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NEW ZEALAND INSTITUTE OF ECONOMIC RESEARCH

Hi ho silver lining?

What firms need to think about as New Zealand ages

NZIER working paper 2013/02

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About NZIER

NZIER is a specialist consulting firm that uses applied economic research and analysis to provide a wide range of strategic advice to clients in the public and private sectors, throughout New Zealand and Australia, and further afield.

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Each year NZIER devotes resources to undertake and make freely available economic research and thinking aimed at promoting a better understanding of New Zealand's important economic challenges.

NZIER was established in 1958.

Authorship

Each year NZIER devotes resources to undertake and make freely available economic research and thinking aimed at promoting a better understanding of New Zealand's important economic challenges. This paper was funded as part of this public good research programme.

This paper was prepared at NZIER by John Ballingall, Kirdan Lees and John Stephenson. The assistance of Jean-Pierre de Raad, Shamubeel Eaqub and Chris Schilling is gratefully acknowledged.

This paper is the second of two on New Zealand ageing released by NZIER in 2013. The first paper, *"Golden years?: The impacts of New Zealand's ageing on wages, interest rates, wealth and the macroeconomy"* (available at nzier.org.nz) detailed the impact of ageing on households and the macroeconomy.

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Key points

Ageing will impact on firms' costs of doing business

New Zealand's ageing has a profound impact on the costs of producing goods and services. Ageing shrinks the future pool of labour as a fraction of society. That drives up wages as firms bid for talent.

As firms respond, we show higher wages reduce output in labour-intensive sectors like manufacturing. This continues the long-run trend in that sector with firms moving away from competing on cost and moving toward competing in niche manufacturing based on specialised knowledge and expertise.

Opportunities from changes in demand for firms who adapt

Challenges and opportunities exist on the demand side too. Consumption effects are driven by:

(i) how our needs and desires change at different points of our lives

(ii) how consumption by a particular age changes over time: today's sixty-year old is not the same as the sixty-year old of yesteryear.

Some changes to demand for goods and services will be clear and industry specific: health, travel and insurance are likely to profit from an older population.

But demand changes can be subtle.

Firms will need a plan to make the most of shifting opportunities in their sector.

Global and regional factors intensify the impact of ageing

New Zealand is also ageing unevenly. Some regions show the impact of in-flows of older cohorts at the same time as opportunities in urban areas offshore are hollowing out younger cohorts. This amplifies the impact on regional labour markets and will shift regional patterns of demand.

Meanwhile global competition for talent will amplify the impacts of labour in short supply further bidding up wages. If the environment for producing labour-intensive goods is challenging now, higher wages make that environment look even tougher.

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1. Overview

As the population ages, a number of economic trends will emerge that put pressure on profits. On the cost side, an increase in competition for skilled workers will push wages up. Revenue will also be affected as demand shifts in favour of products that older people use and consume.

These trends are opportunities as well as threats. Some sectors of the economy will flourish. Firms which invest in staff and devote time to understanding the changing needs of their customer base will have a strategic edge.

The trick is to expect change, to be aware of the trends that will dominate the commercial landscape in the years ahead and to be prepared to adapt.

This working paper evidences the key trends that should be expected to result from an ageing population. It looks at which kinds of industries will fall and which will flourish. It discusses the kinds of trends we might expect in terms of consumer demand and it touches on what firms should be thinking about if they want to manage commercial risks from an ageing population.

The paper draws on empirical analysis that NZIER has undertaken to examine the effects of population ageing on the economy in our earlier working paper "Golden years? The impacts of New Zealand ageing on wages, wealth and the macroeconomy." Both papers are funded from NZIER's Public Good programme.

2. Ageing starts industrial change

Labour-intensive manufacturing industries are most affected by the ageing labour force. Firms should expect changes in the composition of the labour force.

The key economic feature of an ageing population is a fall in the relative size of the labour force that drives wages higher and lowers investment returns.

Our analysis shows ageing lifts wages by 16% and longer run investment returns will fall 160 basis points from 4.8% to 3.2% (see NZIER 2013).

But these high level results mask big differences across different sectors in the economy. Some sectors will be able to adapt better than others.

2.1. Labour-intensive industries falter

New Zealand's ageing population will shrink New Zealand's labour force as a fraction of the population since older people tend to participate less in the labour force. We model the impacts on industries of a scenario where New Zealand's ageing population shrinks the labour force by 5.5 percent, consistent with the fall in labour force participation the Department of Labour (2010) suggest across 2012-2059.

Box A: Our Computable General Equilibrium (CGE) approach

We use NZIER's Computable General Equilibrium (CGE) model of the New Zealand economy to show the impact of the fall in the relative size of the work force. [1]

That model represents the New Zealand economy by modelling the interlinkages between over 130 industries and 200 commodities. Firms are linked with households who buy goods and services from firms and supply the labour to produce them.

Our CGE model allows us to think through the impacts of one part of the economy – in this case the labour market – on other parts of the economy. By laying down how firms produce goods and services we can then show how firms respond to changing input costs.

But one of the critical advantages of our CGE approach is modelling the linkages between industries. This allows us to explore how firms reallocate resources in response to changes in the relative prices of inputs in the production process.[2]

NZIER's CGE model has been used across a wide range of contexts including:

- national savings (see NZIER 2010a)
- trade tariffs (see NZIER 2010b)
- and irrigation (see NZIER 2010c).

By 2032 the economy would have grown considerably, but in our scenario some industries grow relatively quicker, and others relatively slower as a result of the

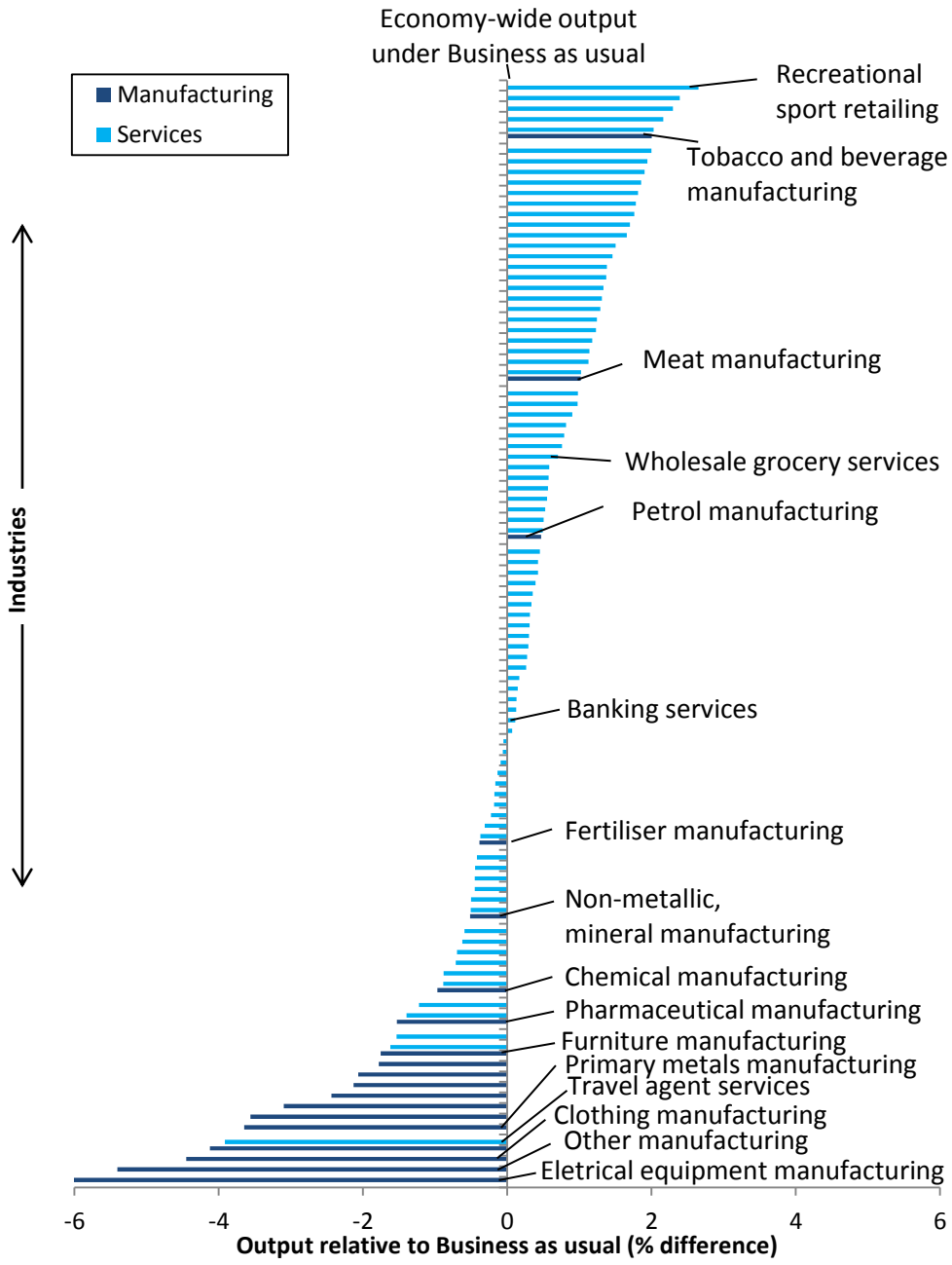
[1] See Volz (2008) for a German analysis using a CGE model setup available at https://www.gtap.agecon.purdue.edu/resources/download/4039.pdf

[2] More detail on NZIER's CGE model is available here: http://nzier.org.nz/consulting-services/case-studies/computable-general-equilibrium-cge-modelling.

impact of ageing. [3,4] Figure 1 shows exporters and import-competing industries are impacted the most while services suffer the smallest fall in output.

Figure 1 Labour supply contraction constrains manufacturing output

Reduction in output relative to business as usual when labour supply falls by 5.5 percent



Source: NZIER

Most of the industries with the largest declines are manufacturing industries. Most of the industries that decline the least are services orientated. Higher wage costs will

[3] The OECD suggest business as usual will grow the New Zealand economy in real terms from $114 billion dollars (USD in 2005 in Purchasing Power equivalent terms) to $186.9 billion dollars in 2030 or 177.3 billion after the labour supply shock.

[4] This exercise is not a forecast and the exercise is static rather than a dynamic one that would include the timing of technological change within the economy. Here we focus solely on the impact of ageing on the structure of the economy.

erode the global competitiveness of exporters and import-competitors and boost imports. Expect the smart money to shift away from these labour-intensive trade-exposed sectors such as textiles and clothing and manufacturing, continuing a trend that has taken place over the past few decades.

At the same time, this does not ring the death knell of manufacturing. Lattimore, Kowalski and Hawke (2009) note that New Zealand's manufacturing firms continue to find ways of connecting with world markets to service new demands, developing numerous new export products ever year. So firms are likely to shift away from competing on cost towards competing in particular niche markets by leveraging specific knowledge and expertise. Firms will need to retain this expertise by incentivising workers to remain within the firm.

2.2. Cost of haircuts and healthcare to rise

Labour-intensive products and services that are not internationally traded – such as healthcare, haircuts, lawn mowing, retail, etc. – will become more expensive.

Table 1 shows prices rise most significantly in labour-intensive, non-traded sectors, for example, government-funded services. This will particularly affect some sectors that are likely to become more important to the New Zealand economy as the population ages, such as residential care services and hospital services.

Services tend to be more price-inelastic, that is, customers inevitably absorb most of the increasing costs of these services rather than switching to other types of goods. This means that firms shouldn't be greatly concerned with the need to pay higher wages and should raise prices to match.

Table 1 Sectors where costs and prices rise the most

Sector	% price change	Labour intensity of industry[5]
Government	3.03	6.09
School education	3.17	9.52
Tertiary education	2.86	6.55
Hospitals	2.99	10.11
Residential care	2.92	5.77
Defence, law and order	2.86	6.86
Domestic services	2.64	2.34
Fuel retailing	2.55	1.43
Postal services	2.45	1.67
Supermarket and dept. store retailing	2.52	1.66
Recreational sport retailing	2.54	2.67
Economy wide	2.2	1.07

Source: NZIER

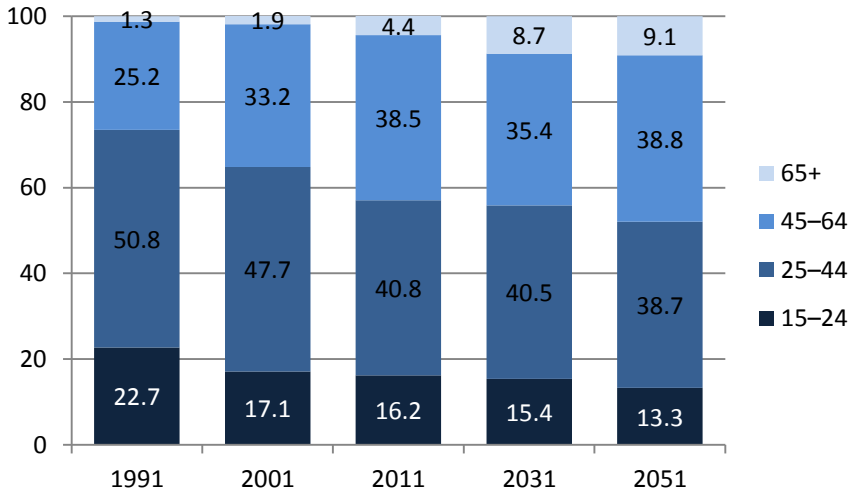
[5] Labour intensity is defined as the ratio of labour to capital used in production.

2.3. Watch for lower workforce turnover

Firms will also have to manage a change in the composition of the workforce. Figure 2 shows older cohorts will make up a higher fraction of the workforce in the future.

Figure 2 New Zealand's labour force is ageing

Labour force composition by cohort



Source: Statistics New Zealand

As the baby boomer cohort reaches the end of their working life, we expect to see lower turnover in the labour force.[6] That means the replacement of old knowledge with new knowledge will temporarily slow. As the baby boomers exit the workforce, more expertise or human capital will be lost to the economy.

Currently, about two-thirds of the skills built up in the labour force simply replace skills lost through death or retirement. But this will rise. That means a long-term slowing of the accumulation of human capital – a determinant of income and wealth.

There are two responses to this long-term trend pressure:

1. Firms will need to think hard about the right human resource practices that help retain the knowledge, experience and skillset of older workers.
2. The declining size of the workforce and the slowing of human capital accumulation will result in significant growth in the returns to skills (i.e. wages). The natural response of increasing returns to skills is that it will encourage greater investment in human capital.

Education levels are already high in New Zealand relative to OECD comparators. As turnover in the workforce increases, that means meeting the demand for skills is likely to be more about matching training to jobs and securing the skills for adaptability to deal with change, rather than boosting the general level of education in the workforce.

[6] For example, the BLS (2013) show that between 1978-2010, 50 percent of workers aged 40-46 changed jobs within two years while 80 percent of workers aged 18-24 changed jobs every two years. Gregg et al (1998) estimate that that labour turnover for UK workers aged over 50 is half that of workers aged under 25.

3. Consumer trends

The effects of ageing on consumers' demands and preferences fall into two camps: old and obvious easy bets and changes that require more contemplation to uncover. Firms should expect many more opportunities in the latter.

3.1. Don't necessarily expect more of the same

Many of the kinds of things we use and consume as we get older are very predictable. Older people spend less on homes and furnishings but more on hospitals and home heating.

People broadly know to expect increases in demand for aged care and health services. Grant Thornton (2011) suggest between 12,000 and 26,000 extra residents will seek care by 2026 with a 50-75 percent increase in the workforce in that sector required to service this demand.

Figure 3 shows just how different consumption patterns can be and how these patterns are driven by two effects:

1. Our spending changes at different points of our lives, as our needs and desires change.
2. Over time consumption patterns at a particular age are changing.

The plots use Statistics New Zealand's Household Expenditure Survey to show expenditure as a share of disposable income on key selected goods by age at 2010 (solid blue line) and 2004 (red dashed line).[7]

The survey shows how expenditure patterns shift, as a result of changing preferences, relative prices, wealth and other factors. It highlights, to some extent at least, how today's older generation is much different to the older generations of the recent past, let alone much longer ago. Upbringing, access to technology and, for the baby boomers, unprecedented access to wealth relative to past cohorts, shape preferences of each cohort.

Figure 3 shows the fraction of total expenditure on particular goods and services. Expenditure on some goods and services is remarkably constant over the lifecycle. For example, expenditure on necessities like food and clothing is relatively flat across age cohorts, and even cigarettes and alcohol are constant as a fraction of disposable income.

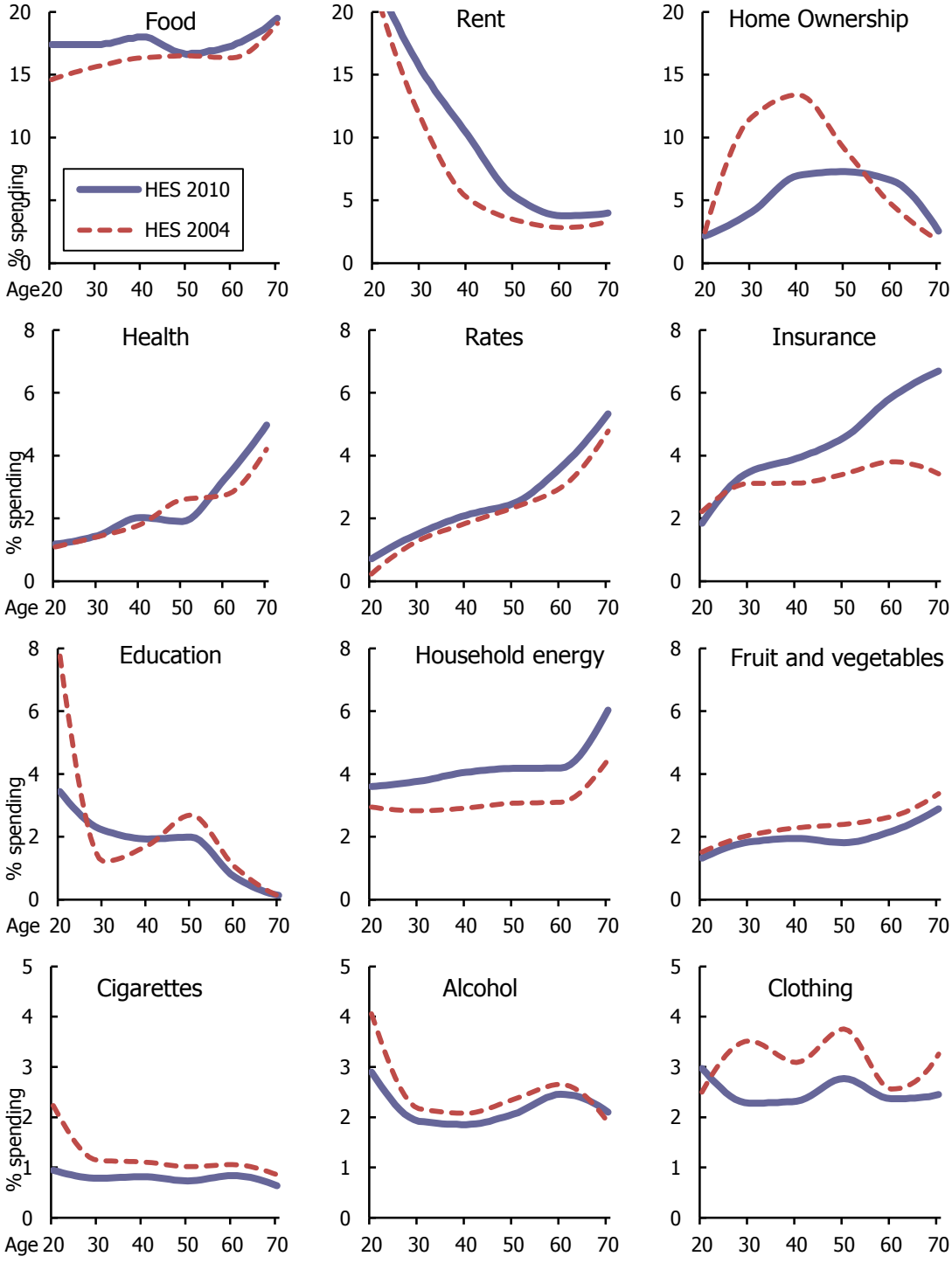
In contrast, spending on health and insurance increases over time. Expenditure on household energy is relatively flat across most age groups but predictably increases for the oldest cohort, consistent with retirement requiring larger expenditure on home heating during the day since there are fewer people in older households and older people simply feel the cold more than others. Of course, older cohorts are likely to have lower disposable income relative to middle-aged cohorts so Figure 3

[7] We use Statistics New Zealand Household Expenditure Survey data from 2004 and 2010 and smooth across six cohorts to produce the consumption profiles.

overstates the impact of ageing in absolute terms. But the relative shifts are informative even so.

Figure 3 Older people have different tastes but cohort effects matter

HES Expenditure patterns by age 2010 (solid blue line) vs 2004 (red dashed line)



Source: Statistics New Zealand, NZIER

The expenditure plots also show the impact of the timing of the household ownership decision. Rent forms a large fraction (20 percent) of the expenditure of the youngest cohort, but falls uniformly as age increases. But this fall comes with increases in the expenditure shares of home ownership and rates as younger cohorts transition from rented accommodation to purchasing their own homes.

Some of the impacts of ageing on consumption are subtle and related to household type. For example, while the 2010 Household Expenditure Survey suggests expenditure on alcohol does not vary too much across cohorts; older people are more likely to purchase spirits than beer (Llewellyn and Chaix-Vero 2008). Older people are also much more likely to engage in convenience shopping and buying food to consume at home rather than to eat in restaurants. These nuances have clear implications for business investment decisions, marketing strategies, etc.

A better understanding of these details of demand patterns will help firms position themselves.

Economic investigation of the data can show up household purchasing patterns that are a bit surprising. For example, the data suggests that the ageing population is likely to create a rise in the demand for cars, rather than a fall. Even though older people drive less far and hold on to cars longer than younger people, older couples tend to purchase second cars.

Box B looks at the demand for cars to show how looking beneath high level trends can reveal key insights.

Box B: Demand for cars: a closer look beneath high level trends

How people live their lives, the things they buy and use, changes frequently over their lifetime. Changes in small parts of the population can have sizable effects.

Take cars for example. Older people drive fewer miles and keep their cars longer (Llewellyn and Chai-Vero 2008). On the surface, this makes the auto industry look challenged by a demographic outlook that will also see lower population growth in the first car buyer's age groups.

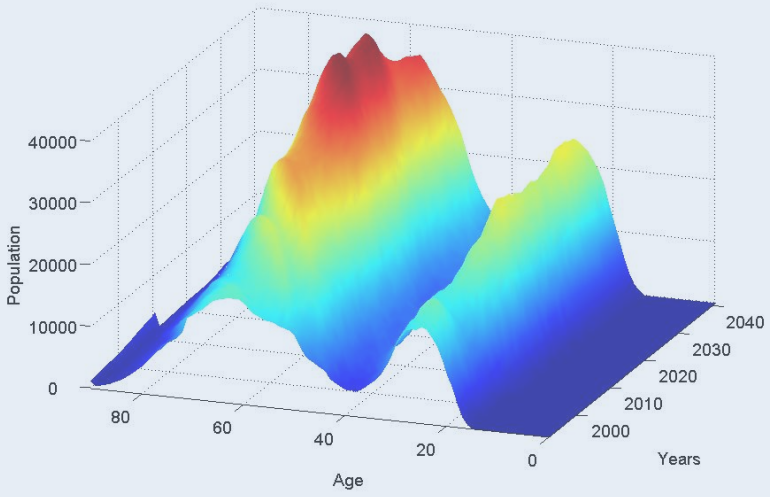
But NZIER (2012) note that prospects for growth in auto retailing might be better than first suggested. At a household level, many new car purchases in New Zealand come from older couples buying a second car from their high disposable income. Llewellyn and Chai-Vero (2008) note that this demographic tends to buy big, accounting for 80 percent of the top-of-the-line purchases in the United Kingdom in 2004.

NZIER modelling of car ownership at the household level found a significant effect on car ownership from older couples buying a second car. Couples in their fifties (or older) without children are more likely than most to be a two car family. This is not surprising as they are likely to be enjoying the highest disposable income of their lives.

Figure 4 shows the number of people, by age, living in couple households without children. It shows that over time, we should expect a growing number of couples without children as the New Zealand population continues to age.

Figure 4 Demand for cars complex function of age

Projected number of people, by age, living as couples without children



Source: NZIER

That means an increasing number of people looking for a second car. The figure shows this boon to the car market is set to grow for the next decade or so. After that,

it will ease off for a while but a further boost is in the pipeline. The baby blip in the 1990s means that by 2040 newly minted 50 year olds will be a significant share of the population and ready to buy second cars.

These types of subtle demographic impacts show the value of economic modelling for firms so they can plan to make the most of the opportunities of ageing consumers.

4. Location, location, intensification

New Zealand is ageing unevenly, intensifying the impact on firms on both the demand and cost side. A global fight for talent is likely to exacerbate demands on New Zealand's workforce, rising wages further.

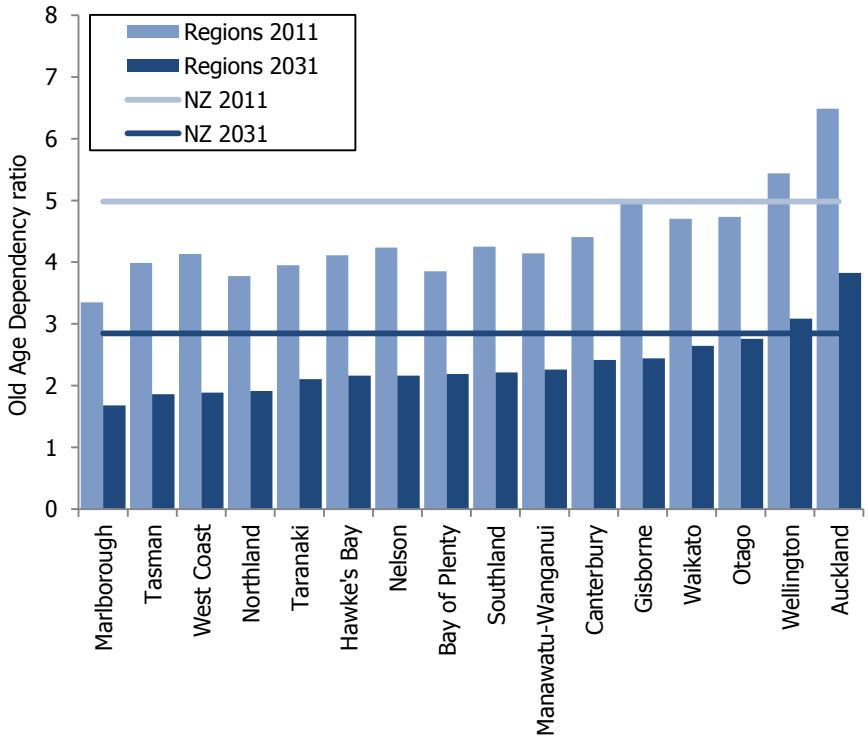
4.1. Regional context intensifies the need for change

New Zealand is not ageing uniformly: pronounced regional differences exist. Several researchers show that these differences make the regional impacts more profound than at a national level (see Poot 2007, for example). Fougere and Harvey (2006) use a modelling approach to show differences in retirement decisions, fertility rates and the location of immigrants drive increases in income disparity across Canada's regions.

For New Zealand, Figure 5 shows some regions have profoundly different structures to the aggregate demographic profile.

Figure 5 Marked regional differences intensify effects of ageing

Number of people 15-64 for every person over 65



Source: Statistics New Zealand subnational population projections, NZIER

The hollowing out of younger generations exacerbates the impact of ageing (see Jackson 2012) that will leave a gap between demand and supply of labour unless firms and workers are more prepared to reallocate. Mäori, who have a structurally younger population alongside a structurally older population, are positioned to reap a "demographic dividend", provided the right policies and leadership are in place (see Jackson 2011).

Of course, for some firms, land ties certain industries to certain regions. Jackson (2011) shows marked differences in the number of people entering the labour force and people in the retirement zone (age 55+) in grain, sheep and beef farming and asks the question: "Who will buy the farm?"

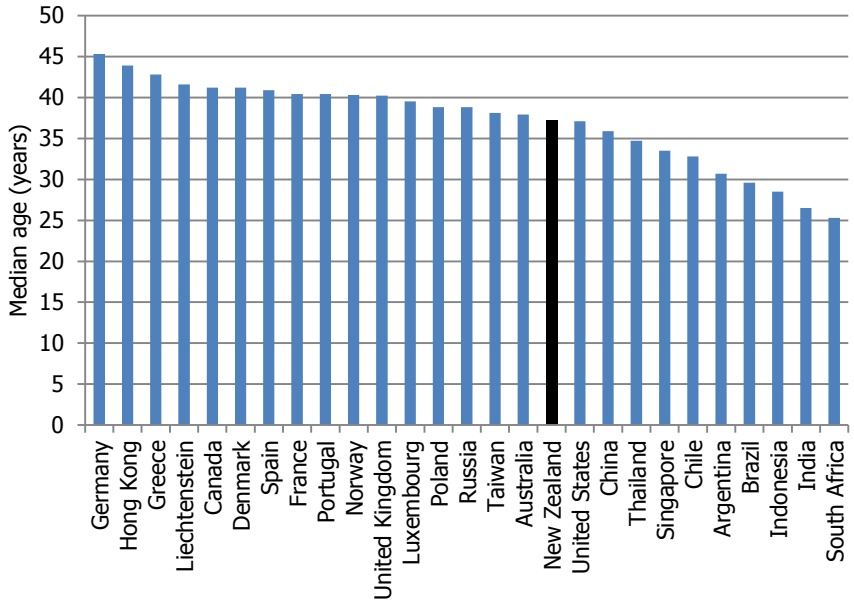
Figure 5 shows Wellington and Auckland have better than average dependency ratios than other regions. That implies that all else equal, the higher fraction of younger workers will tend to drive up incomes in Auckland and Wellington relative to other regions. The Ministry of Social Development (2010) expect relatively more opportunities to market goods and services to older cohorts to be in the Bay of Plenty, Northland, Waikato, Tasman and Marlborough.

4.2. Global context intensifies the pressures

Of course, New Zealand is not the only country facing demographic challenges. Ageing is influencing all countries with advanced economies ageing more rapidly than developing economies. Figure 6 uses the median age of the population to show New Zealand is currently in the middle of a range of experiences.

Figure 6 New Zealand is in the middle of an ageing pack

Median age by selected countries, 2011



Source: CIA World Factbook

That New Zealand is ageing alongside others matters for thinking about macroeconomic impacts. Younger emerging countries tend to grow faster than advanced economies. The distinction between advanced and emerging countries is likely to be lower growth in advanced economies and a lift in growth in emerging countries over the next 20-30 years (see Batini et al 2006, for example).

These forces will also be affecting many of the countries that we compete with in export markets and from whom we source imports. We can expect to see further shifts of unskilled labour-intensive manufactured jobs away from developed economies towards emerging economies with low wages and growing (or less rapidly slowing) labour forces, such as India, Indonesia and Vietnam.

Another impact of developed countries' ageing populations is that the global pool of skilled labour will also shrink relative to the size of the global population. Competition for skilled workers, who are increasingly mobile between countries, will intensify, pushing up wages. This amplifies the domestic effects of the shrinking New Zealand labour force. If the environment for producing labour-intensive goods is challenging now, higher wages make that environment look even tougher.

5. Implications

New Zealand's ageing population causes profound shifts in the structure of our economy, increasing real wages and reducing the cost of capital in the economy.

That impacts mostly on labour-intensive sectors like manufacturing, crimping output. Firms will need to reallocate resources to produce goods and services efficiently and think harder about how to retain labour which will have a different composition in the future.

Ageing also generates opportunities. Some opportunities, such as in the health and insurance sectors are clear. But other opportunities are subtle. Household composition and cohorts matter; there are rewards for investing in understanding shifting demographics.

New Zealand is ageing unevenly. Some regions show the impact of in-flows of older cohorts at the same time as opportunities in cities – both within New Zealand and off-shore – are hollowing out younger cohorts. This amplifies the impact on regional labour markets while global competition for talent will amplify the impacts of labour in short supply bidding up wages.

Just maintaining business-as-usual will be challenging. Firms that invest in understanding the subtleties of demographic change will be better placed to address its challenges.

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