al., 2012, p.5). It is this intermediate level of knowledge that can pose the most difficulty for decision-makers. Often we are in the uncomfortable position of knowing something more than nothing, but much less than everything; knowing precisely where on the spectrum of uncertainty we lie in any given predictive context is essential to making good evidence-based decisions.

Suggestion two: consider prediction and response together

One of the key intuitive promises with predictive analytics is that with a better understanding of where adverse outcomes are concentrated, government will better be able to target support where it is most needed. But it is not always the case that those we identify as being most likely to experience adverse circumstances are those on whom effort is best concentrated. While predictive analytics are useful for this kind of decision, they are arguably less important than assessments of what Harcourt (2007), adopting the language of economics, calls elasticity, and what correctional psychologists call responsivity: that is, sensitivity to intervention.

For example, psychopathy is an important risk factor for reoffending, but there is evidence to suggest that rehabilitation programmes are often less effective for psychopaths (Tew, Harkins and Dixon, 2013). If we focus only on the risk, and not on the amenability to change of someone with a high psychopathy rating, we might offer the individual a rehabilitation programme to no effect, whereas a somewhat lower-risk individual might have gained from treatment. Public safety, in other words, might have been better served by targeting support to the lower-risk individual.

Ultimately, the effectiveness of intervention with a given group is a separate empirical question that predictive analytics is often not well suited to answer. To continue the example of childhood conduct problems from above, even though there is a correlation between childhood conduct problems and later offending, it does not immediately follow (even though it is intuitively reasonable) that by addressing conduct problems, later offending will also be reduced. In fact, the limited evidence we have to date on this topic suggests that while early intervention can reduce later offending on average, it does so by a relatively modest amount. The meta-analysis undertaken by Dekovic et al. (2011) found an average effect size of intervention before age 12 on offending after age 18 of 1.26, expressed as an odds ratio. This means that early intervention with a group of children among whom 20% would have offended as adults can reduce the proportion who actually offend to 17%. This is a real reduction, but is smaller than that which can be achieved by interventions later in the life course, such as alcohol and drug treatment (Mitchell, Wilson and Mackenzie, 2012).

Considering prediction and response together also helps us to reconceptualise risk prediction in a more productive way. The most useful risk prediction is unlikely to be about merely sorting the good from the bad apples, but rather about understanding complex patterns of continuity and change, turning points, and appropriate interventions. For example, we would value a tool that specified the best time for a given type of intervention, given previous history of intervention, recent changes in family situation, etc, or to help guide decisions about sequencing of interventions. These are fundamentally different predictive questions to those posed by an exercise to merely identify the most prolific and serious offenders.

Another important reason to consider prediction and response together is that social processes, including crime, do not operate in a closed system. Crime leads to responses by government agencies that can themselves affect crime, for both good and bad. Where these responses are taken on the basis of actuarial predictions, these reactions can in turn change the pattern of crime, thus undermining the accuracy of the prediction tool that led to the response.

There are two different problems these reactions can cause: one where interventions reduce risk; and the other where interventions intentionally or inadvertently increase risk. In most cases, interventions are designed to reduce risk. For example, the risk profile of the prisoners released from prison each year is lower than it would be if it were not for the delivery of services such as alcohol and drug treatment, which have good evidence to show that they reduce the likelihood of reoffending (Department of Corrections, 2013; Mitchell, Wilson and Mackenzie, 2012). In these cases, the problem is that it becomes more difficult to differentiate between prisoners on the basis of observed reoffending.

So, in some cases, poor predictive accuracy may be evidence of an effective system. For example, the perfect parole system would be one that had a fixed threshold of 'acceptable risk', and released everyone as soon as they reached that threshold and not before. In this situation, everyone released on parole would pose exactly the same amount of risk, so would be indistinguishable by statistical analysis. In this sense, Bushway and Smith (2007) argue that an inability to discriminate between risk levels can be a measure of successful performance, as it

The most useful risk prediction is unlikely to be about merely sorting the good from the bad apples, but rather about understanding complex patterns of continuity and change, turning points, and appropriate interventions.

indicates that all available information is being used efficiently.

The perhaps more troubling case is where the response to risk causes that risk to increase. There are several examples of this in the justice system. For example, there is some evidence that placing prisoners in high-security facilities can increase their likelihood of committing misconducts (Chen and Shapiro, 2007; Jonson, 2010). It is necessary to place certain individuals in high-security conditions to help manage the consequences of misconduct, such as by making it more difficult for prisoners to access or manufacture weapons. But when these more stringent conditions lead to an increase in the likelihood of assault, then when officials next come to calibrate the security classification system they will find that the level of risk among those in higher security has increased. In other words, the characteristics of those prisoners will thus be reinforced in the classification system. This then makes others with those characteristics more likely to be placed in high security, which then elevates their risk, and so those characteristics get an even higher loading at the next recalibration, and so on. By this stage the prediction tool may accurately reflect actual problem behaviour, but may also, to the extent that the problem behaviour is caused by placement in high-security conditions, be predicting that people with those characteristics will be placed in high security.

This circularity is described by Harcourt (2007) as a 'ratchet effect', where initial small differences in risk are inflated over time by the way the state responds to those risks. The quiet danger of the ratchet effect is that it is largely invisible. With a well-calibrated tool, those identified as high risk will indeed offend at a higher rate, thus providing clear justification for the tool. But because of the simultaneity between risk assessment and intervention, it is very difficult to separate out the 'baseline' or 'natural' risk of the individual from the 'state-generated' risk that results from responses to that risk.

More generally, the final reason to think about prediction and response together is that in a small country our analytical resource is precious. Predictive analytics on their own do not lead to better outcomes. In my view, questions of what approaches are most effective should generally take primacy. I see the main value of predictive analytics being as a tool to help consider how to take approaches that have been evaluated as effective and to make them more effective, through improving our ability to target those services to those who benefit most from them.

… police interventions focused on high-crime offenders tend to be less effective than interventions focused on high-crime places, perhaps because place-based prediction is more stable over time than offender-based prediction

Suggestion three: carefully consider the optimal degree of targeting for any given service

Predictive analytics naturally lend themselves to the targeting of support. But more specific predictions are often less accurate. For example, it is easier to predict that Japan will have a certain number of big earthquakes over the next 100 years than to predict that a 7.2 magnitude earthquake will strike tomorrow at 7am three kilometres west of Kobe. Similarly, predictions about crime tend to be less accurate the more they move from groups to individuals, from general offending to particular types of offending, and so on.

This suggests that it is not safe to assume that more highly targeted services will always be more effective, if it is not in fact possible to target intensive services with sufficient accuracy. The more highly targeted an intervention, the more likely it is to capture only a portion of those people, areas and so forth that will ultimately be involved in crime. The appropriate mix between more and less targeted interventions is ultimately an empirical question which needs to be determined on a case-by-case basis, taking account of the number of false positives and false negatives, the cost-per-target of the intervention, and the total number of people being targeted. We have already seen with the early intervention example that very early intervention can suffer from the limitation of a high number of false positives.

To take another example, we know that police interventions are more effective where they are highly targeted, but also that police interventions focused on high-crime offenders tend to be less effective than interventions focused on high-crime places, perhaps because place-based prediction is more stable over time than offender-based prediction (Lum, Koper and Telep, 2011). For example, where alcohol-related violence is a problem in an entertainment district, managing serving practices in the local bars may well be more effective than trying to directly manage the offenders whose risk becomes elevated when they drink in town, but who otherwise will often not pose a major risk. Further, evidence on school-based crime prevention suggests that the most effective approach is for coordinated behavioural management across the whole school; in the absence of this environmental change, targeted approaches for high-risk students appear to be mostly ineffective (Gottfredson, Wilson and Nejaka, 2002).

These examples also show how targeting based on predictive analytics alone can lead to a policy response that appears sensible but is less effective than an alternative – focusing on high-risk individuals instead of places, in the policing context, or instead of the school environment in the schooling context.

Similarly, in many cases there will be a trade-off between accuracy and the amount of potential harm available to be avoided, as illustrated in Table 2. It is always tempting to think that by intervening earlier, or targeting effort based on the projected outcomes over a period of many years, we will be able to address concentrated problems more effectively. But in many cases this broader view may come with a cost: a reduction in accuracy, and a reduced ability to target with precision. For example, in the case of when in the life course to intervene, the ideal balance of intervention is likely to be composed of relatively broad interventions early on, with a growing level of intensity as our ability to predict residual life-cycle offending grows. The exact balance is, of course, an empirical question, and again one that predictive analytics cannot answer alone in the absence of evaluation evidence.

Table 2

Prediction window	Long-term (e.g. many years)	Medium-term (e.g. a few years)	Short-term (e.g. a few months)
Accuracy	Lower accuracy	Medium accuracy	Higher accuracy
Precision level	Broad groups, general locations	Smaller groups, specific locations	Small groups, some individuals
Associated intervention type	Primary prevention	Secondary prevention	Tertiary prevention
Potential harm available to be avoided	Higher potential	Medium potential	Lower potential

Suggestion four: minimise any unintended side effects of response

Prediction of risk implies a duty to respond. Where that response can or does cause harm, this raises important ethical and practical implications. There is no shortage of examples in criminal justice of responses causing harm. Most directly, sentences are often intended to cause harm of a sort by restricting the liberty of those convicted of a crime. This may be justified on the grounds of just desserts, but where sentences and orders are imposed or modified on the basis of predicted risk, such as with preventive detention sentences, and with parole and bail decisions, the potential for ethical dilemmas where predictions are less than perfect is much greater.

In addition to these direct harms that are experienced by the offender, there is international evidence that certain types of justice system responses can lead to further victimisation, as they have the potential to increase the likelihood of reoffending. For example, a recent international meta-analysis suggests that police decisions to send young offenders to court can increase their subsequent likelihood of offending (Petrosino, Turpin-Petrosino and Guckenburg, 2010). Similarly, there is some international evidence that incarceration can in some cases increase the likelihood of future offending (Jonson, 2010), particularly for young offenders (Lambie and Randell, 2013), and that intensive supervision can increase reoffending compared to regular supervision (Cochran, Mears and Bales, 2014). Certain forms of intervention intended to reduce reoffending, such as Scared Straight programmes, actually increase it (Petrosino, Turpin-Petrosino and Buehler, 2013).

In addition to these obvious harms, there is a range of other areas where targeting based on predictive analytics can potentially have adverse side effects. For example, the potential for stigmatisation is greater with more targeted approaches, and may encourage essentialist thinking on the part of front-line practitioners, by which I mean thinking that focuses largely on individual propensities and neglects broader situations and contextual factors that can also drive or mitigate risk. Targeting based on risk may also have the potential to undermine therapeutic relationships between practitioners and clients, particularly if the service is mandatory. Whether any response to predicted harm is voluntary or not is also an important consideration, because in many cases a service that is effective if voluntary, such as restorative justice, becomes ineffective if mandated (Bonta et al., 2006). Targeted attention can lead to hypervigilance, with greater likelihood of offences being captured and recorded, and the related problem of the ratchet effect, discussed earlier.

The potential to cause harms is partly a practical matter, but is perhaps more importantly an ethical issue. An important ethical consideration will often be the effect of the policy or practice response on the false positives – those wrongly identified as at high risk. In a recent review for the Ministry of Social Development of ethical considerations when applying risk prediction to prevent child maltreatment, Dare (2013) noted the importance of minimising the burdens placed on those identified as high risk as a prerequisite to ethical use of predictive analytics in that context.

It is difficult to generalise about the ethical use of predictive analytics because the appropriateness depends on the context in which the prediction is applied, as well as the accuracy of the prediction. For example, consider the Berk et al. (2009) tool for predicting the likelihood of murder described earlier. This tool identified a group of parolees among whom 7% could be expected to commit a murder. This tool is used in Pennsylvania to determine the degree of parole supervision placed upon each individual. In this case, the burden placed on the 93% of people falsely identified as high risk for murder is fairly low in comparison to the value of preventing so many murders. In contrast, if this tool were used to inform parole decisions or home detention sentences, then the burden shouldered by the 93% of false positives becomes a more difficult thing to weigh against the murders prevented by incapacitating the 7% of true positives.

Suggestion five: consider predictive analytics in the context of a wider information strategy

The accuracy and appropriateness of predictive analytics depend crucially on the underlying data. If data are inaccurate, biased or incomplete, then predictive analytics may not only be limited in usefulness, but may be misleading.

Prediction can only be as good as the underlying data. This point almost goes without saying, but is worth reinforcing when it comes to the analysis of government data sets, most of which are developed for administrative purposes. Even basic pieces of data like dates of birth can be inaccurately reported, particularly to justice sector agencies, and errors in data recording can multiply when various data sets are connected together with behind-the-scenes algorithmic matching. These data errors compound on top of the general limits to prediction outlined above, adding a further source of inaccuracy.

Another important limitation is that government data sets capture variables that may be only loosely related to the outcome of interest. For example, two of the factors that are most predictive of offending are anti-social attitudes and anti-social peer groups (Andrews and Bonta, 1998). Neither of these factors is likely to be captured reliably and comprehensively in any government database. Correlations with variables such as age and number of court appearances will often be statistically significant, but in many cases these variables will be less accurate predictors than detailed psychological, socio-economic and behavioural data.

In general, we can also expect government data sets to suffer from systematic measurement error, because the data is collected for administrative, not research purposes. We only capture data on people we have to transact with, and only at the points at which we transact with them. We know, for example, that most crimes are not reported (Ministry of Justice, 2009), and that crimes committed by Māori are more likely to be reported (Department of Corrections, 2007). So any success in predicting crime as recorded in official databases may to some extent simply be success in predicting patterns of reporting, rather than in predicting crime. Similarly, there is evidence that sentencing practice for driving offences varies substantially across court districts in New Zealand (Goodall and Durrant, 2013), so risk differentials for offenders across the country will to some extent reflect differences in court practice.

All of this suggests that a strategy of increasing reliance on predictive analytics may need to be matched by considered investment in data capture and storage. The Performance Improvement Framework results show that most government agencies rate as 'needing development' when it comes to information management (Te Kawa and Guerin, 2012), suggesting that greater use of predictive analytics will need simultaneous investment in improving data management in most agencies.

Given that quality analytics need investment in quality data, it seems important to consider the expense of improving government data sets in comparison with funding other forms of data collection. For example, it may be more cost-effective, and more informative, to fund the more detailed data collection of a quality longitudinal study, like the Christchurch Health and Disability and Growing Up in New Zealand studies. Studies such as these are custom-built to capture complex patterns of continuity and change over the life course and identify the most important static and dynamic drivers of risk. Given the inherent limitations of administrative data, longitudinal research may provide the best way to improve our ability to understand deep patterns of behavioural development and prediction.

> Predictive analytics will help us improve government services and make more of a difference to people's lives. At the same time, predictive analytics has limitations.

Suggestion six: consider prediction within the context of a wider practice framework

Predictive analytics can support strategic decision-making by ministers and senior managers, but in many cases their main value may be in supporting decisions on the front line. In the criminal justice system this can include decisions such as whether to proceed with a prosecution, whether to grant bail and whether to grant parole. In many of these situations, actuarial decision-making tools may have the potential to support better decision-making. An extensive research history consistently shows that while unstructured risk assessment typically performs better than chance, actuarial risk assessment consistently performs better than either (see, for example, the meta-analyses of Aegosdottir et al., 2006 and Grove et al., 2000), even if it is usually far from perfect.

Actuarial decision-making may also be a cost-effective approach in some cases. It is unlikely that we would ever want to automate parole decision-making, but where lower-stakes decisions can be accurately made with an algorithm, such as the degree of attention paid by the Department of Corrections to various people with unpaid fines, then algorithms may be more cost-effective than professional judgement.

There are also situations where structured tools can help address concerns with bias or discrimination. For example, there is some evidence that for any given offence, and after controlling for factors such as age and offence history, Māori are somewhat more likely to be apprehended, prosecuted and so on (Department of Corrections, 2007). This may be for many reasons, but it is possible that patterns in the use of discretion by practitioners are a contributing factor. In this case, structured decision-making can make transparent the grounds for treatment, and help to address any real or perceived subjective bias in decision-making.

At the same time, the value of better prediction depends intricately on how that prediction is understood by practitioners and used to inform decision-making. There is some risk that more accurate prediction may be embraced by practitioners where it tallies with their subjective judgements, but may be disregarded otherwise. For example, Miller and Maloney (2013) found that practitioners' decision-making can be unrelated to a risk tool's result, even when the risk tool is filled out accurately. As such, predictive analytics will only generate value to the extent that the people who use it have the appropriate skill level to engage critically with the relevant findings. A structured professional judgement approach implies a high degree of skill on the part of decision-makers. If a professional is going to override the decision implied by a well-validated predictive tool, then it seems reasonable that they should hold a high level of understanding of the factors driving the predictive tool and its limitations.

This suggests that a sensible approach when using predictive analytics to inform practice decisions would be to regularly record and monitor the use of overrides. It may also be useful to provide feedback to individual practitioners about their use of overrides and the outcomes for the people they have chosen to exercise an override. Similar to the requirement for anaesthetists to follow-up with patients to identify any side effects and help them to develop a good intuition for risk, intuitive decision-making is most likely to become accurate over time with repeated exposure to the consequences of decision-making (Klein, 1998).

Conclusion

Predictive analytics will help us improve government services and make more of a difference to people's lives. At the same time, predictive analytics has limitations. Because of the technical limitations of prediction, and because the practical and ethical implications of these limitations are often so substantial, a serious and ongoing discussion about predictive analytics among policy makers, advisors and practice leaders seems warranted.

In this article I have limited discussion to criminal justice. The trade-offs in criminal justice are often very substantial, such that many of the examples in this article will not be as directly relevant to more prosaic areas of policy. But high-profile uses of prediction, such as in criminal justice, will also tend to attract greater scrutiny, and are often associated with extensive procedural protections, such as in court proceedings. Simply because the stakes are so high for both individual liberty and the safety of the community in decisions such as whether to impose a preventive detention sentence, the limitations of prediction are understood by those working in criminal justice perhaps as much as anyone. As government seeks to extend the use of predictive analytics to other parts of its business, where the procedural protections are often lower and the number of people affected by policy decisions often greater, the body of knowledge in criminal justice will perhaps offer insights for other areas where the limits of prediction are not as salient in policy discussions, and contribute to a more general discussion about predictive analytics.

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Mike Reid

Decentralisation
does the New Zealand local government system measure up?

Decentralisation continues to be well received as a strategy for improving the governance of countries and delivering more responsive and efficient services. Cheerleaders include multilateral agencies like the World Bank and developed countries, like England, which seek to reverse years of centralisation. Evaluating the effectiveness of decentralised models raises the question of what it means to be 'decentralised', and how decentralisation itself is measured. This article describes the World Bank's diagnostic framework for assessing decentralisation and applies the framework to the New Zealand local government system.

Alongside globalisation, localisation (the demand for local autonomy) has been one of the main forces shaping the world since the turn of the current century (Boschmann, 2009; Gemmel, Kneller and Sanz, 2009). It is a trend that shows no sign of decreasing. By 2010 almost 95% of the world's democracies had some form of elected sub-national government, with the devolution of political, fiscal and administrative powers being widespread.

Bringing government closer to the people so as to promote greater participation and active citizenship is an objective that is difficult to oppose. Not only does it remind us of the origins of democracy and its virtues, it also reinforces stereotypical conceptions of 'big' government, namely unresponsive bureaucracies, wasteful spending and poorly targeted public services. Yet not all decentralised governance systems deliver expected improvements in social and economic outcomes for citizens. It is an issue that has led the World Bank to look at what needs to be in place for the benefits of decentralisation to be realised. What, for example, distinguishes a decentralised governance system from a system in which local and regional authorities simply deliver responsibilities delegated by higher-order governments?

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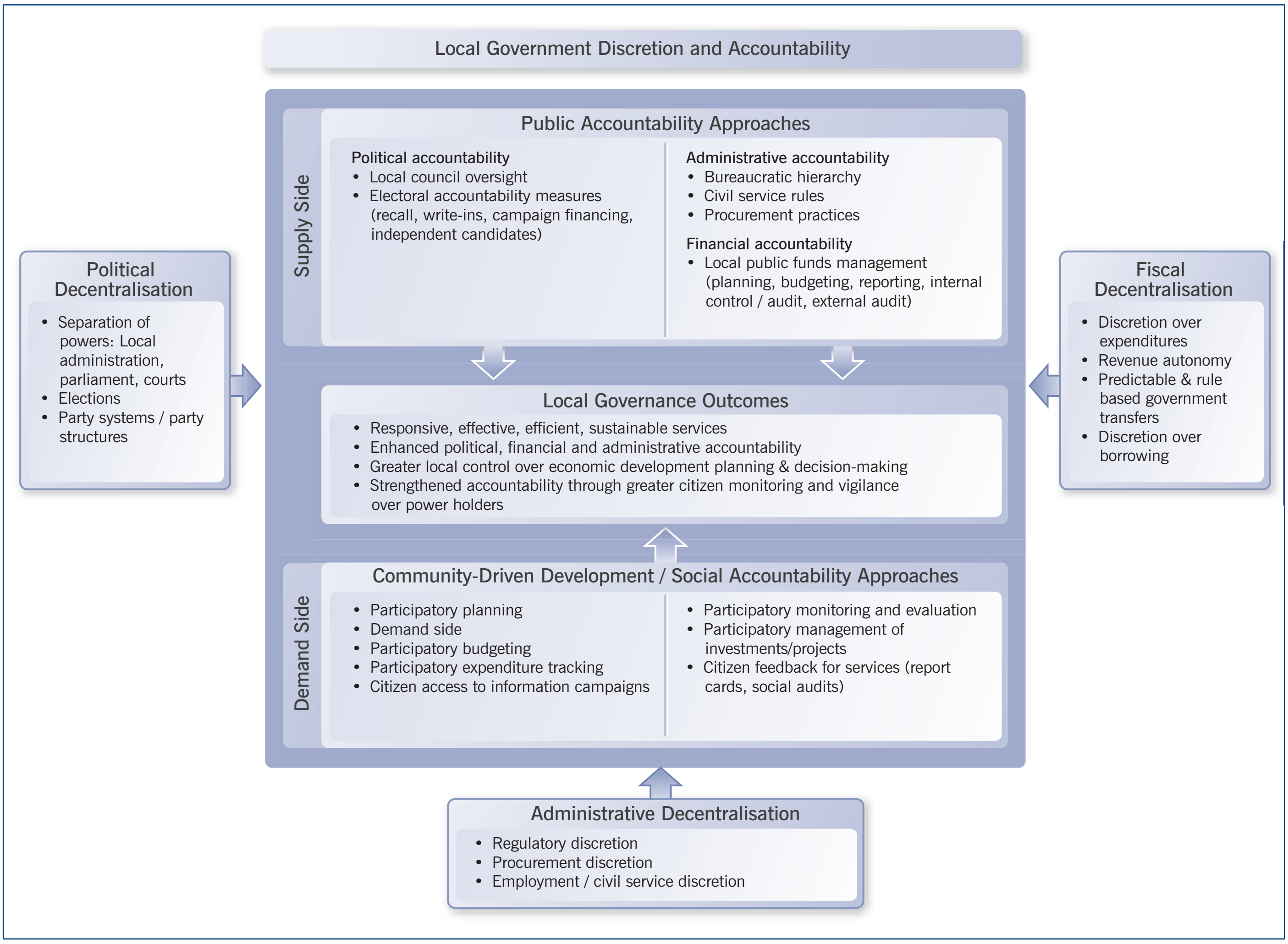
Figure 1: Framework for local government discretion and accountability



Source: Yilmaz, Beris and Serrano-Berthet, 2008, p.3

To answer such questions, the World Bank has developed what it describes as a diagnostic framework, designed to assess the potential of a local government system to exercise effective decentralisation. It examines systems of local government through the lens of discretion and downward accountability. This article applies the World Bank framework to the New Zealand local government system to assess its suitability for effective decentralised governance should a time come when such an objective is desirable to national authorities.

Defining decentralisation

Decentralisation tends to be promoted on the basis that it leads to better social and economic outcomes for communities (see UCLG, 2008 and Blöchliger and Égert, 2013). This is partly explained by the concept of information asymmetry: that local governments have a more informed knowledge of local conditions than higher-level governments and are therefore better placed to provide public services that match the preferences of their citizens. Because of this proximity they are more open to scrutiny by local citizens, which should result in more effective, efficient services than if these were provided by higher-level governments, as well as greater innovation.[1] In contrast, critics of decentralisation argue that competition between councils can lead to a 'race to the bottom': for example, councils cutting taxes to attract investment to the point where local infrastructure is not maintained and a post-code lottery results.[2]

Definitions of decentralisation vary, with many coalescing around the concept of fiscal autonomy and the level of fiscal discretion able to be exercised by sub-national governments (Gemmell, Kneller and Sanz, 2009). A broader perspective is provided by United Cities and Local Governments (UCLG) in its major comparative study of decentralisation:

> Decentralization is … characterized by the existence of locally elected authorities, distinct from the state's administrative authorities, and exercising, in the framework of the law, their own powers and responsibilities for which they have a degree of self-government … . (UCLG, 2008, p.314)

The UCLG definition stresses the democratic nature of decentralised governance arrangements, separation from the state apparatus, and the existence of guaranteed powers, functions or roles. It is underpinned by three distinct elements:

> *Political decentralisation:* the range of functions or authority, transferred

from higher to local levels of government, which are governed by locally accountable political representatives: for example, well-defined decision-making powers and systems of accountability.

Administrative decentralisation: the way in which programmes are actually administered 'on the ground' and may involve measures such as shifting staff from their respective national ministries and bringing them under the control of a local authority, along with necessary administrative support and human resources functions.

Fiscal decentralisation: the ability of local governments to levy local taxes, determine the rate of tax and exercise discretion over the allocation of their financial resources – essentially the guarantee of fiscal discretion (Boschmann, 2009; Bailey, 1999; UCLG, 2008). Fiscal decentralisation can be measured from the perspective of spending, revenue, the proportion of sub-central revenue in general government tax revenue, or the share of sub-central tax revenue in general government tax revenue.

The assessment model is designed for assessing the degree to which the three elements are present within a specific local government system, as all three are essential if the capacity for decentralised governance is to be optimised. A correlation is required between the assignment of responsibilities (political decentralisation), the provision of sufficient resources (fiscal decentralisation) and the administrative discretion to deliver those responsibilities (Bailey, 1999).

Table 1: Local political settings

Measures	
Institutional separation of powers at the local level	New Zealand uses the council-manager form of local government, with a contract-based relationship between governing bodies and chief executives. Councillors manage management through an annual performance-based contract; however, governance competence varies and the degree of separation can vary according to the size of a local authority. Recent legislative changes, such as allowing councils to set the number and overall remuneration of staff, may further undermine the separation.
Existence and quality of local electoral systems	Local elections are governed by clear statutory provisions which limit the risk of political influence, such as redistricting. The government has recently amended legislation governing the transparency of electoral donations. Campaign expenditure limits are in place.
Nature of party systems and structures	Due to the dominance of local political alliances, national political parties are often less visible at the local level. While individuals can be elected on party tickets, the rules governing predetermination effectively rule out the ability to caucus, diminishing their effectiveness. Consequently, councillors are primarily accountable to communities rather than to national political organisations, with stronger downward accountability.

The diagnostic framework

One of the challenges facing the World Bank and other agencies promoting decentralisation is to understand why some forms of decentralisation are more successful than others. Are policy makers, for example, too focused on fiscal decentralisation without giving enough attention to the administrative and political dimensions? Yilmaz, Beris and Serrano-Berthet (2008) argue that the failure of some states to achieve the promoted advantages of decentralisation is often a result of failing to find the balance between the supply and demand sides of the accountability equation, with the result that accountability to citizens is undermined (see Figure 1).

The diagnostic framework has been designed to identify areas of misalignment, where, for example, levels of discretion and accountability are insufficient to allow a sub-national government to adequately implement the policy and operational matters assigned to it (Yilmaz, Beris and Serrano-Berthet, 2008). Central to the framework are the three dimensions, political, administrative and fiscal, creating what the authors describe as 'discretionary space'. Discretionary space refers to the scale of public decision-making available to a local government system which is free from direct intervention from senior governments. Effective use of this space is often dependent upon an accountability system that is downward-focused in both the public and social spheres. The framework describes these two spheres of accountability as public accountability and social accountability.

Public accountability (the supply side) represents the rules which have been set by higher-level governments to provide a safeguard against the misuse of a council's discretion. Yet by itself the effectiveness of public accountability is limited, and it needs to be backed up, and complemented, by social accountability or community-driven development (the demand side). Social accountability refers to the degree of direct engagement citizens have with their councils, such as the right to make submissions and speak directly to council or committee meetings. Where public accountability refers to formal rules, social accountability operates at the more informal level, governing the interaction of institutions with citizens. To be effective, public and social accountability must be downward-focused, with both acting to strengthen the ability of citizens to hold their local governments to account, as well as ensuring that councils have the means and incentives to respond to citizen demands. Complementarity, once achieved, should be reflected in more responsive, effective and efficient local governments.[3] In addition, local services should be more sustainable, more accountable, and provide for more local control over decision-making (ibid.).

Table 2: Local political accountability

Public accountability	
Ensuring representation of disadvantaged groups through quotas and reserve seats	Not practiced in New Zealand local government, although a few councils have established separate Māori seats.
Allowing independent candidates to run for office	There are no constraints on the ability of independents to run for office.
Introducing term limits	Not practiced in New Zealand.
Allowing for the recall of elected officials from public office	Not practiced in New Zealand.
Ensuring local elected officials have oversight responsibilities	The Local Government Act 2002 sets the framework by which elected members scrutinise and hold management to account.
Limiting council employees and government appointees as elected members	Council employees can stand for election for the council that is their employer but must resign from their positions if elected.
Social accountability	
Ensuring the right of citizens to demand public hearings and public petitions	The local government legislative framework includes a range of mechanisms for ensuring citizens' voices are heard in planning and decision-making. Polls are optional and not binding except for certain electoral-related polls.
Establishing specific bodies empowering citizens to demand accountability	There are no equivalent provisions in the New Zealand system, although councils are subject to the law and citizens can seek judicial review of council decisions.
Using multi-stakeholder forums, citizen juries and forums to increase citizen influence by specific groups	Councils have the ability to make use of forums and citizens' juries to provide groups and sectors, such as youth, with an opportunity to express their views.
Introducing participatory budgeting	Participatory budgeting is not practiced, although councils are required to undertake formal consultation when adopting budgets and many use complementary mechanisms to involve under-represented groups.

The diagnostic framework examines each form of decentralisation, political, administrative and fiscal, from three perspectives. These are the level of political discretion held by local politicians (local settings); the nature of the accountability framework; and the degree to which accountability is downward-facing.

Political decentralisation

Within the diagnostic framework, political decentralisation, the degree of local political discretion and accountability, is measured by the capacity of local elected leaders to exercise independent action. Determining the level of political decentralisation involves the nature of existing political settings and whether or not the direction of accountability is downward. Three criteria are employed to assess a local government system's local political settings: the separation of powers; the nature of the electoral system; and the existence of a functioning party system.

In New Zealand the separation of powers can be traced back to the influence of New Public Management during the reforms in 1988–89, which limited governing bodies to the direct employment of a chief executive only who employed the remainder of the staff on their behalf. The new governing approach required elected members to operate at the strategic level, setting outcomes and policies for management to achieve while at the same time remaining distant from operations and the implementation of those policies. Influence was to be exercised through the chief executive's annual performance contract. The second criterion, ideal electoral systems, are those that enable the participation of marginalised groups, provide local politicians with sufficient power to influence local outcomes, and are free from manipulation by higher-level governments. The third criterion addresses the role of national political parties at the local level. On this issue, Yilmaz et al. refer to research suggesting that the inclusion of parties at the local level can result in policy-making being 'contaminated by patronage and clientelism instead of focusing on local benefits' (Packel quoted in Yilmaz, Beris and Serrano-Berthet, 2008, p.9); the framework explicitly values a local politics that is downward-focused (see Table 1).

The second test in each of the three dimensions examines the degree to which the accountability framework is downward-focused in terms of both public and social accountability. These are examined in Table 2.

In terms of political decentralisation, the New Zealand system scores well for its political settings. There is a degree of separation of powers between governance and administration, albeit variable according to size of council; electoral systems are set in legislation and free of the kind of patronage by higher-level governments that occurs elsewhere, such as the ability of governments to adjust the date of council elections so that the outcomes are likely to be favourable for a political grouping; and electoral processes tend to be locally oriented, without a dominant party presence. Shortcomings, however, were identified. These are:

- the lack of any mechanism for recalling elected members (usually through a petition which, if successful, triggers an election);
- the lack of incentives to encourage councils to make greater use of

third-party organisations to oversee performance and/or provide policy input, such as citizens' juries; and

- the absence of any form of participatory budgeting to enable citizens to set local authority budgets and priorities.

The model also highlighted two other shortcomings: the lack of quota seats for minority and/or disadvantaged groups, and the absence of term limits. Although neither of these features is present in New Zealand local government, other options are available, to address the shortcomings. For example, councils have the ability to appoint citizens, such as minority group representatives, to council committees; establish advisory groups; and adopt a proportional voting system (STV: single transferable vote). Proportional systems are regarded as more representative than the more commonly used first-past-the-post electoral system. There is also a process for creating Māori wards, although not a process that councils, or Māori, can implement easily. While the model promotes term limits as a way of strengthening downward accountability, there is considerable debate about the value of term limits, and as an approach to avoid elite capture it is primarily relevant to emerging rather than mature democracies.[4]

Despite a history of strong political discretion and the downward trend in both political and social accountability, recent legislative changes represent a risk to local political discretion. Amendments to the Local Government Act 2002 in December 2012 gave the minister of local government an extensive suite of intervention powers, such as the power to appoint commissioners or call an election where he or she believes there has been a substantial governance failure, or a council is unable or unwilling to perform its functions and duties. Arguably, the additional intervention powers have weakened downward political accountability and undermined at least part of the local government sector's ability to exercise effective decentralised governance, should that ever become an option. Other changes, such as the introduction of a list of core services that must be considered and a more restricted purpose for local government, also work to diminish elected members' discretion. Added to local government's lack of any constitutional status, the overall effect of these changes is to further undermine downward accountability.

Similarly, changes to the reorganisation provisions which appear to be weighted in favour of the creation of much larger local authorities risk diminishing citizens' influence. Larger councils tend to be less responsive to citizens' wishes, increase the distance between citizens and their political representatives, and reduce the effectiveness of both voice and exit (moving out of a local authority area) (Slack and Cote, 2014). It is also increasingly common for other legislation to include provisions that allow ministers to overrule specific council decisions: for example, decisions about the number and location of aquaculture farms. The overall picture is one of a system with strong historic levels of political accountability which are gradually diminishing.

Table 3: Administrative settings

Measures	
Autonomy to recruit staff	New Zealand councils have full autonomy.
Ability to control staff numbers, including the authority to remove surplus staff	New Zealand councils have full control over numbers of staff and tenure.
Autonomy to set pay levels for staff and pay staff from their own budgets	New Zealand councils have full autonomy to set pay levels (which reflect market realities) and are required to fund salaries from their own budgets.
Discretion to procure and administer services	Councils have the flexibility to develop procurement strategies and set levels of service, although in some policy arenas national standards may exist.
Authority to control career management, such as to shift staff to de-concentrated units within the organisation	New Zealand councils, through their chief executives, have full discretion, within national employment law, to manage the allocation of staff and career development.
Control over their own performance management	Internal performance management of staff is under the control of councils and their chief executives. Some council activities are required to meet standards or benchmarks set by central government.

Administrative decentralisation

If decentralisation is to work local governments need sufficient administrative autonomy to enforce regulatory decisions, govern their own procurement arrangements (within the context of national standards) and control and manage their workforces. In addition, councils need the authority to issue generally enforceable regulations on public issues within their jurisdictions (also subject to higher-level government laws) which reflect local concerns and address local threats to health and well-being. This requires an ability to make decisions about fundamental aspects of their internal administration and performance. The diagnostic framework identifies critical settings, which are described in Table 3.

Administrative decentralisation is critical if decentralised governance arrangements are to deliver expected efficiency and responsiveness. Without it there are risks that officials will fail to implement their councils' policies responsively, and, as Yilmaz, Beris and Serrano-Berthet suggest, the result can be a 'situation where field officers maintain strong links with their original line ministries, thereby enjoying some insulation against local control' (Yilmaz, Beris and Serrano-Berthet, p.17). Strengthening downward accountability

Table 4: Local administrative accountability

Public accountability	
Accountability structures within the bureaucratic hierarchy	Councils are required to establish annual performance agreements with their chief executives.
Independent bodies able to conduct administrative audits	New Zealand councils are subject to supervision by both the Office of the Ombudsman and the Office of the Auditor-General.
Administrative courts able to review councils' regulatory and administrative decisions	New Zealand councils are subject to judicial review.
Social accountability	
Openness of information to allow citizen monitoring	The Local Government Official Information Act operates on the assumption that all information is public except for in a narrow range of circumstances, e.g. commercial sensitivity. Satisfaction surveys provide decision-makers with information about local perceptions of their services.
Monitoring procurement and implementation of contracts	It is increasingly common for councils to provide details of tenders and successful bidders on their websites.
Monitoring local service provision	Councils set performance targets annually and report on performance in their annual reports.

Table 5: Fiscal settings

Measures	
Expenditure assignment should enable councils to set and allocate budgets sufficient to meet their responsibilities.	New Zealand councils have the discretion to set budgets and determine spending levels to meet statutory roles and community expectations, within a financially prudent framework; however, reliance on a single taxing power, rates, can act as a constraint on the ability to raise sufficient revenue to meet community needs.
Revenue assignment should be sufficient to meet local government's roles and responsibilities	Councils have a single taxing power covering land and property. They have discretion to set tax rates, define the tax base (property-related) and administer the collection of taxes. Since 1958 there have been at least seven funding reviews that have recommended that councils should be given additional revenue sources.
Financing the fiscal gap	Fiscal transfers are not used; however, there is a hypothecated fund for roading and public transport which pays for both national and local roads.[6] The rates rebate scheme, which assists low-income home owners to pay rates, is a form of supply-side transfer mechanism. A strong case exists for some form of equalisation scheme.
Options for financing infrastructure	Councils have wide discretion for financing infrastructure, including public–private partnerships; however, road tolling can only be used with the agreement of the government.[7]

is one way of addressing the principal agent problem (see Table 4).

The New Zealand system of local government scores well against the criteria for administrative decentralisation. Councils have a clearly defined range of by-law-making powers and a conditional ability for enforcing by-laws. They are in charge of their own procurement policies and practices and an increasing number are now posting information about successful tenders online. In most cases councils can determine their own levels of service, although the increasing use of national standards is gradually diminishing discretion in some areas, especially in regulatory functions. Councils also have full control of employment and remuneration. In terms of public and social accountability, councils are subject to scrutiny by the Office of the Auditor-General, which reports annually to Parliament with the results of its audit of council annual reports, and the Local Government Official Information Act ensures citizens have access to public information. Most councils also undertake resident satisfaction surveys, with the resulting information also utilised in their performance management systems.

Fiscal decentralisation

Without the appropriate fiscal instruments and the discretion to use them, decentralisation is 'doomed' (Yilmaz, Beris and Serrano-Berthet, 2008). Fiscal decentralisation represents the degree to which local governments have the fiscal capacity to fulfil their allocated responsibilities and whether the scope of their decision-making responsibilities corresponds to the breadth of their duties and responsibilities. The diagnostic framework employs four criteria to assess the local fiscal settings of a system: expenditure assignment roles; revenue assignment; intergovernmental transfers (fiscal gap); and infrastructure funding.

> ***Expenditure assignment.*** Decentralisation requires that higher-level governments assign a substantial range of expenditure responsibilities to local governments, along with sufficient autonomy for them to respond to local circumstances. In

Table 6: Local fiscal accountability

Public accountability	
Strengthening capability for public budgeting and financial management in local government systems	A wide range of accredited courses and training opportunities exist for financial managers in local government and elected members. Most councils have audit and risk committees.
Setting standards for the control of inter-governmental transfers	Payments from the hypothecated transport fund are allocated according to a transparent formula developed in consultation with local government.
Publishing transfer figures	Yes.
Making audit results public	Yes.
Clear rules for borrowing	Yes.
Rules for hard-based budget constraints	Councils are required by law to balance their budgets on an accrual basis. They must also adopt a revenue strategy which sets out planned increases in council taxes for the coming decade.
Social accountability	
Making budgets and end-of-year financial statements publicly available	Councils are required to publish audited annual reports by the end of October each year. Audit results are reported to Parliament by the Office of the Auditor-General.
Participatory budgeting practices	No.
Participatory budget-tracking processes	Budgetary reporting arrangements are up to each council. The normal practice is for councillors to be provided with a quarterly financial update. Councils must now report progress annually against a nationally determined set of six prudent financial benchmarks, such as debt servicing as a proportion of expenditure. Before each election councils must publish a 'pre-election' report summarising key financial performance data.

addition, a well-defined institutional framework with clearly defined roles and responsibilities for each sphere of government is required. This helps clarify accountability and reduces the risk of local agencies of higher-level governments attempting to constrain councils' autonomy and responsiveness.

Revenue assignment. Local government accountability is enhanced when the services they provide are funded from their own tax base (Oates, 1972; Bailey, 1999). Consequently, councils need access to at least one tax base, along with the ability to set the tax rate and administer the revenue collection. Any efforts by higher-level governments to constrain revenue-raising ability are likely to result in inefficient investment decisions.

The fiscal gap. Because fiscal transfers from higher-level to lower-level governments have implications for fiscal autonomy, consideration must be given to the design of any transfer instruments. Transfers can often leave little room for local decision-making and priority-setting, and can result in perverse incentives. For example, councils receiving transfers might be tempted to blame any under-performance on the funding agency, thus undermining accountability.

Financing infrastructure. Having the ability to make financing choices when planning to invest in infrastructure is an essential element of fiscal autonomy and downward accountability. On the other hand, financing choices can create macroeconomic risks: for example, the level of sub-national debt. There are four generally used methods for limiting local government borrowing, some with greater consequences for fiscal decentralisation than others. These are the use of market discipline, cooperative arrangements between local and central governments, rule-based controls, and administrative constraints. The two methods that are most consistent with downward accountability are market discipline and cooperative arrangements.

As a general principle a local government system should be provided with the necessary taxing and funding powers to fulfil its functional responsibilities, with a correspondence between the two. Questions, however, can be asked as to whether this is the case in New Zealand, with local government responsible for 10.5% of all public expenditure but receiving only 8.3% of all public revenue, a ratio that suggests the presence of a vertical fiscal imbalance. Indeed, the allocation of responsibilities between the two spheres of government has been incremental, without rational or coherent doctrine for making specific allocation choices (Bush, 1980), an issue which Yilmaz, Bersi and Serrano-Berthet (p. 21) note can become a source of tension which, if not resolved, can constrain local autonomy.

In terms of revenue assignment, councils currently have wide discretion to define their various forms of property tax and administer revenue collection; however, concerns are frequently raised about whether property taxes are sufficient to fund local government and its services. If these concerns are not addressed, New Zealand's level of fiscal decentralisation is likely to decline. Fiscal accountability also requires that public funds are managed transparently and prudently and that decision-making is accountable. Criteria for assessing whether or not local government's fiscal decision-making is downwardly accountable are applied in Table 6.

In terms of the diagnostic framework, fiscal accountability is generally strong. Councils have broad financial discretionary powers, including access to a range of funding options for infrastructure construction and maintenance, ranging from bank debt to bonds. Borrowing is regulated by market discipline and the requirement to develop, after consultation, a financial strategy which includes debt limits. In addition to having built up considerable expertise and experience in long-term financial planning and management, many councils are now credit-rated. Many have audit and risk committees, and financial information is publicly available. Councils publish draft annual plans and budgets which are subject to community consultation, as well as annual reports which are audited, with the results tabled in Parliament. Public and social accountability frameworks are both downward-focused.

Participatory budgeting, however, is not practiced, although councils undertake formal consultative procedures to seek community views on budget and operational priorities. In fact, recent changes have removed the requirement to consult annually on the setting of council budgets; consultation is only required where a council decides to make a material variation to its ten-year financial strategy. Many of the financial decision-making constraints under which councils operate, such as the adoption of a ten-year financial strategy, the balanced budget requirement and the funding of depreciation, would appear to make it difficult to introduce a pure participatory budgeting approach, as a significant proportion of council expenditure is literally 'pre-allocated'.

Downward accountability is also diminished by recent legislative changes that have given the minister of local government extensive ministerial intervention powers. Among the factors that can trigger the use of these powers is the failure of a council to achieve the government's prudent financial benchmarks over time. While at one level this might be very reasonable grounds for intervention, the history of local government in New Zealand over the past century provides little justification, and, while the financial benchmarks themselves should strengthen downward accountability, there is uncertainty about the manner in which ministers will respond to the information, and that in itself affects the way in which local decision-makers feel able to exercise discretion.

Conclusion

As an option for arranging public affairs, decentralisation continues to be popular, with supporters arguing that it has the potential to improve the efficiency of the public sector, strengthen social cohesion and promote long-term economic development and growth (Oates, 1972; Gemmell, Kneller and Sanz, 2009). For a country to achieve these benefits, its local government system needs to be able to exercise political, administrative and fiscal discretion. Indeed, as Bailey emphasises, true local government will only exist 'when democratically elected bodies have well defined discretionary powers to provide services to their citizens and finance them with the proceeds of one or more exclusive local taxes of which they can determine the base and/or rate of tax (Bailey, 1999, p.224). This requires a legislative framework that provides local politicians not only with the responsibilities to achieve local outcomes, but also with the necessary decision-making discretion and policy levers. As the framework is designed to highlight, decentralisation is unlikely to achieve expected benefits if not accompanied by the right fiscal, administrative and political settings.

Since reform in 1988–89, local government has arguably been well placed to take on greater responsibilities and exercise decentralised governance. The councils that emerged from reorganisation and modernisation had greater strategic capacity than their predecessors, as well as a requirement to operate in a more consultative and accountable manner. Twenty-five years on, the sector still conforms relatively well with the criteria employed in the diagnostic framework; however, recent changes are undermining downward accountability by diminishing local discretion and increasing national oversight. In addition, the problem of local government's lack of constitutional certainty remains to be addressed. For New Zealand local government to meet the levels of pubic and social accountability recommended by the diagnostic framework, a new constitutional arrangement for local government is required: one that gives greater certainty and predictability to its role, functions and powers, and protects against what often appear to be poorly considered changes to its core legislation. Without such moves there appears little likelihood of any change to New Zealand's ranking as the most centralised state in the OECD.

1 The evidence in favour of decentralisation will be looked at in more detail in a subsequent article.
2 Post-code lottery refers to situations where a person's access to public services depends on where they live and the capacity of their local government to provide services that might be taken for granted in more well-off communities.
3 A New Zealand example of complementarity might be the requirements to deliver a balanced budget (public accountability) and provide opportunities for citizens to engage in the process of setting priorities (social accountability).
4 Furthermore, local authority elections tend to result in a turnover of elected members of between 35% and 40%, probably reducing the need to consider term limits.
5 As long as council debt is not guaranteed by national governments (as is the case in New Zealand), banks will ensure councils' credit worthiness when considering requests for credit.
6 Local government currently receives 47% of the National Land Transport Fund, with the remaining 53% used to fund state highways, road safety, etc. Councils own and operate 87% of roads.
7 A large proportion of council debt is provided by the Local Government Funding Agency, a council-owned trading company which has the ability to raise international bonds and lend at less than market interest rates.

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Richard Norman and Bernard Teahan

Growing Community Housing

challenges for government policy and community providers

A government goal that one fifth of New Zealand's social housing will be provided by community housing providers by 2020 received a setback in March 2015. One of New Zealand's largest community organisations, the Salvation Army, announced that it lacked the expertise, infrastructure and resources and was not sure the lives of tenants would be improved by its becoming a housing provider.

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Currently the government-owned Housing New Zealand owns or manages 68,700 rental units (Housing New Zealand, 2013), compared with about 5,000 in the community sector (Figenshow, 2014). Depending on whether the government also increases its housing stock, the government's goal, advocated by the minister of housing, Nick Smith, is for community organisations to increase their house numbers to 15,000, three times the current number. We believe this target and the project goals can be achieved only if the government decides to offer Housing New Zealand houses at less than 40% of their balance sheet valuation, and decides to provide community organisations with considerable discretion about how they manage their assets. This conclusion is based on the experience of Trust House Limited, based in Masterton, which bought 541 houses from the government in 1999 and has since been one of the largest providers of community housing. One of the authors of this article, Bernard Teahan, until recently chief executive of Trust House, negotiated this sale in 1999, and can reflect on 15 years of practical management of this community asset. The other author, Richard Norman, was involved in the founding of the Wellington Housing Trust, recently renamed Dwell. As an ordinary member of this trust, he has marvelled at the determination of that organisation's trustees and managers to navigate regularly changing government policies on housing in order to build up a stock of 27 owned and 10 managed houses.[1] However, this trust has grown at the rate of less than one unit per year over its history and still depends on a government loan at zero interest in order to be financially sustainable.

Our analysis draws on fieldwork carried out between November 2013 and March 2014 by Ferne Cheetham and Jack Tolley, holders of summer scholarships supported by Trust House and Victoria University of Wellington.

Social housing: definition, key participants and recent changes

Social housing is provided for those who would not be able to house themselves sustainably in the mainstream market (Housing Shareholders' Advisory Group, 2010, p.11). Tenants have needs ranging from disability to disadvantage, often resulting in lack of employment or low-income work. Affordable housing is defined as that where 'a household spends no more than 30% of its gross income on housing costs, whether for rent or mortgage' (ibid., p13). Social housing is usually rental accommodation, offered at a rate that is below market value. A market rent is defined as the rent 'a willing landlord might reasonably expect to receive and a willing tenant might reasonably expect to pay in comparison with rent levels for similar properties in similar areas'.[2]

In New Zealand, 'state housing', provided by the central government, began between 1905 and 1910, when 126 'workers' dwellings' were built in Wellington and Auckland (Schrader, 2005, p.16). More houses were built in the 1930s and particularly after the Second World War, when the state housing waiting list had 'swelled to over 30,000' (ibid., p.41). Central government dominance of social housing here contrasts with Britain and Australia, where governments have encouraged community and local government providers. Housing provided by the state primarily aims to assist those with high needs, while the rest of the social housing sector is expected to cater to a broader range of needs (Housing New Zealand, 2013, p.9). This includes niche providers who cater to people with specific disabilities or backgrounds.

Agenda for change

Choice, contestability, innovation and access to a wider pool of capital were given as reasons for a change in approach in the 2011 Budget. A Cabinet paper by the Offices of the Minister of Housing and the Minister of Finance proposed that third-party community housing providers supply 15,000–20,000 houses within 10–15 years. The Housing Shareholders' Advisory Group found that 'there is not enough state housing to satisfy demand', and often the 'housing stock is mismatched to demand'. Increases in Crown expenditure on social housing were seen as 'unsustainable', with spending almost doubling from 2001/02 to 2008/09 (Housing Shareholders' Advisory Group, 2010, p.31). A regulatory impact statement emphasised that the 'increasing demand is likely to create fiscal pressures in the future that may be difficult to manage under the current state provider model' (Ministry of Business, Innovation and Employment, 2013, p.3).

The Social Housing Reform Act 2013

The Social Housing Reform (Housing Restructuring and Tenancy Matters Amendment) Act was passed in November 2013 and came into effect in April 2014. It promotes competition in the social housing market by formally recognising community housing providers. In his opening address when the bill was introduced, Nick Smith described the intention of the legislation: 'To implement a substantive shift in Government housing assistance from a State housing model to a social housing model.' The legislation set out a framework for third parties to 'manage risk, provide protections to providers, tenants and the government, and to ensure objectives are met'. There would be voluntary accreditation of providers eligible for income-related rentals. House 'warrants of fitness' would set 'minimum standards for a range of house conditions for social housing' (Smith, 2013). These initiatives were to ensure the standard of housing offered was adequate and would protect taxpayer investment in community providers. Organisations which did not meet the new standards would not be supported by the government financially, nor would they be accredited, in effect a warning to potential tenants.

The income-related rent subsidy would allow tenants to pay no more than 25% of their income in rent, with the rest paid by the government. This was intended to remove the current inequity and create 'a level playing field between HNZ [Housing New Zealand] and non-government providers' (Ministry of Business Innovation and Employment, 2013).

> The income-related rent subsidy would allow tenants to pay no more than 25% of their income in rent, the rest paid by the government.

The opposition Labour Party objected that the Act, 'instead of baking a bigger pie … focuses on who is baking the pie, and how it is cut up' (Social Service Committee, 2013). 'It wants Housing New Zealand to operate only as a landlord, effectively, and not as a social agency', argued Green MP Holly Walker in the first reading debate in the House (Walker, 2013). While opposition parties supported the opening up of the social housing market to community providers, they were concerned that Housing New Zealand would be driven out of the market, at a cost to the tenant (ibid.). They also suggested that the Act was likely to reduce the prominence of the social support element of Housing New Zealand (ibid.; Twyford, 2013).

Housing New Zealand

Housing New Zealand's mission statement emphasises that the organisation is mostly concerned with 'high-needs' clients. The challenges it faces include demand outstripping its ability to provide housing, the need to develop an effective framework to support 'successful' tenants' move out of state housing, growing segregation between state and private housing, and an increasing body of people not *quite* of high need that Housing New Zealand cannot support (Housing Shareholders' Advisory Group, 2010). The 2013 legislative changes are intended to alleviate many if not all of these challenges (Smith, 2013).

Trust House Limited

Background

Trust House Limited is a community enterprise based in Masterton, with Wairarapa its prime community of interest, and satellite interests in Flaxmere (a suburb of Hastings) and Rimutaka. The charitable company in its present form was established in 1997 but its roots go back to the 1947 Masterton Licensing Trust Act, when electors voted to allow the sale of alcohol again after prohibiting it since 1908 (for the history of trust see Masterton Licensing Trust, 1997 and Trust House Community Enterprise, 2008). Elected trustees representing the community were to oversee the sale of alcohol 'in the interests of the public well-being'. The Act also provided authority to distribute profits to the community in support of their activities.[3] The trust is a body corporate, independent of the state, and in its form modelled on North England's Carlisle State Management Scheme.[4]

Currently Trust House operates and manages 20 business units, from Wellington in the south to Hastings in the north. These include hotels, restaurants, bars and their associated gaming halls, community stores, bottle stores, a hydroelectricity scheme and a large housing portfolio. The governance body of the trust is made up of seven directors appointed by the shareholders (predominantly the Masterton Licensing Trust), at least two of whom must be 'outside' directors appointed for their commercial expertise. Today it still operates in the spirit of the 1947 legislation, although this is no longer required by law: as former chairman Brian Bourke put it in an interview, the trust has a responsibility to 'sell alcohol with care' (Bourke, 2013).

In 1985 Trust House began diversifying in order to use resources and skills built up over 40 years, and also to prepare for the likelihood that it would lose its limited monopoly benefit for selling alcohol in its Masterton-based area. This monopoly was indeed voted out in a local poll in 1995, enabling supermarkets and other major liquor sales outlets to compete. The community housing purchase in 1999 was a major diversification, and a result of a sales strategy of the then National government, initiated by the minister of housing, Murray McCully, and supported by the deputy prime minister and MP for Wairarapa, Wyatt Creech. The purchase of 541 state houses was a significant change in strategic direction for Trust House, which had no prior experience in housing, but did have considerable experience with the management of major property developments and support for community facilities. As part of its commercial operations, Trust House built and continues to manage the Solway Park complex, still Masterton's largest and most upmarket hotel and conference facility. Trust House currently employs around 290 people and has during the past ten years distributed approximately $3 million annually in community grants. It has been a major funder of community infrastructure, including the Masterton swimming complex, Henley Lake, Rathkeale theatre and the Clareville hockey turfs.

In the financial year to March 2014, Trust House recorded sales of $40 million, held assets of $74 million, of which the housing estate was valued at $52 million, and made an operational profit before one-off impairments and revaluations of $2.3 million. This was a considerably lower profit than the average during the previous ten years, reflecting strong competition in the liquor and entertainment markets.

With all costs taken into account, and leaving aside the non-cash valuations of the balance sheet, **there has been little or no net cash return for Trust House from housing.**

A housing estate valued at $52 million …

A glance at the balance sheet for Trust House in 2014 seems to indicate that this community organisation has benefited enormously from the political decision of the government in 1999 to sell it a portfolio of houses at $10.4 million, which at the time was a sale price of 40% of the valuation placed on them by Quotable Value, the government's valuation agency. The reality, however, is that the profitability of a stock of former state houses is restricted by the amount of maintenance required and the expectation that a community provider will charge modest rentals and provide support for tenants whose housing options are very limited. The operational return on investment even at the purchase price of $10.4 million has been very low. Trust House's annual reports for the years 2003–07 show segment results for the housing estate. The average annual cash profit after interest and operating expenses for these five years was $1,093,000. But this was prior to capital expenditure, depreciation and loan repayments. The average annual capital expenditure was $385,000, much of which was for maintenance (for example, the painting of a house). A reasonable estimate of annual depreciation would be $500,000. For the years 2008–13 segment accounting was no longer required, but, to the knowledge of the authors, the results for these years would be similar.

With all costs taken into account, and leaving aside the non-cash valuations of the balance sheet, there has been little or no net cash return for Trust House from housing.

The housing portfolio in the context of the trust's activities overall shows as 70% of its assets, yet generates only 12% of its revenue and is managed by approximately 3% of total staff (a specialist group of four supported by corporate office functions).

Even at a 60% discount on official values in 1999, it has proved challenging to manage the portfolio at much more than break-even. Trust House has sold some houses largely to better equate supply with demand. Lack of growth is certainly in part a result of the housing being in a part of the country which has had little or no economic growth, or has reduced in population (particularly in Dannevirke); but the economics of managing a portfolio of houses is clearly a challenge even for a well-established community organisation.

On taking over ownership of the houses, Trust House adopted a policy of ensuring that rents remained in the lower quartile of rents, and of setting 'a clear line in the sand' to not permit rent arrears or property damage, while supporting tenants to go to Work and Income or budgeting services for help, and of responding quickly to maintenance calls (Whitehead, 2013). Community ownership has enabled Trust House to be quicker and more flexible about decisions about upgrades than could be expected from a large national organisation. Initially many of the houses had poor fencing, which was hazardous for families with young children. Trust House decided to provide the materials and specifications, and tenants built the fences themselves (Whitehead, 2013). It also provided curtains for insulation and privacy, and paved driveways. As stated in Trust House's history, *A Turbulent Decade*, 'the Housing Estate has been managed to local needs where rentals, upgrades and processes are tailored closely to local conditions' (Trust House Community Enterprise, 2008, p.29). Trust House has also maintained a very high occupancy rate, averaging in the range of 95–98%, a result of close management by the small team of specialists focusing on the housing portfolio.

Wellington Housing Trust/Dwell Housing

The Wellington Housing Trust was formed in 1981, originally as the Mount Victoria Housing Trust. Like Trust House, it offers rental accommodation at lower than market value. This allows people on low incomes to have their housing needs met and still live in the central city. Currently the Wellington Housing Trust has 27 owned and 10 managed properties in Wellington city, all rented at '70% or less of market value' (Wellington Housing Trust, 2012a). It is governed by a board of trustees and employs staff members who carry out the day-to-day management and administration of the housing portfolio. During 2014 it merged with Mahora House, a one-house trust, to form Dwell Housing Trust, with the intention of expanding services to the wider Wellington region.

The Wellington Housing Trust was created to address the gentrification of Mt Victoria, which was having the effect of pushing low-income tenants out of central city accommodation (Schrader, 2006, p.6). It was originally a co-operative, with members being tenants, supporters and local residents (ibid., p.11). The members appointed trustees who would manage the properties, including the purchasing and financing of new properties. The trust did not want to be 'merely' a landlord, but also provide social services, support and develop a community feeling for their tenants (ibid., p.28). The current director, Alison Cadman, sees housing as a fundamental human right and thinks it can be vital in helping people 'get back on their feet' (Cadman, 2014). Chairman Paul Scholey also sees a role of the trust as supporting tenants to be part of their community so they are not 'stigmatised on the basis of their housing choice or housing tenure' (Scholey, 2014).

Initially housing purchases by the Wellington Housing Trust were funded through the government's community housing improvement programme, which provided low-interest loans. Following the successful purchase, renovation and tenancy of two properties in Mt Victoria, the trust decided to expand and in 1982 set an ambitious goal of acquiring 50 houses over the next five years (Schrader, 2006, pp.11, 21). That target is only now, 30 years later, within reach. Recent building has included two major projects in Newtown, with the aim of developing houses that are 'comfortable, inexpensive and healthy to live in' (Slocombe, 2012, p.14). In 2010 the trust built four homes on Adelaide Road, which were 'fitted with high standards of insulation, double glazing and energy efficient heat pumps' (ibid., p.16). It received a $300,000 grant from Housing New Zealand to assist with funding the project, which was conditional on the trust 'owning the developed property for a period of 25 years following building completion and … using the development in line with the purposes of the Trust' (Wellington Housing Trust, 2012a, p.21).

Following its merger with Mahora House, the renamed Dwell Housing Trust again aims to expand, having floated the ambitious goal of managing 500 houses.

> … the experiences of the [both Trust House and the Dwell Housing Trust] demonstrate that the goal of a further 10,000 houses in community ownership within five years will remain political rhetoric …

Barriers and issues

Both Trust House and the Dwell Housing Trust are interested in increasing their housing numbers and taking part in the government's target of a threefold expansion of the community housing sector. The current chief executive of Trust House believes it could comfortably manage 2,000 houses; Dwell aspires to run 500. However, the experiences of the two organisations demonstrate that the goal of a further 10,000 houses in community ownership within five years will remain political rhetoric unless the government decides to sell current houses at less than 40% of the value shown on the government's balance sheet. Given significant inflation in house prices since 1999, the discount, depending on the property market, might need to be significantly more than the 60% discount gained by Trust House.

Housing is one of the government's largest balance sheet 'assets', valued at $17 billion, but that valuation reflects the extent to which house prices have inflated beyond the ability of those on low and middle incomes to afford to buy.

As noted, net returns from managing housing have been so limited that Trust House's only significant financial benefit has occurred when houses are sold. Growth has not been limited by lack of management capability or a sufficiently strong balance sheet to borrow funds. During a period of considerable upheaval in the liquor industry and loss of its former monopoly on sales, the trust has survived and grown. The gains for the trust, its community and tenants have been in its ability to respond flexibly to tenant needs, operating so far without income-related rentals, which currently seem to involve considerable bureaucratic scrutiny.

The Wellington Housing Trust has grown very slowly over its 33 years of existence and today owns only 27 houses, and is dependent for financial viability on a no-interest government loan. The trust had a modest trading profit of $38,716 for the June 2014 year, while benefiting from an interest-free loan from Housing New Zealand of $1,826,579 (at 30 June 2014). If the interest rate for even the most secure low-cost mortgages was applied, the trust would clearly not be financially sustainable.

Income-related rents for community housing

Extending income-related rent (IRR) subsidies for community housing is attractive, at least on the face of it. Without doubt, tenants with a low income, such as a single-income beneficiary, stand to gain. To take an example: if the rent for their home is assessed at $150 per week, a single-income beneficiary eligible for IRR would pay about $70 per week. The government would subsidise the other $80. If IRR did not apply and instead the accommodation supplement was payable, it is likely that the government subsidy would be around $55, thus requiring the tenant to pay $25 more. In the context of the individual's total income, this is a sizable difference.

The benefit to community housing providers, however, is more problematical. In the example above they receive no benefit. There is, of course, the benefit of a happier tenant under less financial stress, which given their community care objectives, is significant. But, as highlighted in this article, community housing providers are under financial performance constraints. To ease these pressures they will wish to lift rents closer to market rates. An additional $10 per week, to say $160, as in the example above, over a number of tenants will improve their profitability. But the cost of such an increase will impose an additional fiscal burden on the government (via a higher subsidy) and governments will no doubt be keen to limit such burdens. How they might achieve this objective is uncertain. But if the financial constraints imposed by governments become inhibiting, one of the key benefits of local community flexibility – namely, to be able to relate to individual needs – will be under pressure.

Conclusion

Will, then, the new legislation and rules achieve the desired threefold increase in community housing? The answer to that revolves around a complex equation about the point at which the government chooses to provide support for housing.

The policy changes of the 2013 legislation reflect the government's efforts to reduce deficits and review assets. Housing is one of the government's largest balance sheet 'assets', valued at $17 billion, but that valuation reflects the extent to which house prices have inflated beyond the ability of those on low and middle incomes to afford to buy. Such house price inflation in effect creates the pressure for social development subsidies such as income-related rentals.

The extension of income-related rents to community providers, while desirable, will not enable the sector to take on the risk of long-term returns from properties whose real value is almost certainly less than the 40% of the official valuation at which Trust House bought houses in 1999. Existing and new community housing operators are right to be wary in their consideration of the government's invitation to be involved in social housing. These providers will be involved in significant capital investment for long-term delivery of housing – and if house price inflation continues, providers will face the same equation as Trust House or the government, of increasingly valuable balance sheets which are not real cash, while subsidised rentals place providers at risk of future changes of government policy.

Having a more diverse group of social housing providers can, as the Trust House experience has shown, result in more customised local provision. For this to happen, the government needs to tackle this issue with the approach taken to the establishment of state-owned enterprises in the 1980s, where assets were transferred as realistic valuations to new entities which were given freedom to manage. The freedom to manage in the housing sector requires a balance between business and community goals, but this is the type of balance which Trust House has been managing since the late 1940s, and is a 'social enterprise' model which seeks to combine the best of business-like processes and community goals.

If the government is seriously to expect community organisations to be a major part of the provision of housing, it needs to budget for its major support on the basis of a write-down of the value of its over-inflated housing asset, which can make it possible for community organisations to do as Trust House has for the past 15 years – find flexible, community-focused, innovative ways of providing social housing. Without such political willingness to negotiate realistic prices that enable community organisations to operate professionally and for the long term, this policy is likely to be either rhetoric without action, or lead to small community organisations overextending themselves.

1 See Dwell Housing Trust 2014 annual report at www.dwell.org.nz.
2 http://tenancy.govt.nz/market-rent.
3 Section 307 of the Sale and Supply of Alcohol Act 2012, which provides the present enabling authority, is a mirror of the original Act.
4 For a detailed study of this unique scheme see Seabury (2007).

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Jonathan Boston and Thomas Stuart

Protecting the Rights of Future Generations

are constitutional mechanisms an answer?

The nature of the problem

In recent decades, concern has been mounting over whether democratic governments have the necessary incentives and capabilities to protect the long-term interests of their citizens[1], particularly their future citizens. Both the academic literature on governance and everyday political discourse are replete with talk of 'short-termism', 'political myopia', 'policy short-sightedness', a 'presentist bias' and weak 'anticipatory governance[2]. Such concerns have been intensified by the growing capacity of humanity to cause 'severe, pervasive and irreversible' damage to critical biophysical systems at a planetary level, for example via anthropogenic climate change[3]. But flawed environmental stewardship is not the only problem. There is also much anxiety in many democracies about poor long-term fiscal management, inadequate investment in public infrastructure, insufficient planning for the consequences of an ageing population, and deficiencies with respect to early

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intervention programmes and emergency preparedness, as well as unsatisfactory management of ethnic, religious and socio-economic cleavages. In short, there are many serious threats to fiscal, social and environmental sustainability.

There are multiple reasons why long-term interests are often poorly protected. In the case of global public goods, such as the atmosphere and the oceans, effective long-term protection requires coordinated international action. But multilateral cooperation is frequently thwarted by weak international institutions, the doctrine of territorial sovereignty, national self-interest, and deep ideological and geopolitical divisions (Ward, 2011). In short, spatial and inter-sectoral conflicts have slowed the adoption of effective policy responses.

But efforts to tackle policy problems with long time horizons, whether global or local in scale, face other challenges. The most formidable of these are distributional conflicts of an *inter-temporal* nature: that is, conflicts regarding the proper allocation of benefits and burdens over extended periods of time. Such conflicts typically involve two distinct, yet overlapping, trade-offs: a clash between the interests of current and future citizens, and a clash between the interests of citizens' current selves and their future selves. If policy makers prioritise short-term interests over long-term interests, there is an obvious risk that those living in the future will be worse off in some way. How, then, might long-term interests, and especially the interests of future generations, be properly protected?

Asymmetries in the democratic process

National democratic institutions, despite their many virtues, often struggle to cope with policy problems involving significant inter-temporal trade-offs. This is particularly the case when timeframes are decadal or more in nature and where the negative impacts of proposed policies (or a failure to act) appear distant and therefore inconsequential. Long-term policy issues are at a constant risk of being neglected in the face of current and near-term concerns, which seem more pressing and immediate. The lack of effective long-term governance is due, or so it is argued, to certain systemic flaws, pathologies and asymmetries within the democratic process.[4] Among these are the following:

- a tendency for voters to have positive time preferences (i.e. they are moderately impatient and prefer something today rather than in the distant future);
- relatively short electoral cycles in which vote-maximising politicians have strong incentives to discount the future;
- the often disproportionate power exercised by vested interests with predominantly short-term priorities;
- the difficulty of ensuring that decision-makers do not renege on future-related promises (variously referred to as the 'compliance' or 'time inconsistency' problem);
- deep ideological divisions over the best solutions even when the nature of the policy problem is widely recognised; and
- the fact that future generations have no voice, vote or bargaining power, yet will be profoundly affected by the policy choices of current governments (see Boston and Lempp, 2011).

Hence, whatever advantages future persons may come to possess in the future, today they face the disadvantage of being abstract, remote, disembodied and dependent. They are utterly reliant on current generations to represent and protect their interests; yet there is no corresponding dependence of current voters on people living in the future (Timlin, 2012). Normal political accountabilities and reciprocities thus do not apply. As Warren Buffet (1977) once stated: 'when human politicians choose between the next election and the next generation, it's clear what usually happens'. Or to quote Al Gore, 'the future whispers while the present shouts' (Gore, 1992, p.170).

Such asymmetries in the democratic process would not matter if humanity lacked the capacity to inflict harm – and especially *irreversible* harm – on people living in the future. Nor would the challenge be as great if the policies required to secure long-term benefits (whether economic, social or environmental in form) involved no imposition of costs or losses (e.g. extra fiscal expenditure and related increased tax burdens) on people living today. Yet, because short-term sacrifices are often required, protecting the interests of future generations is politically challenging. To compound matters, the costs of 'policy investments'– for instance, pre-funding future pension costs, reducing greenhouse gas emissions or helping to lower rates of obesity – are typically certain, real and visible, whereas the promised benefits are frequently uncertain, intangible or invisible (Boston and Lempp, 2011; Jacobs, 2011). If voters are uncertain about the benefits – perhaps because they distrust governments or doubt their capacity to deliver, or because the relevant causal chains are highly complex and opaque – they will be understandably reluctant to support such investments (Jacobs and Matthews, 2012). Yet if governments do not invest adequately for the longer term, future citizens will be worse off.

Long-term policy issues are at a constant risk of being neglected in the face of current and near-term concerns, which seem more pressing and immediate.

There is a further complication. Inter-temporal conflicts take different forms. Sometimes they involve a non-simultaneous exchange between 'goods' that are part of a similar system of value (e.g. upfront financial costs in return for future financial benefits). Other times the exchange is between 'goods' constituting different systems of value (e.g. near-term financial costs in return for the better long-term protection of important environmental 'goods'). The latter types of non-simultaneous exchange are particularly difficult because the 'goods' in question are non-commensurable and the hoped-for benefits may have few advocates in the policy process.

How should the problem of protecting long-term interests be addressed? Are there any feasible and effective 'solutions'? And are there ways of countering the inter-temporal asymmetries evident in contemporary democracies without generating new and unintended problems? This article briefly outlines four possible approaches, giving particular attention to proposals to protect the interests of future generations by constraining the decisions of policy makers, both now and in the future, through constitutional means. While such reforms have been championed by various international bodies, interest groups and scholars, we acknowledge that they are not without limitations and drawbacks. Accordingly, we also outline a number of other constraining mechanisms (or 'commitment devices', as they are sometimes called) which may serve a similar purpose. While we consider the options for constitutional reform across a range of democratic jurisdictions, we pay particular attention to the specific constitutional context of New Zealand, which, unlike almost all other democracies, lacks an entrenched constitution with the status of supreme law. But first let us clarify what is meant by 'future generations' and the nature of their 'interests', 'needs' and 'rights'.

Who are 'future generations'?

If the term 'present generations' is limited to those alive today (including their 'future selves'), then the term 'future generations' must logically refer to all those born *after* today, regardless of where or when. On this basis, significant overlaps are inevitable: future generations will co-exist with current generations, often over long stretches of time and in a constantly evolving manner. For the purposes of this discussion, we are concerned with the well-being of all those who will be alive at some future point in time, including the distant future. This includes the 'future selves' of people alive today, some of whom are likely to live well into the 22nd century. Their long-term interests ought to be protected, not only the interests of those who are as yet unborn.

... there are good ethical reasons for placing a high, and equal, moral value on all human beings irrespective of when or where they are born.

But such a stance immediately begs many more questions. For instance, what exactly are the 'interests' of future generations? Are they the same as the interests of present generations, or might they be different? Further, should the focus be on the 'interests' of future generations, or on their 'needs' or 'rights' (Ward, 2011)? Additionally, how should the 'interests' ('needs' or 'rights') of future generations be balanced against the 'interests' ('needs' or 'rights') of present generations? Aside from this, there are important questions about whether, and to what extent, policy makers should discount the future (Caney, 2008, 2009) and over the implications of following a 'precautionary' approach to the management of future risks. Such issues are complex and daunting. There are many different philosophical approaches and a plethora of competing principles. It is not possible to address such matters here in any detail, but several brief comments are in order.

First, there are good ethical reasons for placing a high, and *equal*, moral value on all human beings irrespective of when or where they are born. As Rawls has argued, 'from a moral point of view, there are no grounds for discounting future well-being on the basis of pure time preference' (Rawls, 1972, p.287). Hence, people living in the future should be valued equally to those alive today. An alternative view, under which, for example, people in the future are deemed to be of less value, is difficult to defend morally or logically.

Secondly, it is unlikely that the 'interests' or 'needs' of people living in the future will change dramatically, at least over the next century or so, from those of people living today. Of course, the further we venture into the future, the more difficult it becomes to know what humanity will need. Even planet Earth, for instance, may cease to be essential for human life. Yet, even then, it is reasonable to assume that citizens in the far future will continue to value Earth as their original home planet and for its many life-supporting qualities (Mank, 2009).

Thirdly, assuming that the interests of future generations are broadly congruent with those of humanity today, what might such interests include? With little doubt, one such interest will be preserving a physical environment that is fit for human health, flourishing and well-being (Ekeli, 2007). This in turn implies that pollution levels must be within 'safe' thresholds, that high levels of biodiversity are maintained, and that there is sufficient fertile soil to enable the production of an adequate quantity of food (Rockström et al., 2009). Aside from a healthy environment, future generations will almost certainly also have an interest in sound and sustainable public finances, proper planning for disasters, the mitigation of serious risks, the maintenance of democratic institutions and basic liberties, the provision of public goods and services, and the preservation of their cultural heritage.

Fourthly, the words 'interests', 'needs' and 'rights' have different (albeit overlapping) meanings. As implied above, the term 'interests' has a relatively broad meaning, covering both general and specific matters, some of which are vital for the *maintenance* of human life, while others are more relevant to the *enjoyment* of life. The term 'needs' refers to things that are more ethically demanding, or of a higher moral order, than 'interests'. If something is a 'need', then it is essential for the particular purpose in question. If the need is not satisfied, there will be significant loss or harm. 'Rights' refer to morally justifiable claims, often based on specific human 'needs'. If accorded legal status, such rights will be both morally and legally binding. Having said this, few rights can be regarded as absolute or unconditional (Feinberg, 1973) and the use of 'rights' in a legal context is highly contested. Moreover, since rights are often in conflict, they must be balanced against each other – and against other morally relevant considerations.

Fifthly, it is sometimes objected that ascribing rights to future generations is neither legitimate nor practical because 'rights' can only be assigned when there are clearly identifiable interests to protect. Non-existing individuals, it is argued, cannot be granted moral or legal rights because there is no defined right-holder and no consensus on the specific rights they ought to possess. Sceptics argue that a specific legal obligation to protect future generations cannot and should not be placed on present generations or their governments. Against these objections, defenders of the notion that future generations should be accorded rights argue that such rights are not individual rights but rather 'generational rights', 'group-specific rights' or 'community rights' (United Nations General Assembly, 2013). Hence, they are decoupled from the strict requirement for an identifiable right-holder. From this standpoint, the values or interests being 'protected do not depend upon knowing the kinds of individuals that may exist or the numbers in any given future generation' (Brown Weiss, 1992, p.24). Although relatively few international or domestic legal instruments currently refer to, or clearly protect, the rights of future generations (Brown Weiss, 1989; Ward, 2011), there are plausible ways of incorporating the language of 'rights' in such instruments and doing so in a manner which is meaningful, fair and effective.

In what ways might future generations' interests be protected?

To the extent that the interests (needs or rights) of future generations are not adequately protected by contemporary democratic institutions, there are at least four broad options available, each of which rests on a distinctive intervention logic (or set of logics). Such options are not mutually exclusive. All four could be applied simultaneously, although not necessarily in the same policy domain. The four options are:

1. *insulating* decision-making from short-term democratic pressures;
2. *incentivising* elected decision-makers to give greater priority to long-term considerations;
3. enhancing the *capacity* of elected decision-makers to think about and plan for the long term; and
4. *constraining* the policy choices available to elected decision-makers, especially in relation to issues with significant long-term impacts.

The challenge ... is how to ensure that policy makers pursue a consistent long-term strategy over time and are not deflected from a prudent policy path, once adopted ...

The first option is to shift decision-rights on important policy issues away from democratically-elected officials to independent bodies and/or global institutions. The aim here is to *insulate* decisions from the short-term pressures and biases of the democratic process. Such an approach is already widely employed across the democratic world with respect to many regulatory matters and the oversight of monetary policy. But such a strategy poses serious questions. What decision-rights should be transferred to non-elected bodies? What assurance is there that the decisions of such bodies will better protect the interests of future generations? And how are important values, such as democratic control, accountability and legitimacy, to be preserved if an increasing number of vital decision-rights are no longer the responsibility of elected representatives?

A second option is to increase the *incentives* for democratically-elected officials to consider the interests of future generations (Boston and Lempp, 2011). One possibility under this approach would be to enhance the 'voice' of the future by establishing new institutions (or strengthening existing institutions) which have future-oriented missions and responsibilities. Examples might include a Parliamentary Committee for the Future (as in Finland), a Parliamentary Commissioner for Future Generations (as in Hungary), a Sustainable Development Commission (as previously in Britain) or a Commission for the Future (as previously in New Zealand). More radical proposals could include establishing, perhaps via a random ballot, an additional legislative chamber with specific responsibilities to promote measures designed to protect the interests of future generations. But many of these ideas have already been implemented somewhere in the democratic world and their effectiveness, thus far, has been limited. Moreover, many future-oriented institutions have not survived.

A third option is to enhance the *capacity* of governments to think long-term, to undertake various kinds of foresight activities and to engage in 'anticipatory governance' (Fuerth, 2012). By building such capacity, it is argued, governments would have a deeper knowledge of long-term risks, threats and vulnerabilities and thus would be better equipped to plan for the future. Under this approach, governments should strengthen their investment in strategic foresight, establish long-term think tanks, and improve their capability in areas like strategic planning, urban planning and infrastructure management. Yet many governments have already implemented such strategies, and, again, their effectiveness is by no means clear.

The fourth and final option is to *constrain* the decisions of democratically-elected officials in various ways. As noted earlier, among the problems afflicting democratic processes in relation to inter-temporal trade-offs are those of 'compliance' and 'time inconsistency'. The challenge, in brief, is how to ensure that policy makers pursue a consistent long-term strategy over time and are not deflected from a prudent policy path, once adopted, by short-term electoral pressures or other temptations. The literatures in the fields of social psychology and behavioural economics suggest that one solution may lie in using 'commitment devices', as these can be powerful drivers of human behaviour (Bryan et al., 2010; Hagemann, 2011; Sunstein, 1988, 2014). The aim of such devices is to bind decision-makers to particular courses of action, thereby helping to mitigate any problems arising from inconsistent or fluctuating motives, a weak will or countervailing external pressures.

Commitment devices are relevant to all spheres of life, but are particularly applicable where the policy pay-offs may contribute to decisions dominated by short-term expediency. They work by limiting actors' future discretion or by reinforcing their desire to exercise self-restraint – whether by increasing the rewards for good behaviour or by penalising bad behaviour (or both). Commitment devices are common in politics, although the term is rarely used. At one end of the spectrum, they include constitutional provisions that are designed to limit the actions of future decision-makers and are deliberately difficult to change or circumvent (see Holmes, 1988; Sunstein, 1988). For instance, such devices are frequently used to safeguard the interests and rights of minority groups in the face of intolerant majorities by giving power to the judiciary to strike down laws that breach basic rights. At the other end of the spectrum are such things as election promises and verbal commitments. The latter are reinforced by the risk of embarrassment, shame and the loss of credibility if they are not upheld.

Between these two extremes are a wide range of mechanisms: incorporating particular protections, procedures or requirements into legislation; establishing institutions with long-term missions; negotiating bipartisan or multi-party agreements on important long-term policy issues; and designing policies and programmes in ways that make them more difficult politically to alter – for instance, establishing endowments and trust funds, creating social insurance arrangements based on individualised, earnings-related benefits, and so forth. Of relevance to this article, it is common in New Zealand (and many other jurisdictions) for the interests and needs of future generations to be given limited recognition in ordinary statutes: e.g. the Local Government Act 2002 (sections 10 and 14) and the Resource Management Act 1991 (section 5).

If the aim of the commitment device is to help encourage a consistent pattern of behaviour over time, then the device needs to be workable and credible and impose a genuine constraint (e.g. by being costly to change). Yet if the device is to be durable, there must also be the flexibility for policy makers to respond to unexpected contingencies. Designing devices that strike a sensible balance between these contrary imperatives requires skill and dexterity. In the end, governments can only constrain their successors to a modest degree. Whereas Odysseus in Homer's epic poem could rely on others to limit his future agency, governments always retain the power to unbind themselves – even if it may be difficult and politically costly.

Whereas Odysseus in Homer's epic poem could rely on others to limit his future agency, governments always retain the power to unbind themselves - even if it may be difficult and politically costly.

While each of the four options is worthy of consideration, our focus here is on *constraining* solutions, and in particular constraining democratically-elected decision-makers by giving constitutional protection to future generations. In what follows, we consider how the interests of future generations have been given expression in democratic constitutions, the advantages and disadvantages of the various approaches available, and the possibility of granting constitutional protection to future generations in New Zealand.

How can constitutions protect future generations?

A constitution is the fundamental building block of a nation's legal system. It defines the powers and responsibilities of the various executive, legislative and judicial institutions, the relationship between citizens, and, most importantly, the relationship between citizens and the state (Hiskes, 2009). Constitutions are not, however, consistent across borders, cultures or legal systems. They differ greatly in terms of their supremacy, entrenchment and form. On the one hand, many constitutions are written, entrenched and supreme. This means that they are formally incorporated in law, can be amended only with a supermajority and take precedence over ordinary legislation (Ekeli, 2007). On the other hand, some constitutions, such as New Zealand's, are found not in one document but in many documents, conventions and judicial decisions, none of which enjoy the status of supreme law (Palmer, 2006). Yet, regardless of the particular features of constitutions, they all perform the same dual roles of regulating relationships and limiting government power (Keith, 2008).

Such roles make constitutions an ideal space in which to promote the interests of future generations (Gosseries, 2008; Hayward, 2005). By their nature, they guarantee rights for citizens today and into the future (Hiskes, 2009). Developing explicit constitutional recognition for future generations, therefore, has the potential to ensure that rights today are not unduly valued over rights tomorrow. With the inclusion of appropriate wording, a constitution can give future generations greater moral and legal status and increase the extent to which executive, legislative and judicial bodies consider the long-term consequences of their actions (Wright, 1990). In a democracy with a written constitution, such a provision would bind successive generations of legislators to account for future interests; in a democracy like New Zealand with an unwritten constitution it would give added legal recognition to future generations and, depending on the specific wording, could elevate their interests to the level of enforceable fundamental rights.

Do constitutions protect future generations at present?

There are references to 'future generations' in numerous domestic and international legal instruments. For instance, at the international level, a recent survey by Ward (2011) identified no fewer than 45 references to 'future generations' in a wide range of binding and non-binding instruments. While this is positive, the majority of these instruments deal solely with environmental matters, such as the protection of wild fauna and flora, the climate system, the marine environment and biological diversity.[5] Such agreements include the United Nations Framework Convention on Climate Change (1992), the United Nations Convention on Biological Diversity (1992) and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (2001). Although 'future generations' also feature in a number of international agreements and declarations dealing with diverse subjects like peace and security, education, cultural heritage and scientific matters, the level of recognition is limited.[6]

The large number of references in international law indicates that global governance is fundamentally guided by a concern for the long-term well-being of humanity. That said, in most cases such references are contained in preambles or in statements of objectives rather than the operative text of such instruments. They are thus purely aspirational and do not place legally enforceable obligations on states. In some cases there are specific duties requiring states to protect future generations. The UNESCO Convention for the Protection of the World Cultural and Natural Heritage (1972) requires all states to ensure the 'protection, conservation, presentation and transmission to future generations of identified cultural and natural heritage … situated on their territory' (article 4), and the United Nations Declaration on the Rights of Indigenous Peoples (2007) grants indigenous peoples the 'right to transmit to future generations their histories, languages, oral traditions, philosophies, writing systems and literatures' (article 13). On the whole, however, the international community has not sought to extend, at least in a significant way, any of the human rights universally accorded to current generations to future generations (Ward, 2011).

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Turning to the national level, over 20 countries (and several states and provinces) have incorporated protections for future generations in their constitutions (see IHRC and SEHN, 2008; McLeod, 2013; United Nations General Assembly, 2013; World Future Council, 2010). As in the international arena, often such provisions are contained in the preamble and are essentially aspirational – as, for instance, in Armenia, the Czech Republic, Estonia, Switzerland and Ukraine. But in other cases, including Bolivia, Cuba, Ecuador, France, Germany, Poland, South Africa and Sweden, national constitutions contain substantive provisions regarding future generations. The constitution of Bolivia, for example, provides that among the purposes and functions of the state are the 'responsible use of natural resources, the promotion of industrialisation, and the conservation of the environment for the welfare of current and future generations'. Similarly, the constitution of Ecuador requires the state to 'exercise sovereignty over biodiversity, whose administration and management shall be conducted on the basis of responsibility between generations'. Both provisions are worded to encourage positive action on behalf of the state; but there is no guarantee of rights.

By contrast, the South African constitution states that everyone has the 'right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures'. Similarly, the Andorran constitution guarantees 'an environment fit for life for the coming generations'. These constitutions recognise the interests of future generations more fundamentally, in a way that is enforceable in the courts. Yet, probably to avoid undue uncertainty or constraints on future parliaments, they tie this right closely to environmental protection. It is uncommon for a constitution to protect future generations of their own accord, independent of environmental considerations. While a small number of nations do have such protection, the relevant provisions are worded as statements of policy rather than as fundamental rights. In Estonia, for instance, the constitution's preamble declares that '[the state] shall serve to protect international and external peace and provide security for the social progress and general benefit of present and future generations'. This provides a positive direction for agenda setting, but it has little practical or judicial value; there is no ambit for enforcement if it is not complied with.

How effective are these constitutional protections?

Currently, almost all of the provisions in national constitutions concerning future generations are rather vague, and, as a result, provide little guidance for judges in cases brought before the courts (Ekeli, 2007). In Norway, the Supreme Court has not once referred to the provision in the constitution protecting future generations, despite its introduction more than 20 years ago.

There have been a handful of cases in which constitutional protections for future generations have been successfully invoked in a court of law, but they are few and far between. In the case of *Minors Oposa v Secretary of the Department of Environment and Natural Resources* (1994), the Supreme Court of the Philippines held that a group of schoolchildren had standing to challenge timber leasing of old-growth forests 'for themselves, for others of their generation and for the succeeding generations' (Mank, 2009). In the *Chevron–Texaco (Pollution) Case* (2010), an international coalition of environmental activists invoked Ecuador's constitutional rights of nature in a case against Chevron regarding oil contamination in the Ecuadorian rainforest (Cress, 2012). Relying in part on the Ecuadorian constitution, the Supreme Court of Justice of Nueva Loja found in favour of the coalition and held Chevron liable for $8.6 billion in damages.

At the state level in the United States there has also been some judicial recognition of the rights of future generations. In Montana and Hawaii, where environmental protections for future generations have been constitutionally safeguarded (albeit broadly) since the 1970s, the Supreme Court of each state has upheld the rights of future generations (Raffensperger, 2003). In Montana, the Supreme Court held that Montanans have the right to prevent irreversible harm before it occurs, while in Hawaii a precautionary principle has been adopted in protecting resources for future generations. While such outcomes are to be welcomed, they are the exception rather than the norm.

At the state level in the United States there has also been some judicial recognition of the rights of future generations.

How can constitutional protections for future generations be drafted effectively?

When considering how constitutional provisions might be utilised to protect future generations, there is a fundamental tension at work. On the one hand, incorporating substantive guarantees has the potential to protect later generations from the actions of the generations preceding them. Yet, on the other hand, the more that constitutional protection is relied on for such purposes, the more the generational sovereignty of future legislatures is undermined (Sunstein, 1988; Thompson, 2005). In other words, constitutions (through a variety of amendment restrictions) reduce the freedom of each generation of decision-makers to adopt their own rules. They subject future generations to the laws of the past, creating constitutional rigidity and resistance to change (Gosseries, 2008). Thomas Jefferson, for one, was an outspoken critic of such constitutional rigidity. In his view:

> a generation may bind itself as long as its majority continues in life; when that has disappeared, another majority is in place, holds all the rights and powers their predecessors once held, and may change their laws and institutions to suit themselves.[7]

While this perspective fails to account adequately for intergenerational issues, including the need to protect a world with 'planetary boundaries' and finite resources from severe and irreversible damage (Rockström et al., 2009), it highlights the fact that constitutional protections can be a double-edged sword (Gosseries, 2008). In Westminster systems of democracy, constitutional rigidity is limited by the doctrine of parliamentary supremacy. This doctrine holds that current parliaments can only bind future parliaments on matters of 'manner and form'; they cannot limit their autonomy substantively (Eleftheriadis, 2009). In other systems, however, procedures for amending constitutional provisions must not be so restrictive that they make it almost impossible for future generations to adopt new or revised provisions as needs and circumstances change. That said, if any constitutionally guaranteed rights are to be effective, they must have some level of supremacy and should not be easily trodden on by future parliaments.

To date, policy makers in most democracies have been cautious about future generations' rights, favouring legislative sovereignty over intergenerational protection. They have focused on providing broad statements of policy rather than endowing future generations with specific rights. Admittedly, incorporating general statements of policy in a constitution can provide a useful reference point and serve as an interpretive aid, but such approaches do not facilitate legal enforcement or bind later parliaments (Timlin, 2012). While constitutional policy-making should never be rash, it should strive to develop provisions that serve the purpose for which they are intended. Hence, such provisions should be designed in ways that give genuine additional protection to future generations, rather than merely paying them lip service. They should strive to change behaviours and policy settings, to extend time horizons, and to alter the priorities of legislators and governmental decision-makers.

Accordingly, in our view serious consideration should be given to incorporating specific 'rights' for future generations which can be effectively upheld in the courts. Framing constitutional protection in terms of rights would provide an avenue for current citizens to hold the state to account for its actions, potentially giving the courts the power to strike down legislation which clearly threatens the specified rights.

In this context, the International Human Rights Clinic (IHRC and SEHN, 2008) has identified criteria to guide the drafting of such provisions and has proposed some suggested wording. The IHRC places considerable emphasis on striking an appropriate balance between a general, open-ended right and a specific, articulated and enforceable right. An overly broad or general right might be ignored and difficult to enforce, while rights that are too specific may be easily circumvented. Highly specific rights may indicate to would-be violators that the courts are unlikely to enforce violations unless they fall under the relevant, tight wording of the constitutional provision. They may also unintentionally serve as a temporal restraint, as new scientific discoveries and technological advances may not be adequately accounted for in any narrow list of applications. The IHRC further emphasises that any such provision must be compatible with widely shared notions of distributive justice and principles of sustainable development. This includes ensuring that the needs of the present generation are met without compromising the ability of future generations to meet their own needs.

The particular wording proposed by the IHRC is tied to environmental protection, and is as follows:

> Present and future generations of citizens of the state have the right to an ecologically healthy environment. This right includes but is not limited to: the enjoyment of clean air, pure water, and scenic lands; freedom from unwanted exposure to toxic chemicals and other contaminants; and a secure climate. (IHRC and SEHN, 2008, p.10)

Such a provision is specific enough to guide judges, yet sufficiently broad to avoid confinement to a narrow set of facts. However, it is not complete in isolation. The IHRC emphasises that a constitution must also clearly highlight that the rights of future generations are to be weighed equally with other fundamental rights and must specify who has standing to enforce the right, to what standard and against whom.

This, however, is no easy task. The traditional doctrine of standing, which governs who can bring proceedings before a court of law, appears to rule out altogether the possibility of invoking the rights of future generation in courts. Before being granted standing, plaintiffs must demonstrate that they have suffered an imminent injury-in-fact which is caused by the defendant's conduct and which is redressable through the remedy they seek (Mank, 2009). In other words, this doctrine requires plaintiffs to demonstrate a 'real-world' tangible harm as well as a legal cause of action, to prove some degree of imminence in respect of that harm, and to show a 'personal stake in the outcome' before their claim can proceed (ibid.). This high standard, aimed at avoiding generalised grievance claims, is impossible to meet in respect of the rights of future generations. By their very nature, such rights protect long-term interests which are not imminent or presently tangible, and are often difficult to remedy or redress.

Fortunately, however, this is not the end of the road. Courts in many parts of the world have expressed a willingness to depart from these more traditional standing principles in respect of new rights of action which fit awkwardly into the common law model (ibid.). In New Zealand, the standing requirement is largely gone for judicial review claims, and in the US, Congress has relaxed the requirements of imminence and redressability in respect of claims regarding environmental impact statements, claims regarding the Freedom of Information Act, claims brought on behalf of a state, and more generally where procedural injury is concerned. In *Massachusetts v EPA* (2007), a judicial review of the Environmental Protection Agency's refusal to regulate tailpipe emissions, the US Supreme Court considered redressability to be a matter of degree rather than a minimum standard and relaxed the standard of imminence to include the long-term effects of climate change. This was a landmark decision, establishing beyond doubt that Congress has the power to relax the traditional requirements of imminence and redressability. It also indicated a broader trend of judicial willingness to relax standing requirements in respect of environmental and procedural claims (Mank, 2009). This more flexible approach can be traced back to the case of *Lujan v. Defenders of Wildlife* (1992), in which Justice Kennedy commented that:

> as government programs and policies become more complex and far reaching, we must be sensitive to the

There have been a handful of cases in which constitutional protections for future generations have been successfully invoked in a court of law, but they are few and far between.

> articulation of new rights of action that do not have clear analogs in our common law tradition . . . In my view, Congress has the power to define injuries and articulate chains of causation that will give rise to a case or controversy where none existed before.

While a constitutional right protecting future generations fits awkwardly in the common law tradition, it is a 'new right of action' for which allowance could be made. If a statutory body, such as a Parliamentary Commission for the Future, was granted specific sole authority to take legal action when the rights of future generations were at risk of being violated, it would eliminate any confusion regarding the breadth and scope of standing. However, such institutions are rare and sometimes ineffective. Thus, constitutional provisions also need to make allowance, clearly and carefully, for public plaintiffs or genuine interest groups to bring claims on behalf of their successors.

How might future generations be protected in New Zealand's constitution?

New Zealand is one of only three democracies in the world without a formal written constitution (Chen, 2011). There is no supreme law permitting the judiciary to strike down legislation, and the New Zealand Bill of Rights Act 1990 offers only limited legal recourse to citizens who believe they have been wronged by the state – most particularly because it cannot be used to strike down primary legislation (Palmer and Palmer, 2004). Any constitutional protection for future generations will apply very differently to countries with written constitutions. The benefit of New Zealand's model, however, is that it is flexible and capable of adapting to changing circumstances. It lacks much of the rigidity of other constitutions, and there are few entrenched provisions. In such a constitutional landscape, incorporating a fundamental right relating to the environment, and more generally protecting the interests of future generations, would be relatively simple and would not unduly constrain subsequent parliaments.

Currently, no such clause exists in New Zealand legislation, nor is one in the pipeline. In fact, New Zealand is among only 16 countries that have failed thus far to recognise and provide for the right to a healthy environment in their constitution (Browning, 2013). For a state which prides itself on constitutional flexibility, our constitution arrangements are, at least in certain respects, surprisingly outdated. An obvious way forward would be to incorporate a new provision in the existing Bill of Rights Act. In our view, there would be merit in including such a clause, provided it is consistent with the IHRC's recommendations. In principle, this could protect future generations in the same way as the Act does other rights, such as free speech or freedom of religion.

... New Zealand is among only 16 countries that have failed thus far to recognise and provide for the right to a healthy environment in their constitution ...

An analysis of the merits of a written constitution is not possible here. Nevertheless, many New Zealand academics and legal practitioners are strong advocates for such a step.[5] Moreover, a recent consultation conducted by the Constitutional Advisory Panel (2013) has identified that intergenerational equity is one of the key themes in public discussions of New Zealand's constitution. If a reform of New Zealand's constitution were initiated, it could provide a unique opportunity to incorporate the rights of future generations explicitly into New Zealand's first written constitution (Glazebrook, 2011). Although such rights would need to be carefully and contextually worded, providing sufficient detail regarding enforceability and the state's obligations, the IHRC's guidelines should provide a useful starting point.

Alternatives to constitutional recognition

Incorporating the rights of future generations into national constitutions is not the only way to help protect and enhance the well-being of future generations. As noted earlier, other kinds of constraints – or commitment devices – are available. Such devices will not impose constitutional limitations on current or future legislatures, but they will help to constrain decisions in other ways or change the incentives facing policy makers: for example, by imposing new reporting obligations on government, by enhancing the quality of information on the likely long-term impacts of policy choices, by increasing the extent of advocacy on behalf of future generations, and, more generally, by enhancing the extent to which governments can be held politically accountable for decisions (or non-decisions) with major long-term impacts. Examples of such devices include:

- public agencies with 'guardianship-type' roles in relation to future generations;
- advisory bodies with responsibilities to promote sustainable development;
- parliamentary committees with specific duties to consider long-term issues;
- legislative requirements for governments to produce regular reports on their efforts to protect citizens' long-term interests (e.g. posterity impact statements); and
- incorporating specific requirements into domestic statutes: for instance, recent amendments to New Zealand's State Sector Act 1988 (section 32) impose specific 'stewardship' responsibilities on departmental chief executives.

None of these mechanisms, whether individually or in combination, represents a fully effective solution to the inter-temporal asymmetries evident in democratic processes. But, if well-designed, they have the potential to shift the balance in the direction of future interests, albeit modestly. There is space here for only a few brief comments on several of these measures.

Internationally, the best known examples of 'guardianship-type' bodies include the Commission for Future Generations in Israel (2001–06) and the Parliamentary Commissioner for Future Generations in Hungary (2007–). The former commission was mandated to review legislation and regulations with implications for future generations and to provide advice to the Knesset on all matters pertaining to future generations. It has since been abolished. The Hungarian commissioner is one of four parliamentary ombudsmen and is charged with safeguarding the constitutional right of citizens to a healthy environment, investigating citizens' complaints regarding environmental issues, advocating on behalf of long-term sustainability, and undertaking research on sustainability issues. Despite the benefit of these institutions in theory, their effectiveness in practice has proved to be limited. This is partly the result of funding constraints; but it is also attributable to their limited powers and a lack of constitutional protection, as witnessed by the abolition of the Israeli commission after only five years.

National initiatives of a slightly different nature, focusing instead on sustainable development, are another possibility. Examples include the British Sustainable Development Commission (which was abolished after a decade in 2011), the German Parliamentary Advisory Council on Sustainable Development, the Brazilian Commission on Environment and Sustainable Development, and the Welsh Commissioner for Sustainable Futures. The Welsh example is of particular interest because the government has a legal duty to promote sustainable development. Indeed, the government is in the process of enacting a Well-being of Future Generations (Wales) Bill, which the commissioner played an integral role in drafting (Welsh Government, 2014). The bill aims to embed the principle of sustainability at all levels of government, with the aim of ensuring that the present needs of citizens are met without compromising the ability of future citizens to meet their needs. It sets ambitious long-term goals, introduces national indicators for measuring well-being, establishes a Future Generations Commissioner to serve as an advocate for future generations, and requires the preparation of well-being plans across the local government sector. It will be interesting to observe how this legislation, once enacted and operative, alters decision-making processes and outcomes. Potentially, it may provide a feasible and effective model for other governments, whether national or sub-national, to adopt.

Currently, New Zealand has no public institution specifically responsible for future generations. Nevertheless, the Parliamentary Commissioner for the Environment, established in 1986, partly serves this function, at least in terms of environmental matters. The commissioner has investigative, advisory and auditing roles, with the broad aim of improving environmental governance (Gopel, 2011; Hawke, 1997). The mandate of the Parliamentary Commissioner for the Environment includes reviewing the effectiveness of environmental planning and management, as well as investigating issues where significant environmental impacts are likely. It has been suggested from time to time that the commissioner's responsibilities could be extended to include a general duty to promote and protect the interests of future generations. However, this would substantially broaden the role of the Office, and without a large increase in resources and capabilities could weaken its current mission.

Conclusion

Adequately protecting both the long-term interests of current citizens and the interests of future citizens is vitally important. At present, there are good reasons for doubting whether contemporary democratic institutions have sufficiently strong incentives to achieve this objective. That being the case, further reforms will be required to avoid policy decisions that are excessively biased in favour of the present. Somehow, the political voice representing future interests must be increased beyond a mere whisper, especially where there are risks of irreversible harm.

This article has outlined a range of possible responses, giving particular attention to the idea of incorporating additional protection for future generations in constitutional documents. We acknowledge that such an approach has limitations. For instance, while constitutional protections have the potential to reduce certain kinds of harm to future generations, they do not necessarily increase the incentives on policy makers to undertake the sorts of policy investments necessary to secure future benefits (e.g. via expenditure on public infrastructure, education or research). Hence, they are by no means sufficient. Further, we acknowledge that efforts to protect the interests (needs and/or rights) of future generations through constitutional mechanisms raise serious philosophical and legal issues. Nevertheless, they also provide a unique opportunity to effect change on a fundamental level and to shift the balance more in favour of longer-term considerations.

Standing back from the particulars, three matters need emphasis. First, the

… we acknowledge that efforts to protect the interests (needs and/or rights) of future generations through constitutional mechanisms raise serious philosophical and legal issues.

evidence suggests that if greater weight is to be given by democratic policy makers to the interests of future generations, action will be required on multiple fronts. In effect, a whole-of-government approach is needed, with initiatives at different governmental levels drawing on a range of institutional, regulatory and other policy tools. Second, there is no one 'correct' solution, nor any silver bullets. Responses must have due regard to the constitutional, political and cultural context of each jurisdiction and be designed accordingly. Finally, the challenge of inter-temporal governance is profoundly complex. Policy makers face deep uncertainty and complicated trade-offs. Hence, responses must be adaptive and experimental: we are in the realm of trial and error. But we must hope that our errors are neither too large nor too permanent in their effects.

1 See Oxford Martin Commission, 2013
2 Fuerth, 2012; Jacobs, 2011; Read, 2012; Thompson, 2005; Ward, 2011
3 IPCC, 2014
4 There is no suggestion that non-democratic regimes are any better than democracies at protecting the interests of future generations. Indeed, much of the available evidence, especially in relation to environmental sustainability and resource management, suggests that they are worse.
5 See, for instance, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 1975), African Convention on the Conservation of Nature and Natural Resources (1968), Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979), ASEAN Agreement on the Conservation of Nature and Natural Resources (1985), North American Agreement on Environmental Cooperation (1993), Antarctic Treaty (1959) and the United Nations Convention on the Law of the Sea (1982).
6 See, for instance, the Council of Europe Convention for the Protection of the Architectural Heritage of Europe (1985), Charter of Fundamental Rights of the European Union (2000), Vienna Declaration and Programme of Action, World Conference on Human Rights (1993), UNESCO Universal Declaration on Bioethics and Human Rights (2005), United Nations Declaration on the Rights of Indigenous Peoples (2007) and the UNESCO Universal Declaration on the Human Genome and Human Rights (1997).
7 Thomas Jefferson, Letter to Major J. Cartwright (5 June 1824).
8 For a discussion of the arguments for and against a written constitution, see Chen (2011).

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Philip S. Morrison

The Inequality Debate
the neglected role of residential sorting

'To seek "causes" of poverty … is to enter an intellectual dead end because poverty has no causes. Only prosperity has causes.'
(Jacobs, 1969, p.118, cited in Piachaud, 2002, p.1)

One of the curious features of recent writing on income inequality is the scant attention paid to the geography of inequality, to the spatial separation of rich and poor. While it is recognised that social capital can be enhanced by residential sorting into more homogeneous groups, there is longstanding concern that this same residential sorting may exacerbate existing inequality by inhibiting the social mobility of the poor (Turner and Fortuny, 2009).[1] The perspective I want to advance here differs from the standard 'neighbourhood effects' literature by focusing not on those living in poor neighbourhoods, but instead on the benefits residential sorting may yield for the rich – the way in which location decisions redistribute income to the upper end of the income distribution and hence further income (and wealth) inequality. The broader purpose is to suggest that the way we organise ourselves geographically may contribute to how unequal we are, as well as how more unequal we may become in the future.

What remains central in both the conventional 'neighbourhood effects' literature and in the perspective I advance here is the concept of externalities, or spillover effects: the unpriced consequences of the actions of proximate others. Externalities are particularly acute in urban settings because agglomeration builds on the advantages generated by

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positive externalities. At the same time, remarkably little attention has been paid to the possible influence the distribution of externalities has on the distribution of (real) incomes.[2] The neglect in the New Zealand case is surprising for at least two reasons. Firstly, there have been marked increases in income inequality in New Zealand since the 1970s, as the previous issue of *Policy Quarterly* has recounted. Secondly, repeated studies internationally have documented the way that rising income inequality has translated into increased levels of income segregation within the city.[3]

In the following discussion I refer to the relative lack of attention given to the spatial in recent writing on income inequality. I then turn to the geography of inequality in New Zealand, but instead of focusing on the geography of disadvantage I turn instead to the other end of the income distribution, to the geography of affluence.[4] I then illustrate with reference to one mechanism, the choice of schools. At the end of the article I point to a new world of micro data and geographic identifiers and enhanced data access which may facilitate future testing of a number of hypotheses.

The neglect of residential sorting

The voluminous literature on 'neighbourhood effects' has been driven primarily by concerns over poverty, but has received relatively little attention from those trying to understand income inequality. For example, in one of the best known attempts to address the consequences of inequality, *The Spirit Level*, the authors devote less than 1% of their volume to the fact that the rich and poor live in quite different locations (Wilkinson and Pickett, 2009).[5] A recent treatment of inequality in New Zealand also largely ignores the fact that we live in a spatially segmented society. While the editor of *Inequality: a New Zealand crisis* (Rashbrooke, 2013) began by recounting the geography of inequality in Wellington, the geography lesson ended as abruptly as it began, leaving each author in the collection recounting life in an aspatial world.

There are two persuasive reasons why the distributional implications of residential sorting have received little attention (both in New Zealand and overseas). The first is the lack of consistent evidence of negative consequences. Despite the presence of elegant theoretical models of residential sorting, most researchers have found it very difficult to assemble the econometric evidence demonstrating consistent causal links between sorting, income inequality and social mobility. As a recent review delicately put it, 'Despite the important policy implications and a large theoretical literature that assumes the existence of human capital externalities, the empirical literature on the magnitude of these externalities is still young' and it is 'still too early to draw definitive conclusions on the size' (Moretti, 2003).[6]

In one of the few longitudinal studies in which income growth over periods up to ten years was traced across the full range of neighbourhoods, its UK authors concluded that, far from 'otherwise-identical people living in different areas hav[ing] different prospects', we find 'no evidence of a negative relationship between neighbourhood and subsequent income growth' (Bolster et al., 2007, pp.1, 3). On the contrary, several studies point to the positive effects of the 'specialised neighbourhoods' that result from residential sorting, noting how social homogeneity facilitates communication and job-matching (Cheshire, 2007). Attention has also been drawn to the negative psychological effects of heightened income relativities present in mixed neighbourhoods (Luttmer, 2005).

Second, the experience with mixed neighbourhoods themselves has been disappointing: not only the lukewarm effects documented in the 'moving to opportunity' experiment (Ellen and Turner, 2003), but also the documented re-sorting that has taken place in projects specifically designed to cater for mixed income groups (Lupton and Fuller, 2009; Smith, 2002). There appear to be few well-documented benefits to either high or low income groups from attempts at income-mixing.

One of the reasons it has been so difficult to reverse residential sorting even at the scale of the neighbourhood is that in democratic societies the freedom to decide where to live, and hence who to live next to, is deeply engrained as a 'right', as freedom of choice. Free choice of residential location by those with the means forms an important part of the aspirational goals of New Zealanders, a majority of whom not only favour less (rather than more) redistribution of income, but do so to a higher degree today than people in most other comparable countries (Morrison, 2015).

> … when we observe those who are actually able to exercise choice, we find they place considerable weight on spatial proximity to others like themselves, as well as the associated wealth and educational opportunities that more affluent locations provide.

At the same time, when we observe those who are actually able to exercise choice, we find they place considerable weight on spatial proximity to others like themselves, as well as the associated wealth and educational opportunities that more affluent locations provide. In their revealed preference, high-income households believe sorting into successively higher-priced sections of the housing market will be to their financial benefit, that it will help support their relative social position, will enhance personal safety and bolster the chances that their children will continue to enjoy upward social mobility. By contrast, the poor rarely choose where they live. Sitting at the bottom of a rank-ordered distribution of neighbourhoods, any 'choice' is applied only to a residual set of leftovers discounted by higher household incomes or provided, in a small fraction of the housing stock, by the state.

In order to understand the distributional consequences of spatial sorting and the possible impact it might have on income inequality, we are, therefore, more likely to learn more by shifting our attention to the residential behaviour of higher-income households and to the net positive externalities they generate from their spatial sorting. I begin with the conventional geography of deprivation, and then address the contemporary geography of affluence.

The geography of deprivation

Degrees of Deprivation in New Zealand: an atlas of socio-economic difference gave New Zealanders their first real appreciation of areal deprivation in their country (Crampton, Salmond and Kirkpatrick, 2004; Crampton et al., 2000; White et al., 2008), as did similar publications in the UK and the US (Dorling and Rees, 2003; Glasmeier, 2006). However, the New Zealand atlas was assembled not to understand either the *process* of residential sorting itself nor its social *consequences*. Instead, it was designed to assist in the delivery of services to disadvantaged areas (White et al., 2008, p.14). By contrast, in the short section of *The Spirit Level* in which Wilkinson and Pickett address the presence of residential sorting they make two quite central assertions about the underlying processes which generate the uneven geography of income: first, the way in which 'greater social distances become translated into greater geographical segregation between rich and poor in more unequal societies', and second, the way that 'these processes [of residential segregation] feed back into further reductions in social mobility' (Wilkinson and Pickett, 2009, pp.162-3).[7] Their thesis, in other words, is that the more unequal the society, the greater the degree of spatial sorting by income and the more likely that sorting contributes to further income inequality.

The circular, cumulative intent of Wilkinson and Pickett's argument is persuasive. At its centre is the institution of private property and its ability to exclude. Property ownership enables the consumption of housing services at mutually-exclusive locations: my ownership and occupancy of space precludes yours (and vice versa). Few other forms of consumption are capable of such a high degree of exclusion; our cars share the road, much of our eating is done publicly, and a great deal of our recreation still takes place in public settings. It is this mutually-exclusive characteristic of housing consumption which makes housing and hence real estate particularly attractive to the rich, who exclude not simply because they can but because of the advantages they believe they will accrue as a result. In other words, the institution of private property allows those with choice to harvest a range of positive externalities to their exclusive benefit. The result is neighbourhoods with a more homogeneous local culture, higher-quality housing and superior amenities. Not only is their wealth enhanced, but ensures that local classrooms are inhabited by better-prepared students motivated by a shared set of values and behavioural norms, and taught in higher-quality facilities which can often attract superior teachers. As evidence, UK researchers found 'that higher levels of residential segregation do seem to encourage more unequal outcomes – but they do so primarily by boosting performance at the top end, while exerting a mildly positive influence also on achievements at the median level' (Gordon and Monastiriotis, 2006, pp.233-4). It is timely, therefore, to turn from the geography of deprivation to the geography of affluence.

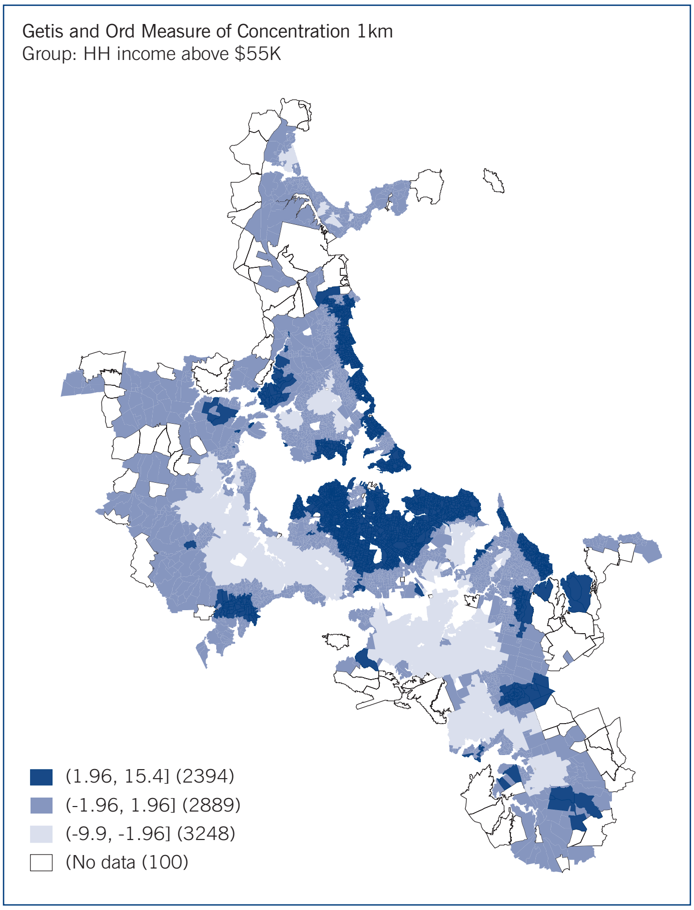
A more recent attempt to monitor spatial patterns of income concentration in New Zealand has drawn on records of individual households, under confidentiality, from the New Zealand census (1996, 2001 and 2006.

The geography of affluence

Today more than ever the affluent are locating in metropolitan areas. From a recently developed index we learn that over half of all affluent area units were located in Auckland, which is a much higher proportion than the third of the population housed there.[8] Well under a third of the affluent (28%) were located in Wellington, which is also higher than that city's share of the country's population.[9] Under 10% were located in Christchurch. 90% of all affluent areas, therefore, are located in one of the three main urban centres of New Zealand, which is much higher than the share of all the high deprivation deciles (NZDep10) area units located in the same cities.[10]

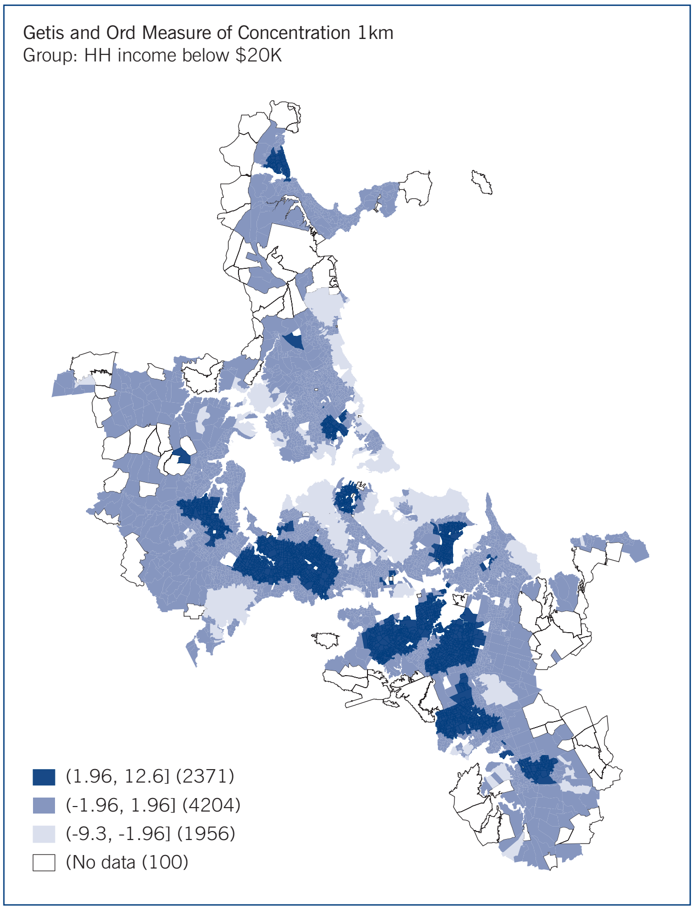
A more recent attempt to monitor spatial patterns of income concentration in New Zealand has drawn on records of individual households, under confidentiality, from the New Zealand census (1996, 2001 and 2006). Specifically, Maré et al. applied a statistical measure of spatial concentration (within one kilometre) to three household income groups (below $20,000, $20–55,000 and above $55,000) in Auckland (Maré, Coleman and Pinkerton, 2011). Figure 1 reproduces their map. The darker shading indicates the greater spatial concentration of the top third of the household income distribution in 2006.[11] As they observe, '[h]igh income earners and those in households with high equivalised household income displayed the greatest

Figure 1: Residential segregation in the Auckland urban area of the top third of household income distribution, 2006



Source: Mare et al., 2012, Figure 4, p.45

Figure 2: Residential segregation in the Auckland urban area by the bottom third of the household income distribution, 2006



Source: Mare et al., 2012, Figure 4, p.45

sorting, and the highest degree of spatial autocorrelation' (Maré et al., 2012).[12]

By contrast, Figure 2 maps the concentration of low-income households (the bottom third), which is almost the photographic negative of Figure 1, for it shows the relatively poor households concentrating in quite separate parts of the Auckland urban area. Taken overall, the spatial clustering is U-shaped in income, with the greatest spatial concentration being experienced by the relatively rich and relatively poor households.[13]

It is one thing to quantify the degree of residential sorting using spatial statistics, and quite another to identify its consequences in distributional terms. What we cannot tell from Figures 1 and 2, for example, is how *much* clustering benefits those at the top of the income distribution. I now turn to this question, using the spatial relationship between the housing and education markets as an example.

Identifying distributional consequences of residential sorting

The affluent concentrate spatially within cities to do more than exploit the advantages of homogeneity.[14] One of the main reasons is to gain access to higher-quality education through the local housing market. This has been increasingly possible since the New Zealand education 'market' was deregulated through the Tomorrow's Schools reforms of the late 1980s, which gave local parents first choice for schools within their zone, while also enabling them to look elsewhere if they preferred (McCulloch, 1991, p.160). This effectively allowed quality education to be purchased through the housing market. These developments motivated Hugh Lauder and David Hughes, who had been researching Christchurch schools, to suggest a 'more rigorous approach to zoning … in order to help equalize the "social class mix" of different schools, and hence to improve education and equity outcomes' (Lauder and Hughes, 1990).[15]

Several studies have now documented the impact of the education reforms on relative levels of access and the way the deregulation has allowed 'communities of wealth seek to maintain a quality of life' and 'clear systems of privilege' by controlling school district boundaries' (Thomson, 2010, p.421). Thomson's maps of schools with and without enrolment schemes (Figure 6, p.437) closely match Maré's Figure 1 above showing the concentration of affluence, and the juxtaposition serves as a reminder of the intimate relationship between wealth and control over enrolment into higher-decile schools.

Machin's recent review of the international evidence records a surprising degree of agreement over the effect proximity to higher performing schools has on housing prices: between 3 and 4% (Machin, 2011, Table 2, p.726). In a closer analysis of the Christchurch experience, Gibson and Boe-Gibson examine the relationship between school performance and house prices, showing that ‘a standard deviation increase in performance, as measured by pass rates in NCEA examinations, raises house prices by 6.4%, all else the same’ (Gibson and Boe-Gibson, 2014, p.18). This higher price threshold apparent in New Zealand is, they argue, a reflection of ‘special features of schools in New Zealand such as their ability to set their own attendance boundaries and the absence of locally-funded schools that aid sorting across communities’. Even though schools may nominally be ‘free’, students from poorer households face more restricted schooling opportunities than do wealthier students, being constrained through the housing market. (ibid.)

Research implications

The point made early on in this article was that almost all studies of the impact of geographic sorting on welfare have involved attempts to measure the negative effects of living in poor neighbourhoods. Not only did this vast body of research not produce results that were convincing in their own terms, but many may have underemphasised the positive impacts of so-called ‘specialised’ or economically homogenous neighbourhoods regardless of income.

The approach I have taken here is quite different. Instead of being motivated by understanding poverty, I have approached the geography as a possible contributor to understanding growing income inequality. The rise in income inequality over the last two decades or so has been primarily due to increasing inequality at the high-income end of the income distribution, and this is one of the reasons for looking more closely at the connection between geography and affluence.

How might we learn more? It is clear from recent examination of New Zealand work in the socio-economic sciences that we now have much greater access to data at the level of the individual, in large numbers and often, in the case of the population census, to all the enumerated population. These relatively new developments have been coupled with a much wider array of information on location, at a variety of scales which can be exploited via GIS technology. In addition, we now have a range of purposeful surveys that provide insight into behaviours we have not previously been able to document. Alesina and La Ferrara, for example, have demonstrated for the US an ability to combine the rich information on social connectivity and participation now collected through their country’s General Social Surveys with specific geographically identified neighbourhoods (Alesina and La Ferrara, 2000), a linking which has recently been replicated in New Zealand (Torshizian and Grimes, 2014). Similar linkages have been carried out in work at the University of Canterbury (Clark and Kim, 2012a) and in a study of home ownership (Roskruge et al., 2010), to name but a few. What these examples illustrate is that it is now technically possible to gain a policy-relevant understanding of the behaviour of particular groups as they relate to location. There is no reason why these data and the econometric methods used to analyse them should not be applied to the distributional issues raised in this article.

Conclusions

This article has addressed a paradox. On one hand researchers worldwide have found it extremely difficult to consistently identify the negative effects of living in poor neighbourhoods, over and above the personal difficulties faced by the residents who self-select into those neighbourhoods. On the other hand, neighbourhoods continue to matter immensely to those at the affluent end of the income spectrum. The revealed preference of high-income, high-wealth households for residing with others like themselves speaks to the substantial net benefits they expect to accrue from such decisions. There is every reason to expect that these geographic advantages, such as access to better schools and highly appreciating housing sub-markets, end up moving many households further up the income distribution and thereby contributing to greater inequality.

There is every reason to expect that these geographic advantages, such as access to better schools and highly appreciating housing sub-markets, end up moving many households further up the income distribution and thereby contributing to greater inequality.

1 The classic studies advancing this view (in the US) are summarised in Kremer’s introduction to his interrogation of the empirical evidence (Kremer, 1997). Kremer himself argues for minimal distributional implications of residential sorting based on narrow assumptions. However, once a wider set of behavioural implications of socio-economic positioning is recognised (the relationship between education and fertility for example), much stronger negative distributional and social mobility consequences of residential sorting emerge (Fernandez and Rogerson, 2001).

2 Treasury undertook some exploratory work along these lines in the early 2000s with a New Zealand-wide focus (Treasury, 2001a, 2001b, 2001c). Epidemiologists have explored spatial variations in health on several occasions, often concluding that neighbourhood deprivation plays a role (Blakely et al., 2003). By contrast, economists have only recently become interested in spatial variations in socio-economic conditions (Maré, Mawson and Timmins, 2001). Geographers have written on segregation for decades, but have tended to be more concerned with patterns than policy (Johnston, Poulsen and Forrest, 2005), as have sociologists (Grbic, Ishizawa and Crothers, 2010). What is salient about this literature in general is its disciplinary fragmentation. With some notable exceptions, authors from different disciplines rarely speak to each other, which makes it particularly difficult for policy analysts to assemble a coherent account of residential sorting and its possible consequences.

3 This argument is well documented, especially in new settler countries, including the US (Jargowsky, 1996, 1997), Canada (Hulchanski, 2007; Myles and Picot, 2000; Ross et al., 2004) and Australia (Hunter and Gregory, 1996; Hunter, 2003).

4 The spatial argument I advance parallels the aggregate historical argument (Piketty, 2014) in locating a major cause of increasing income inequality at the top end of the income distribution.

5 Only two of 331 pages of *The Spirit Level* are devoted to the geography of inequality and just over two pages to geographic segregation (Wilkinson and Pickett, 2009, pp.162-3).

6 Several other reviews come to similar conclusions (Durlauf, 2004; Slater, 2013)

7 In support of both points, they draw on UK research in the

early 2000s (Dorling and Rees, 2003) and on late 1990s research in the USA (Jargowsky, 1996) as well as the highly influential work of William Julius Wilson (Wilson, 1987). They also draw on the links other authors make between income inequality, residential segregation and its consequences (Lobmayer and Wilkinson, 2002; Mayer, 2001; Waitzman and Smith, 1998).

8 In an extension of his earlier spatial decomposition of income inequality (Martin, 1997), Barry Martin developed an 'affluence index', in which each of Statistics New Zealand's area units is characterised by the proportion of households with high income, income from investments, business or rents, or a household member having high qualifications or a managerial or professional occupation: http://popbytes.co.nz/. The affluence index uses households, as opposed to the deprivation index which uses spatial aggregates of individuals. Each census area unit is assigned an average composite score based on these four attributes and those in the top 10% of the 1800 area units, with the highest scores (the tenth decile), are deemed affluent. The scores are computed for the 13-year period covered by the 2001–13 censuses (Martin, 2008).

9 Such evidence is now common in many countries, as Moretti's discussion of recent trends in the geographic distribution of human capital across cities shows (Moretti, 2003). Several New Zealand scholars have also drawn attention to this concentraton of the rich in metropolitan New Zealand (Alimi, Maré and Poot, 2013; Karagedikli, Maré and Poot, 2000; Market Economics Ltd, 2011). There is corresponding concern that regional policies being developed in New Zealand are unlikely to address 'the challenges of what seems to be growing regional inequality', for 'a significant loss is taking place in demographic terms across more than a third of the country's non-city local areas' (Nel, 2015, pp.12-15).

10 The distribution of high-deprivation areas in New Zealand is not the distribution of highly deprived individuals. The same is true of the affluent. In both cases the NZDep index is a measure of the area, not any given individual.

11 The purpose of the Getis G* statistic mapped in Figures 1 and 2 is to test whether a particular location and its surrounding areas (meshblocks in this instance) constitute a cluster of higher (or lower) than average values on the variable of interest, household income in this case (Rogerson, 2001, p.174).

12 Detailed results of spatial clustering for the three income groups, both personal and household incomes, are reported in their Table 2 and 3 for the Auckland urban area as a whole (global measures of concentration), as well as locally in shorter distance measures. They find that '[s]egregation was somewhat stronger for residents at the upper end of the [education …] qualification and personal and household income distributions than for low income residents and those with no qualifications'. In an earlier paper they also found that 'high-income immigrants are more clustered than immigrants generally' (Pinkerton, Maré and Poot, 2011).

13 When household income is used there are actually two levels of sorting that take place, sorting into households (one- and two-person households, for example) and the sorting of households across neighbourhoods. These two levels of sorting are closely related (Callister, 2001; Russell et al., 2004). There is therefore some division in the literature over the degree to which it is appropriate to model residential sorting on the basis of individuals or households. As the Maré et al. paper notes, 'focusing on individuals is a common approach in studies of residential location' (Maré et al., 2012, p.33; Cutler and Glaeser, 1997; Reardon et al., 2008), but comparable studies based on the household reflect the relevance of household decision-making for location choice (Bayer and McMillan, 2012; Iceland et al., 2010; Jargowsky and Kim, 2005). In the Motu work, 'Household income was estimated by aggregating incomes within a dwelling and adjusting for the number of people, and was equivalised by dividing total household income by the square root of the number of individuals' (Maré et al., 2012, p.32). The modelling of residential sorting by characteristic was done on the basis of individuals with household income treated as a (shared) characteristic of individuals within a household (ibid, p.33).

14 Recent New Zealand examples illustrate the positive effects of homogeneity on social capital formation, in terms of volunteering (Clark and Kim, 2012b) and contributions to local schools (Armstrong and Clark, 2013).

15 That different levels of access prevail when it comes to purchasing point-of-sale services such as education and health is well recognised by government, which has for many years funded programmes designed to compensate the poor living in specific locations for their lack of market-place demand in both health and education.

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