

EcoNZ@Otago

A MAGAZINE ABOUT CONTEMPORARY ECONOMIC ISSUES FOR EVERYONE

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FROM THE EDITORS

We begin this issue with the winning entry for the 2016 *EcoNZ@Otago* Essay Competition – about “Dirty dairying and rising water scarcity in New Zealand”. Congratulations to Thomas Benison of Takapuna Grammar School! The two runners-up are announced after Thomas’s essay.

This issue also includes two articles that help us to think about different aspects of economic development: one considers linkages between infrastructure and economic development, and the other discusses recent research into charitable fundraising for developing countries. Another article tests the hypothesis that retirees shop harder for bargains and hence pay lower prices for identical products than the rest of us. This issue also reports on three Otago researchers who won an Ig Nobel Prize for investigating the personalities of rocks! We conclude with Alan King’s regular commentary on the NZ economy

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ALSO IN THIS ISSUE

- Infrastructure: A dead end or a way to prosperity?, by Murat Üngör
- Otago researchers win the 2016 Economics Ig Nobel Prize!, by Shelagh Ferguson
- To emphasise the problem or the solution, that is the question!, by Stephen Knowles
- Is older age an endless bargain? Consumption, age and prices in New Zealand supermarkets, by Angus Milne and Andrew Coleman
- Commentary on the New Zealand economy, by Alan King

2016 ECONZ@OTAGO SECONDARY SCHOOL ESSAY COMPETITION

Dirty dairying and rising water scarcity in New Zealand

TOPIC: In 1500 words or less, explain how economists think about the problems caused by intensive dairy farming practices that lead to water pollution from cattle effluent in streams and rivers. What should be done about these problems?

WINNER: **Thomas Benison**
Takapuna Grammar School



Rivers, streams and freshwater sources are all very important for our economy, the lives of many wildlife species and also for the people in our society. Rivers and streams are rich environments for native plants, fish and insects. Nearly 40 native species of fish live in our fresh waters. Rivers and streams are especially crucial for us humans as they are important sources of water for irrigation and industry.

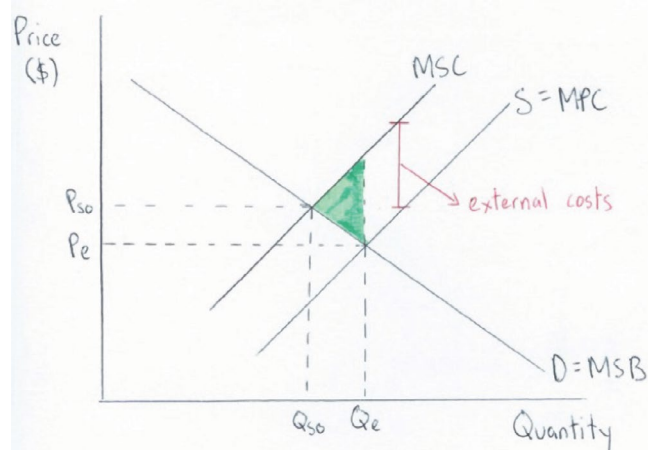
Whether used for swimming, fishing, kayaking or wharf jumping, rivers and streams hold some place in all our hearts. So when intensive dairy farming threatens to take that away by polluting water with cattle effluent, it creates a big undesirable problem.

The increase in production of the dairy sector heightens the amount of unusable water and also makes it more scarce. This is a classic example of a negative externality of production, which arises from the 'Tragedy of the Commons'. This leads to there being missing markets in the economy; however, government policies can be put into place to solve this issue. These policies need to be both efficient and equitable, which is sometimes not easy to achieve.

NEGATIVE EXTERNALITIES

A negative externality of production arises when producing a good or service creates spillover costs on a third party who is not otherwise directly involved. In the present context, dairy production creates a spillover unwanted cost on society and wildlife by polluting rivers and streams with cattle effluent. This makes water more scarce, harms wildlife and animals, and the waters will no longer be usable for recreation. The effluent contributes to sickness if humans are unaware that the water they are swimming in is polluted. Figure 1 helps explain this externality further.

Figure 1: The market for dairy products with negative externalities



When cattle pollute water and farmers choose not to 'internalise' the external costs (i.e. pay these costs themselves), there is a bigger cost on society than just on the farmers. The graph shows how the marginal social cost (MSC) is greater, by the amount equal to the external costs, than the marginal private cost (MPC) – in this situation, ignoring all other factors, the demand for dairy products equals the marginal social benefit. This is because people lose the freedom of swimming in streams and eventually someone has to pay for cleaning them. The MSC and MSB (marginal social benefit) curves intersect to show the socially-optimal level of output (Q_{so}) and price (P_{so}). These socially-optimal levels are desirable because they internalise the external costs caused by negative externalities.

However, as represented by the MPC and MSB curves in Figure 1, the equilibrium price (P_e) is lower and the equilibrium quantity supplied (Q_e) is higher than desirable. Thus, too many dairy products are being produced and resources are being over-allocated towards the dairy sector, which is creating the external costs. This over-production results in a loss in total welfare, represented by the green triangle.

The reduction in clean streams and rivers due to the amount of pollution being dumped into them is a strong indicator that dairy production is too high (mostly for export). Despite being worth \$10 billion and accounting for nearly 3% of New Zealand's GDP, dairying is imposing high external costs on the rest of society. These external costs constitute a market failure, as allocative efficiency is not achieved and resources are mis-allocated.

So how does this problem arise so easily? As "gifts of nature" with no private owners, rivers and streams are a common (or open) access resource with no automatic mechanisms for preventing their over-use for absorbing cattle effluent. This exploitive opportunity that, clearly, the dairy sector is abusing is known, generally, as the Tragedy of the Commons.

TRAGICALLY COMMON

The Tragedy of the Commons arises when a resource is not privately owned – instead it is owned 'in common' (i.e. 'the commons') by everyone – and so there is an incentive for people to use the resource as much as possible, in order to extract as much benefit as possible before others beat them to it. In the present context, a river's ability to absorb effluent, with or without a farmer's knowledge of this happening, makes it a common-property, or open-access, resource and therefore rivers ('the commons') end up being over-exploited and polluted ('the tragedy').

Because waterways are free for dairy farmers to use, the profits from dairy production incentivise farmers to use rivers as much as they like, which often over-rides more ethical behaviour associated with protecting and conserving rivers. Thus, the Tragedy of the Commons arises – even as we as a nation strive for cleaner rivers but are able to do relatively little about it.

MISSING IN ACTION

Another market-failure issue relates to the concept of missing markets. Negative externalities associated with pollution serve to prevent goods or services that depend on streams and rivers from being produced, thereby destroying the associated market from arising, even when there is demand for the product. River pollution reduces the quantity of fish that are caught and sold, so fishermen lose revenue and are unable to provide fish, or they may not be able to earn a decent living, so they may decide to stop fishing altogether, causing the market for that particular fish to disappear.

Nowadays, New Zealand's GDP is slowly transitioning from the dairy sector to tourism; and so our government should not be hesitant in placing strict policies on dairy farmers. There are many ways, both theoretical and practical, that can be used to solve this issue or at least subdue it. Since this situation has gotten to an extreme level, government control and oversight is definitely required as it is too big of a job for individuals to do on their own.

Regulation is the best solution, as taxes would only decrease the quantity of production and increase prices, and not actually stop cattle effluent from entering rivers. Regulation should be in a form that keeps cattle away from waterways so that they don't get a chance to pollute. Cattle don't need access to rivers, as they can drink from other places.

GOOD FENCES MAKE CLEAN NEIGHBOURS

One obvious approach would be to fence off waterways to keep cattle away. Cheap fencing can be put up which would be both effective and should not significantly increase farmers' costs of production. Hence they could keep producing at virtually the same level and no effluent should be able to enter streams.

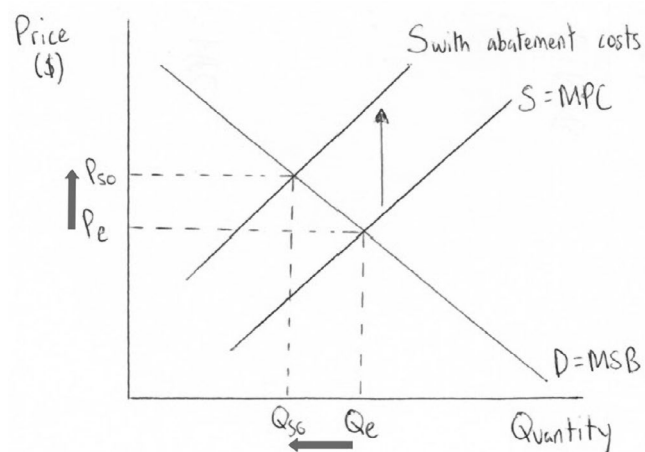
The advantages of this approach are that consumers would not face higher prices for dairy products, producers would be able to easily cover their increased costs without any serious damage to their business, and the government would not have to spend large amounts of money (as farmers would be internalising the external costs themselves). This policy would work in the short-run but if government oversight is not consistent, in the long-run fences may deteriorate and dairy farmers may stop following the rules and return to their old polluting ways.

GREEN SOLUTION

Instead of relying on fences alone, a better approach is to plant trees, shrubs and flax beside rivers and streams. As well as providing cover and shade, such planting would slow the growth of aquatic plants and, most importantly, acts as a filter for cattle effluent. The government and many councils are encouraging farmers and locals to do this in order to clean-up the water, but it is not enough. It could take some time at the rate that it's going.

What should be done is a huge effort to increase dairy farmers' incentives – or by making it mandatory – to plant trees and shrubs beside their nearby rivers, which presumably they are polluting. A policy could be introduced that sets a minimum quantity of trees required for each square metre of water. If done efficiently, not only would this help clean-up rivers, but it would increase the costs of dairy production for farmers, which would be met with a decrease in the quantity of dairy production to a more socially-optimal level. Figure 2 shows how these abatement costs for the farmers would shift the MPC (marginal private cost) curve.

Figure 2: The market for dairy products with abatement costs



There are some potential drawbacks to this tree-planting approach though. It would be unfair to farmers who have lots of water in their land, as they would have to pay more to clean up the water. Also the trees and flax, if not already fully grown, would take time to establish and yield results. If done properly, this policy could be very effective in the long-run and the government would have to decide if it is worth the wait and risk, or if something else needs to be done in the meantime.

CONCLUSION

Dirty dairying and rising water scarcity is becoming a huge problem in New Zealand that needs to be tackled before it's too late. Negative externalities, an example of the Tragedy of the Commons and missing markets, can be ameliorated if effective policies are put in place. The government needs to decide if the issue needs to be solved immediately or whether it is better to take a longer-term approach.

Here in this small country of ours where we have more cattle than people, we are reliant on the countless streams and rivers for both business and personal pleasures, especially in the hot summer. It would be a shame if this was taken away from us.

CONGRATULATIONS!

The winner of the 2016 *EcoNZ@Otago* Secondary School Essay Competition, Thomas Benison, received a \$300 gift certificate (book voucher, iTunes card, or mix of the two) for himself personally and \$200 in book vouchers for his school, Takapuna Grammar School.

The first and second runners-up were Yunhao Wu (Auckland International College) and Cloe Barbera (Takapuna Grammar School). They each received a \$150 gift certificate for themselves personally and \$100 in book vouchers for their schools.

As well as the three people above, thank you to all the participants in the competition. Thanks also to the competition judges from the Department of Economics at the University of Otago.

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Infrastructure: A dead end or a way to prosperity?

Murat Üngör

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Source: latimes.com

Donald Trump has become the 45th president of the United States. President-elect Donald Trump delivered his acceptance speech on 9 November 2016 in New York City in the presence of his family and vice president-elect Mike Pence. He spoke to a crowd of his supporters after his election victory over Hillary Clinton:

We are going to fix our inner cities and rebuild our highways, bridges, tunnels, airports, schools, hospitals. We're going to rebuild our infrastructure, which will become, by the way, second to none. And we will put millions of our people to work as we rebuild it.

HOW'S TRUMP GOING TO MAKE AMERICA GREAT AGAIN?

President Trump proposes spending a trillion dollars on infrastructure over the next ten years to achieve his pro-growth, pro-jobs plans.

President Trump's rhetoric isn't empty. The US economy is expected to lose \$4 trillion in GDP and 2.5 million jobs by 2025 due to infrastructure deficiencies, according to the latest Failure to Act¹ report by the American Society of Civil Engineers (ASCE).

Every four years, the ASCE assesses America's major infrastructure categories in ASCE's *Report Card for America's Infrastructure*, which grades the current state of national infrastructure categories on a scale of A through F. Table 1 shows infrastructure grades for 2013, evaluated on the basis of capacity, condition, funding, future need, operation and maintenance, public safety, resilience, and innovation. Since 1998, the grades have been mostly fails, averaging only D, due to delayed maintenance and under-investment. Roads, water and wastewater systems in the US are clearly aging, and investment is not keeping up with need.²

Table 1: Infrastructure grades for the United States for 2013

Category	Grade	Category	Grade
Aviation	D	Ports	C
Bridges	C+	Public Parks & Recreation	C-
Dams	D	Rail	C+
Drinking Water	D	Roads	D
Energy	D+	Schools	D
Hazardous Waste	D	Solid Waste	B-
Inland Waterways	D-	Transit	D
Levees	D-	Wastewater	D

A: Exceptional, B: Good, C: Mediocre, D: Poor, F: Failing

Source: infrastructurereportcard.org

WHAT DID PRESIDENT OBAMA ACHIEVE?

The Obama Administration took steps to enhance infrastructure investment, as real private investment per capita declined more than 20% during the 2007-9 recession. In February 2009, in response to significant weakness in the economy, the American Recovery and Reinvestment Act of 2009 (ARRA) was signed into law by President Obama, with the goal of stimulating domestic economic activity.

Public spending on infrastructure projects was a major component of this stimulus package and "investing in transportation, environmental protection, and other infrastructure that will provide long-term economic benefits" was stated as one of the purposes of

1. infrastructurereportcard.org/wp-content/

2. Prescott and Ohanian (2016) note that there were significant transportation and water infrastructure investments made in California in the 1960s. However, those investments are not being adequately maintained nor expanded.

the ARRA. Many infrastructure projects were accompanied by signs bearing the slogan "Putting America to Work."

Finally, on December 4, 2015, President Obama signed the Fixing America's Surface Transportation (FAST) Act.³ FAST authorised more than \$300 billion in spending on highways, transit, rail, and safety over the next five years (CEA, 2016).

BUT WILL IT WORK?

There are several sceptics among economists who question whether infrastructure spending will lift the US economy.

For example, Cochrane (2016) argues that modern infrastructure is built by machines and the accelerated automation of tasks will make (less-skilled) labour redundant. According to Cochrane, "a freeway in California will do little to help employment of a high school dropout in New York, or a middle-aged mortgage broker in New Jersey."

Another sceptic is Harvard professor Ed Glaeser. Glaeser (2016) discusses the myths and realities about America's infrastructure spending and argues that (transportation) infrastructure is not a useful tool against unemployment during temporary economic downturns.

In support of Glaeser, Garin (2016) studies the ARRA's local employment effects using new geographically detailed data on highway construction projects funded by the ARRA. Garin's estimates show that highway projects had essentially zero effect on local employment, and so he concludes that infrastructure construction is not effective for stimulating local labour markets (at least in the short-run).⁴



Source: mikeettner.com

Lawrence Summers, who was Director of the National Economic Council for President Obama for 2009-10, does not support Trump's infrastructure spending policies. Summers (2016), in principle, believes that enhancing infrastructure investment in the public and private sectors should be a fiscal policy priority. His main concern is that total private sector participation à la tax credits will exclude infrastructure investments that do not generate commercial returns (such as upgrading schools and modernising air traffic control systems).

IS INFRASTRUCTURE A CURE FOR SLOW GROWTH?

In most advanced and emerging market countries, there is a substantial need for investments, especially in infrastructure which includes transport (e.g. roads, railways, maritime and air), water, sanitation, energy, waste disposal networks, housing, schools, hospitals, libraries and information and communication technologies. Any economic activity, one way or another, relies on infrastructure in some form or other. That's why economists view infrastructure as an important ingredient for productivity and growth.

What are the macroeconomic effects of public investment? How big is the contribution of infrastructure to aggregate economic performance? How do the future economic returns compare with the costs of infrastructure? Answers to such questions are critical for many policy decisions. Empirical estimates of the magnitude of infrastructure's contribution are characterised by considerable variation across studies.

Inspired by the contributions of Aschauer (1989),⁵ there is now a substantial literature that estimates the long-term elasticity of output to public capital – i.e., the percentage change in output that results from a one-percent increase in public capital.⁶

Recently, Núñez-Serrano and Velázquez (2016) reviewed and synthesised the results of many previous studies, with the aim of obtaining more accurate and statistically-robust general conclusions. Their findings highlight the positive and important effect of public investment on productivity and economic development. Infrastructure complements a wide variety of private investments, and the provision of infrastructure services is an important contributor to welfare provision and therefore development outcomes.

There has been a massive investment gap in infrastructure across countries. For example, a detailed study published by the McKinsey Global Institute (MGI) in 2013 estimates \$57 trillion in infrastructure investment will be required between now and 2030 – simply to keep up with projected global GDP growth.

Infrastructure investments in Sub-Saharan Africa (SSA) are especially urgent, where millions of people still have no electricity connection or access to safe water sources, and many road networks remain unpaved in the region. On just about every measure of infrastructure coverage, SSA countries lag behind their peers in the developing world. Relatively poor infrastructure conditions and deficiencies in the availability of infrastructure are impediments to long-term development in the region.

Many African countries have made large investments in electricity generation since 2000, such as building large-scale hydropower plants. Fried and Lagakos (2017) study the effects of increases in grid electricity on economic growth in six of the most populous SSA countries: the Democratic Republic of the Congo, Ethiopia, Kenya, Nigeria, Sudan and Tanzania. The authors find that, on average, around one-third of growth in GDP per capita in these countries since 2000 can be attributed to energy investments.

REVIVING FISCAL POLICY

Economic policy matters. Monetary policy and fiscal policy are the two most widely recognised policies for influencing a nation's economic activity. A government's choice of spending and taxes is known as fiscal policy, whereas actions taken by the central banks

3. fhwa.dot.gov/fastact

4. Several interesting studies are available regarding the effects of such spending programmes on national economies. For example, Leduc and Wilson (2014) review the findings for the US and other developed economies and compare the effects of transportation spending to those of other types of government spending.

5. Aschauer's (1989) findings imply that US public capital investment has been an important factor in influencing historical growth in US economic output.

6. Calderón et al. (2015) find that the long-run output elasticity of infrastructure does not seem to vary with countries' level of per capita income, their infrastructure endowment or the size of their population.

(such as the Reserve Bank of New Zealand) to influence interest rates are known as monetary policy. It's important to get the right combination of the two policies at a given time – i.e. the monetary-fiscal policy mix.

Fiscal policy is again in the spotlight in policy discussions globally, although high public debt acts as a major handbrake on the use of fiscal policy in some countries. A particular reason for increased fiscal space⁷ is the constraints on monetary policy, mostly coming from historically low interest rates. For example, in the aftermath of the financial crisis of 2007-8, the Fed (the US central bank) decreased the federal funds rate (short-term nominal interest rate) from 5% in mid-2007 to 0-0.25% by the end of 2008, when it hit the zero lower bound.⁸

In a speech, on 21 November 2016, at the Council on Foreign Relations in New York, Stanley Fischer, vice-chairman of the Federal Reserve Board, said “certain fiscal policies, particularly those that increase productivity, can increase the potential of the economy and help confront some of our longer-term economic challenges.”⁹

Closing investment gaps requires large amounts of financing.

In this regard, countries with fiscal space should mobilise public resources to boost infrastructure investments, without jeopardising medium-term fiscal frameworks. Countries without fiscal space should find ways to mobilise private sources to finance infrastructure investments. In all cases, central governments should take necessary measures to create an enabling environment and encourage private sector participation.

Fiscal reforms can affect growth through several transmission channels, such as investment in physical and human capital and productivity enhancements. A key research issue is the size of fiscal multipliers – i.e., the effect on overall economic activity of government spending, measured as the ratio comprising the dollar change in economic activity caused by a \$1 change in government spending.

For example, if a \$1 increase in government spending leads to a \$2 increase in GDP, then the fiscal multiplier is 2 for that economy. There is no theoretical and empirical consensus about the magnitude of fiscal multipliers,¹⁰ and so policy-makers should bear in mind that they can vary across countries.



Source: aiib.org

THE ASIAN INFRASTRUCTURE INVESTMENT BANK

Understanding the impact of large-scale infrastructure projects has become the focus of public and policy-related discussions around the world. Recently, the new Asian Infrastructure Investment Bank (AIIB) is attracting the world's attention. China sought to establish the Bank in October 2013 with the aim of providing finance for infrastructure investments in the Asia-Pacific region, where millions of people live on less than \$2 dollars a day each.

Several European and Asian countries have declared their intention to become members of the Bank, and its 1st Annual Meeting of the Board of Governors was held in Beijing in June 2016. The AIIB's first four loans totalled more than \$500 million for power, transport and urban investments in Bangladesh, Indonesia, Pakistan and Tajikistan.

It is plausible to expect that the AIIB will offer incentives for the private sector to create good jobs, increasing opportunities for the poorest people in the Asia-Pacific region. Infrastructure projects such as electricity generation, gas, railroads, highways and irrigation will be sources of growth and jobs and likely to reduce poverty in the next few decades.

Asian countries have enormous infrastructure financing needs because of poor roads and airports, aging electricity grids and inadequate water distribution. Nobel laureate Joseph Stiglitz argues that the AIIB will meet Asia's infrastructure needs, which will complement the capacity of today's institutional arrangements to finance.¹¹ There are several projects to be funded by the AIIB, some of which will be co-financed with the World Bank, the Asian Development Bank and the European Bank for Reconstruction and Development.

OPPORTUNITIES AND CHALLENGES FOR NZ

Global growth is still far from being strong and unemployment is still a big problem around the world. According to the IMF's *World Economic Outlook (October 2016 update)*, global growth is projected to slow to 3.1% in 2016 before recovering to 3.4% in 2017.¹² A moderate recovery continues, but with uneven prospects across countries and regions. A pick-up in growth and employment has been observed in some advanced economies; however, the recovery in the Euro area and Japan remains weak.

7. Heller (2005) defines fiscal space as “room in a government's budget that allows it to provide resources for a desired purpose without jeopardising the sustainability of its financial position or the stability of the economy.”

8. The interest rate cannot go below zero, a constraint known as the zero lower bound.

9. federalreserve.gov/newsevents/speech/fischer20161121a.htm

10. See Christiano et al., 2011; Woodford, 2011; Auerbach and Gorodnichenko, 2012 and the references therein.

11. theguardian.com/business/2015/apr/14/in-defence-of-the-asian-infrastructure-investment-bank

12. imf.org/external/pubs/ft/weo/2016/02

It is often argued that New Zealand's economic future lies in Asia. NZ was the first developed western nation to join negotiations to establish the AIIB. The AIIB will provide opportunities for NZ firms to participate in the Bank's projects in the near future. Concomitantly, the AIIB may provide opportunities to revisit the infrastructure spending plans of NZ. The government plans to spend approximately \$110 billion on infrastructure, according to the *Thirty Year New Zealand Infrastructure Plan 2015*.¹³ Natural disasters such as the 2011 Christchurch earthquake and the 2016 Kaikoura earthquake exposed weaknesses in NZ's infrastructure.

SOMETHING ROTTEN IN THE PROVINCE OF OTAGO

Maintenance of existing assets deserves at least as high a priority as the acquisition of new ones. For example, thousands of rotting power poles are due for replacement in Alexandra, Cromwell, Frankton, Queenstown, Wanaka and Dunedin.¹⁴ Ageing infrastructure and a backlog of renewals are among the major infrastructure challenges NZ faces.

Many people of Dunedin would agree with this view. This challenge is reported in the *2015/16 – 2024/25 Long Term Plan* of the Dunedin City Council:

*Much of the infrastructure used to deliver water, wastewater and stormwater services in the city has a long life, with parts of it dating back to the 19th century. But the nature of Dunedin's growth over time, with periods of rapid growth, led to large quantities of infrastructure being built at the same time. This means they will require renewal at about the same time, creating peaks in costs for renewals.*¹⁵

A re-think and an upgrade of infrastructure will be important considering the significance of Dunedin for the wider Otago region.



Rotting power poles in Otago.

Source: radionz.co.nz, Photo: RNZ / Ian Telfer

QUESTIONS TO CONSIDER

1. How big is the contribution of infrastructure to national income?
2. What policies and institutions are needed to sustain infrastructure investments?
3. To what extent do infrastructure investments have a significant impact on economic development?
4. Will New Zealand's membership of the Asian Infrastructure Investment Bank enhance economic, trade, and investment links with the Asian region?

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Otago researchers win the 2016 Economics Ig Nobel Prize!

Shelagh Ferguson

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In September 2016, three researchers from the Otago Business School won the Economics Ig Nobel Prize for, according to their citation, "assessing the perceived personalities of rocks, from a sales and marketing perspective."¹ Winners Mark Avis and Sarah Forbes graduated with their PhDs from Otago's Department of Marketing, and Shelagh Ferguson is a Senior Lecturer there.



"The Stinker", the official mascot of the Ig Nobel Prizes.

FIRST LAUGH, THEN THINK

A parody of the Nobel Prizes, the Ig Nobel Prizes are awarded each year (since 1991) for research "that first make people **laugh**, and then makes them **think**. The prizes are intended to celebrate the unusual, honor the imaginative – and spur people's interest in science, medicine, and technology." (Improbable Research, 2017).

In their prize-winning article, Mark Avis and colleagues investigated a marketing concept known as "brand personality", or the set of human characteristics associated with brands, such as, for example, youth, intelligence and sophistication. The researchers studied the concept by showing pictures of rocks – yes, rocks! – to 225 New Zealand students and asking them to describe each rock's personality.

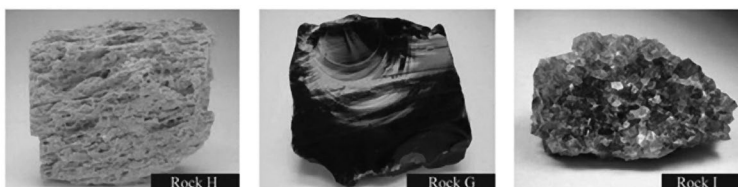
ROCKS IN THEIR HEADS?

If the premise underpinning the research sounds silly, it's because it is! Ridiculous!

The researchers deliberately set out to show the ludicrousness of a 'Brand Personality' measure, which is based on an idea called the Brand Personality Five-Factor Model (BPFFM) (Aaker, 1997). Perhaps, they reasoned, rather than *measuring* pre-existing Brand Personality perceptions, the BPFFM **creates** perceptions of personality.

In other words, just because people are able to attribute human-like personality traits to brands (or rocks!), it does not necessarily mean that people actually think about brands this way. Testing the theory on rocks – not usually known for having personalities – and finding that people can describe rocks' personalities using the BPFFM would undermine the model's theoretical foundations.

Thus, the study participants were asked to describe each of the three rocks displayed below according to the 42 traits, 15 facets and five factors available in the BPFFM framework.



FOOL'S GOLD

Rock H, was variously described by the study participants as, for example, "modest", a "farm mechanic", "down-to-earth" and "perhaps living on the Otago Peninsula and keeping chickens".

Rock G was described as "a big New York type businessman, rich, smooth, maybe a little shady" and "carries a black brief case, slick hair, quick thinker and quicker talker. Not a good dude though."

Rock I was described by one student as "a gypsy or a traveller, a hippie", and by another as "liberal, attractive and female, I saw a young person, maybe mid-30s, who was very attractive when she was younger/possibly a model. Has her own way of thinking, with a somewhat grounded confidence, enjoys organic food."

CHIPPING AWAY AT THE THEORY

The research findings serve to challenge the validity of the BPFFM, as well as to raise questions about the current conceptualisation of Brand Personality. Such models and concepts should be used with care!

QUESTIONS TO CONSIDER

1. How would you describe the three rocks above in terms of their personalities?
2. If you had not been asked to consider the rocks in terms of personality would you in an everyday situation attribute personality traits to rocks?

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1. For their article, see Avis et al. (2014).

To emphasise the problem or the solution, that is the question!

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Both in New Zealand and internationally a number of charities focusing on international development – e.g. World Vision, Save the Children, Oxfam – raise money for projects intended to improve the quality of life of poor people living in developing countries. Such charities have become increasingly reluctant in their marketing campaigns to emphasise the suffering of the people they aim to help. Critics of charities who continue to emphasise the suffering of the poor claim that such advertising stereotypes people living in developing countries as “miserable, passive and helpless” (Vossen et al., 2016).

LESS MONEY TO GO AROUND?

Reducing emphasis on human suffering in developing countries raises a couple of practical questions. First, will this reduce donations? If so, this obviously means less money available for the charity's work. Second, if charities emphasise the benefits of donating, and want to maximise donations, should they focus on the benefits to the recipients (the people in developing countries the funds will ultimately help) or to the donor?

It might seem surprising that there can be benefits to someone who gives money, but it is well documented by both psychologists and economists that giving money can make the donor happier, either because they care about the welfare of the recipient, or because they simply feel good as a result of donating (i.e. they enjoy a “warm glow” from giving). This article discusses two recent studies conducted by researchers at the University of Otago and the University of Canterbury which seek to shed light on these two questions.

ARE UNIVERSITY STUDENTS LIKE EVERYONE ELSE?

Both studies used laboratory experiments, with university students at either Otago or Canterbury as the participants. Some readers may be concerned that university students may not be representative of the rest of the population, especially because they might have little experience of charitable giving. However, Hansen et al. (2014) report that the majority of university students

at Otago had given either time or money to charity in the previous six months, so students are at least familiar with making decisions about charitable giving.

DIRE STRAITS OR THE CURE?

The first study (Clark et al., 2016) was carried out involving undergraduates at the University of Canterbury as participants. Participants were recruited to take part in a survey on an unrelated topic, and were told they would receive \$20 for taking part. Having completed the survey, participants were invited to donate part, or all, of their \$20 to World Vision.

Participants were randomly allocated to one of four groups. One group (‘the control group’) were informed that World Vision would use the money to help poor people in Mali, one of the poorest countries in Africa. Other groups of participants (the ‘treatment groups’) were given additional information which emphasised either the extent of suffering in Mali (‘the current deprivation treatment’), the potential gains to people's health in Mali resulting from a donation (‘the potential gain treatment’), or both (‘the combined treatment’).

Information on donating behaviour across treatments is summarised in Table 1. Panel A reports the average and median donation for all subjects, whereas Panel B reports these summary statistics only for those who donated (i.e. ‘at the intensive margin’). Panel A shows that across all participants average donations are highest for current deprivation and lowest for combined. Of most interest is whether there is a difference between current deprivation and potential gain. Although donations are highest in current deprivation, this difference is not statistically significant.

Panel B shows that focusing on the potential gain of a donation has the highest percentage of positive responses. However, this is outweighed by the fact that emphasising suffering increases the average donation, for people who donate, to \$8.93, compared to only \$5.76 in potential gain. In other words, for people who have made the decision to donate, they donate more when human suffering is emphasised.¹

1. These results were confirmed in a regression equation which controlled for other variables (such as the gender of the participant) that may be correlated with donating behaviour.

Table 1: Comparison of donations across treatments

Treatment	Control	Current Deprivation	Potential Gain	Combined
<i>Panel A: Experiment donation, all subjects</i>				
Average donation (\$)	3.27	4.90	3.70	2.87
Median donation (\$)	1.00	2.50	3.50	1.00
<i>Panel B: Experiment donation, intensive margin</i>				
Number of positive donations	27 (52%)	28 (55%)	34 (64%)	28 (53%)
Average donation (\$) (conditional on donating)	6.30	8.93	5.76	5.43
Median donation (\$) (conditional on donating)	5.00	6.00	5.00	5.00

Source: Clark et al. (2016). This table is adapted from Table 1 in Clark et al. (2016).

WHAT DO THESE RESULTS MEAN FOR CHARITIES?

The results in Panel B suggest that if charities focus their fundraising efforts on people with a high probability of donating (e.g. existing donors) then donations are likely to be maximised by emphasising current suffering.

However, if targeting a broad cross-section of people who may or may not donate, it is unlikely to make any difference to total donations whether it is human suffering or potential gain that is emphasised. In such cases, the current trend away from emphasising suffering is not likely to have an impact on total donations.

BETTER FOR YOU OR FOR ME?

If charities do focus on the potential benefits arising from a donation, will donations be maximised by emphasising the benefits to recipients or to the donor? A second study (Fielding et al., 2017) used undergraduates at the University of Otago to analyse this question. As in the first study, participants were recruited to complete an unrelated survey, and then asked if they wished to donate part or all of their \$20 to World Vision.

Participants were randomly assigned to one of four treatments. The treatments differed according to whether the benefits to the recipient or donor were emphasised, and whether the solicitation (the invitation to donate) was made verbally or in writing.

In the altruism treatments, participants were told that “any donation you make will improve the happiness and wellbeing of an African family”. In the self-interest treatments participants were told “research by psychologists shows that donating money to charity increases the happiness and wellbeing of the giver”. Participants were also asked a number of psychological questions to measure (a) how materialistic they are, and (b) how much empathy they have for others.

Regression equation results showed, unsurprisingly, that people who are more materialistic and/or are less empathic, donated less in the experiment. It made no difference to donations whether the solicitation was made verbally or in writing.

More interestingly, the results showed that people who are more materialistic donated more in the self-interest treatment with people who are less materialistic donating more in the altruism treatment. Across all individuals (that is, grouping materialists and non-materialists together) there was no significant difference in giving across the altruism and self-interest treatments.

These results imply that if charities knew whether the majority of potential donors they are targeting were materialistic or not, they could maximise donations by framing their marketing accordingly.

If they can't differentiate between donor types, then whether they appeal to altruism or self-interest will make no difference on average.

CONCLUSION

The research projects discussed in this article suggest that the current trend towards placing less emphasis on human suffering in developing countries in marketing campaigns by international development charities is unlikely to reduce donations. The only context in which it may make a difference is when people with a high probability of donating are being targeted. People who are materialistic in nature are most likely to respond to an appeal emphasising the benefits to them (the donor), whereas those who are less materialistic are most likely to respond to an appeal emphasising the benefits to the recipients.

SOME QUESTIONS TO CONSIDER

1. Why is it important that participants were randomly allocated to a treatment in the experiments?
2. If you are someone who gives money to charity, do you think you are a ‘warm glow’ giver or someone who gives because you care about the welfare of others?
3. If you had been a participant in either of the experiments discussed in this article, do you think how the message was framed would have affected how much, if anything, you donated?

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Is older age an endless bargain? Consumption, age and prices in New Zealand supermarkets¹

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Older person looking for supermarket bargains.

When you head to the supermarket to do your shopping, you probably notice two things (or three, if we count the beautiful display of oranges in the front aisle). First, there are a lot of items that are temporarily discounted, or on 'special'. Secondly, some people seem to be attracted to these specials more than others, buying lots of an item when it is cheap but skipping it when it is expensive.

DOES RETIREMENT AFFECT HOW YOU SPEND YOUR MONEY?

Supermarkets like to have weekly specials because it allows them to price discriminate and charge different customers different prices. Some firms price discriminate by charging a particular class of customers a cheaper price, such as when cinemas have lower prices for children or for people receiving a pension. Supermarkets do it differently: they change prices from week to week, and let customers choose if they want to take advantage of the specials.

For example, if the price of detergent is reduced from \$3.00 to \$2.50 once a month, then organised shoppers will stockpile at \$2.50, whereas less organised, higher income, or more rushed shoppers will buy at the higher \$3.00 price. Supermarkets find this strategy profitable and they do it all around the world (Varian, 1980; Pesendorfer, 2002).

Which groups take advantage of these specials? A decade ago, two American economists, Mark Aguiar and Erik Hurst, analysed whether retired people tended to buy more on special. In two papers, the researchers argue that it is very important to consider how people spend their time, how this relates to spending decisions, and how this relationship changes over the life course. They figured that retirees have less money and more time than working-age people, and wanted to know if the effect was big enough to have a material impact on their standard of living.

In their first paper, Aguiar and Hurst (2005) found that food intake remains constant as households enter retirement even though food expenditure falls sharply. In their second paper, Aguiar and Hurst (2007) used detailed supermarket scanner data from the US to show that retirees pay lower prices for identical items than slightly younger non-retired households. The amount is large enough to explain some of the expenditure drop that economists have observed when people retire – and, importantly, their finding shows that retirees are not consuming less, but that they are paying less.

Aguiar and Hurst (2007) were even able to estimate that shoppers over the age of 65 undertake 10% more "trips per store" than shoppers aged 45-49; and they save an additional 3% of expenditures more than people aged 45-49.

Is this pattern the same all over the world? We don't know. But when we were given access to scanner data from a large New Zealand supermarket chain, we had the opportunity to find out for New Zealand.

OUR DATA

The data we were generously provided includes the price of every item that 150 households paid on every one of their shopping trips to the supermarket chain between 2013 and 2015. The data was completely anonymised! – we don't know who these households are. But we know the data covers three groups of Auckland residents:

- Group A (middle-aged): 50 people aged 40-45
- Group B (entering retirement): 50 people aged 64-65
- Group C (retirees): 50 people aged 70-75.

1. Some parts of this article are based on Angus Milne's Economics Honours thesis, which was supervised by Andrew Coleman and Trent Smith.

The data covered 167,292 individual transactions over 17,457 precisely defined products. The descriptions of products in the database were very detailed with products that differ in size, weight, brand or content treated as separate items – e.g. a 420g can of *Wattie's* baked beans. This meant that although the total number of transactions was very high, the number of purchases per product was low.

We studied a small number of items for which there were at least 60 sales per product over the sample. We excluded fresh meat, fish, and fruit and vegetables, as the quality may not have been uniform. In the end, we analysed the prices of 165 products.

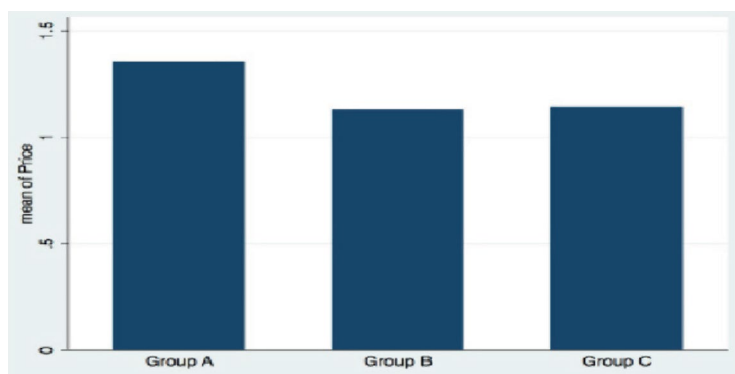
METHOD

The simplest way to test whether older people pay less for groceries than middle-aged people is to compare the average price paid for each item, in percentage terms. We can then test if the price distribution for each group is the same. We used two different ways to test whether the average price paid by each group of people was the same. The first one is a modification of the Student's *t*-test that corrects for the Behrens-Fisher problem.² The second one is the Wilcoxon rank-sum nonparametric test, which is based on the number of times people in one group spend more than people in another group. Similar results are obtained from both tests.

RESULTS

Figure 1 shows the average prices paid by the three groups of people for "*Wattie's* baked beans (420g)". Middle-aged people (Group A) paid an average of 18% more for their beans than either group of older people. This difference is large, and highly statistically significant. This result seems to confirm the Aguiar-Hurst finding. However, for every example like this, there was an example such as "*Molenberg* original sandwich-cut loaves (700g)", where middle-aged individuals paid less than retirees (17% less).

Figure 1: Average prices paid by each group for "*Wattie's Baked Beans Regular 420g*"

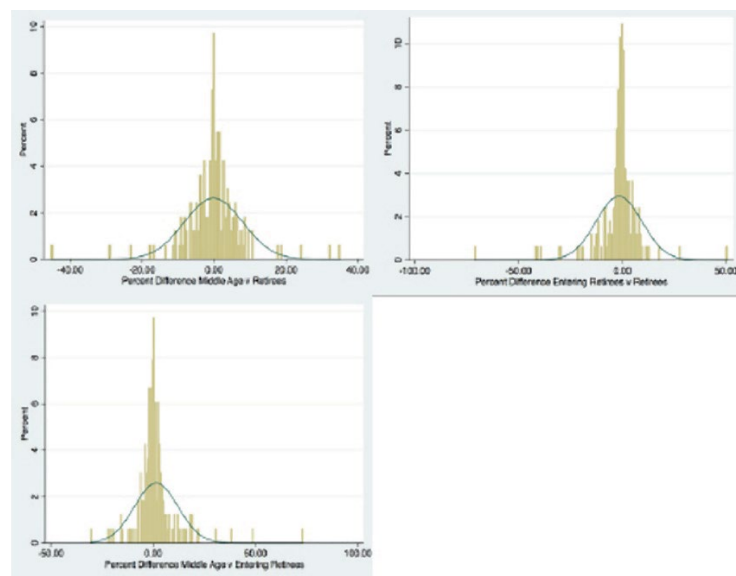


Indeed, across all 165 products, we could find no discernible pattern. For example, when comparing middle-aged people (Group A) and older retirees (Group C), there are 80 instances of middle-aged people paying higher prices than the older people, and 84 instances of them paying less. Most of these differences were so small, they could have happened by chance.

Among the 31 items where the average prices differed by a statistically significant amount, there were 17 products where middle-aged people paid more, and 14 products where they paid less. This is almost a 50:50 split and no discernible patterns were observed in the type of products that are significant in one group over the other.

Comparisons between the middle-aged group and the 64-65 year-old group, and between the 64-65 year-old and the 70-75 year-old groups were very similar. Overall, middle-aged consumers had average prices 0.4% higher than people aged 64-65 and 0.4% lower than people aged 70-75. These differences are very small and are not economically significant. The distributions of the average price differences for the individual items are shown in Figure 2.

Figure 2: Histograms of percentage differences of all three groups



CONCLUSION

Our results for New Zealand are in stark contrast with the Aguiar and Hurst (2007) finding for the US that households with people in their late forties pay, on average, 4% more at supermarkets for identical goods than households with people in their late sixties. In aggregate, our sample of 165 of the most commonly purchased products shows almost no systematic differences in the prices paid by retirees relative to middle-aged people.

Overall, average prices paid by older people differed from the prices paid by middle-aged people by less than 0.4%. Older people appear to shop aggressively for some goods, but these were offset by the higher prices they pay for other goods. There were no obvious patterns in the types of goods that were more expensive.

Why this difference relative to the US results? We don't know.

Perhaps there is a sample selection issue we haven't considered, if poorer older people go to cheaper stores or save money by switching to cheaper brands. Maybe middle-aged New Zealanders are more careful shoppers than their US counterparts.

Whatever the reason, we cannot conclude that part of the decline in spending that occurs when people retire in New Zealand happens because older people spend their days hunting for bargains. When older people spend less in a supermarket in New Zealand, it seems to mean they are buying less.

In other ways, this result is reassuring. Statistics New Zealand calculates separate consumer price indices for different groups of people, to see if inflation is having a similar effect on all groups of New Zealanders.

2. One should only use a *t*-test to compare the mean of two groups if the variance of the two distributions is identical. The Behrens-Fisher problem describes what happens when a *t*-test is used to test the hypothesis that the groups have the same mean when the variances of the distributions are not known. We use the Welch adjustment to the Student's *t*-test to correct this problem.

These different indices are based on the different patterns of consumption that different groups have,³ but they assume that each group pays the same price. If we had found a result similar to that found by Aguiar and Hurst, it would mean the accuracy of these indices would be suspect too. Fortunately, it seems Statistics New Zealand's methodology is fine.

QUESTIONS TO CONSIDER

1. How do retirees in the US maintain their food consumption despite their declining food expenditures?
2. How can supermarkets make more money by charging different prices each week? Why don't they just charge their normal price all of the time?
3. Fresh fruit, vegetables and meat were not studied because the authors thought that the quality of the items on special may not be the same as normally priced items. Why would this cause a problem for the study?

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3. For example, old people may purchase less child care, but have more visits to the doctor.

POSTGRADUATE PROFILE *From Careers in Business – The Next Step*

David Kidson

BCom (Hons) (Economics)



"I work for the Minister of Finance as an economic advisor. My job is to give him advice about the decisions he is making, who he should meet with, and what information he should ask for. I work from the Beehive, acting as a bridge between the Minister and the Government departments that send him reports and advice.

"The Minister is in charge of the Government's annual budget process, and I help collect and assess the bids for new government spending.

"The Minister also has an interest in policies all across Government, so I get to work on a lot of different things – on any given day I might be involved in issues around health, welfare, justice, and housing for instance.

"One of the best things about my job is seeing an idea someone has in a meeting become a real policy that's announced by the Government, and the positive impact it has on people's lives."

Commentary on the New Zealand economy

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	Sep 2016	Jun 2016	Mar 2016	Mar 2015	Mar 2014
GDP (real, annual growth rate, %)	3.0	2.7	2.4	3.4	2.5
Consumption (real, annual growth rate, %)	3.5	3.0	2.8	3.1	3.2
Investment (real, annual growth rate, %)	4.5	1.9	1.1	7.0	8.1
Persons Employed (full- and part-time, 000s)	2492	2465	2398	2351	2278
Unemployment (% of labour force)	4.9	5.0	5.2	5.4	5.5
Net Migration (year to date)	69,954	69,090	67,619	56,275	31,914
Consumer Price Inflation (annual rate, %)	0.4	0.4	0.4	0.3	1.5
Food Price Inflation (annual rate, %)	-0.2	0.0	-0.4	1.2	0.8
Producer Price Inflation (outputs, annual rate, %)	0.1	0.5	0.1	-2.5	4.0
Producer Price Inflation (inputs, annual rate, %)	0.1	0.3	-0.9	-4.0	3.1
Salary and Wage Rates (annual growth rate, %)	1.7	1.5	1.6	1.7	1.5
90-day Bank Bill Rate (% p.a.)	2.23	2.37	2.43	3.63	3.05
10-year Govt Bond Rate (% p.a.)	2.40	2.51	3.02	3.30	4.58
2025 Inflation-Indexed Bond Rate (% p.a.)	1.45	1.55	1.97	1.77	2.65
Lending to Households (annual growth rate, % [1])	8.8	8.3	7.7	5.0	5.6
Real Exchange Rate (trade-weighted index [2])	76.5	74.1	71.0	77.7	81.3
Exports (volume, annual growth rate, %)	4.3	9.4	-1.3	1.5	3.9
Imports (volume, annual growth rate, %)	4.3	1.3	1.3	7.5	12.5
Terms of Trade (June 2002 = 1000)	1273	1297	1330	1335	1414
Merchandise Trade Balance (\$m, year to date)	-3,404	-3,335	-3,765	-2,372	798
Visitor Arrivals (annual growth rate, %)	11.4	10.6	10.4	7.1	5.4
Current Account Balance (% of GDP, year to date)	-2.9	-2.9	-3.1	-3.5	-2.6

Notes: [1] Average index value over March 1985-March 2005 = 62.2

Sources: Statistics New Zealand (stats.govt.nz), Reserve Bank of New Zealand (rbnz.govt.nz).

Relatively little has changed in New Zealand's economic picture over the last half year. The economy continues to grow slowly – about one percentage point faster than the population – but steadily, wage and price inflation remains muted, the high level of net immigration continues, interest rates are at new lows and the impact of the soft terms of trade on the external accounts continues to be counter-balanced by the boom in tourism.

The outlook for 2017 is generally positive. Construction activity should continue to be strong, especially in Auckland and Christchurch but also because of the work needed in the regions affected by the Kaikoura earthquake. Net migration may have peaked at the end of 2016, but seems likely to remain strongly positive throughout 2017. It should continue to underpin consumption spending as well as the demand for housing and infrastructure.

Outside of the housing and construction markets, inflationary pressure is likely to build only slowly and should allow the RBNZ to keep interest rates low for some time. As the Government's books are in surplus (and not forgetting that a General Election is looming), fiscal policy is also more likely to support demand than restrain it for the time being.

In the agricultural sector there is a good news-bad news story. Dairy prices recovered strongly through 2016, but sheep farmers have been hurt by the pound's sharp depreciation following the Brexit "yes" vote (which has affected lamb prices) and very weak Chinese demand for coarse wool. On balance, however, commodity prices have been gaining strength recently and the decline in New Zealand's terms of trade over the previous year or two should be partially reversed in 2017.

The net result of all of this is that the unemployment rate is most likely to continue falling as 2017 unfolds. However, as the supply of labour will continue growing steadily, any decline in the unemployment rate will most likely be quite modest. Nonetheless, this is not a bad situation for Bill English to inherit in an election year. His main worry on the economic front will be of being trumped by an external shock.



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