



# CaDDANZ

Capturing the Diversity Dividend  
of Aotearoa/New Zealand

## THE NEW ZEALAND ATLAS OF POPULATION CHANGE

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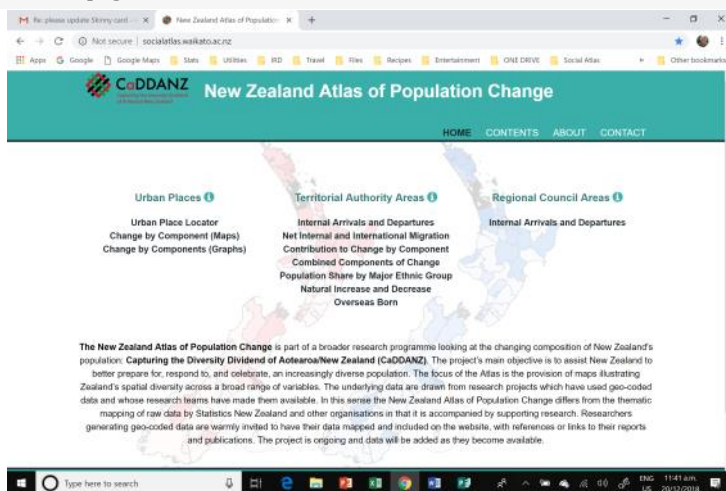
### Visualising diversity through mapping

An online *New Zealand Atlas of Population Change* has been developed (<http://socialatlas.waikato.ac.nz/>) to visually communicate the interaction and population diversity resulting from the three main components of population change – migration, natural change (births minus deaths), and population ageing. The *New Zealand Atlas of Population Change* differs from the thematic mapping of raw data in that it is accompanied by supporting research. Most of this research reflects past grants from MBIE and the Royal Society Marsden Fund. The Atlas is work-in-progress and contributions from relevant researchers are invited.

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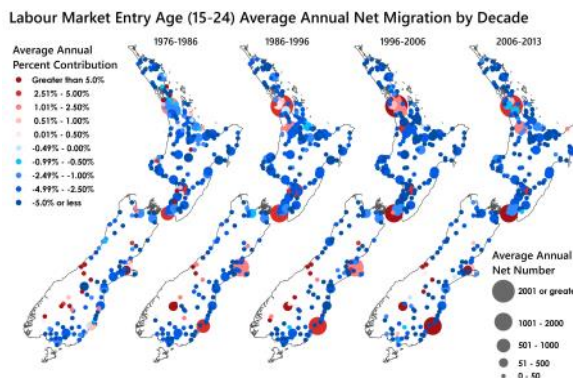
Figure 1: Home page—selection of variables



### Visualising migration by age

Here we have mapped average annual net migration for those aged 15-24 years, across the period 1976-2013. Blue dots indicate net migration loss; red dots, net migration gain. The size of the dot indicates the magnitude of the loss or gain. What is striking is that the vast majority of towns and rural centres have consistently lost young people to migration. Gains are mainly limited to university towns (cities) and major tourist areas.

Figure 2: Where do all the young people go?



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## Visualising 'retirement' motivated migration

Net migration for those in the 'retirement zone' (here taken to be people aged 65+ years) differs greatly from that at younger ages. As Figure 3 shows, substantially more towns experience net gains (indicated by red dots) at older ages than occurs at the younger ages (Figure 2). However, areas making gains at older ages have also become more concentrated in the past two decades, with Whangarei, the northern peripheries of Auckland, the Coromandel Peninsula, Gisborne, Kapiti Coast and surrounding areas, Nelson/Marlborough/Tasman, Central Otago, and the south-east coast of the South Island the major 'winners'.

The trend has been accompanied by increasing net loss (blue dots) of older people from the Central, Western and Southern Auckland zones—although Central Auckland lost older migrants across all four decades. More generally, the Central North Island and West Coast of the South Island have also become less likely to see gains of older migrants. This picture runs counter to the view that many councils have of supposed 'migration-driven' growth in their older populations: much is in fact not from migration, but rather, the effect of larger cohorts (for example those born during the Baby Boom) replacing their older, smaller counterparts.

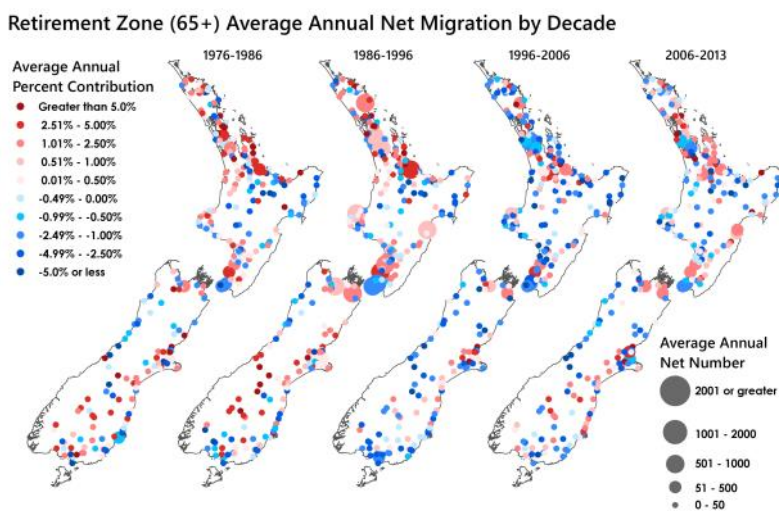


Figure 3: Who is gaining those much-valued retiree movers?

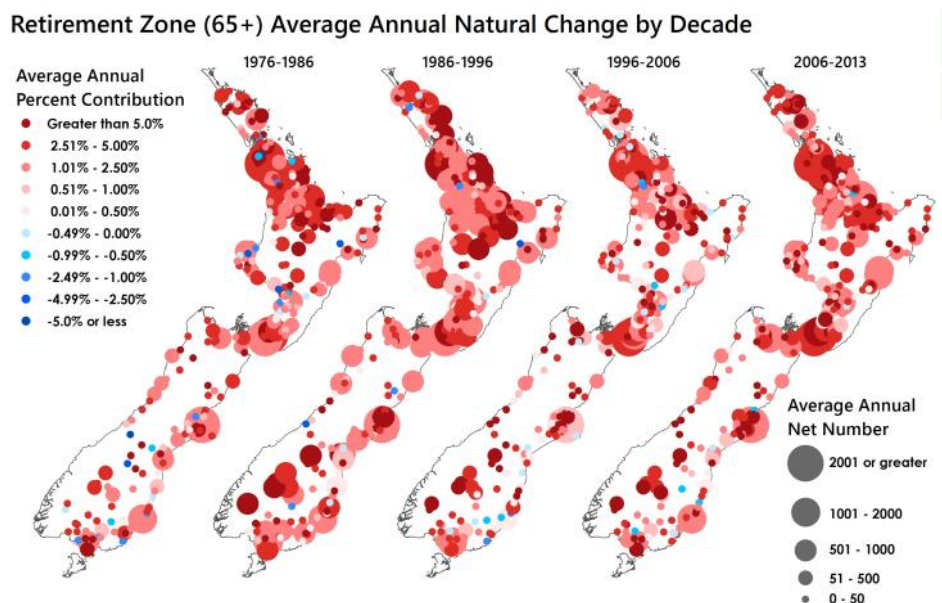
It is critical to separate out the components of population change. Growth can occur when there is net migration loss, while decline can occur when there is net migration gain. The outcome depends on both natural change and net migration.

## Visually subtracting migration-related growth from 'growth'

Our ability to map the components of change by age is hugely important to dispelling—or in other cases, confirming—many urban 'myths'. Currently, growth at 65+ years is almost universal and accelerating. In Figure 4 we map 'natural change' at 65+ years—that occurring as larger cohorts replace smaller ones, and in a few cases, vice versa (deaths have been accounted for). The large red dots over Auckland, for example, depict massive growth at these ages, but as we have just seen from Figure 3, it is not caused by migration.

These maps have been generated using data originally sourced from Statistics New Zealand and modelled to allow for births and deaths.

Figure 4: Natural Change



## Where do our internal movers come from, where do they go?

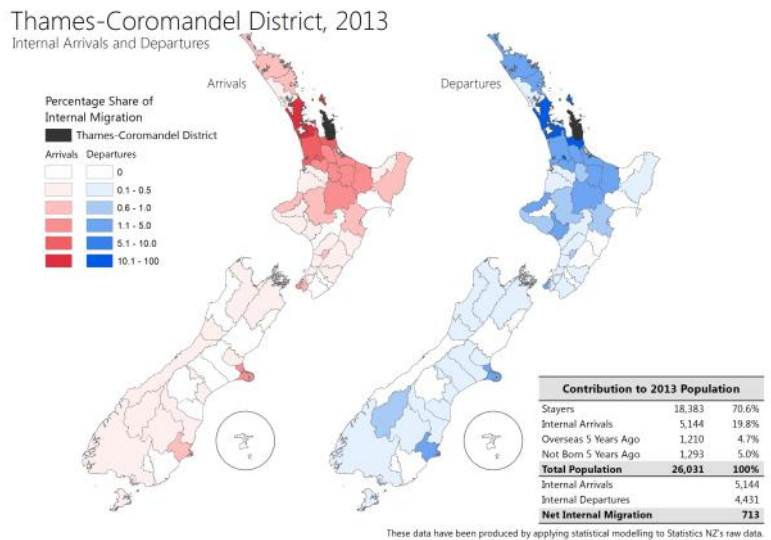
Have you ever wondered why the Census asks ‘Where did you live 5 years ago?’ Figure 5 shows the enormous value of the resulting data, shown here for the Thames-Coromandel district for the period 2008 to 2013. The Thames-Coromandel district is shaded black, net Arrivals from other Territorial Authority areas are in red, and net Departures to other Territorial Areas are in blue. The deeper the colour for each area, the greater the percentage either from that area (to Thames-Coromandel), or to that area (from Thames-Coromandel).

One immediate observation is that the vast majority of both Arrivals and Departures are relatively ‘local’, in that they come from or go to surrounding Territorial Authority areas. Across the 2008-2013 period, a notable proportion of Arrivals also hailed from Christchurch and Dunedin, and a similarly notable proportion left to go to Christchurch and Dunedin—and also to Queenstown-Lakes, but relatively few came from or went to anywhere else. This information suggests that people are better informed about opportunities in their local geographic area—a point that more distant areas seeking to grow their populations might heed. Data by age differs only marginally, and, for example at the main working ages,

suggests the presence of local labour markets, wherein local people have the required skills, knowledge or contacts.

This relative concentration of Internal Arrivals and Departures from and to surrounding Territorial Authority Areas is consistent across most of New Zealand, the only notable exceptions being Auckland and Wellington, where a greater number of origins and destinations are observed. Maps are available online for all Territorial Authority Areas for the periods 2001-2006 and 2008-2013.

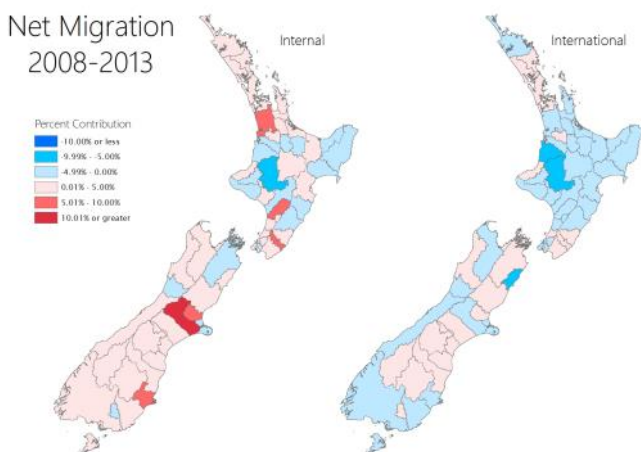
Figure 5: Thames Coromandel District - Internal Arrivals and Departures



Most internal movers don't move very far from the Territorial Authority Area they lived in at the previous Census. This suggests that they are better informed about 'local' opportunities—a point that more distant areas seeking to grow their populations might heed.

## Visualising the origins of migrants—internal or overseas?

Figure 6: Internal and International Migration



Migrants are typically attracted or repelled by different pull and push factors. Here we separate internal and international migration for each Territorial Authority Area for the period 2008-2013. Reds and pinks denote net gains; blues denote net losses. As Figure 6 shows, many areas gained one category whilst losing another. Much of Central Otago and Canterbury stand out as having made gains from both over this period. Notably, as a result of the 2010-11 Canterbury Earthquakes, Christchurch experienced a net loss of both internal and international migrants, while adjacent areas, particularly Selwyn and Waimakariri, made notable net gains of internal movers. Moreover, Selwyn, the territorial authority area gaining the greatest contribution to growth from internal migration of all authority areas, experienced net loss of international migrants.





## New Zealand's ethnic diversity - far from evenly distributed

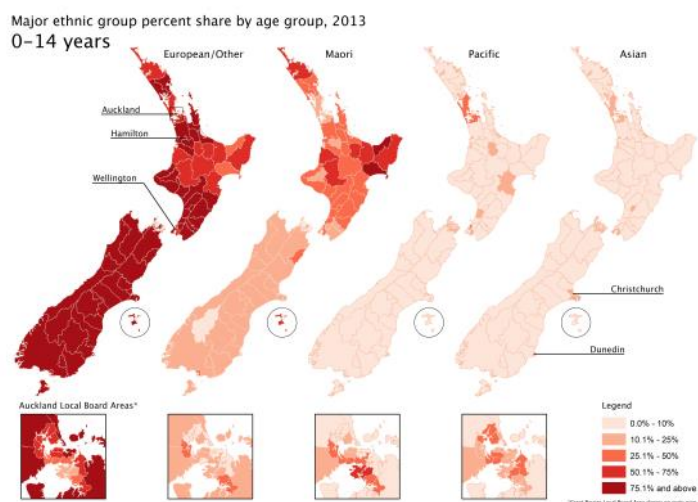
Generally missing in the discussion of New Zealand's growing ethnic diversity is how this situation differs by Territorial Authority Area and age, and how it will unfold in the future. Figure 7 shows the percentage of all New Zealand residents aged 0-14 years that was accounted for by each ethnic group in 2013; Figure 8 shows the same for residents aged 65+ years.

While those of European origin dominate numbers in the South Island in both age groups, Maori aged 0-14 years account for similar proportions as European in much of Northland, the Bay of Plenty, Gisborne, Hawke's Bay, Manawatu and Wanganui. Outside of Auckland, Pacific Peoples and those of Asian origin are only minimally dispersed at these ages, although slightly more so for Pacific People.

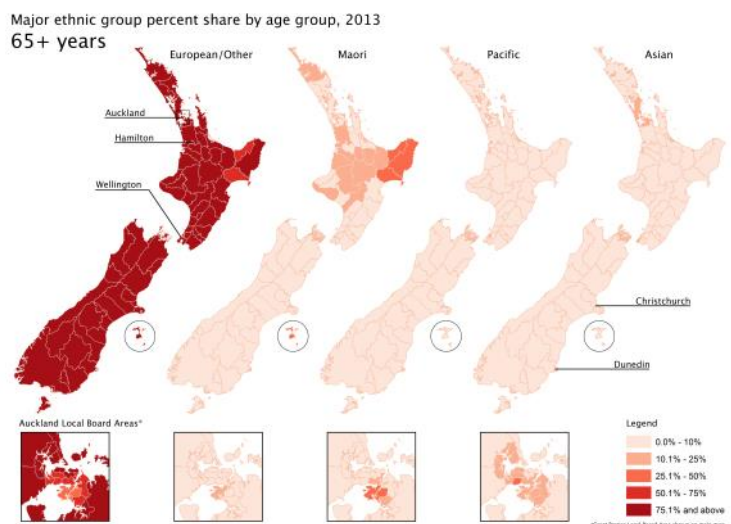
Differing life expectancies, along with the timing of recent migration waves, mean that ethnic group representation among those aged 65+ years is even more diverse. Relatively high proportions of older Maori are concentrated in the Northland, central North Island, South Taranaki, Gisborne and Hawke's Bay areas. Older people of Pacific and Asian origin feature primarily in Auckland, while proportions are extremely low elsewhere.

Projections of this sub-national and age-related ethnic diversity are featured on the *New Zealand Atlas of Population Change* with the objective of assisting planning for the future delivery of resources and facilities.

**Figure 7: Ethnic Group Share at 0-14 years in 2013**



**Figure 8: Ethnic Group Share at 65+ years in 2013**



New Zealand's ethnic diversity is highly uneven by territorial authority area and even more so by age

### Summary

An online *New Zealand Atlas of Population Change* has been developed to assist in the visualisation of New Zealand's growing population diversity (<http://socialatlas.waikato.ac.nz/>). The maps and graphs featured on the site differ from the thematic mapping of raw data available from several other sites in that they are supported by detailed comparative research which compares and contrasts patterns and trends at various spatial levels. This Brief showcases output that separates subnational population change into its various components (natural/cohort change, net migration, migration by age, net migration flows, internal and international migration, ethnic share by age) which together illustrate that the drivers of population diversity are themselves diverse. Understanding how these different drivers contribute to change is essential for planning for future diversity, as they foreshadow how populations will (or won't) change, and why diverse—spatially-specific—responses will increasingly be needed. Work is ongoing and contributions from relevant researchers are invited.



**References:** Jackson, NO and L Brabyn. (2018) *The New Zealand Atlas of Population Change*. <http://socialatlas.waikato.ac.nz/>