

Wednesday 30th May 2018

Using the Index of Multiple Deprivation (IMD) to Understand Drivers of Deprivation in the Waikato Region

A presentation at the **COMPASS Seminar Series**

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**MEDICAL AND
HEALTH SCIENCES**



Statistics New Zealand Disclaimer Statement

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Acknowledgements

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Outline

- Background
 - What is deprivation, how is it used, by whom
- Developing the Index of Multiple Deprivation
 - Data Zones
 - Indicators, Domains, and the IMD
- How different is the IMD to NZDep?
- Deprivation in the Waikato Region: informing the Waikato Plan

What is deprivation?

- “Deprivation is a state of observable and demonstrable disadvantage relative to the local community or the wider society or nation to which an individual, family or group belongs” (Townsend 1987)
- Deprivation should be applied to conditions and quality of life that are of a lower standard than is *ordinary* in a particular society
- Living in poverty should refer to a lack of income and resources to obtain the normative standard of living.

There are 7 Domains of deprivation in the IMD

EMPLOYMENT	Measure the degree to which working age people are excluded from employment
INCOME	Captures the extent of income deprivation in a data zone by measuring state-funded financial assistance to those with insufficient income
CRIME	Counts victims for 7 major offences per 1000. Counts were collected after 30 days of investigation: Homicide/Assault/Sexual Assault/Abduction/Robbery/Extortion/Unlawful Entry with intent/ Theft
HOUSING	Proportion of people living in overcrowded housing and the proportion living in rented accommodation.
HEALTH	Identifies areas with a high level of ill health or mortality.
EDUCATION	Captures youth disengagement, and the proportion of the working age population without a formal qualification
ACCESS	Measures the cost and inconvenience of travelling to access basic services. Supermarkets, GPs, service stations, ECE, primary & intermediate schools.

The IMD allows one to look at disadvantage in overall terms, as well as in terms of seven domains of deprivation.

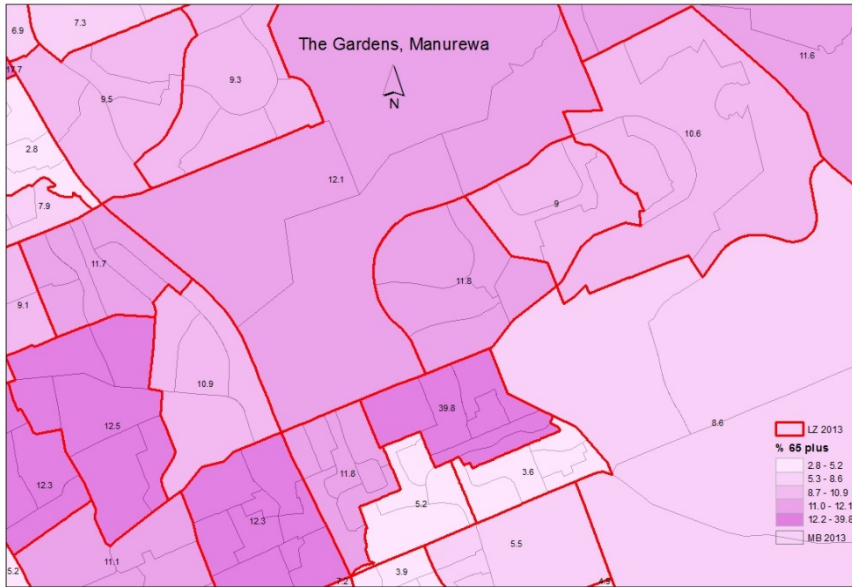
EMPLOYMENT	INCOME	CRIME	HOUSING	HEALTH	EDUCATION	ACCESS
<p># of working age people on Unemployment Benefit</p> <p># of working age people on Sickness Benefit</p>	<p>Amount of Working for Families Payment</p> <p>Amount of Income Related Benefits</p>	<p># of Victims of:</p> <p>Homicide + RO</p> <p>Physical/Sexual Assault</p> <p>Abduction and Kidnapping</p> <p>Robbery, extortion + RO</p> <p>Trespassing + RO</p> <p>Theft + RO</p>	<p># of people in rented housing</p> <p># of people in overcrowded housing</p>	<p>SMR</p> <p># of emergency admissions</p> <p># of people with certain cancers</p> <p># of Hospitalisations related to selected:</p> <p>Infectious diseases</p> <p>Respiratory diseases</p>	<p># <17yo school leavers</p> <p># school leavers w/o NCEA L2</p> <p># working age w/o qualifications</p> <p># youth not working or in education</p>	<p>Distance to nearest 3:</p> <p>GP/ A&M</p> <p>Supermarket</p> <p>Service Station</p> <p>Primary + Intermediate Schools</p> <p>ECE Centre</p>
28%	28%	5%	9%	14%	14%	2%

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.

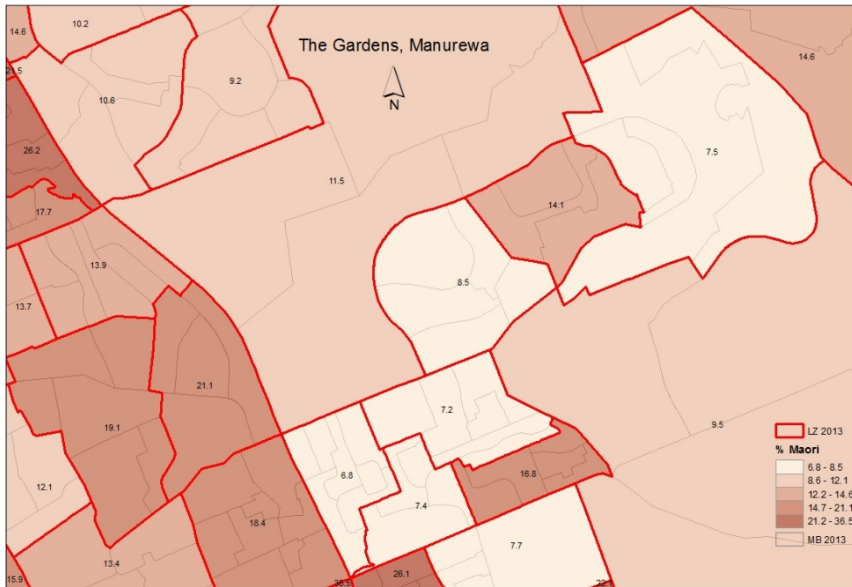
Index of Multiple Deprivation



- Data zones - 5,958 neighbourhood-level data zones in New Zealand
- Each IMD data zone has an average population of 712
- Data zones are ranked from the least to most deprived (1 to 5958) and grouped into five quintiles
- Quintile 1 (Q1) represents the least deprived 20% of data zones
- Quintile 5 (Q5) represents the most deprived 20% of data zones



16 data zones (0.3%) in NZ with null for % 65+ compared with 7.2% of CAUs and 18.6% of MBs.



4 data zones (0.07%) in NZ with null for % Maori compared with 6.8% of CAUs and 12.9% of MBs.

The IMD measures deprivation at the neighbourhood level using 5,958 custom designed data zones that were specifically developed for social and health research, particularly to reduce the level of data suppression.

- Data zones that have a mean population of 712 people.
- In urban settings, data zones can be just a few streets long and a few streets wide.

In the maps and diagrams that follow, data zones are ranked from the least to most deprived (from 1 to 5958) and grouped into five quintiles.

- Q1 (light shading) represents the least deprived 20% of data zones in the whole of NZ
- Q5 (dark shading) represents the most deprived 20%

IMD compared to NZDep13

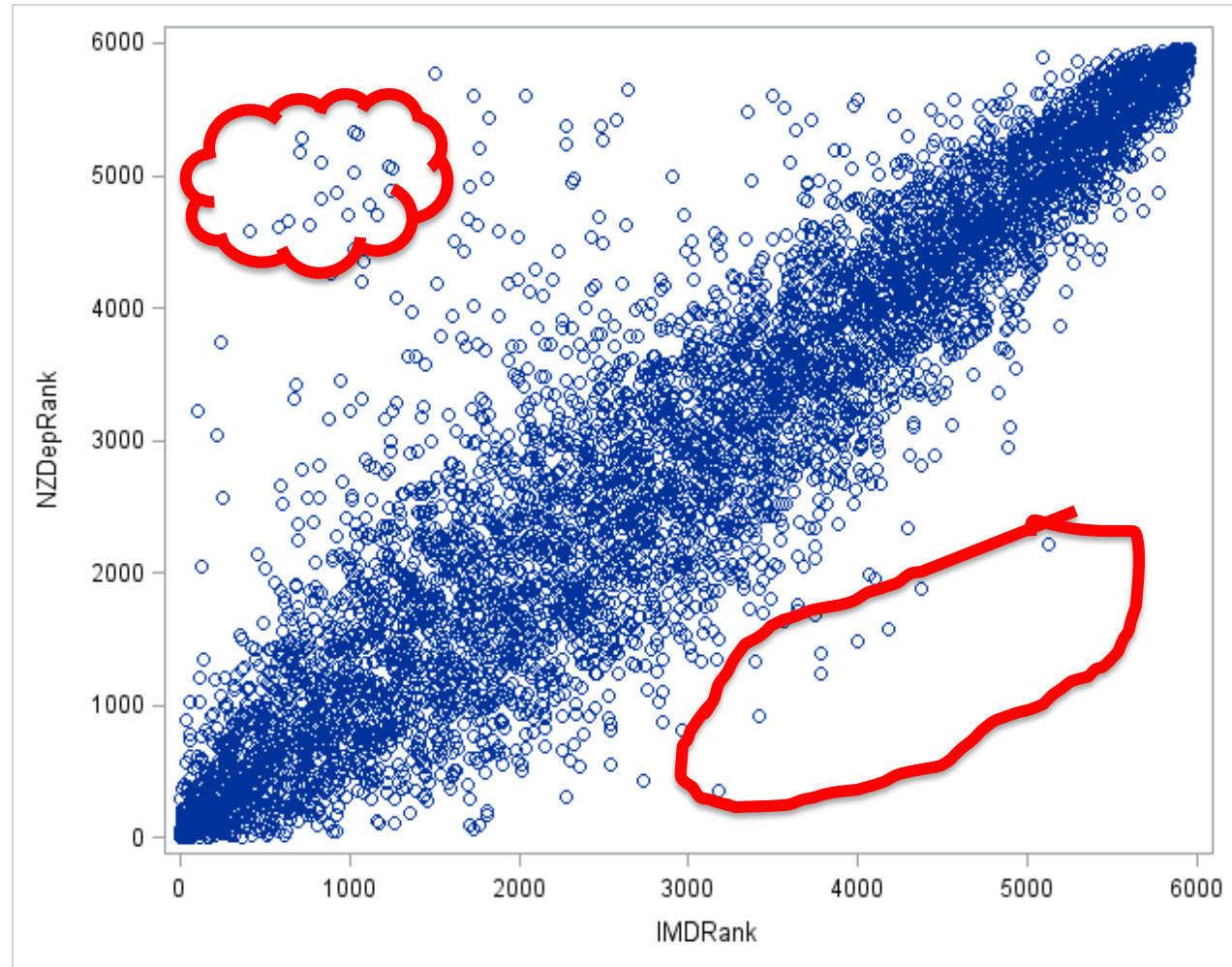
We calculated the population weighted average NZDep13 rank for each data zone

We excluded 86 (1.4%) data zones with MBs without an NZDep13 score

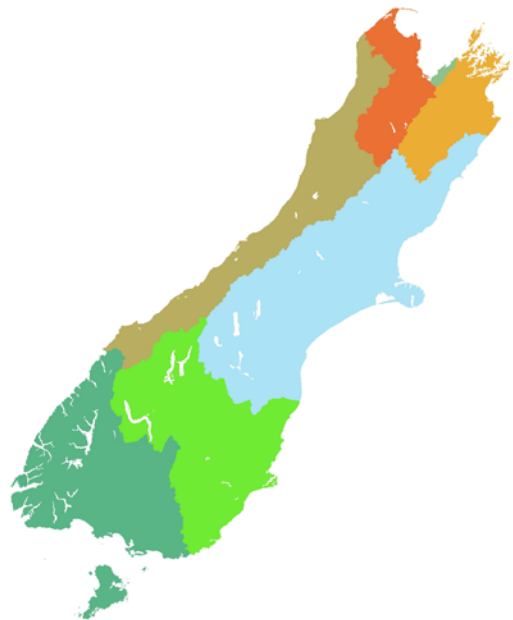
Spearman Correlation Coefficient:

0.92

















($p < .0001$)



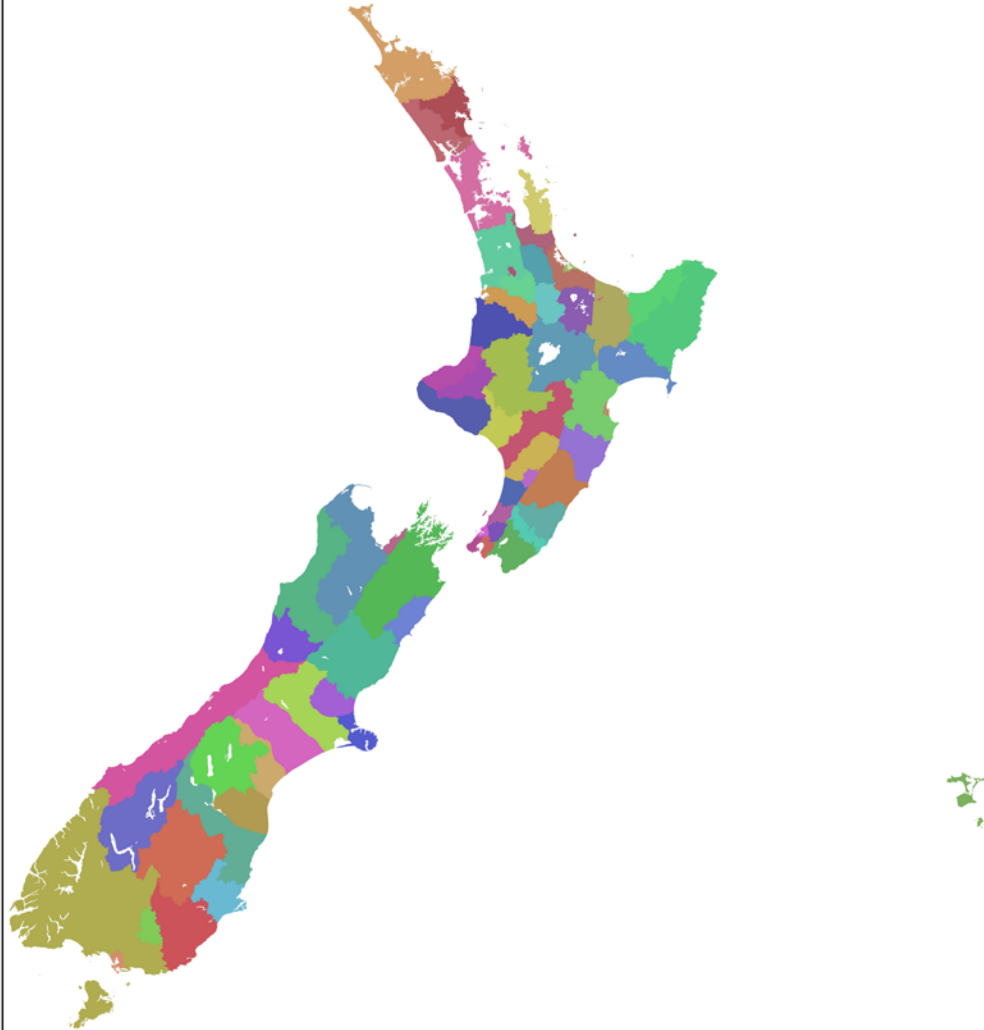
Regions of New Zealand



Regions (count of data zones)

	Auckland Region (1,923)
	Bay of Plenty Region (376)
	Canterbury Region (767)
	Gisborne Region (64)
	Hawke's Bay Region (220)
	Manawatu-Wanganui (325)
	Marlborough Region (62)
	Nelson Region (65)
	Northland Region (225)
	Otago Region (279)
	Southland Region (131)
	Taranaki Region (156)
	Tasman Region (69)
	Waikato Region (576)
	Wellington Region (671)
	West Coast Region (48)

Territorial Authorities of New Zealand



The Waikato Plan

<http://waikatoplan.co.nz/about-the-plan/>

- The first time councils and agencies in the Waikato have worked together to create one plan provides a collective voice about important issues 2018-2048 and beyond.
- Two guiding principles:
 1. Together we are stronger. Collaboration builds strength and understanding, fills gaps, and cuts duplication.
 2. To succeed as a region, all parts of the Waikato must be as successful as they can be.
- Does not over-ride statutory documents or the functions of statutory bodies/committees.
- A multi-agency agreement that provides strategic guidance and advocacy, prepared within the framework provided by the Local Government Act 2002.

Purpose



- Understanding drivers of deprivation is important for:
 - Helping the Waikato Plan to determine our action priorities and areas to target
 - Promoting more effective engagement between the Waikato Plan and various community agencies in the Waikato
 - Helping local governments in the Waikato Region to further understand their communities to address their own unique mix of deprivation drivers
 - Harnessing government funding opportunities to help address inequalities

Deprivation in the Waikato



Comparison of deprivation indices:

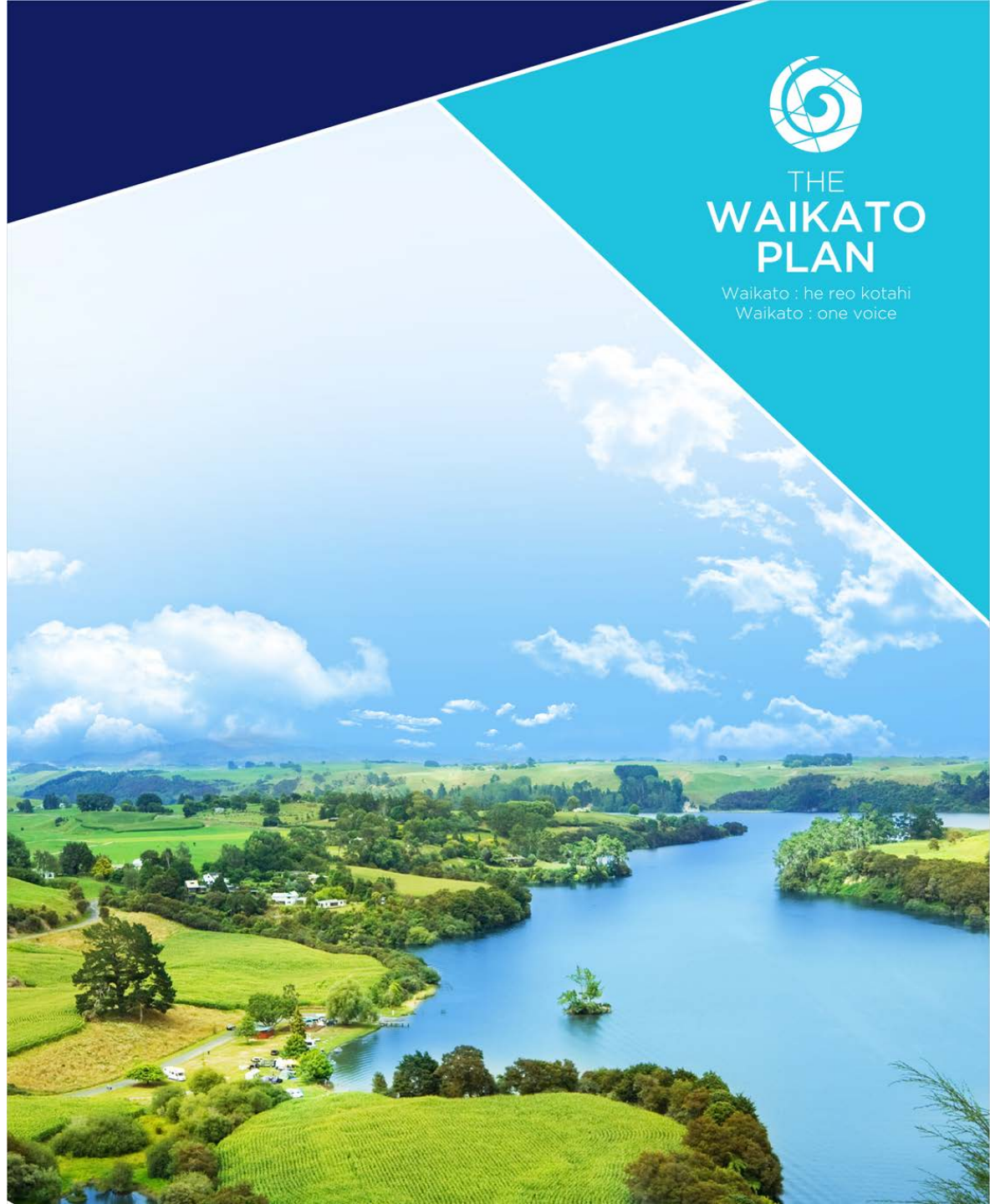
- The New Zealand Deprivation Index (NZ Dep):
 - Official statistics – Census
 - 9 indicators in 8 domains
 - Data set from 1991 to 2013 currently
 - Good for showing broad changes over time, comparison between regions
- Index of Multiple Deprivation:
 - Released in 2017
 - Snapshot of 2013
 - Not official statistics - uses IDI – integrated data infrastructure – routinely collected data from govt and census
 - 28 indicators in 7 domains
 - Good for drilling down into the drivers of deprivation at small level

Rachael has written a detailed report on deprivation for each District in the Waikato Region.

In addition, Rachael has presented findings specific to relevant District Councils, Mayoral Forums, Senior Leadership Team

This is a selection of some of those findings

A personal word of thanks to Rachael for her role in being an IMD champion in the sector

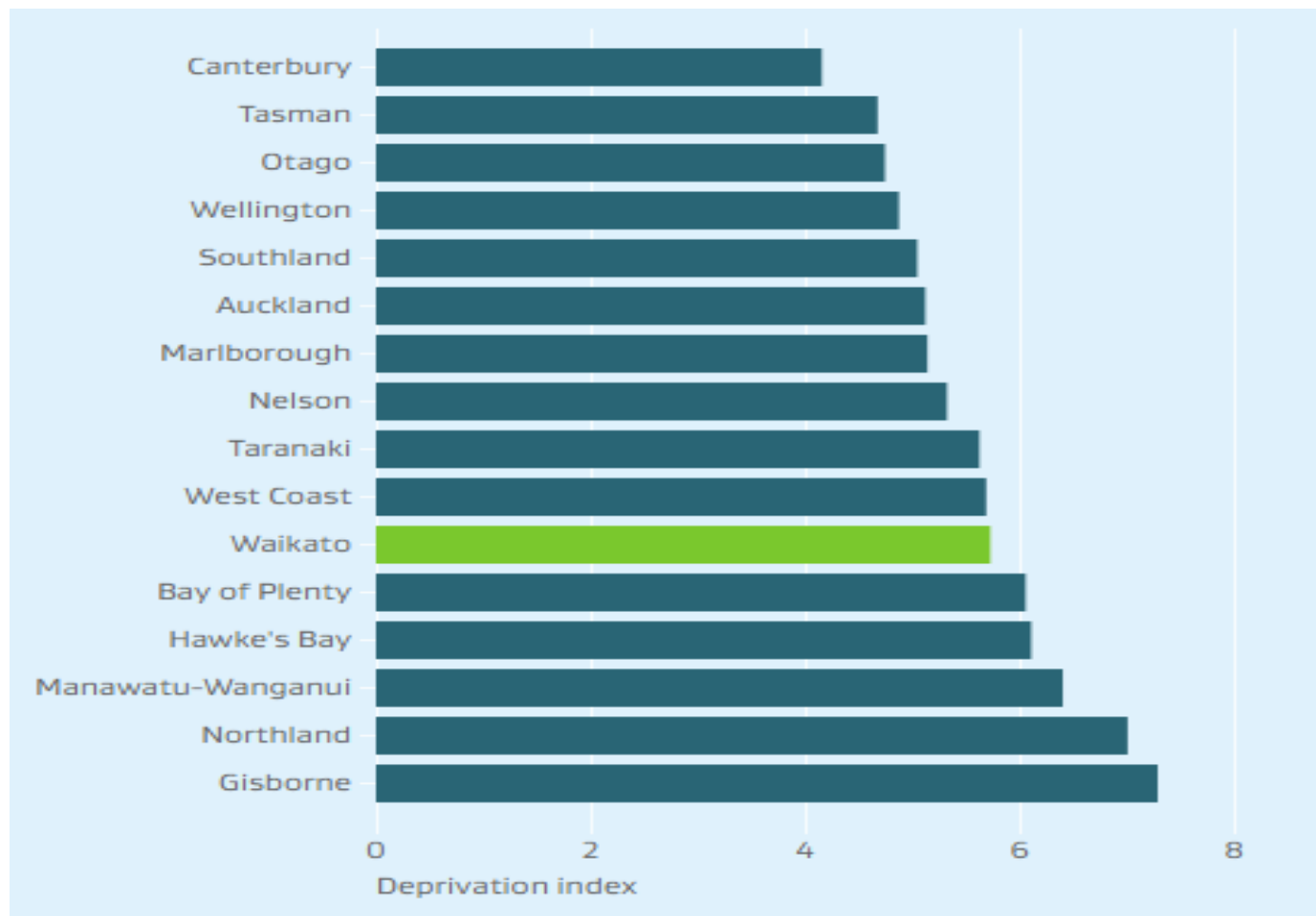


Domain of deprivation	NZ Dep indicators	IMD Description of variable (in order of decreasing weight in the index)
Employment	People aged 18-64 unemployed	No. of working age people receiving the Unemployment Benefit No. of working age people receiving the Sickness Benefit
Income	People aged 18-64 receiving a means tested benefit People living in equivalised* households with income below an income threshold	Weekly Working for Families payments (\$ per 1000 population) Weekly payments (\$ per 1000 population) in the form of income related benefits
Health		Standardised Mortality Ratio Hospitalisations related to selected infectious diseases Hospitalisations related to selected respiratory diseases Emergency admissions to hospital People registered as having selected cancers
Education	People aged 18-64 without any qualifications	School leavers <17 years old School leavers without NCEA L2 School leavers not enrolling into tertiary studies Working age people without qualifications Youth not in Education Employment or Training
Housing	People living in equivalised* households below a bedroom occupancy threshold People not living in own home	No. of persons in households which are rented No. of persons in households which are overcrowded
Crime		Victimisation rates for: <ul style="list-style-type: none"> • Homicide and Related Offences • Assault • Sexual Assault • Abduction and Kidnapping • Robbery, Extortion and Related Offences • Unlawful Entry with Intent/Burglary, Break and Entre • Theft and Related Offences
Access	People with no access to a car People aged <65 with no access to the Internet at home	Distance to 3 nearest: <ul style="list-style-type: none"> • GPs or Accident and Medical • Supermarkets • Service stations • Primary or intermediate Schools • Early childhood education centres
Support	People aged <65 living in a single parent family	

Most deprived districts in North Island (NZDep2013)



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Waikato : one voice

Most deprived districts in North Island



The most deprived districts by % of the district's population living in the NZDep quintile 5 areas are:

1. Bay of Plenty - Kawerau (89%)
2. Bay of Plenty - Opotiki (66%)
3. Hawkes Bay - Wairoa (64%)
- 4. Waikato - South Waikato (51%)**
5. Northland - Far North (50%)
6. Gisborne - Gisborne (47%)
7. Manawatu-Wanganui - Horowhenua (47%)
8. Manawatu-Wanganui - Ruapehu (44%)
9. Auckland - Papakura (41%)
10. Manawatu-Wanganui - Wanganui (41%)
11. Auckland - Manukau (40%)
- 12. Waikato - Hauraki (40%)**

PERCENTAGE OF POPULATION LIVING IN EACH DEPRIVATION QUINTILE BY DISTRICT – NZDEP 2013



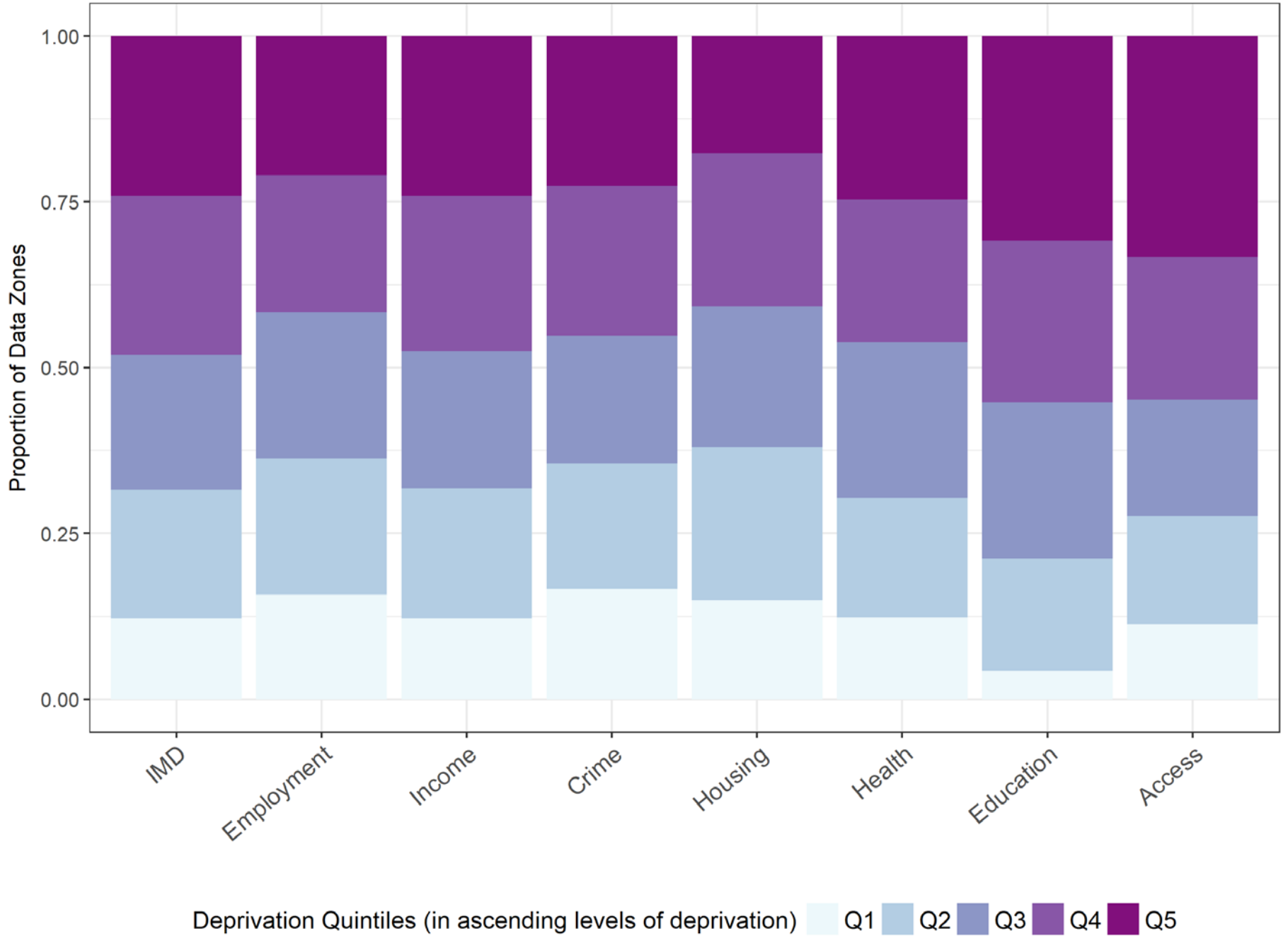
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■ 1 (least deprived) ■ 2 ■ 3 ■ 4 ■ 5 (most deprived)



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Waikato Region



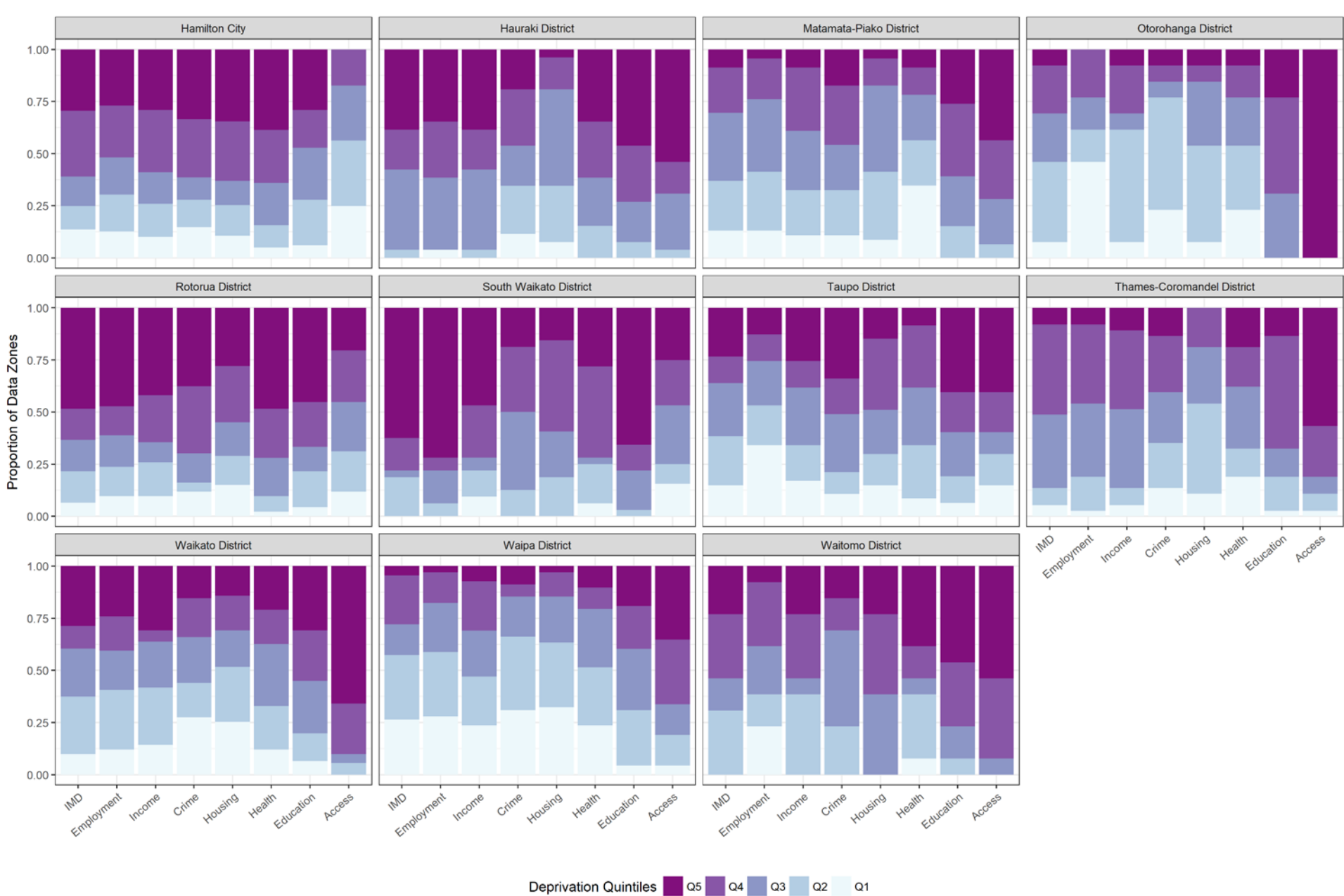
Comparing the Waikato to NZ



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Median district deprivation ranking per domain – Waikato Region

Domains	Median district deprivation rank per domain
Housing	2968, 0.2% (12 ranks) better than the NZ median
Crime	3190, 3.5% (211 ranks) worse than the NZ median
Employment	3208, 3.9% (231 ranks) worse than the NZ median
Health	3376, 6.6% (396 ranks) worse than the NZ median
Income	3429, 7.5% (449 ranks) worse than the NZ median
Access	3792, 13.6% (812 ranks) worse than the NZ median
Education	3826, 14.2% (846 ranks) worse than the NZ median
NZ Median = 2979	

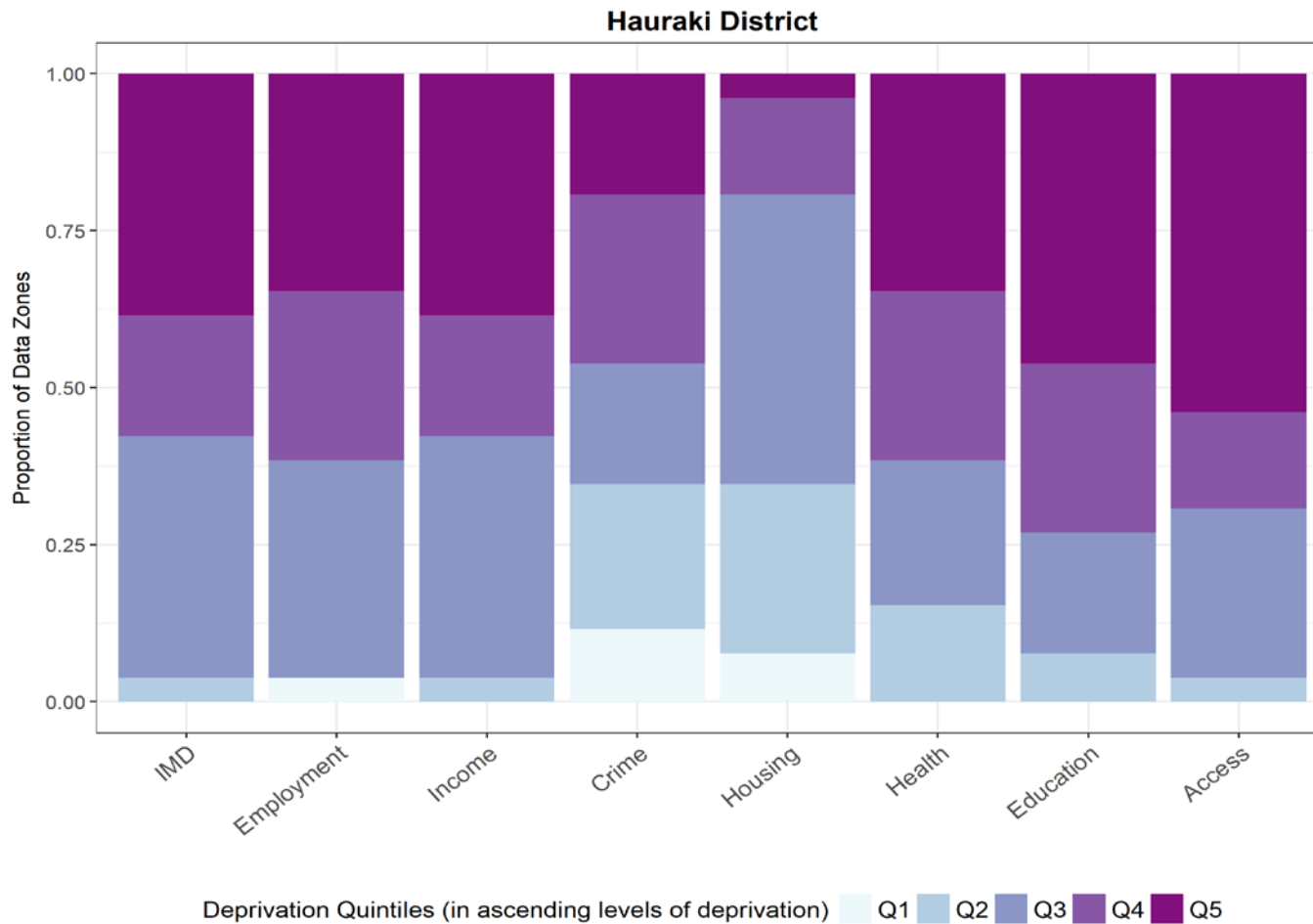


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District example - Hauraki



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Waikato District data zone example



New Zealand Index of Multiple Deprivation

Explore Data

Filter Data

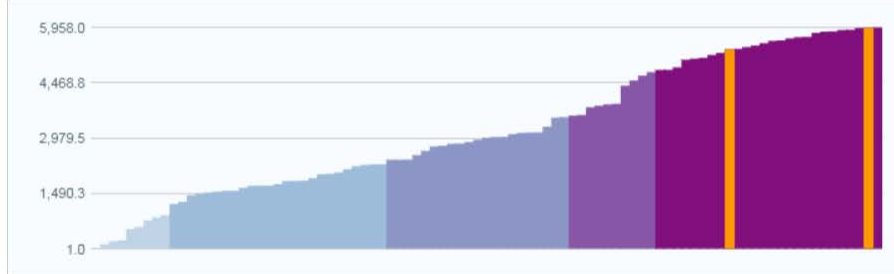
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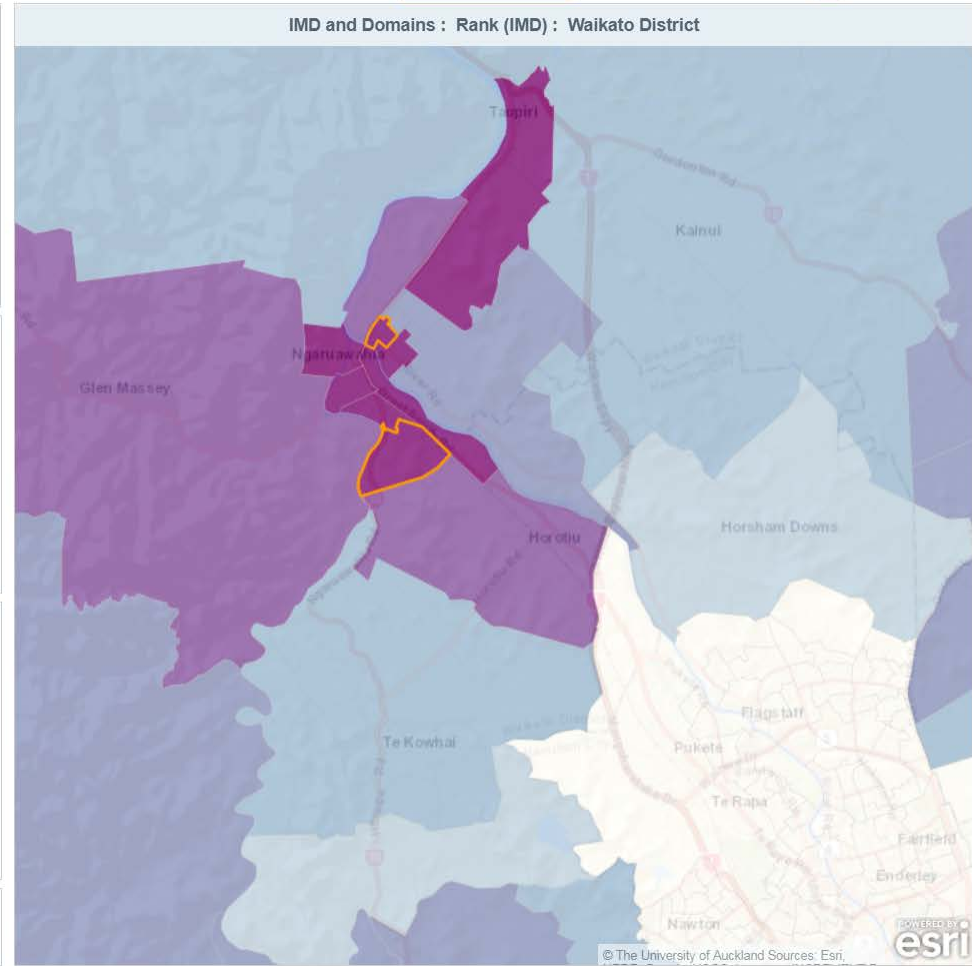
Name	Rank (IMD)
1300043	5,951
1300048	5,943
1300042	5,939
1300033	5,889
1300059	5,885
1300047	5,847

Clear Filter

- Data Zone
- Q1 - Least Deprived
- Q2
- Q3
- Q4
- Q5 - Most Deprived
- World Street Map



- ▶
- ◀◀
- ▶▶
- IMD
- Employment
- Income
- Crime
- Housing
- Health
- Education
- Access



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Hamilton data zone example



New Zealand Index of Multiple Deprivation

Explore Data

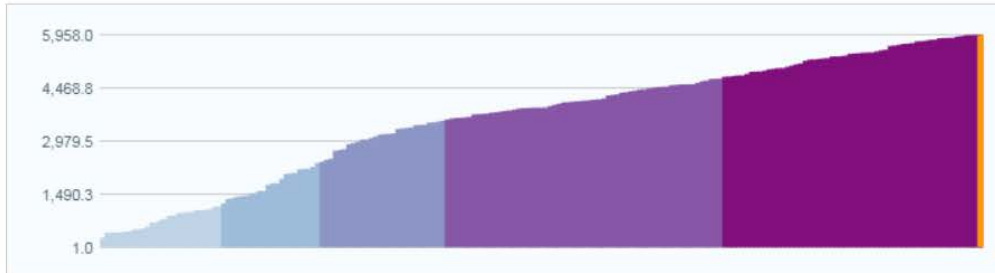
Filter Data

Acknowledgements

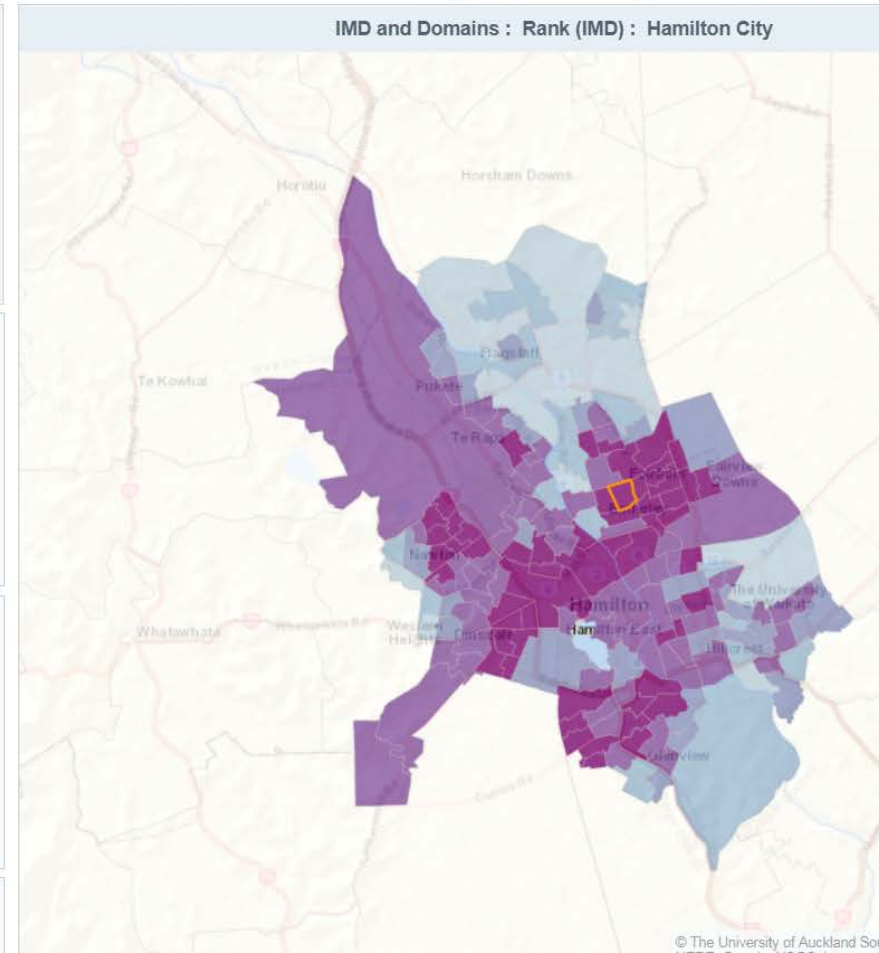
Name	Rank (IMD)
1600119	5,949
1600141	5,948
1600158	5,946
1600153	5,945
1600152	5,920

Clear ✖ Filter ✖

- Data Zone
- Q1 - Least Deprived
- Q2
- Q3
- Q4
- Q5 - Most Deprived
- World Street Map



- ▶ ◀ ▶▶
- IMD
- Employment
- Income
- Crime
- Housing
- Health
- Education
- Access



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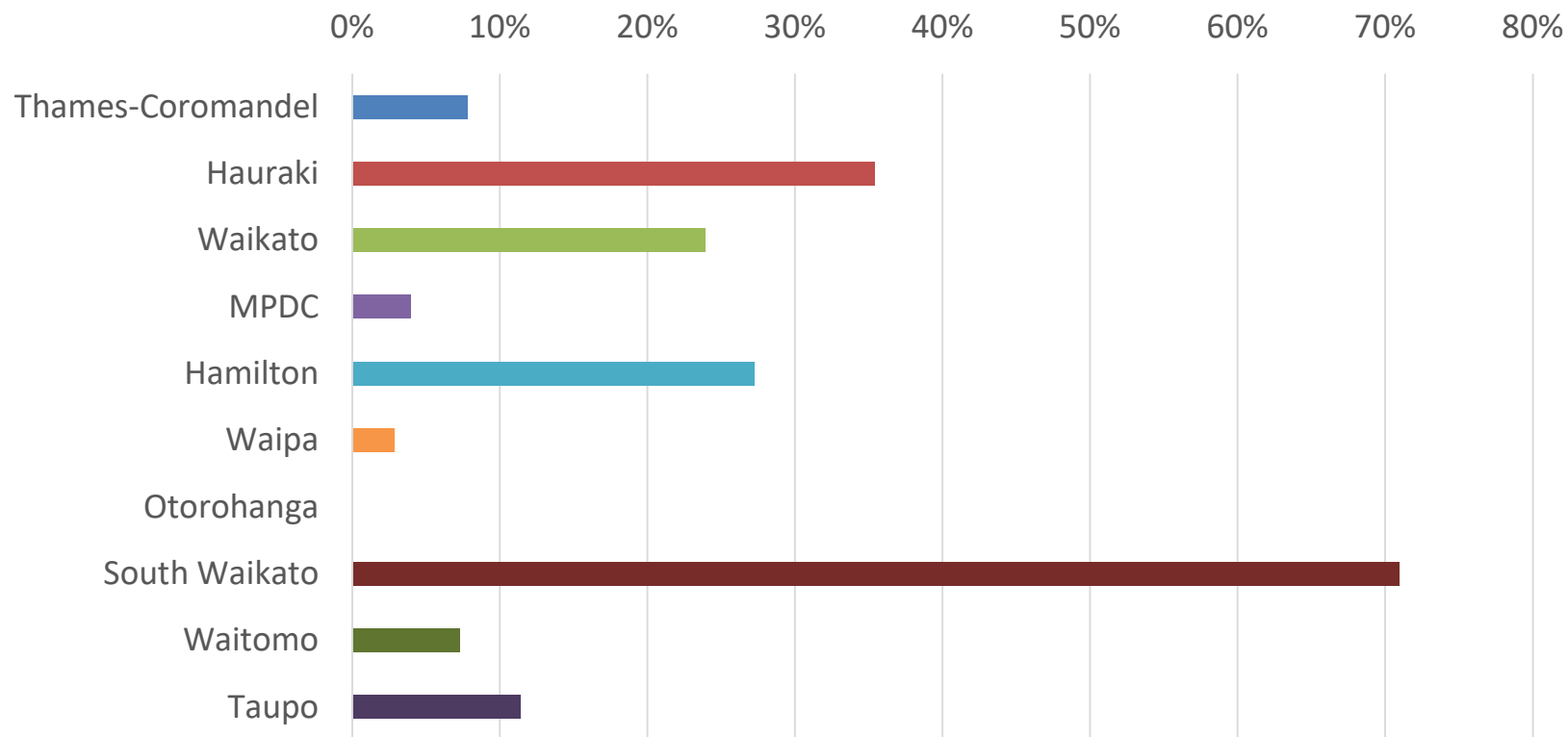
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Employment domain



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Percentage of total district population that live in areas that are Q5 for employment - 2013



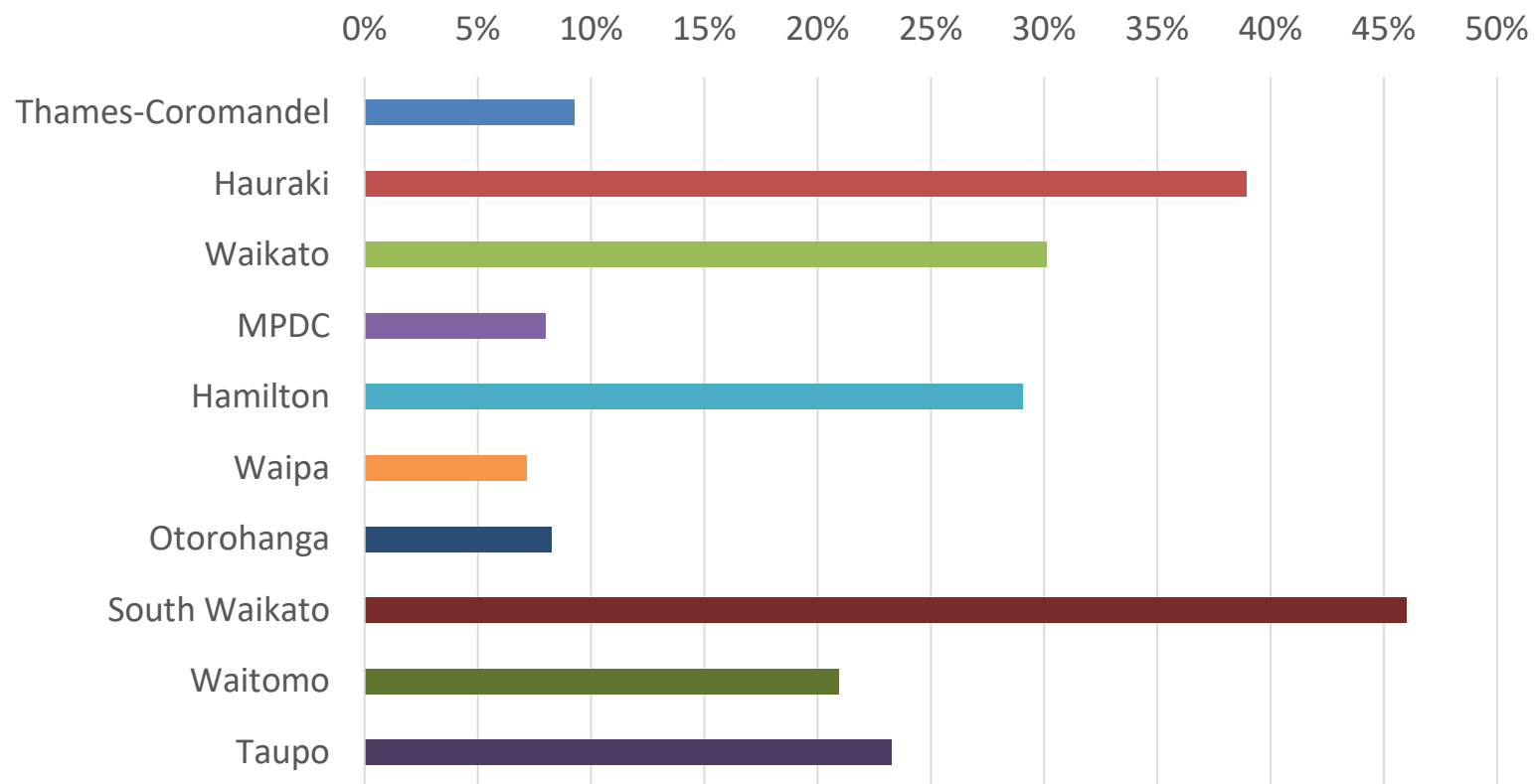
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Income domain



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Percentage of total district population that live in areas that are Q5 for income - 2013



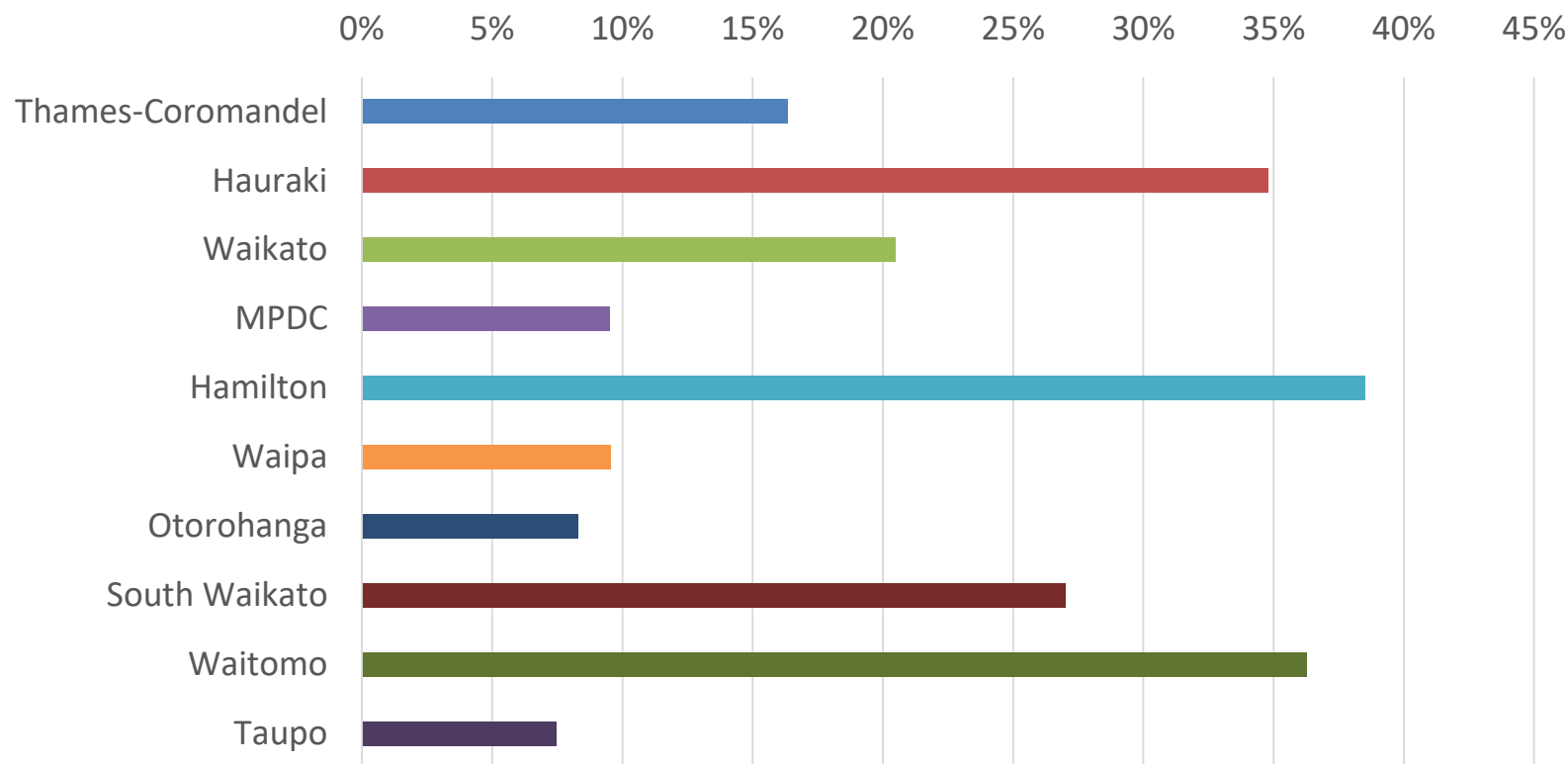
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Health domain

Percentage of total district population that live in areas that are Q5 for health - 2013



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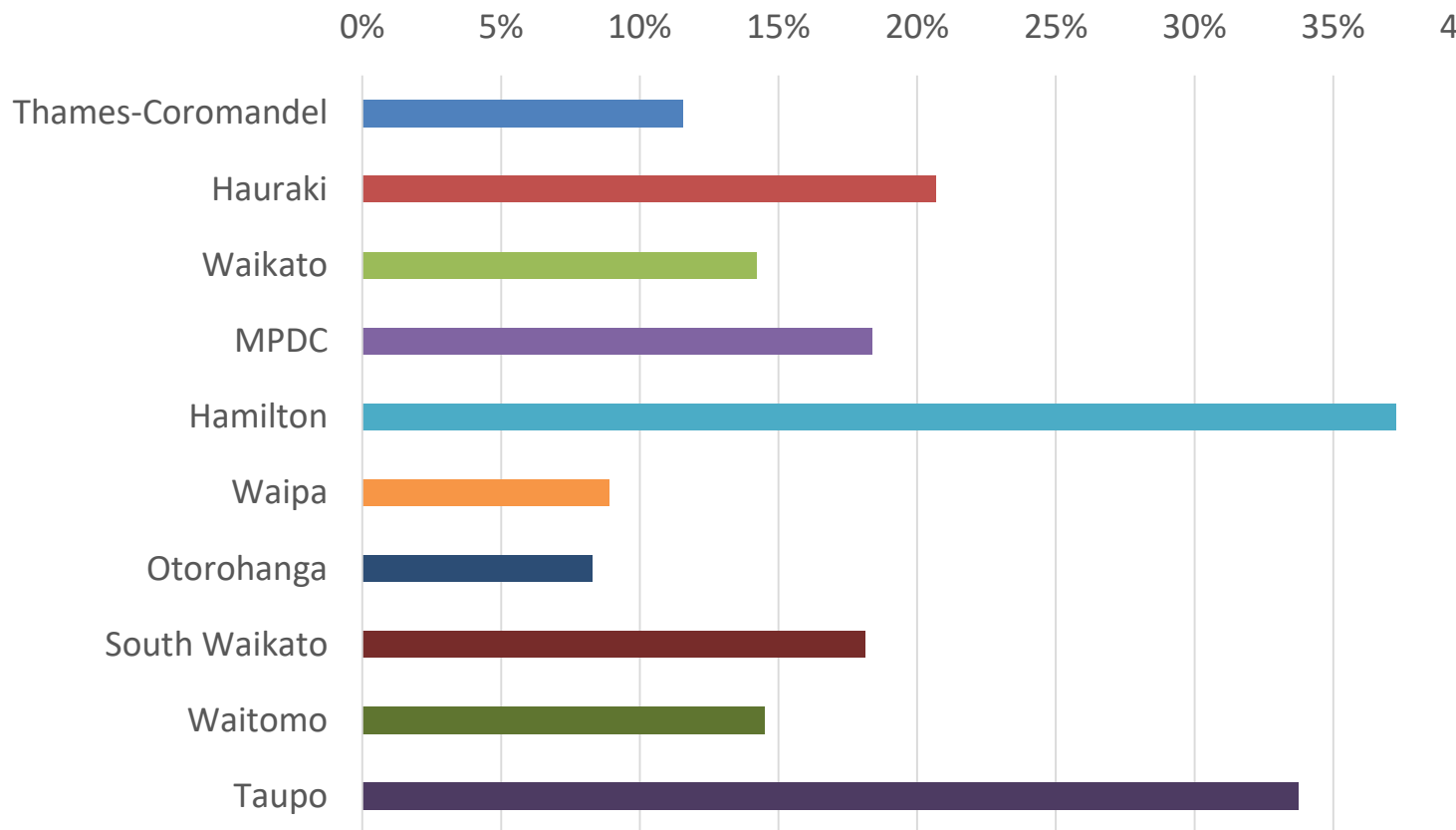
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Crime domain



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Percentage of total district population that live in areas that are Q5 for crime - 2013



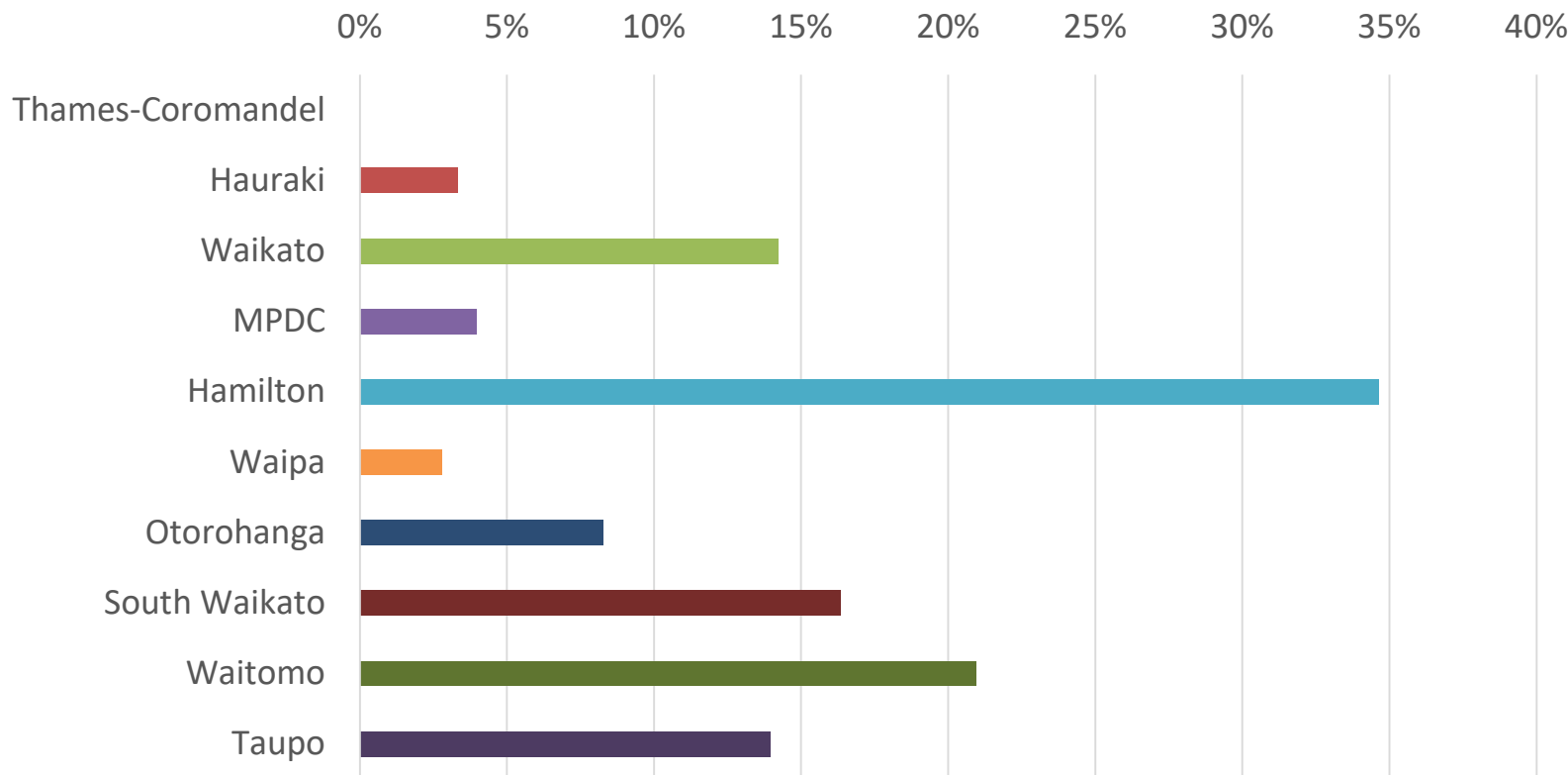
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Housing domain

Percentage of total district population that live in areas that are Q5 for housing - 2013



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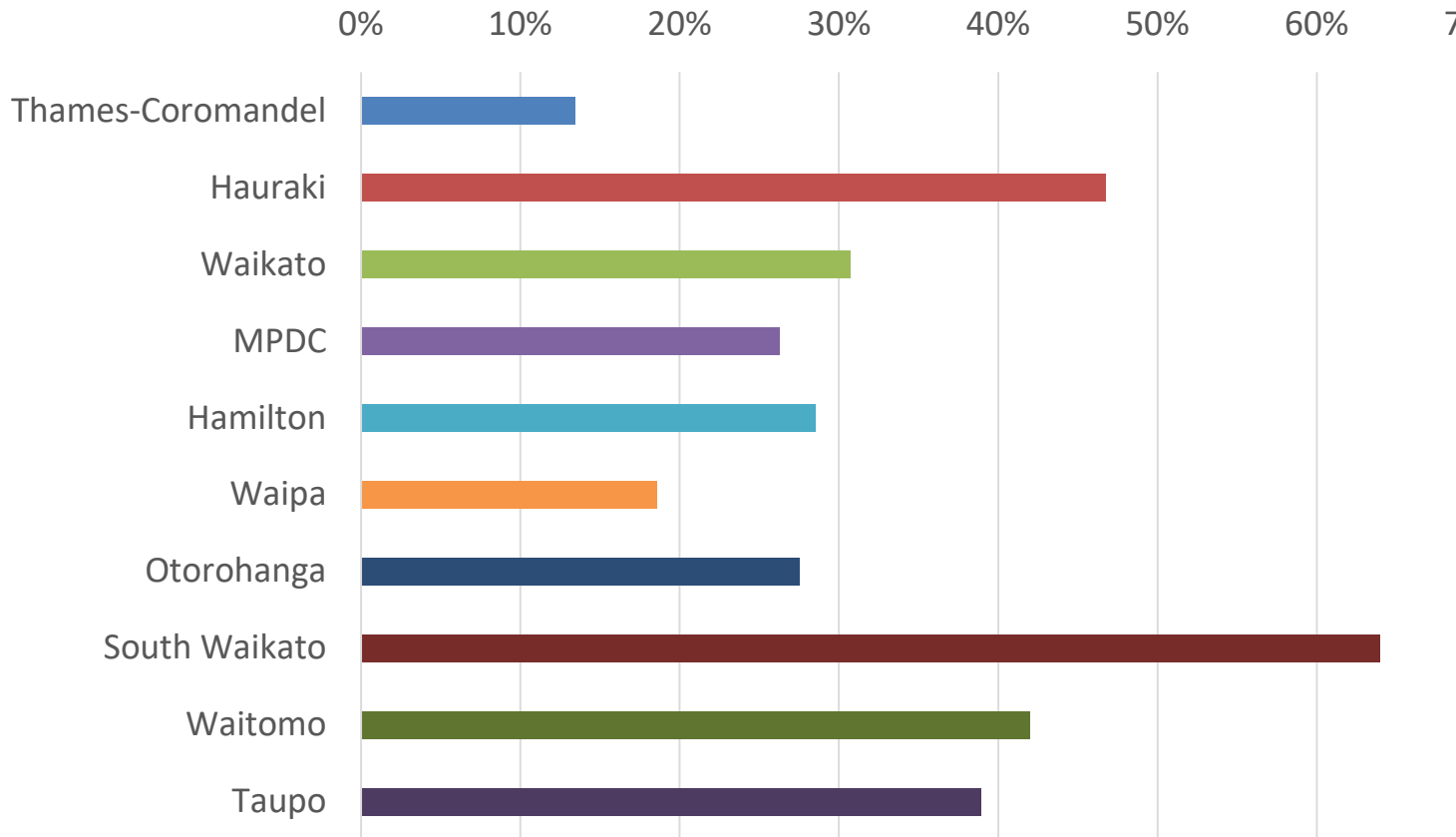
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Education domain



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Percentage of total district population that live in areas that are Q5 for education - 2013



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Implications



- Resource allocation
- Service provision – where do you put facilities?
- Ability to fund - rating?
- Social equity?

Deprivation Report Summary



- No two communities are the same
- It is simplistic to assess deprivation at a regional level
- Each data zone has a different mix of drivers across each district
- Policy implications for considering use of place based versus blanket policies to improve social outcomes

Where to from here?

- Various Territorial Authorities in the Region are interested in learning more about the IMD and its use in planning for their communities
- Local Government Think Tank working to build advocacy for place-based initiatives to support the Living Standards Framework
- *Similar reports for different regions???!*

*** funding needed ****

Get the IMD and Data Zones!

- We have a [website](#) that includes links to:
 - MB2013 to Data Zone concordance files
 - Data Zone to IMD concordance files
 - Data Zone and IMD shapefiles
- [Interactive online maps](#)
- [Papers](#), [reports](#), DHB profiles, API for geocoding in surveys
- www.fmhs.auckland.ac.nz/imd