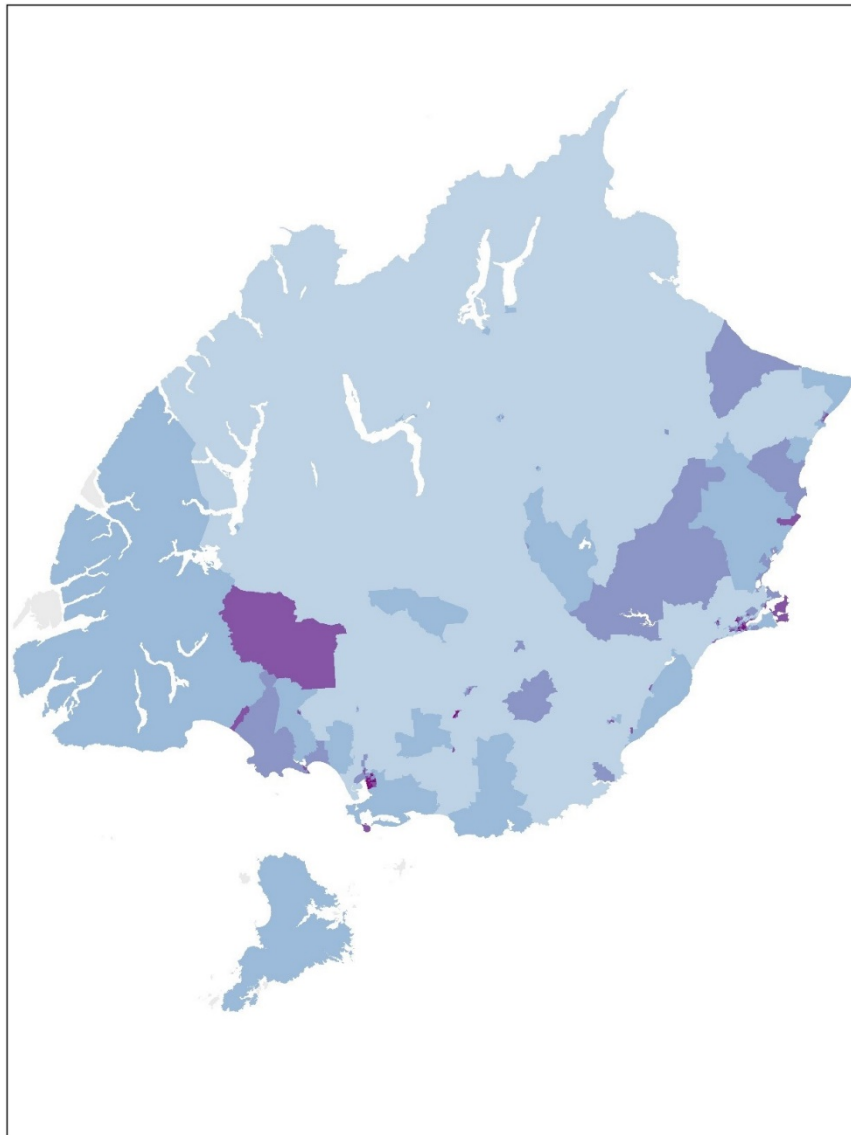


A deprivation and demographic profile of the Southern DHB



Southern DHB, showing overall IMD deprivation
with the most deprived areas shaded darkest

**Rachael Yong, Michael Browne, Dr Jinfeng Zhao, Dr Arier Chi Lun
Lee, Dr Nichola Shackleton, Dr Sue Crengle, Dr Daniel Exeter
17/10/2017**

Statistics New Zealand Disclaimer

The results in this report are not official statistics, they have been created for research purposes from the Integrated Data Infrastructure (IDI), managed by Statistics New Zealand. The opinions, findings, recommendations, and conclusions expressed in this paper are those of the author(s) not Statistics NZ or the University of Auckland.

Access to the anonymised data used in this study was provided by Statistics NZ in accordance with security and confidentiality provisions of the Statistics Act 1975. Only people authorised by the Statistics Act 1975 are allowed to see data about a particular person, household, business, or organisation and the results in this paper have been confidentialised to protect these groups from identification. Careful consideration has been given to the privacy, security, and confidentiality issues associated with using administrative and survey data in the IDI. Further detail can be found in the Privacy impact assessment for the Integrated Data Infrastructure available from www.stats.govt.nz.

The results are based in part on tax data supplied by Inland Revenue to Statistics NZ under the Tax Administration Act 1994. This tax data must be used only for statistical purposes, and no individual information may be published or disclosed in any other form, or provided to Inland Revenue for administrative or regulatory purposes. Any person who has had access to the unit-record data has certified that they have been shown, have read, and have understood section 81 of the Tax Administration Act 1994, which relates to secrecy. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

Acknowledgments

The research team are grateful to the Health Research Council of New Zealand for funding this research project. This research would not have been possible without the provision of data, expert guidance and support of many individuals and the following organisations: Accident Compensation Corporation, Action on Smoking and Health, *Aotearoa* People's Network *Kaharoa*, ANZ Bank, ASB Bank, Association of Public Library Managers Inc., Auckland Uniservices Ltd, Auckland University of Technology, Beacon Pathway, BNZ Bank, BRANZ, Child Poverty Action Group, COMET Auckland, Counties-Manukau DHB, Department of Corrections, Energy Efficiency and Conservation Association, Family Start, Heart Foundation, Housing New Zealand Corporation, Inland Revenue, Kiwibank, Leeds University, Maritime NZ, Massey University, Ministries of Business, Innovation and Employment, Education, Health, Justice and Social Development, National Collective of Independent Women's Refuges, *Ngāti Whātua o Ōrākei*, Northland DHB, New Zealand Certified Builders Association, NZ Fire Service, NZ-Libs, NZ Police, NZ Post, NZ Racing Board, Royal New Zealand College of General Practitioners, Ollivier & Company, Otago University, Participants in the Feb 2014 and Feb 2017 hui, Pharmac, Plunket, Prisoners Aid and Rehabilitation Trust, Problem Gambling Foundation, Salvation Army, St John's Ambulance, Southern African Social Policy Research Institute, Statistics New Zealand, TSB Bank, *Tairāwhiti* DHB, *Te Kāhui Mana Ririki Trust*, *Te Kupenga Hauora Māori*, *Te Matapihi he tirohanga mō te iwi* Trust (National Maori Housing Trust), *Te Rūnanga o Ngāti Hine*, *Te Wānanga o Aotearoa*, *Te Whānau O Waipareira Trust*, Telco2 Ltd, Tenancy Tribunal, University of Auckland, University of Canterbury, University of Otago, University of Oxford, Waikato University, *Waitemata* DHB, Wellington Free Ambulance, Westpac Bank, and Woopa Design.

A deprivation and demographic profile of the Southern DHB

The New Zealand Index of Multiple Deprivation (IMD) allows one to look at disadvantage in overall terms, as well as in terms of seven domains of deprivation: Employment, Income, Crime, Housing, Health, Education and Access. The seven domains are weighted to reflect the relative importance of each domain in representing the key determinants of socio-economic deprivation, the adequacy of their indicators and the robustness of the data that they use. Figure 1 shows the IMD's 28 indicators and weightings of the seven domains.

The IMD measures deprivation at the neighbourhood level using custom designed data zones that were specifically developed for social and health research. The New Zealand (NZ) land mass has 5,958 neighbourhood-level data zones that have a mean population of 712 people. In urban settings, they are just a few streets long and a few streets wide. Data zones are ranked from the least to most deprived (1 to 5958) and grouped into five quintiles. Q1 (light shading) represents the least deprived 20% of data zones in the whole of NZ; while Q5 (dark shading) represents the most deprived 20%. This multidimensional deprivation information is combined with demographic information from the 2013 census to produce a DHB profile.

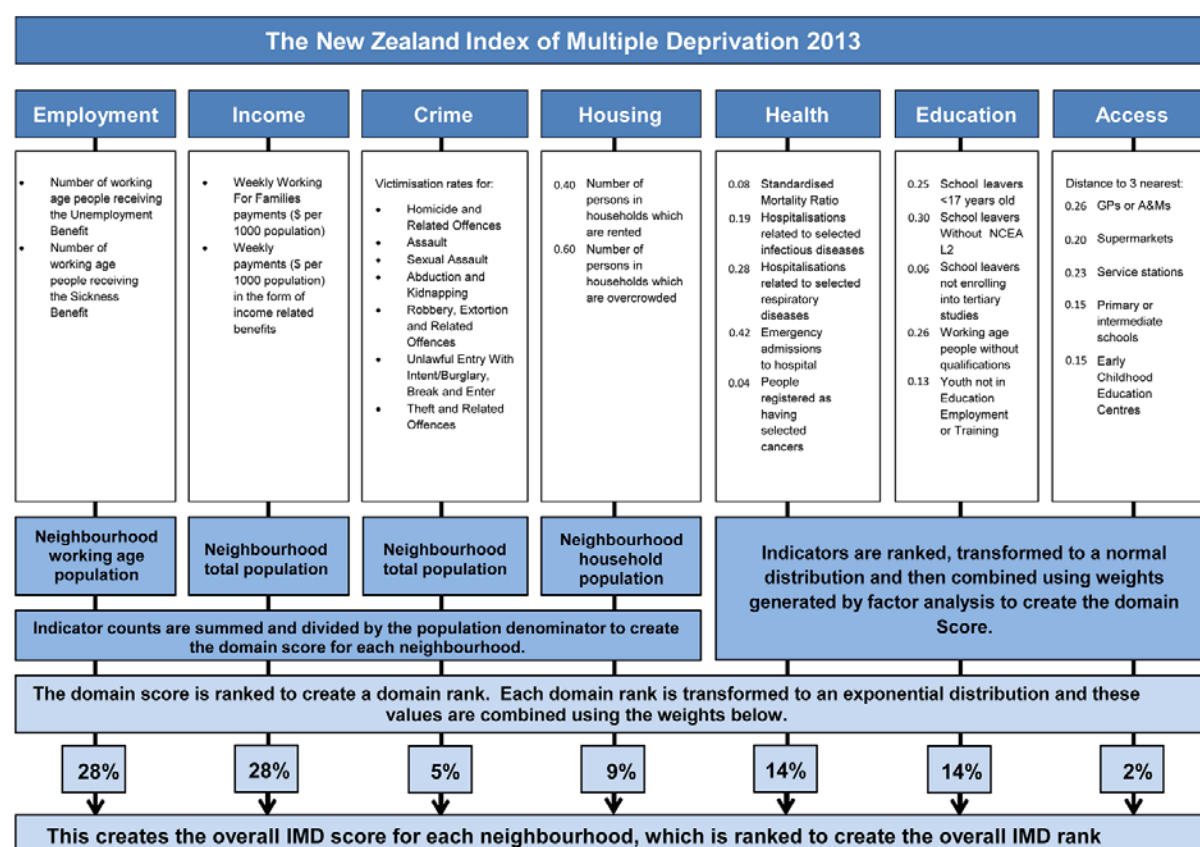


Figure 1. Flow diagram showing the IMD, its indicators, domains and weights. Adapted from Figure 4.2 SIMD 2012 Methodology, in Scottish Index of Multiple Deprivation 2012. Edinburgh: Scottish Government (Crown copyright 2012).

The stacked bar chart in Figure 2 shows the proportion of data zones in the Southern DHB (SDHB) that belonged to each deprivation quintile for overall IMD deprivation and the seven domains in 2013. If the deprivation circumstances were the same as for all of NZ, we would see 20% of the SDHB's 412 data zones in each quintile. However, Figure 2 shows that the proportion of data zones with Q5 deprivation was significantly less than 20% for overall IMD deprivation and for all domains except Access. The proportion of data zones with Q4 deprivation was also less than 20% for the IMD and all domains except Education. The SDHB has relatively low levels of overall IMD deprivation, with only 25.0% (103/412) of its data zones in Q4 or Q5.

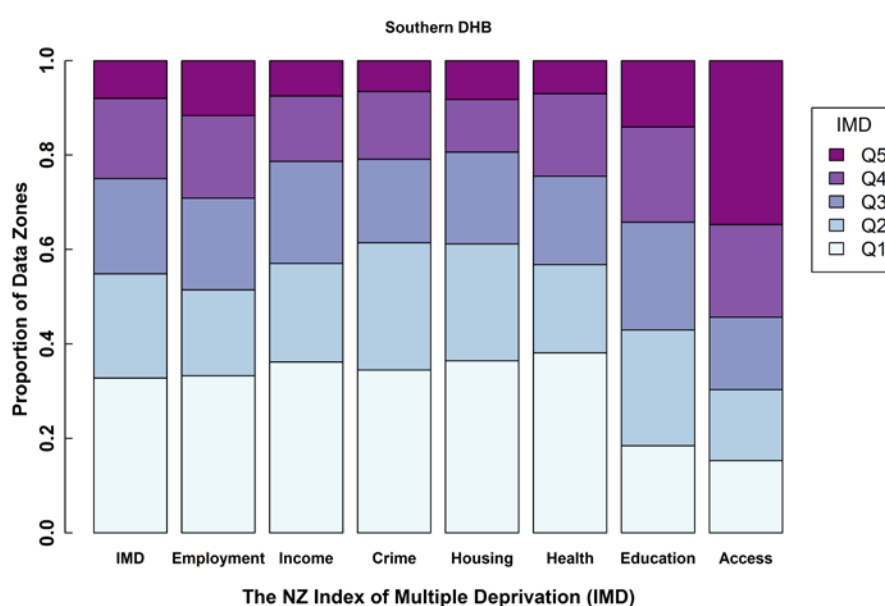


Figure 2. Stacked bar chart showing overall deprivation and seven domains in the SDHB

Table 1 shows summary statistics by domain for 33 SDHB data zones that were among NZ's 20% most deprived for the overall IMD and reveals the contributions of different domains. In descending order, high (Q5) median deprivation ranks for Education (5477), Employment (5342) and Income (5114) were contributing to overall deprivation in these 33 data zones in 2013, bearing in mind that these domains carry different weights in the IMD (see Figure 1).

Min, max and median ¹ deprivation ranks by domain for 33 data zones with Q5 IMD								
	IMD	Employment	Income	Crime	Housing	Health	Education	Access
Min	4813	4066	4568	2436	2672	3155	2170	60
Max	5801	5861	5853	5821	5176	5710	5885	4649
Median	5188	5342	5114	4195	4125	4730	5477	2273

Table 1. Minimum, maximum and median deprivation ranks by domain for 33 data zones in the SDHB with Q5 IMD deprivation

¹ When discussing the 20% most deprived data zones, ranks will usually be skewed, so it is better to discuss the median rank (the middle value) rather than the mean rank (the average, which can be disproportionately affected by very high values).

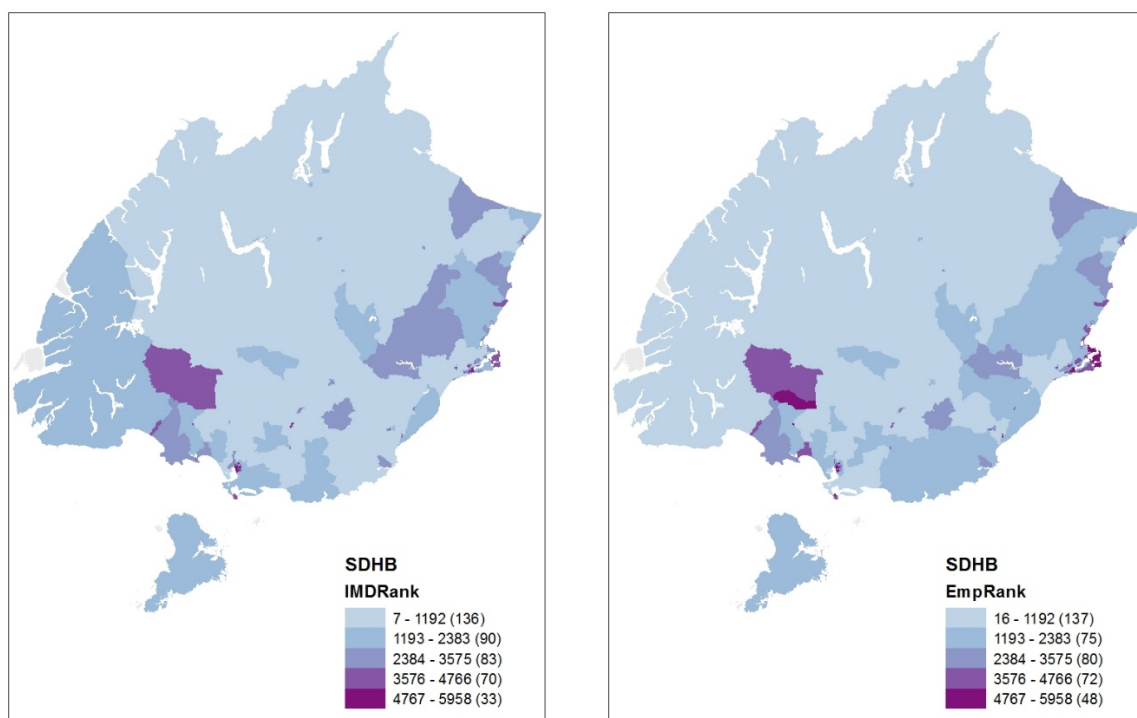


Figure 3. Distribution of overall IMD and employment deprivation in the SDHB

The values in brackets in the legends of the maps that follow are counts of data zones in the relevant quintile. The map for overall (IMD) on the left of Figure 3 shows low levels of Q5 deprivation in the SDHB. Only 8% (33/412) of its data zones were among the most deprived 20% in NZ (Q5), while 32.8% (135/412) were in the least deprived 20% (Q1). The median IMD rank in the SDHB was 2063, 15.4% (916 ranks) better than the NZ median of 2979. Most of the Q5 data zones were concentrated in Invercargill and Dunedin, but there was one in Mosgiel and one in Maitua. There was also a large Q5 rural data zone around Nightcaps and Ohai. Urban data zones are difficult to see on these maps, so we suggest that readers use the interactive maps at the [IMD website](#) to explore the SDHB further.

The map of the Employment Domain on the right of Figure 3 reflects the proportion of working age people who were receiving the Unemployment or Sickness Benefits in 2013. In the SDHB, only 11.7% (48/412) of data zones were among the 20% most employment deprived in NZ, while 33.3% (137/412) of data zones were in the least deprived 20%. The median employment deprivation rank in the SDHB was 2293, 11.5% (686 ranks) better than the NZ median. Q5 employment deprivation followed the general spatial pattern of overall IMD deprivation, but with 15 additional Q5 data zones in places Bluff, Southland, Otago, Heyward Point, Cape Saunders and Kaitangata.

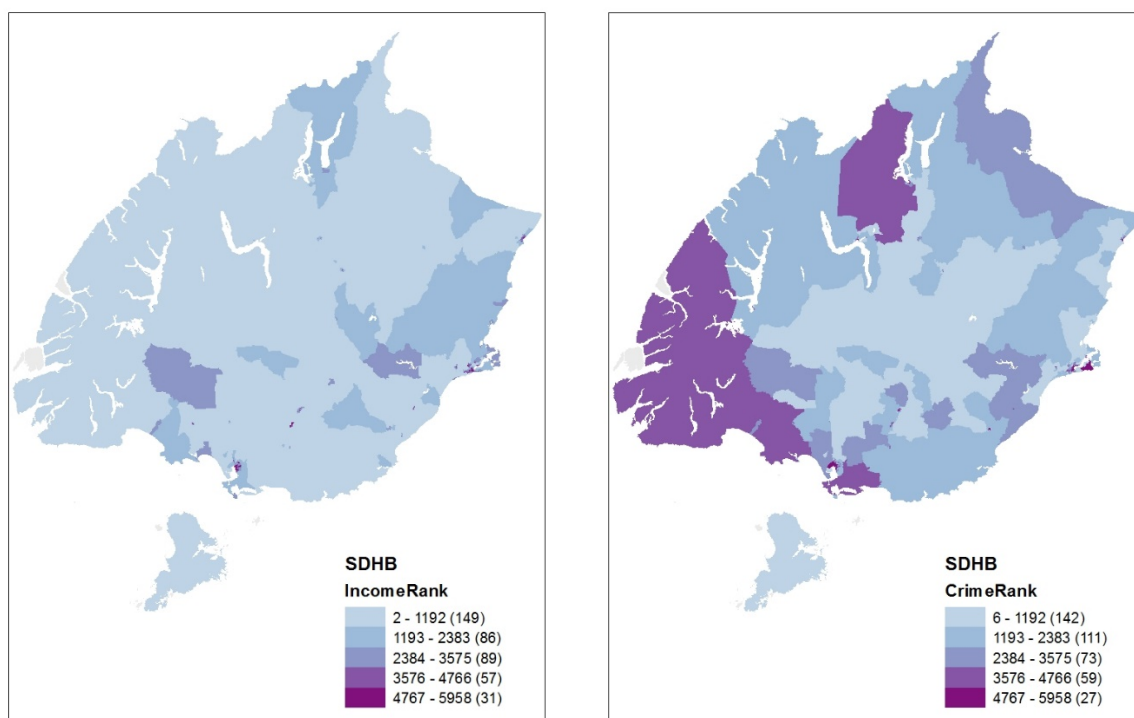


Figure 4. Distribution of income and crime deprivation in the SDHB

The Income Domain measures the amount of money per person paid by the government in the form of Working for Families payments and income-tested benefits. In the SDHB, only 7.5% (31/412) of data zones were among the most 20% income deprived, while 36.2% (149/412) were among the 20% least income deprived. The median income deprivation rank in the SDHB was 2000, 16.4% (979 ranks) better than the NZ median. High (Q5) levels of income deprivation closely followed the patterns of Q5 overall deprivation, but there were slightly fewer Q5 income deprived data zones in Dunedin and Invercargill.

The Crime Domain measures victimisations per 1000 people and is largely driven by thefts (55%), burglaries (24%) and assaults (18%). In the SDHB, only 6.6% (27/412) of data zones were in the most deprived 20%, while 34.5% (142/412) were in the least deprived 20%. The median crime deprivation rank in the SDHB was 1957, 17.2% (1022 ranks) better than the NZ median. Data zones with high (Q5) levels of crime deprivation were located primarily in Dunedin, Invercargill and a few small towns like Balclutha, Gore, Queenstown and Wanaka.

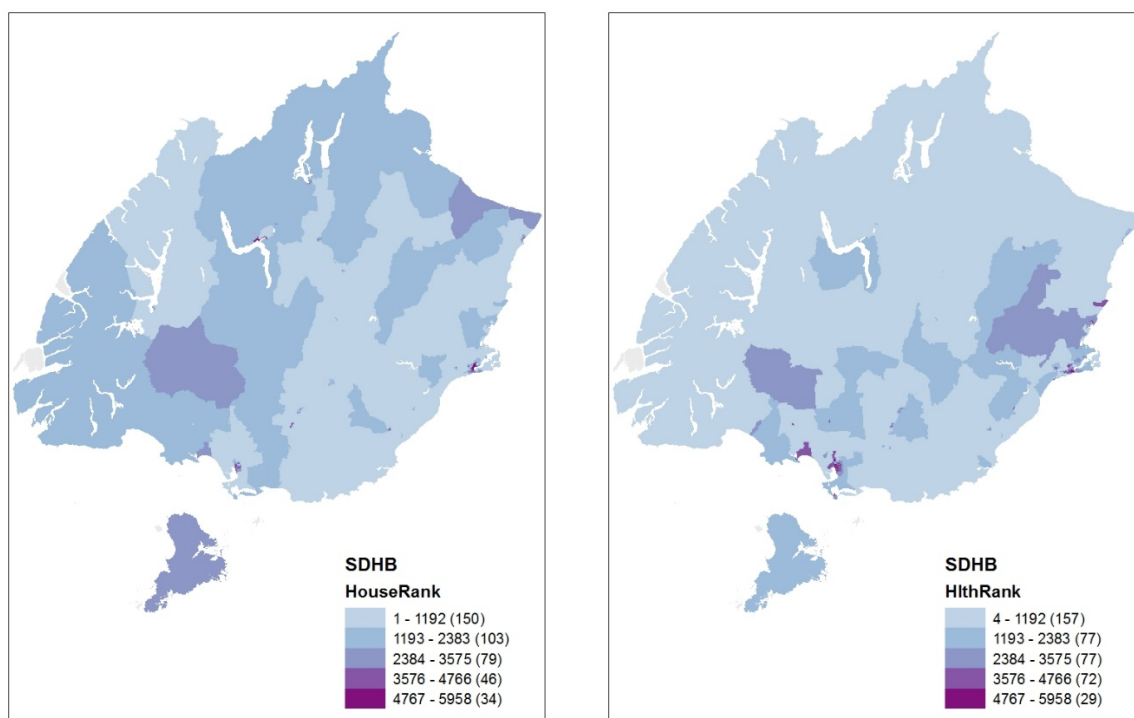


Figure 5. Distribution of housing and health deprivation in the SDHB

The Housing Domain measures the proportion of people living in overcrowded households (60% of the weighting) and in rented dwellings (40%). In the SDHB, only 8.3% (34/412) of data zones were among the 20% most deprived in NZ, while 36.4% (150/412) were among the least deprived 20%. The median housing deprivation rank in the SDHB was 1740, 20.8% (1240 ranks) better than the NZ median. High (Q5) levels of housing deprivation occurred mostly in Dunedin and Queenstown, but there were two Q5 data zones located in Invercargill.

The Health Domain consists of five indicators: standard mortality ratio, acute hospitalisations related to selected infectious and selected respiratory diseases, emergency admissions to hospital, and people registered as having selected cancers. In the SDHB, only 7% (29/412) of data zones were among the 20% most health deprived in NZ, while 38.1% (157/412) were among the least deprived 20%. The median health deprivation rank in the SDHB was 1859, 18.8% (1120 ranks) better than the NZ median. High (Q5) levels of health deprivation closely followed the pattern of Q5 overall IMD deprivation, but data zones in Invercargill and Dunedin were less concentrated, and there were no large rural data zones with Q5 health deprivation.

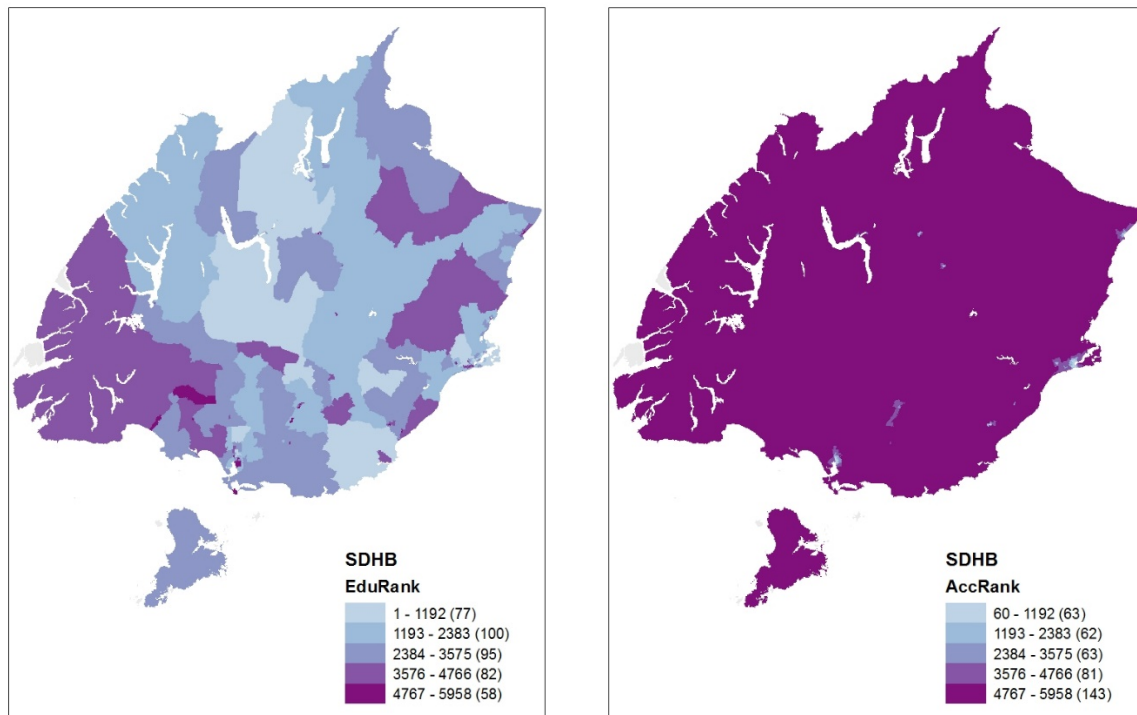


Figure 6. Distribution of education and access deprivation in the SDHB

The Education Domain measures retention, achievement and transition to education or training for school leavers; as well as the proportion of working age people 15-64 with no formal qualifications; and the proportion of youth aged 15-24 not in education, employment or training (NEET). In the SDHB, only 14.1% (58/412) of data zones were among NZ's 20% most education deprived, while 18.4% (76/412) were among the least deprived 20%. The median education deprivation rank in the SDHB was 2758, 3.7% (221 ranks) better than the NZ median. Data zones with Q5 levels of education deprivation occurred throughout the SDHB, including in Dunedin and Invercargill, but also in many small towns such as Oamaru, Cromwell, Roxburgh and Tuatapere.

The Access Domain measures the distance from the population weighted centre of each neighbourhood to the nearest three GPs, supermarkets, service stations, schools and early childhood education centres. In the SDHB, 34.7% (143/412) of data zones were among NZ's 20% most access deprived, while 15.3% (63/412) were in NZ's 20% least deprived. The median access deprivation rank in the SDHB was 3891, 15.3% (912 ranks) worse than the NZ median. High (Q5) levels of access deprivation occurred outside the main urban areas of Invercargill, Dunedin, Queenstown and Oamaru.

Age profile of the SDHB

According to the 2013 census, the SDHB had a total population of 297,453 people living in 412 data zones, with a mean of 722 people each (range: 381 to 999).

Mean data zone proportions for five age groups in the SDHB					
Age group	0-14	15-24	25-44	45-64	65+
Southern DHB	18.3%	15.3%	24.3%	26.4%	15.7%
New Zealand ²	20.4%	13.8%	25.6%	25.8%	14.3%
Difference	-2.1%	1.5%	-1.3%	0.6%	1.4%

Table 2. Mean data zone proportions for five age groups in the SDHB

Table 2 shows that the age profile of the SDHB differs most from the national age profile in that it has 2.1% fewer children aged 0-14 and 1.5% more people aged 15-24. Figure 7 shows the distribution of people in these two age groups.

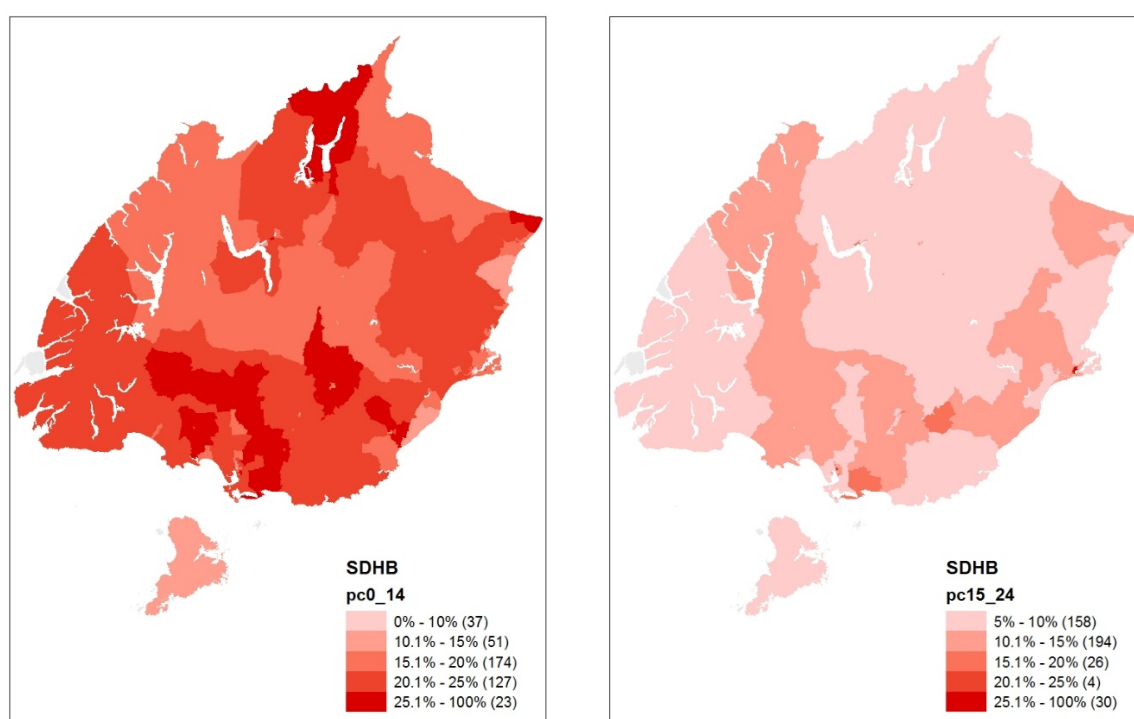


Figure 7. Distribution of children aged 0-14 and people aged 15-24 in the SDHB

² Proportions for age groups and ethnicities at the national level are calculated using data zone counts to ensure fair comparison with DHB values, which also use data zone counts.

Ethnicity profile of the Southern DHB

This section uses the Total Response method to calculate proportions for each ethnicity from the 2013 census. Individuals who identify as more than one ethnicity are counted in more than one category. The proportion of Māori living in data zones within the SDHB in 2013 ranged from 2.2% to 45.2%. The overall proportion of Māori in the SDHB was 9.2%, which was lower than the national proportion of 14.9%. The proportion of Māori per data zone was greatest in two data zones in Bluff (45.2% and 43.3%), followed by Invercargill (31.1%) and Maitai (30.6%).

The proportion of Pacific ethnicity living in data zones within the SDHB ranged from 0.0% to 13.3%. The overall proportion of Pacific ethnicity in the SDHB was 2.0%, which is approximately three times less than the national proportion of 7.3%. A data zone located in Heidelberg had the greatest proportion of Pacific (13.3%), and there were high proportions (>7%) in Invercargill, Dunedin and Cromwell.

The percentage of New Zealand European and Other ethnicities (NZE) in the SDHB ranged from 72.2% to 100%. The overall proportion of NZEO in the SDHB was 95.8%, which was higher than the national proportion of 87.5%. The lowest proportion of NZEO occurred in a data zone located in Invercargill (72.2%).

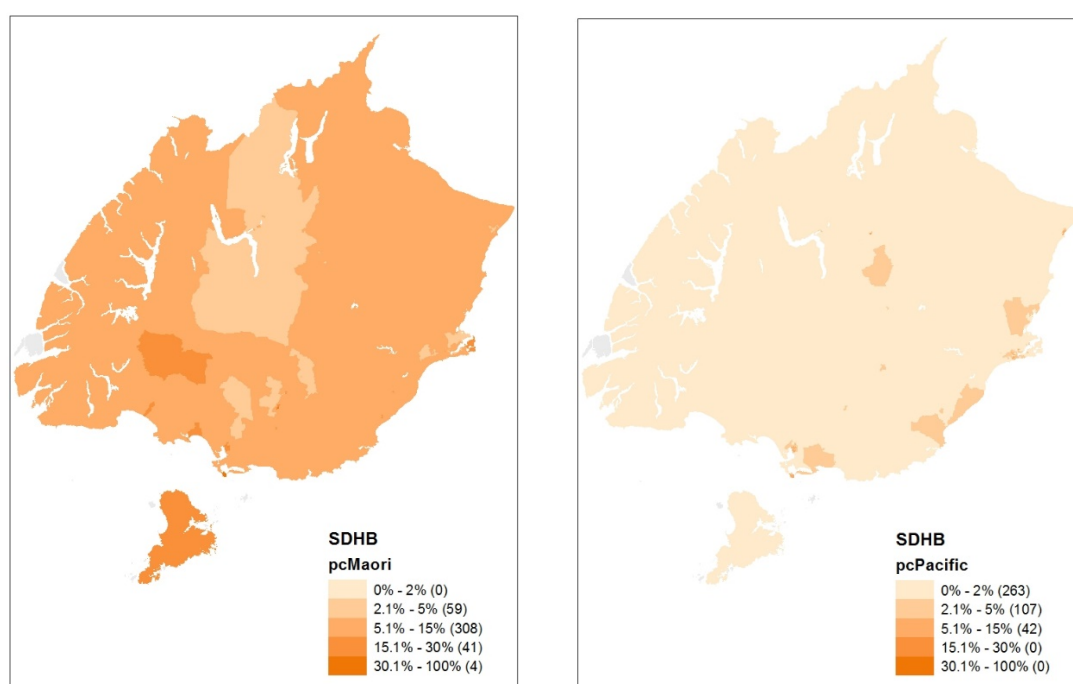


Figure 8. Distribution of Māori and Pacific people in the SDHB

For more information about the IMD, NZ data zones or this profile, please contact Dan Exeter at d.exeter@auckland.ac.nz. For downloadable spreadsheets of the IMD or NZ data zones, online interactive maps, publications and technical documentation, please go to the [IMD website](#).