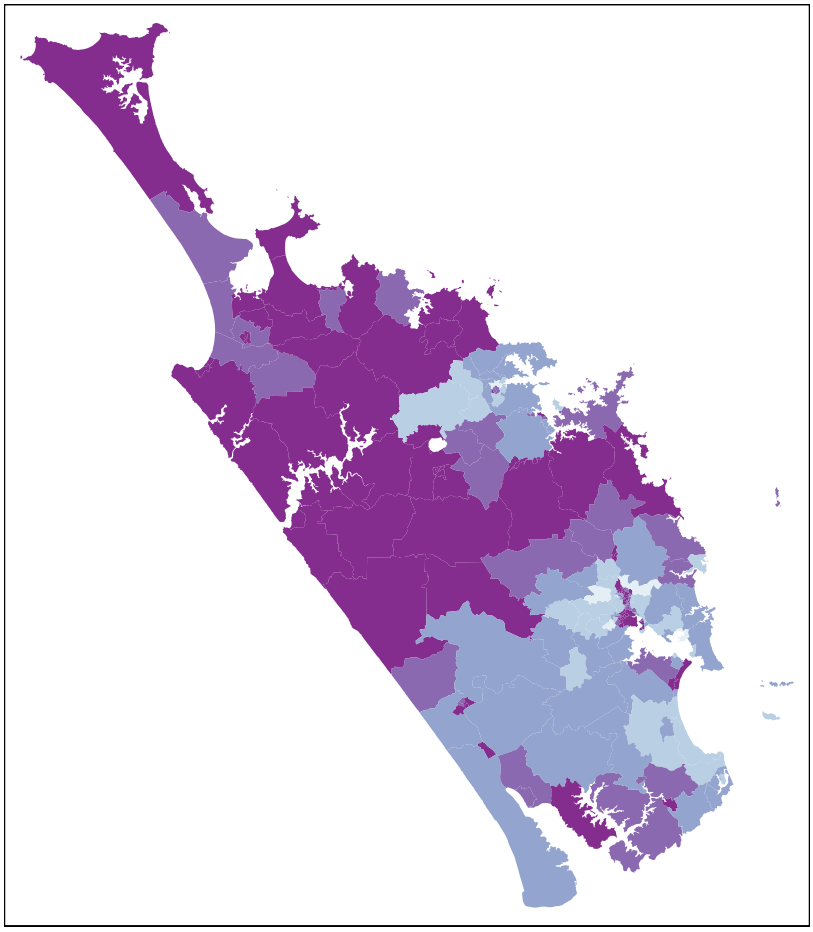
A deprivation and demographic profile of the Northland District Health Board



Northland District Health Board, showing overall IMD deprivation with the most deprived areas shaded darkest

Dr Daniel Exeter, Annie Chiang, Dr Jinfeng Zhao, Dr Arier Chi Lun Lee, Dr Sue Crengle, Michael Browne

THE UNIVERSITY OF AUCKLAND Te Whare Wānanga o Tāmaki Makaurau NEW ZEALAND
MEDICAL AND HEALTH SCIENCES SCHOOL OF POPULATION HEALTH
Auckland Medical Research Foundation est. 1955
hrc Health Research Council of New Zealand

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.

Acknowledgements

The research team are grateful to the Health Research Council of New Zealand for funding the original research project (IMD13), and to the Auckland Medical Research Foundation for funding the 2018 update. 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 City Hospital, Auckland Uniservices Ltd, Auckland University of Technology, Beacon Pathway, BNZ Bank, BRANZ, Bishop's Action Foundation, Canterbury District Health Board, Child Poverty Action Group, COMET Auckland, Counties-Manukau DHB, Department of Corrections, Energy Efficiency and Conservation Association, Family Start, Federated Farmers, 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, North Shore Hospital, Northland DHB, New Zealand Certified Builders Association, NZ Fire Service, nzchurchnet.co.nz, NZ-Libs, NZ Police, NZ Post, NZ Racing Board, NZ Transport Agency, 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 Northland District Health Board

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 29 indicators and weightings of the seven domains.

The IMD measures deprivation at the neighbourhood level using custom data zones that were specifically developed for social and health research. The New Zealand (NZ) land mass has 6,181 neighbourhood-level data zones that have a mean population of 712 people. In urban settings, data zones can be just a few streets long and wide. Data zones are ranked from the least to most deprived (1 to 6181) 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 2018 census to produce a District Health Board profile.

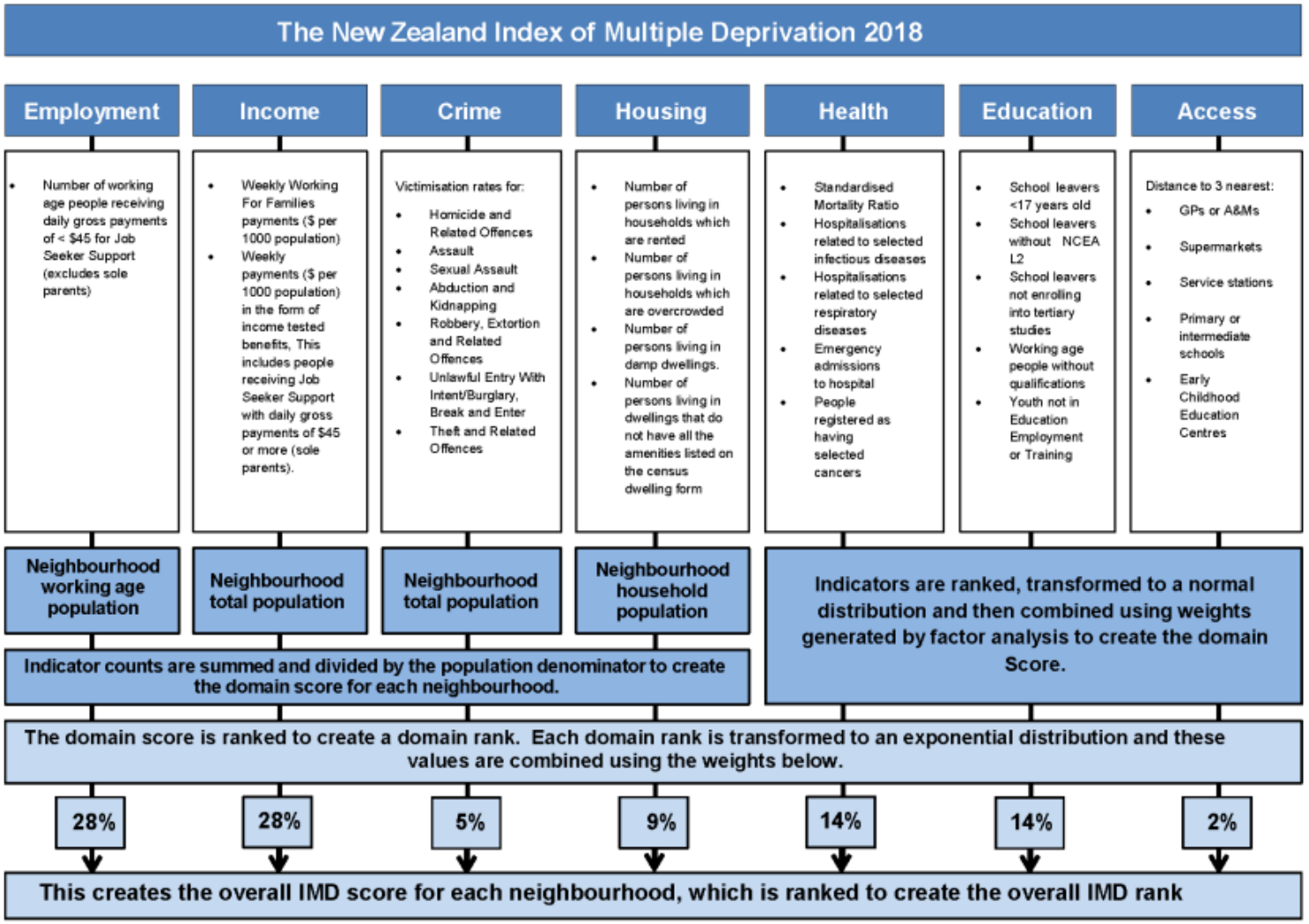


Figure 1: **Flow diagram showing the IMD, its indicators, domains and weights.** Adapted from Figure 4.2 SIMD 2012 Methodology, in Scottish Index of Multiple Deprivation 2012. Edinburgh: Scottish Government (Crown copyright 2012).

Table 1: Min, max and median deprivation ranks by domain for 100 data zones with Q5 IMD

	IMD	Employment	Income	Crime	Housing	Health	Education	Access
Min	4947.0	3956.50	4219.0	894.0	2255	44.0	3347.0	230.0
Max	6178.0	6174.00	6179.0	6179.0	6067	6174.0	6171.0	6142.0
Median	5614.5	5867.75	5575.5	4984.5	4777	4659.5	5513.5	4683.5

The stacked bar chart in Figure 2 shows the proportion of data zones in the Northland District Health Board (Northland DHB) that belong to each deprivation quintile for overall IMD deprivation and the seven domains in 2018. If the deprivation circumstances were the same for all of NZ, we would see 20% of the Northland DHB's 233 data zones in each quintile. However, Figure 2 shows that the proportion of data zones with Q5 overall housing deprivation was less than 20%, while the proportion with Q5 IMD, employment, income, crime, health, education, access deprivation was greater than 20%. The Northland DHB has higher than average overall IMD deprivation, with 63.5% (148/233) of its data zones either in Q4 or Q5.

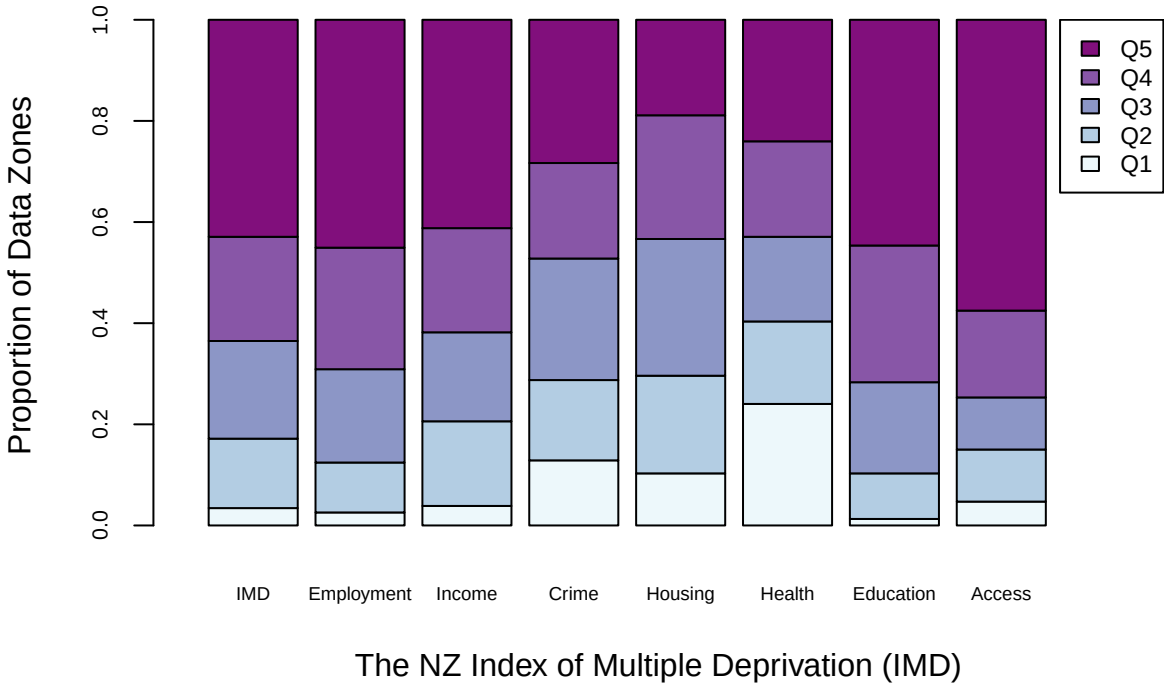


Figure 2: Stacked bar chart showing overall deprivation and seven domains in the Northland DHB.

Table 1 shows summary statistics by domain for 100 data zones that were among NZ's most deprived (Q5) for the overall IMD and reveals the contributions of different domains. In descending order, high (Q5) median deprivation ranks for Employment (5867.75), Income (5575.5), Education (5513.5) and Crime (4984.5) were contributing to high overall deprivation in these 100 data zones in 2018, bearing in mind that these domains carry different weights in the IMD (see Figure 1).

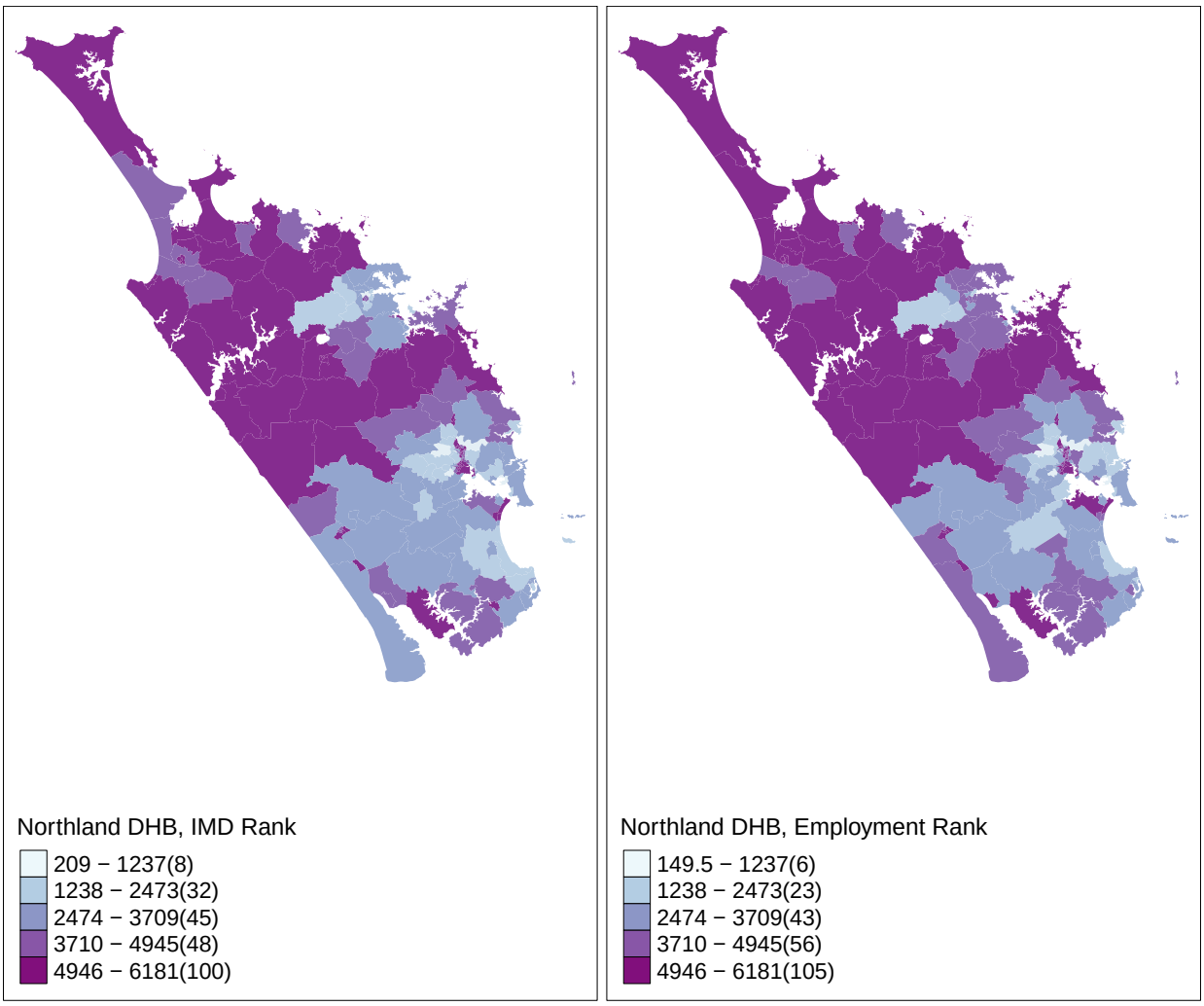


Figure 3: Distribution of overall IMD and employment deprivation in the Northland DHB.

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 deprivation (IMD) on the left of Figure 3 shows relatively high levels of Q5 deprivation in the Northland DHB in 2018, with the highest number of data zones (100) in the Q5 quintile. 42.9% (100/233) of data zones were among the most deprived 20% in NZ (Q5), while 3.4% (8/233) were in the least deprived 20% (Q1). The median IMD rank in the Northland DHB was 4548, 23.6% (1457 ranks) worse than the NZ median of 3091. 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 Northland DHB 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 2018. In the Northland DHB, 45.1% (105/233) of data zones were among the 20% most employment deprived in NZ, while 2.6% (6/233) of data zones were in the least deprived 20%. The median employment deprivation rank in the Northland DHB was 4689, 25.8% (1596 ranks) worse than the NZ median of 3091.

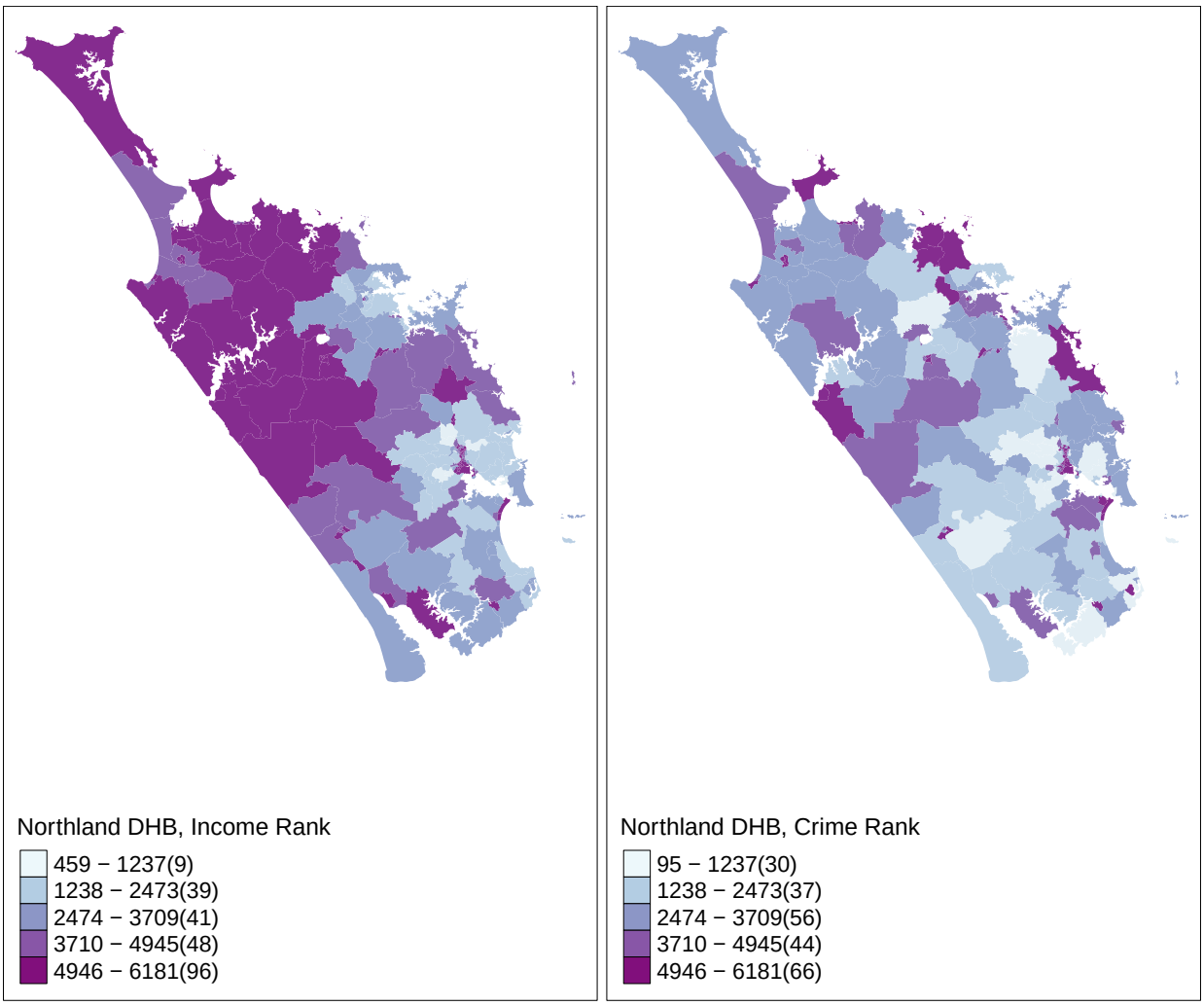


Figure 4: Distribution of income and crime deprivation in the Northland DHB.

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 Northland DHB, 41.2% (96/233) of data zones were in NZ's 20% most income deprived, while 3.9% (9/233) were in the 20% least income deprived. The median income deprivation rank in the Northland DHB was 4515, 23% (1424 ranks) worse than the NZ median. There were less Q5 data zones in the Income Domain than for the IMD overall in the Northland DHB.

The Crime Domain measures victimisations per 1000 people and is largely driven by thefts (55%), burglaries (24%) and assaults (18%). In the Northland DHB, 28.3% (66/233) of data zones were among NZ's 20% most deprived for the Crime Domain, while 12.9% (30/233) were among NZ's 20% least deprived. The median crime deprivation rank in the Northland DHB was 3558, 7.6% (468 ranks) worse than the NZ median.

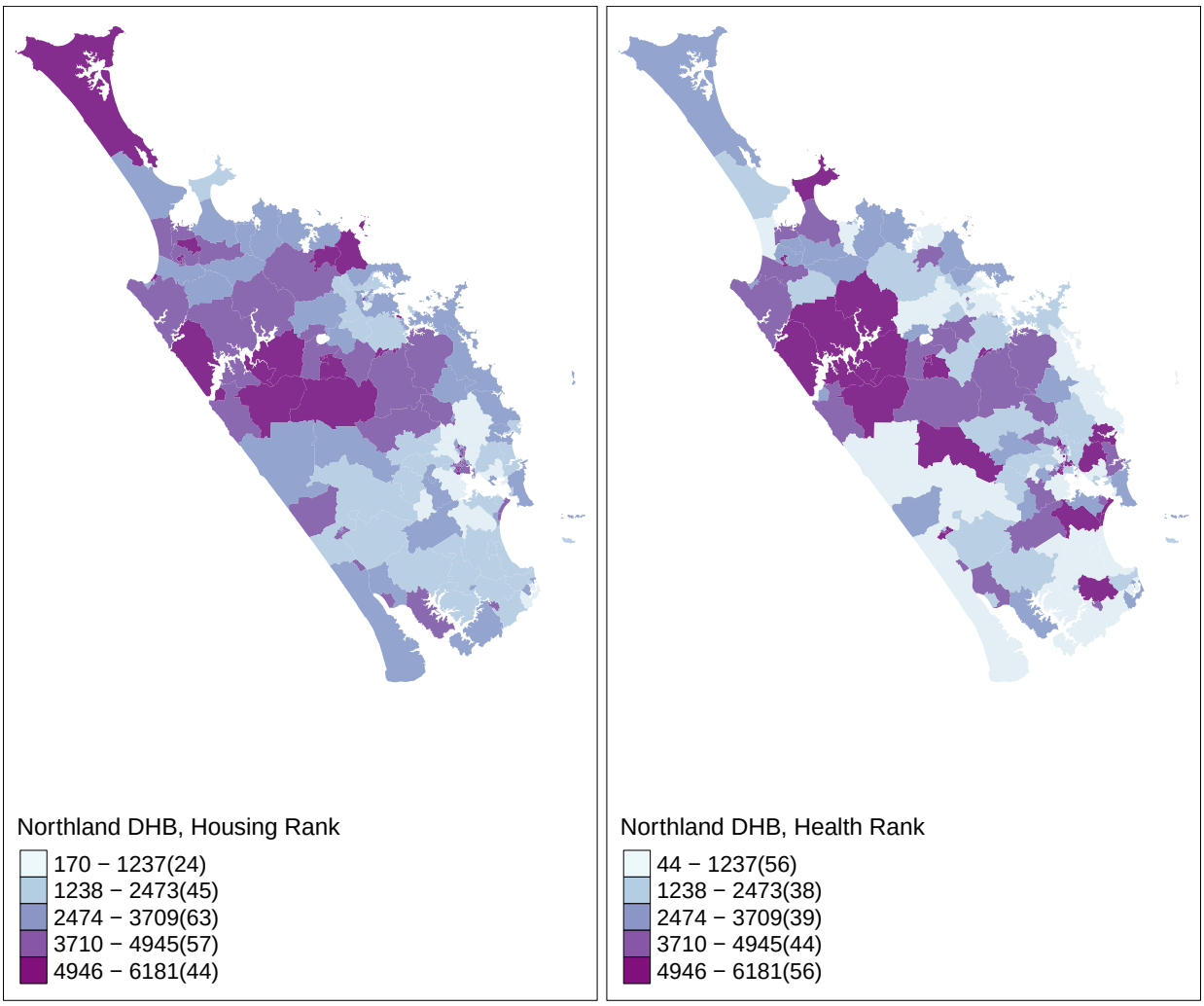


Figure 5: Distribution of housing and health deprivation in the Northland DHB.

The Housing Domain measured the proportion of people living in overcrowded households (60% of the weighting) and in rented dwellings (40%). In the Northland DHB, 18.9% (44/233) of data zones were among the 20% most deprived in NZ, while 10.3% (24/233) were among the 20% least deprived. The median housing deprivation rank in the Northland DHB was 3388, 4.8% (297 ranks) worse than the NZ median. There were 44 Q5 data zones in the housing domain compared to 100 Q5 data zones for the IMD in the Northland DHB.

The Health Domain consists of five indicators: standard mortality ratio, acute hospitalisations related to selected infectious and respiratory diseases, emergency admissions to hospital, and people registered as having selected cancers. In the Northland DHB, 24% (56/233) of data zones were among the 20% most health deprived in NZ, and 24% (56/233) were among the least deprived 20%. The median health deprivation rank in the Northland DHB was 3348, 4.2% (257 ranks) worse than the NZ median.

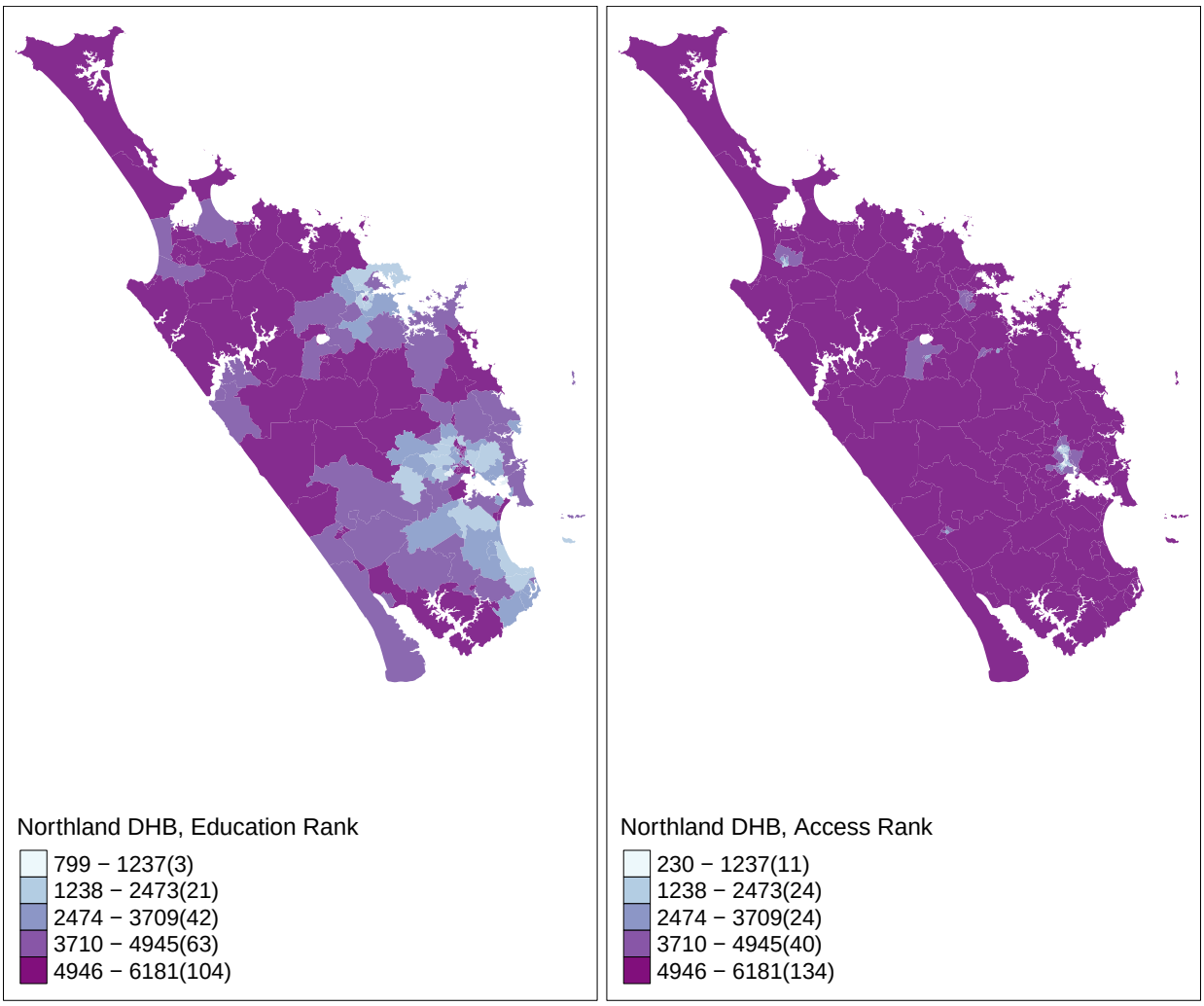


Figure 6: Distribution of education and access deprivation in the Northland DHB.

The Education Domain measures retention, achievement and transition to education or training for school leavers; 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 Northland DHB, 44.6% (104/233) of data zones were among the 20% most education deprived in NZ (Q5), and 1.3% (3/233) were among the 20% least deprived (Q1). The median education deprivation rank in the Northland DHB was 4795, 27.6% (1704 ranks) worse than the NZ median.

The Access Domain measures the distance from the population weighted centre of each data zone to the nearest three GPs, supermarkets, service stations, schools and early childhood education centres. In the Northland DHB, 57.5% (134/233) of data zones were among NZ's 20% most access deprived, and 4.7% (11/233) were among NZ's 20% least deprived. The median access deprivation rank in the Northland DHB was 5281, 35.4% (2190 ranks) worse than the NZ median.

Further Information

For more information about the IMD, NZ data zones for 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.