

Nelson Marlborough Region: A Deprivation and Demographic Profile

Featuring the New Zealand Index of Multiple Deprivation (IMD)

A presentation for the Nelson Child Poverty Action Group

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**MEDICAL AND
HEALTH SCIENCES**



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Acknowledgements

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Thanks to the developers of zone design software for allowing us to use their data, and to the IDI and geospatial teams at Statistics New Zealand for their input and use of data.

Census boundaries used in this analysis are Crown Copyright

Outline

- **Background**

What is deprivation, how is it used (and misused) and by whom?

- **Developing the Index of Multiple Deprivation**

Data zones

Indicators, Domains and the IMD

- **How different is the IMD to NZDep?**

- **Case Studies:**

Nelson compared to Blenheim

Children living in deprived areas

Children living in households with smokers

B4SchoolCheck – lift the lip screening (National data only)

- **Using the IMD**

Available Resources and How-to-Guide

How others are using the IMD

What is Deprivation?

“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)

- The term **deprivation** refers to conditions and quality of life that are of a lower standard than is ‘ordinary’ in a particular society
- By contrast, living in **poverty** refers to a lack of income and resources to obtain the normative standard of living

Measuring area-level deprivation

- Area deprivation measures have been used in the UK since the 1970s and in NZ since the 1980s
- Early deprivation indices used census variables such as unemployment, overcrowding, housing tenure, social class (UK), not owning a car, or educational attainment
- In the late 1990s/2000, the University of Oxford designed the IMD framework for Tony Blair's New Labour Government, using routine admin data to measure different 'domains' of deprivation
- Since 2001, the IMD measures have been used in every country in the UK and have been updated on a regular basis (2-5 years)

Measuring area-level deprivation

- In the UK, the IMD has been used extensively in research and is embedded in UK central and local government policies (e.g.)
- Improving access to tertiary education (students living in SIMD20)
- Awarding funds to the most Income deprived areas
- Identifying the 5%, 10%, 15% or 20% “most deprived” areas is possible for using the IMD overall or its domains.

Background:

NZDep 2013



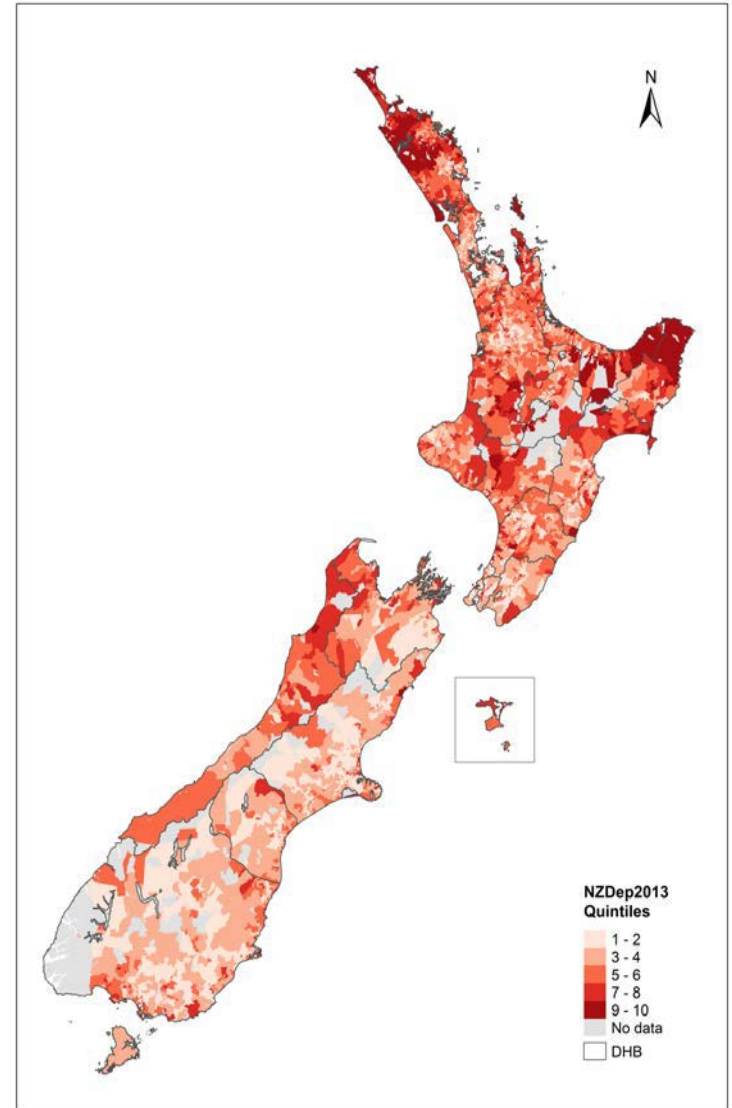
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- **NZDep was designed 20 years ago for research, planning, and advocacy**

- Can be linked to health and social data retrospectively using the Meshblock of e.g. a patient's address
- Ranking of the deprivation scores is strongly associated with health or social outcomes
- Also available for Census Area Units/Health Domicile

BUT

- Limited set of Census variables
- Can't 'unpack' NZDep and examine its component variables
 - A perception that areas in the same deprivation group are equally deprived
- Meshblocks are often too small for robust epidemiological studies
 - Data are typically suppressed to preserve confidentiality
- Census Areas too large and may mask 'pockets' of deprivation





The NZ Index of Multiple Deprivation (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.

Data Providers



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DEVELOPMENT**
TE MANATŪ WHAKAHIATO ORA



Measuring area deprivation in New Zealand

Indicators were selected if they were:

- Domain-specific and appropriate for the purpose
 - as direct as possible measures for that particular form of deprivation
- Measuring major features of that aspect of deprivation
 - not conditions experienced by a very few people or areas
- Up-to-date and could be updated regularly
- Were statistically robust
- Available for the whole of New Zealand at a small area level in a consistent form

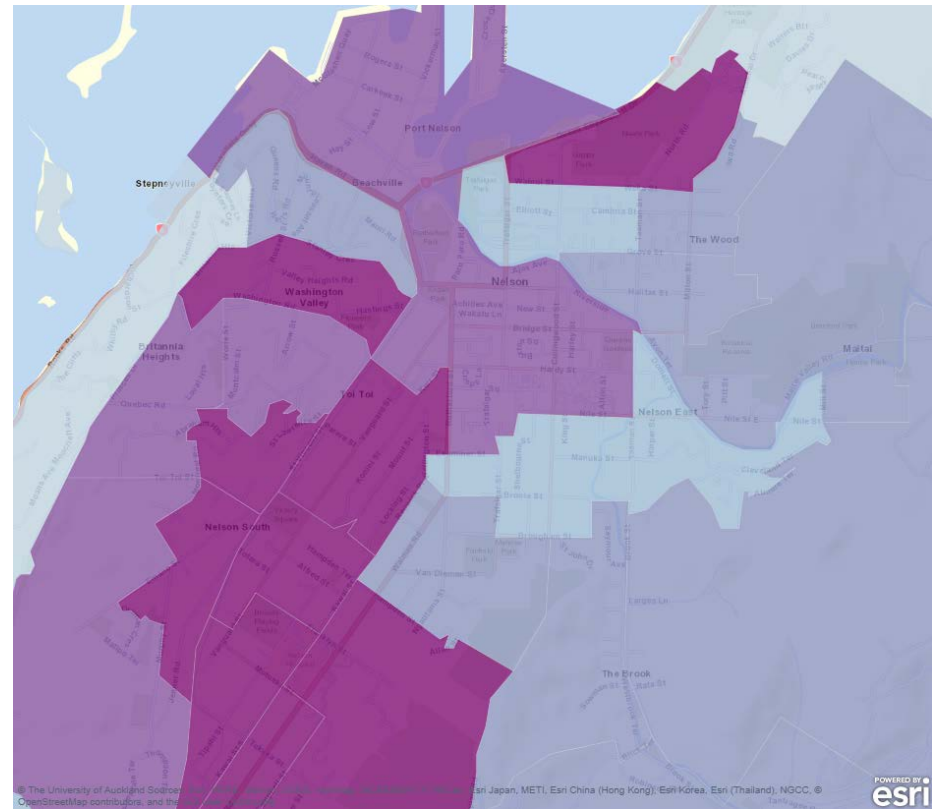
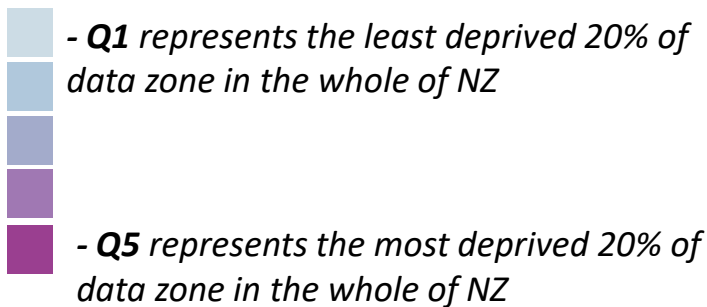
Dozens of potential indicators were investigated but only 28 met the criteria.

Data zones

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 have a mean population of 712 people.
- In urban settings, can just be a few streets long.

Data zones are ranked least to most deprived (from 1 to 5958) and grouped into 5 quintiles.



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.

IMD compared to NZDep13

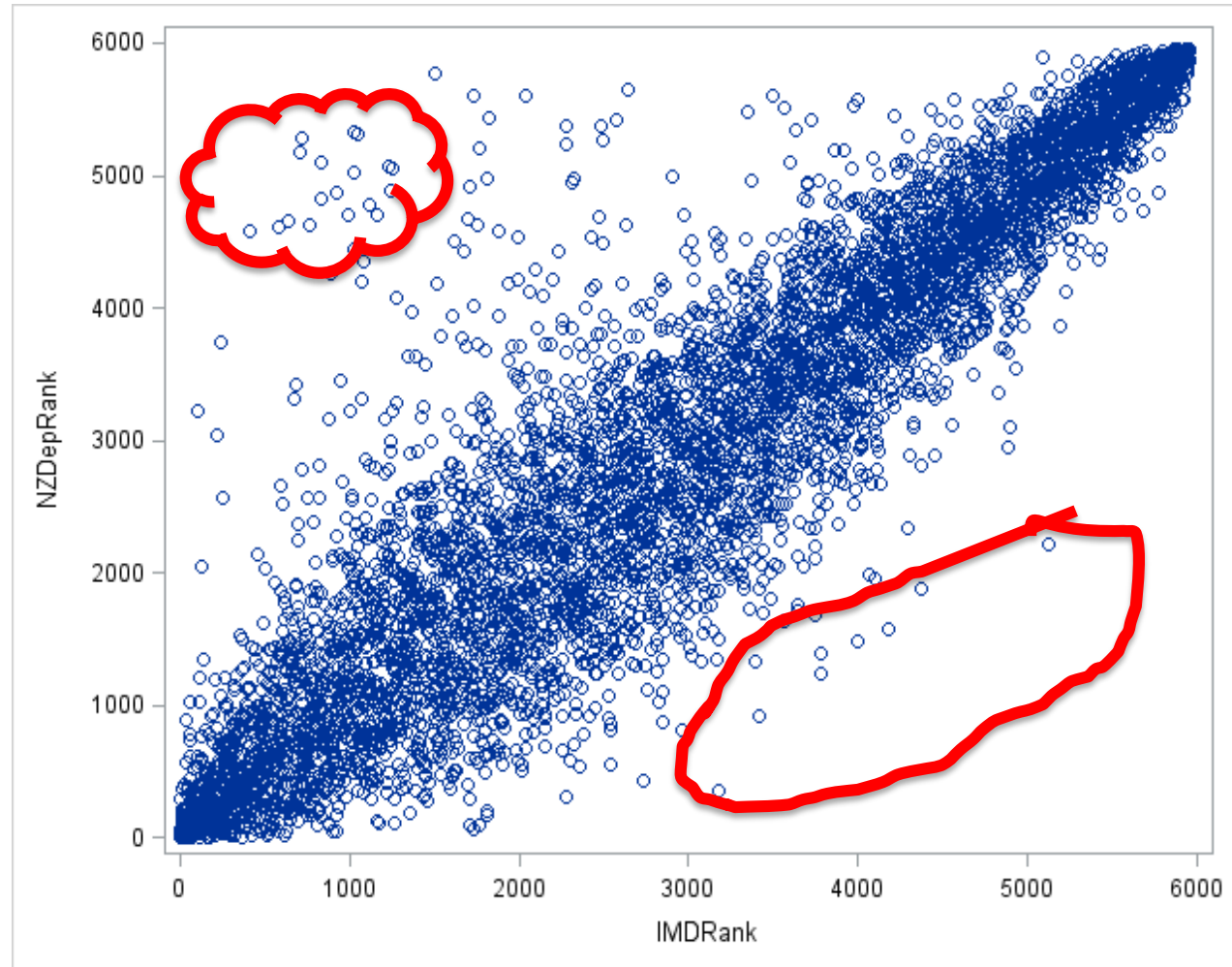
We calculated the population weighted average NZDep13 rank for each data zone

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

Spearman Correlation Coefficient:

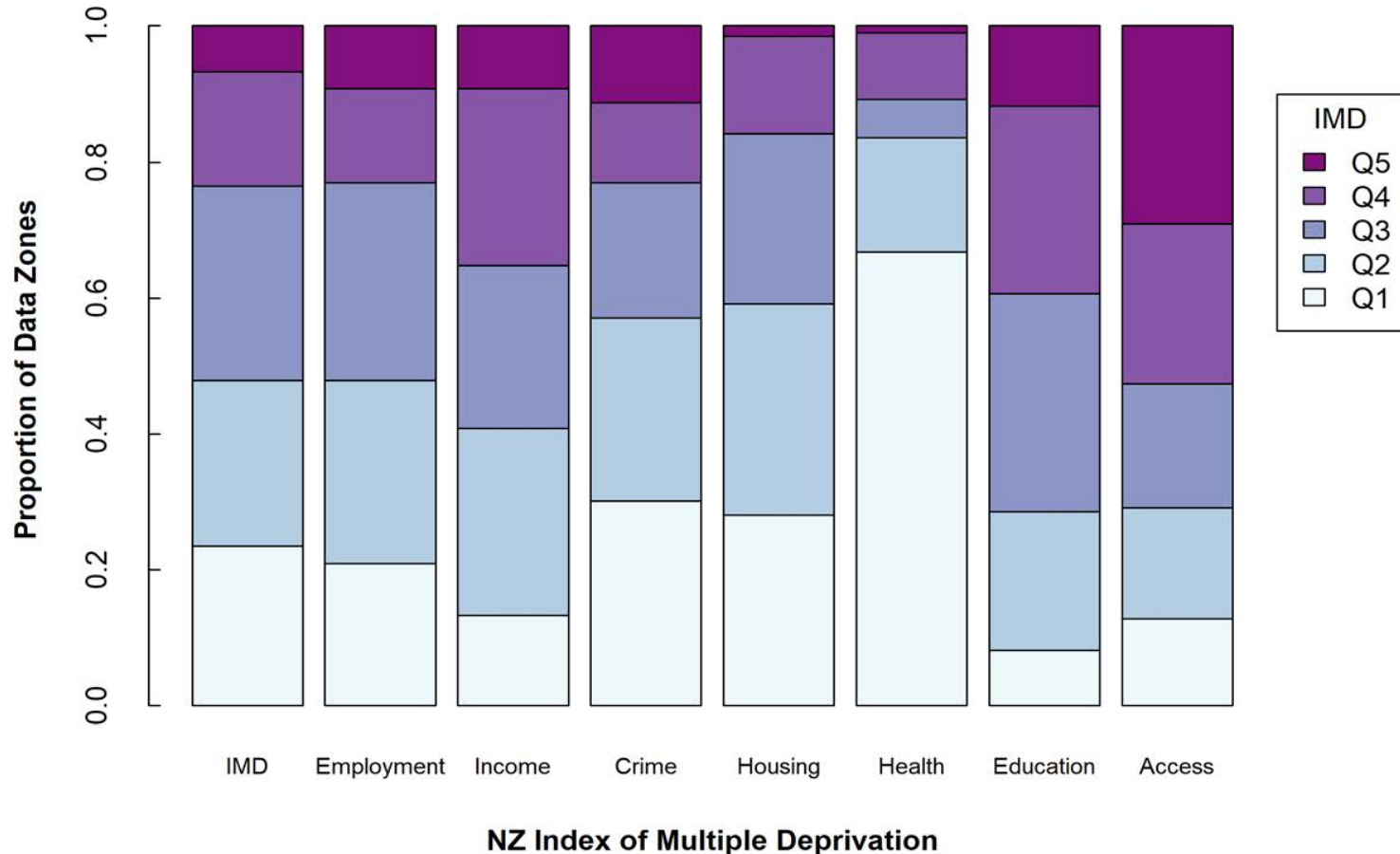
0.92

($p < .0001$)



Deprivation Profile

Nelson Marlborough DHB

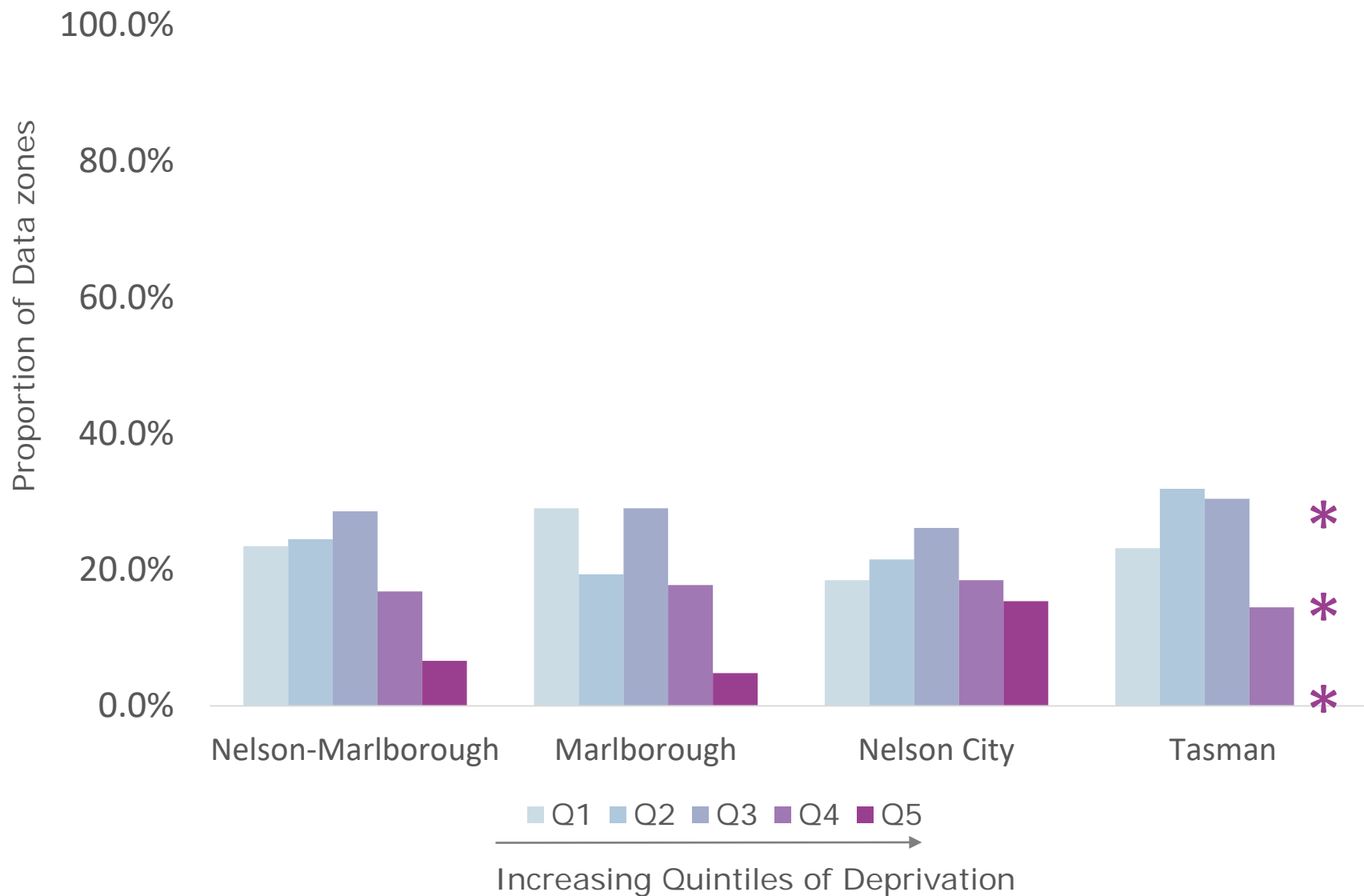


Note that if the deprivation circumstances in the Nelson Marlborough DHB were the same as for all of NZ, we would see 20% of the Nelson Marlborough DHB's 196 data zones in each quintile.

- Overall 23.5% (46/196) of Nelson's data zones were in Q4 or Q5 according to the IMD.

Nelson Marlborough Region:

IMD



Nelson Marlborough Region:

Employment Domain



Nelson Marlborough Region:

Income Domain

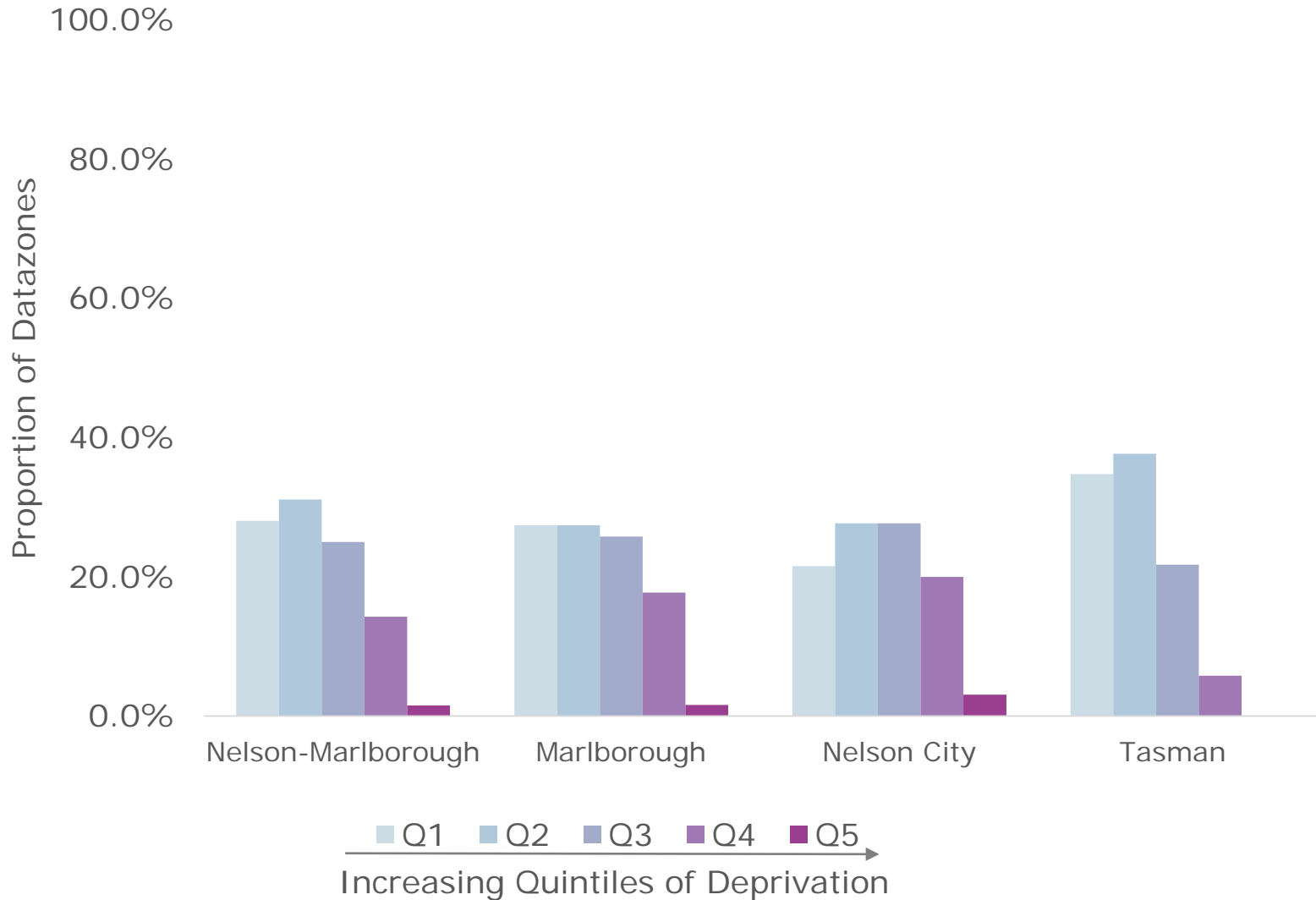


Nelson Marlborough Region: Crime Domain

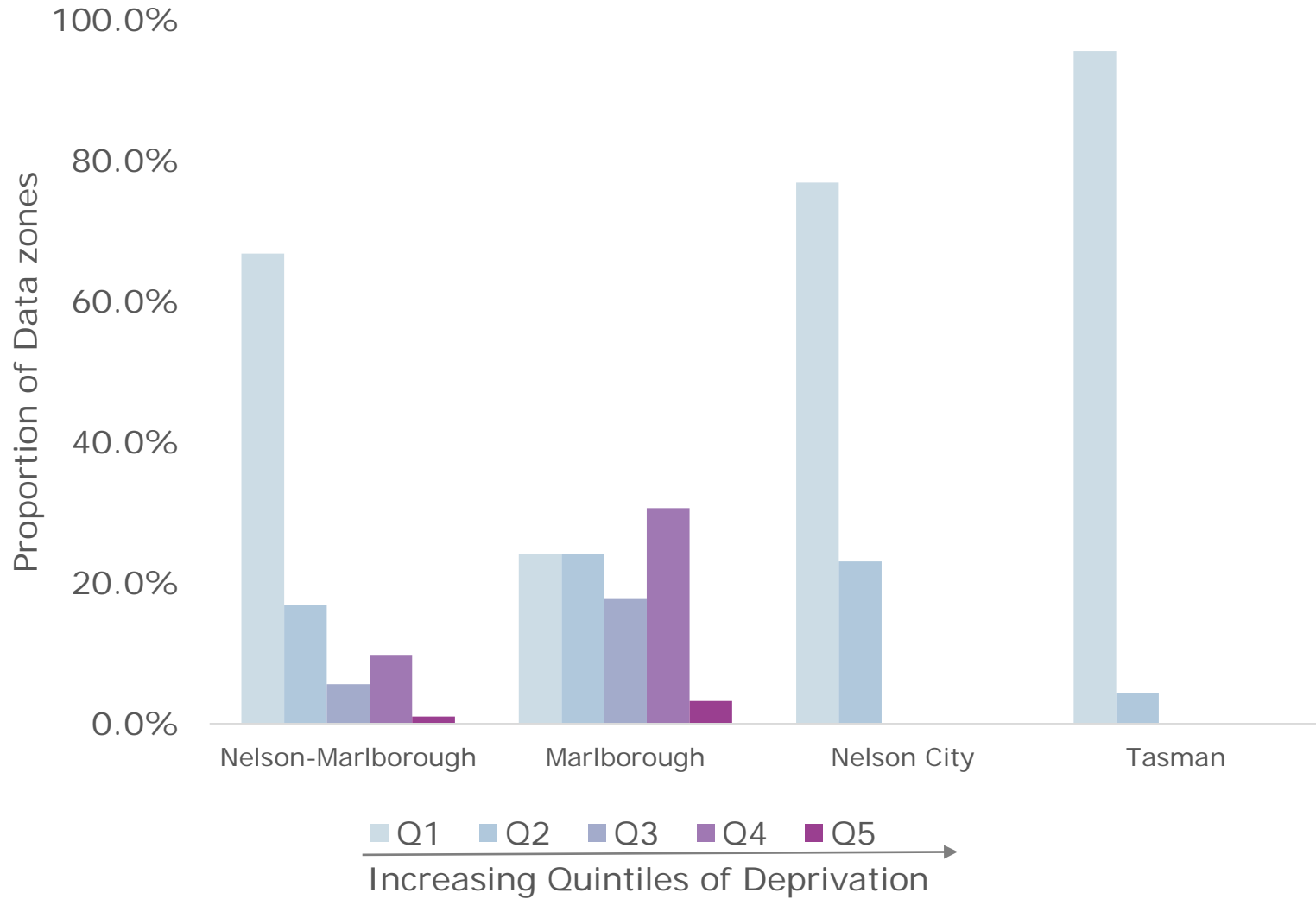


Nelson Marlborough Region:

Housing Domain

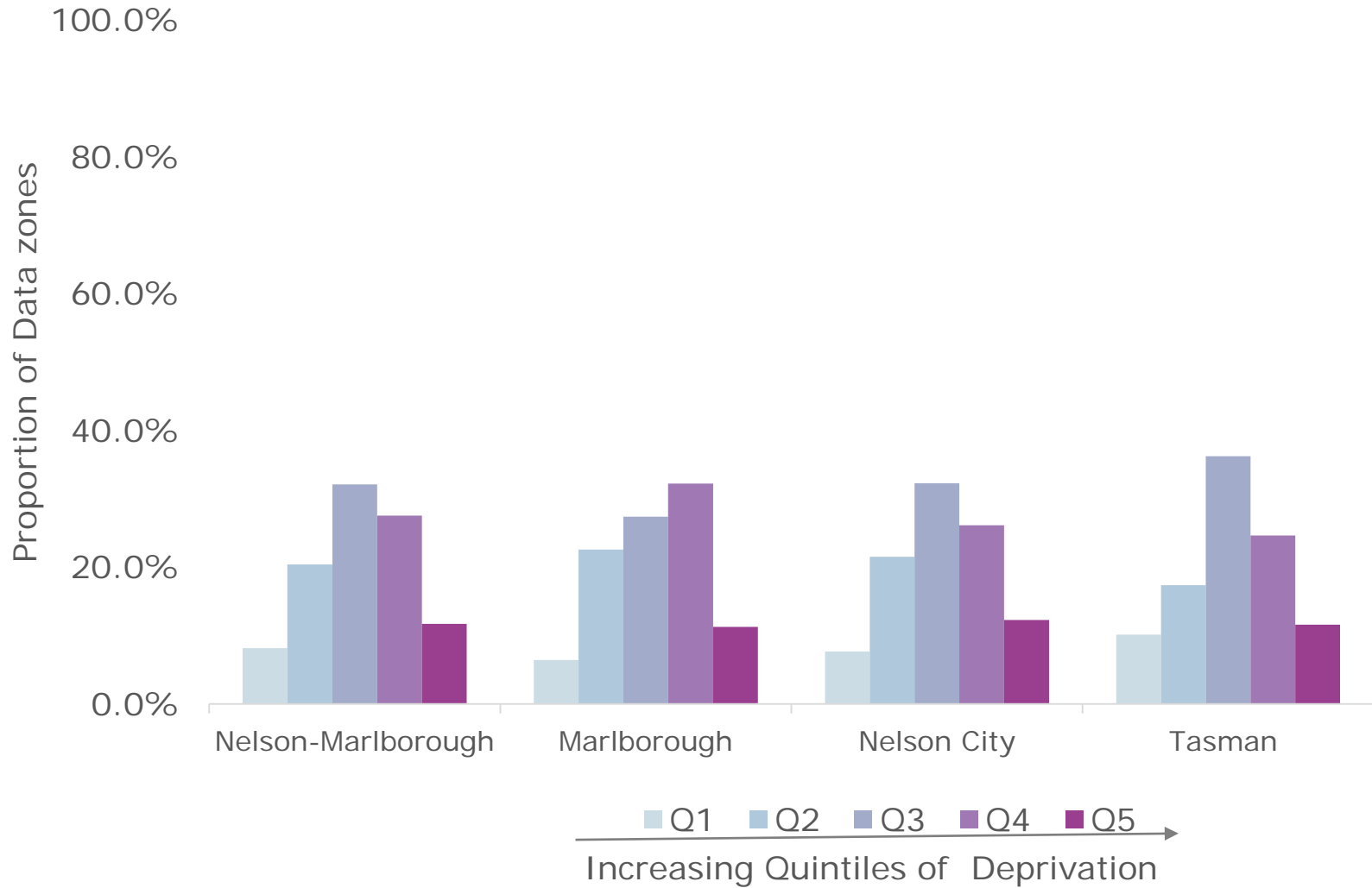


Nelson Marlborough Region:
Health Domain



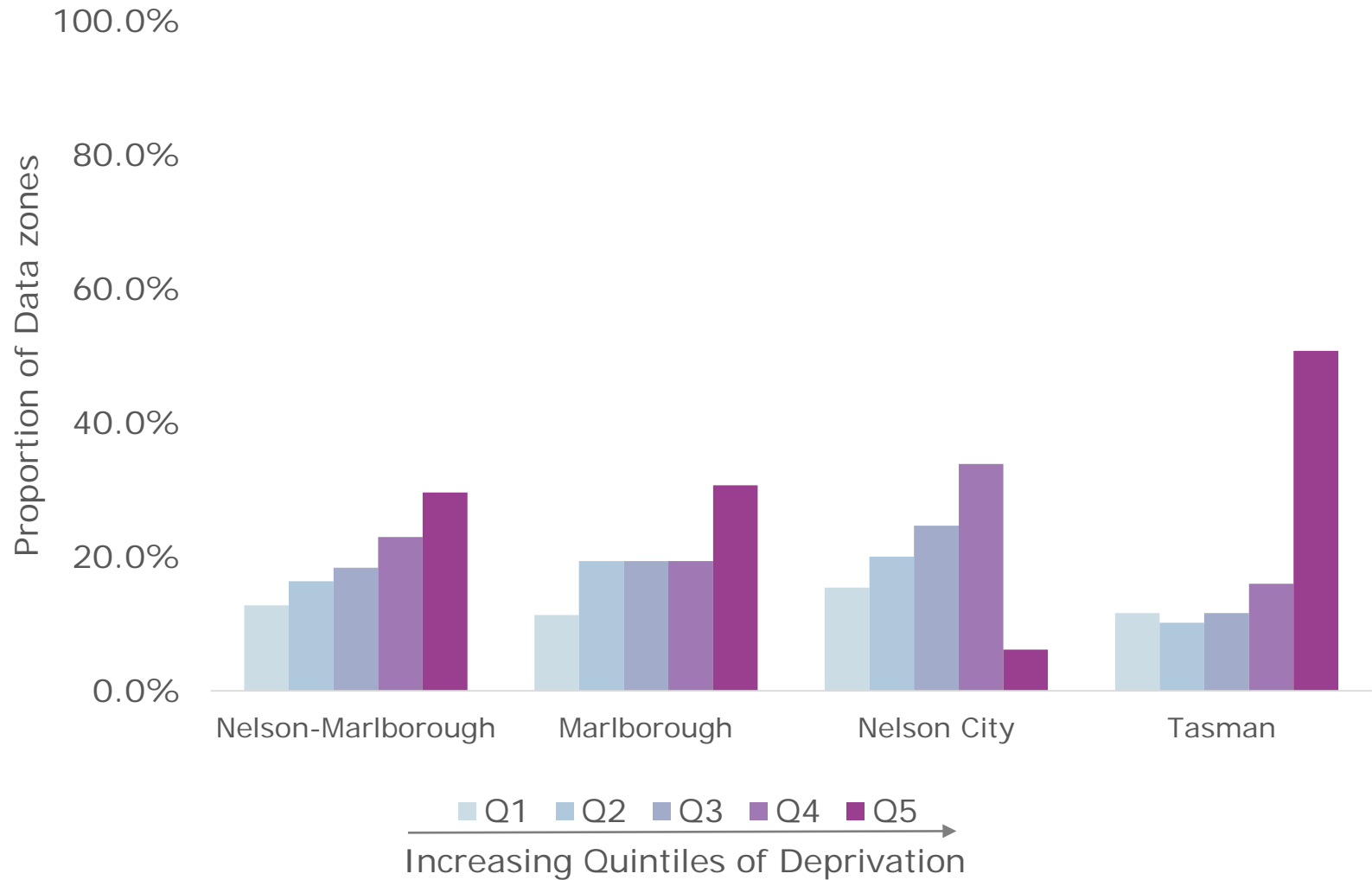
Nelson Marlborough Region:

Education Domain



Nelson Marlborough Region:

Access Domain



Case Study: Nelson and Blenheim

Interactive Online Map

New Zealand Index of Multiple Deprivation

Print | Explore Data | Filter Data | Acknowledgements



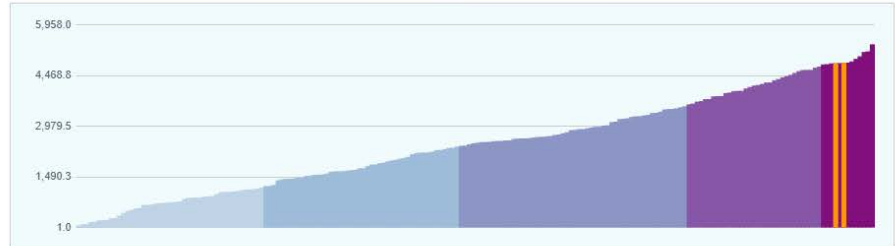
Name	Rank (IMD)
5300037	4,839
5300045	4,832
5200045	4,824
5200038	4,822
5200041	4,797
5200044	4,793

Clear ✕ Filter ✕

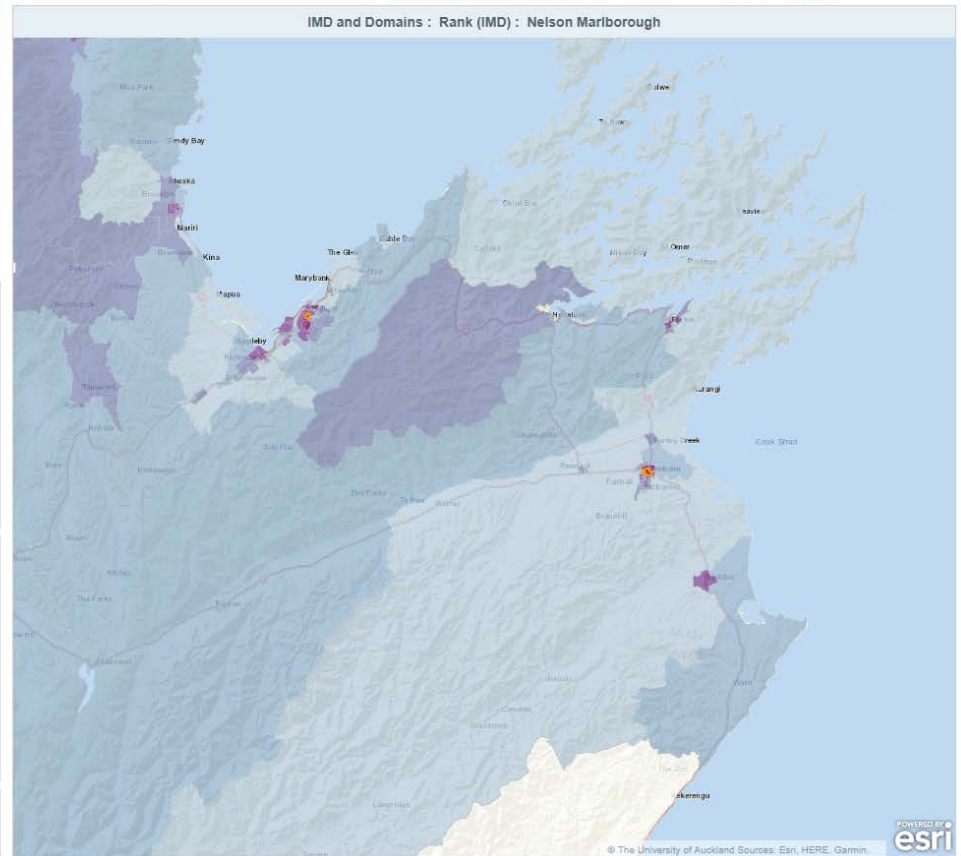
Data Zone

- Q1 - Least Deprived
- Q2
- Q3
- Q4
- Q5 - Most Deprived

World Street Map

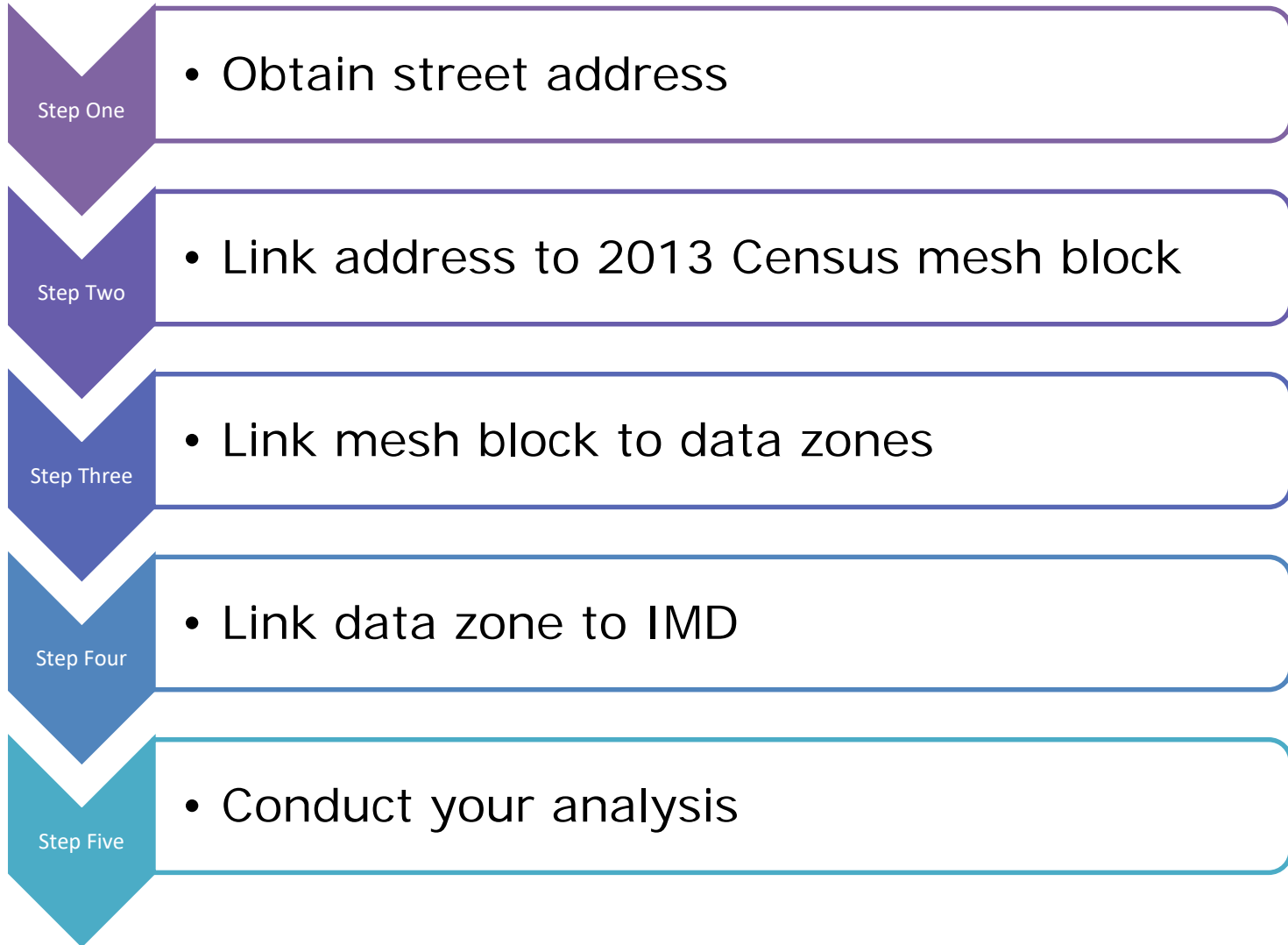


Navigation buttons: > << >> IMD Employment Income Crime Housing Health Education Access



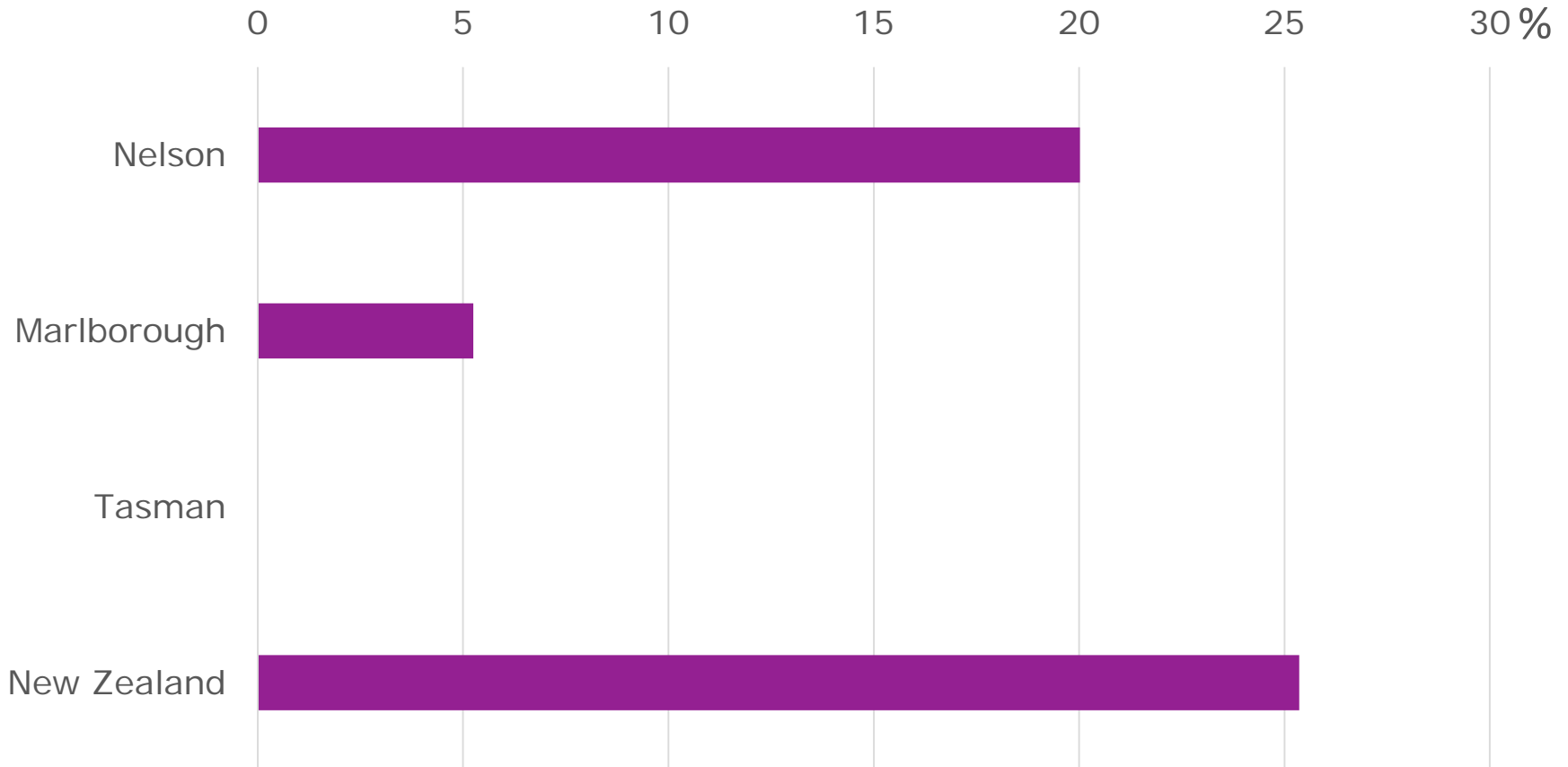
Using the IMD:

How-to Guide



Case Study A:

Children Aged 0 - 14 years Living in Q5 (IMD)



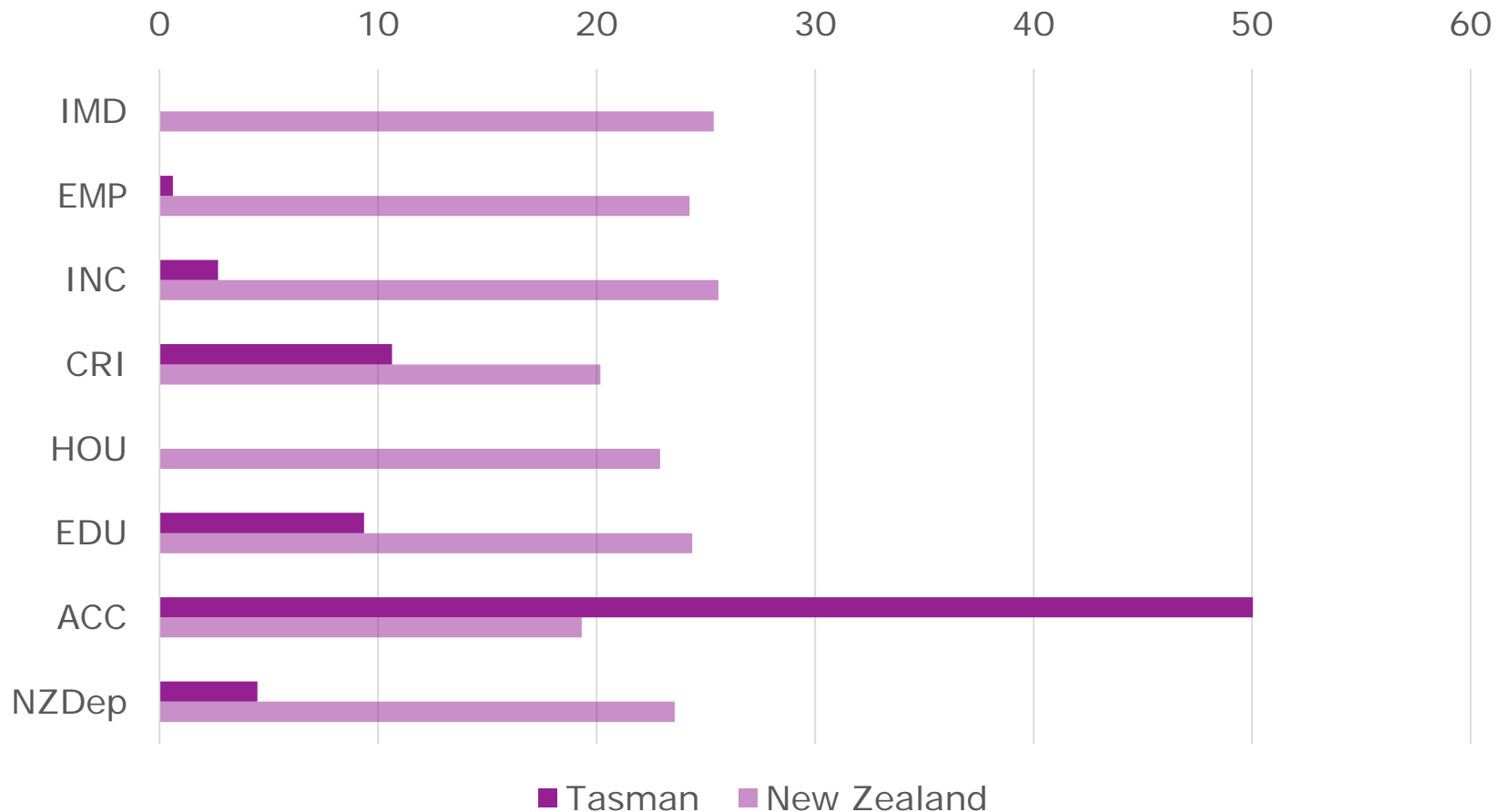
Case Study A:

Children Aged 0 - 14 years Living in Q5 in Marlborough



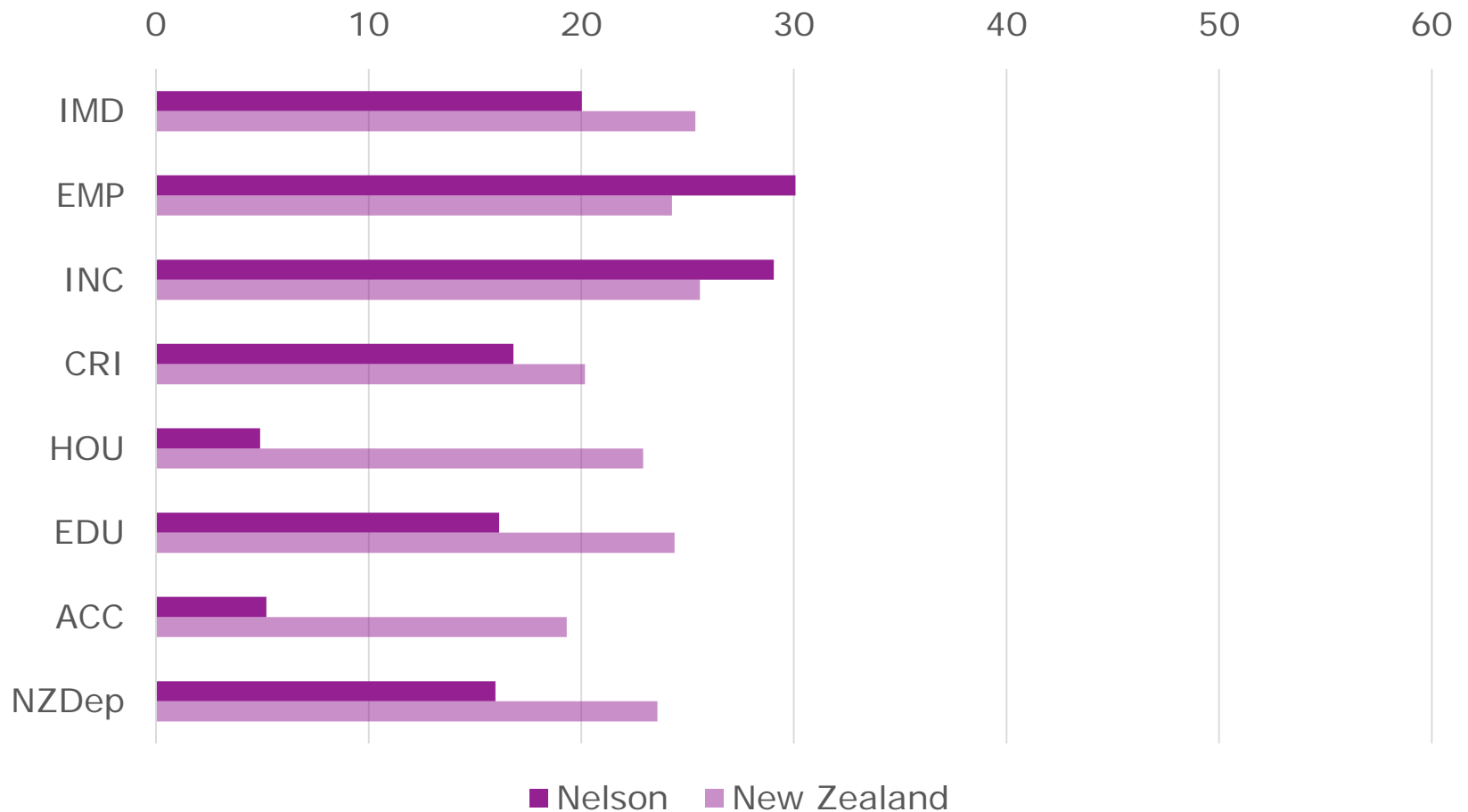
Case Study:

Children Aged 0 - 14 years Living in Q5 in Tasman



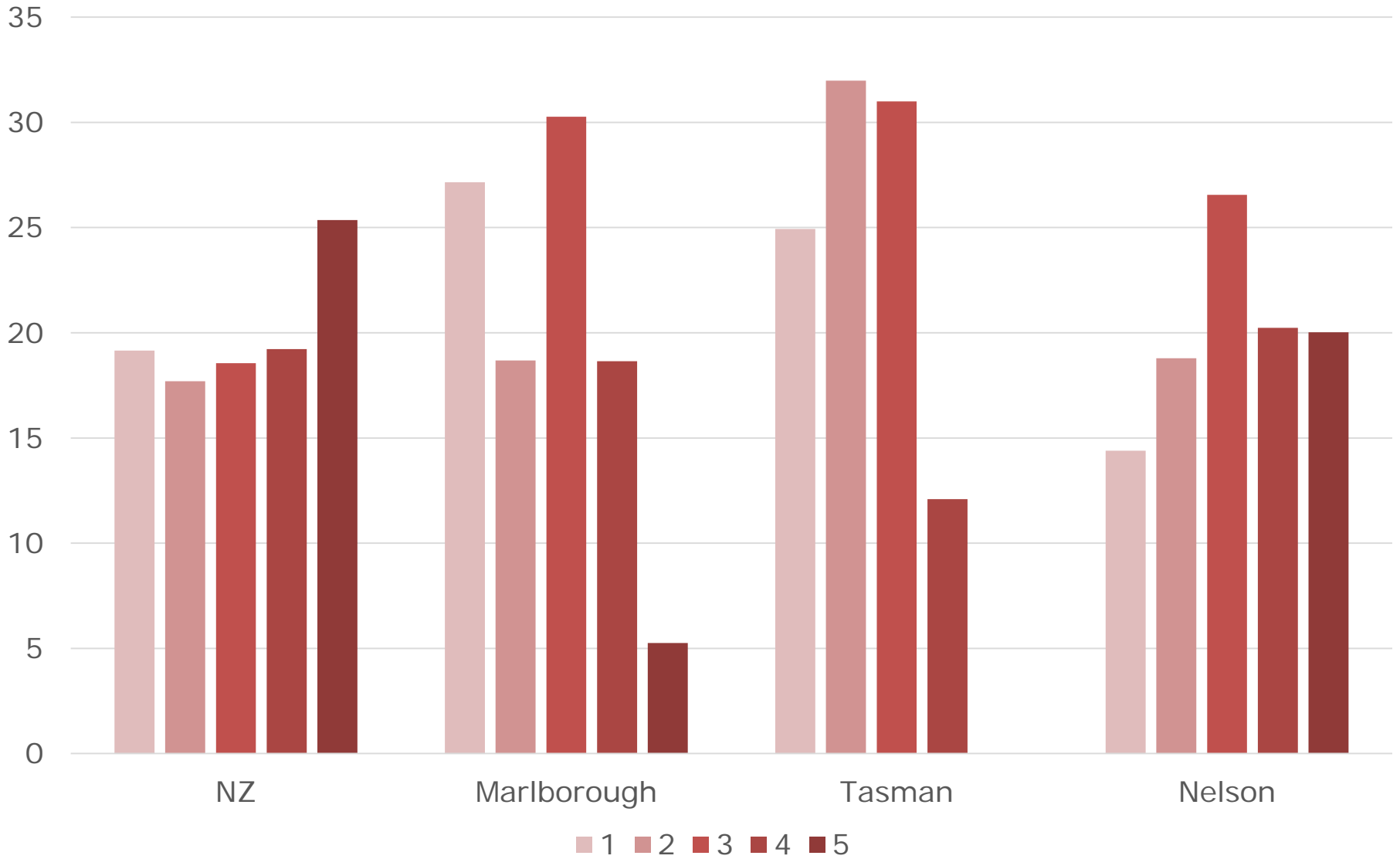
Case Study A:

Children Aged 0 - 14 years Living in Q5 in Nelson City



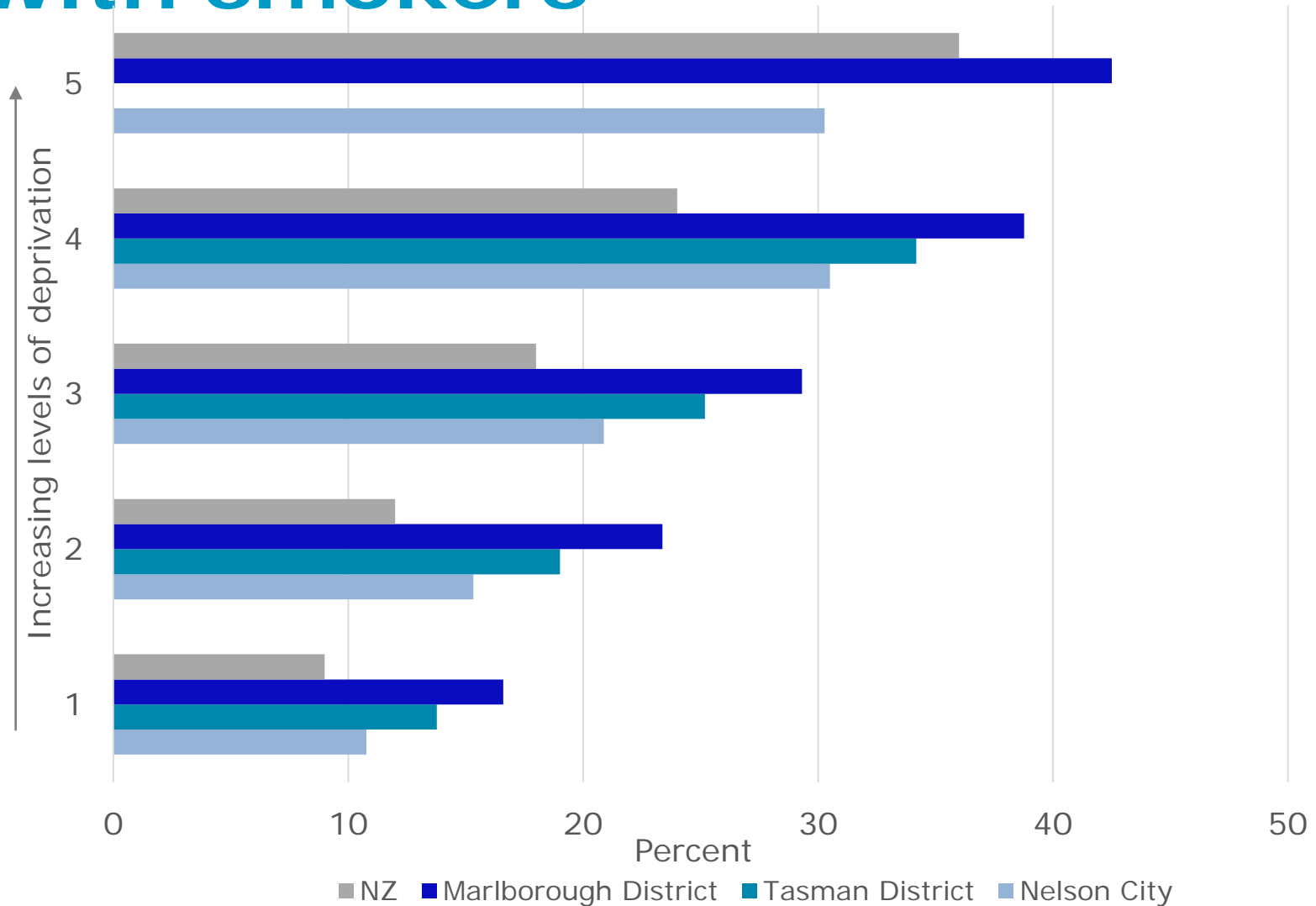
Case Study A:

Children Aged 0 - 14 years



Case Study B:

Children aged 0-14 years living with smokers



Case Study C:

Dental health among children aged 4-years old

B4 School Check

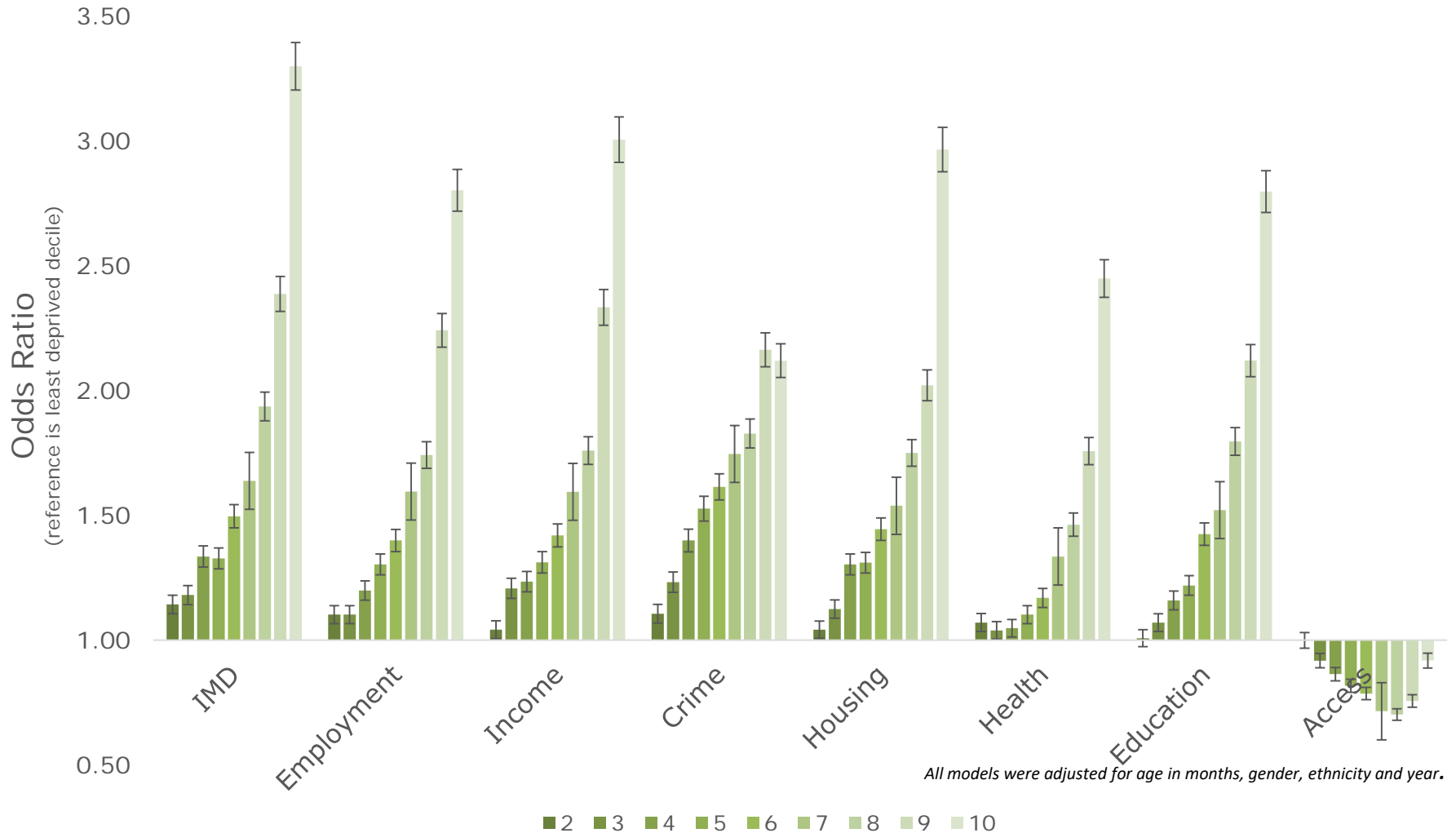
The B4 School Check is a nationwide programme offering a free health and development check for 4-year-olds.

The B4 School Check aims to identify and address any health, behavioural, social, or developmental concerns which could affect a child's ability to get the most benefit from school, such as a hearing problem or communication difficulty.

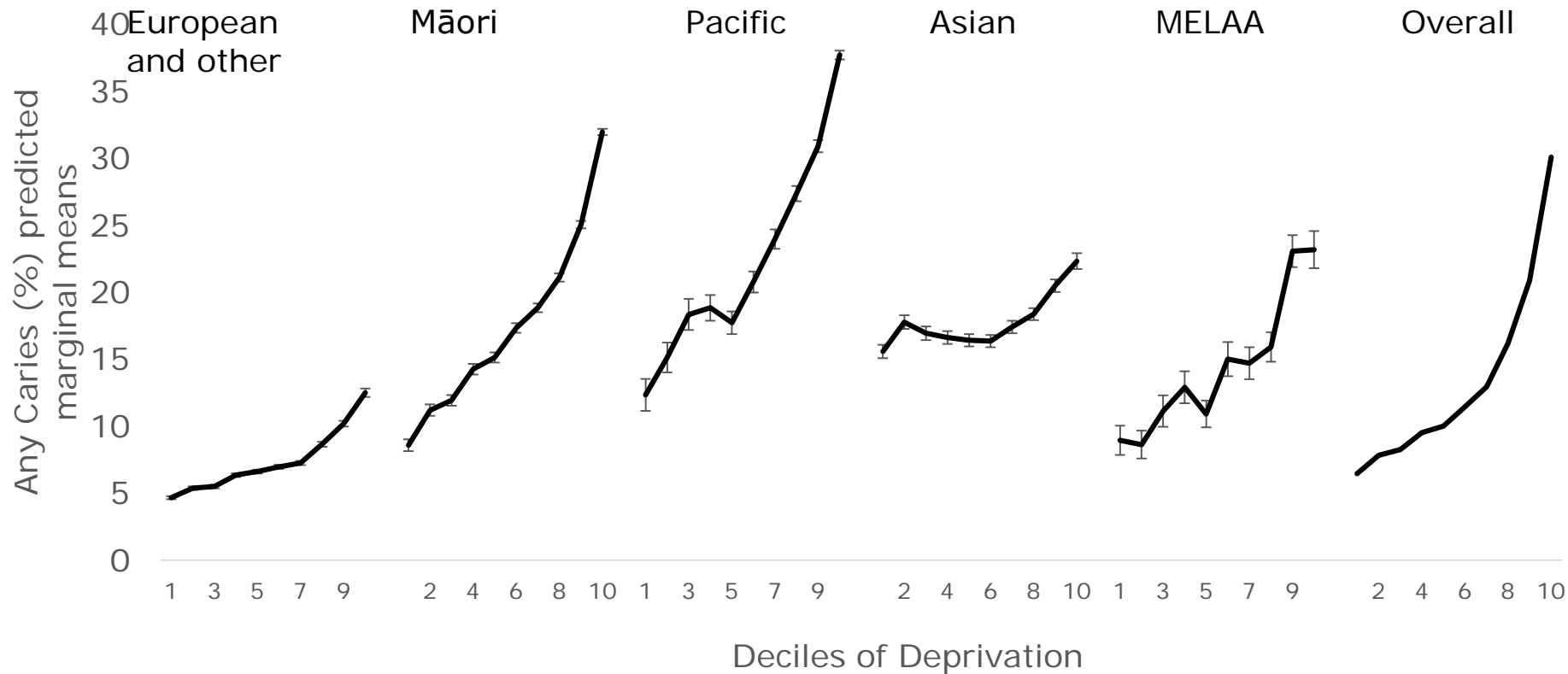
It is the 12th core contact of the Well Child Tamariki Ora Schedule of services.



Evidence of 'carries' in the B4SchoolCheck by the IMD and its domains

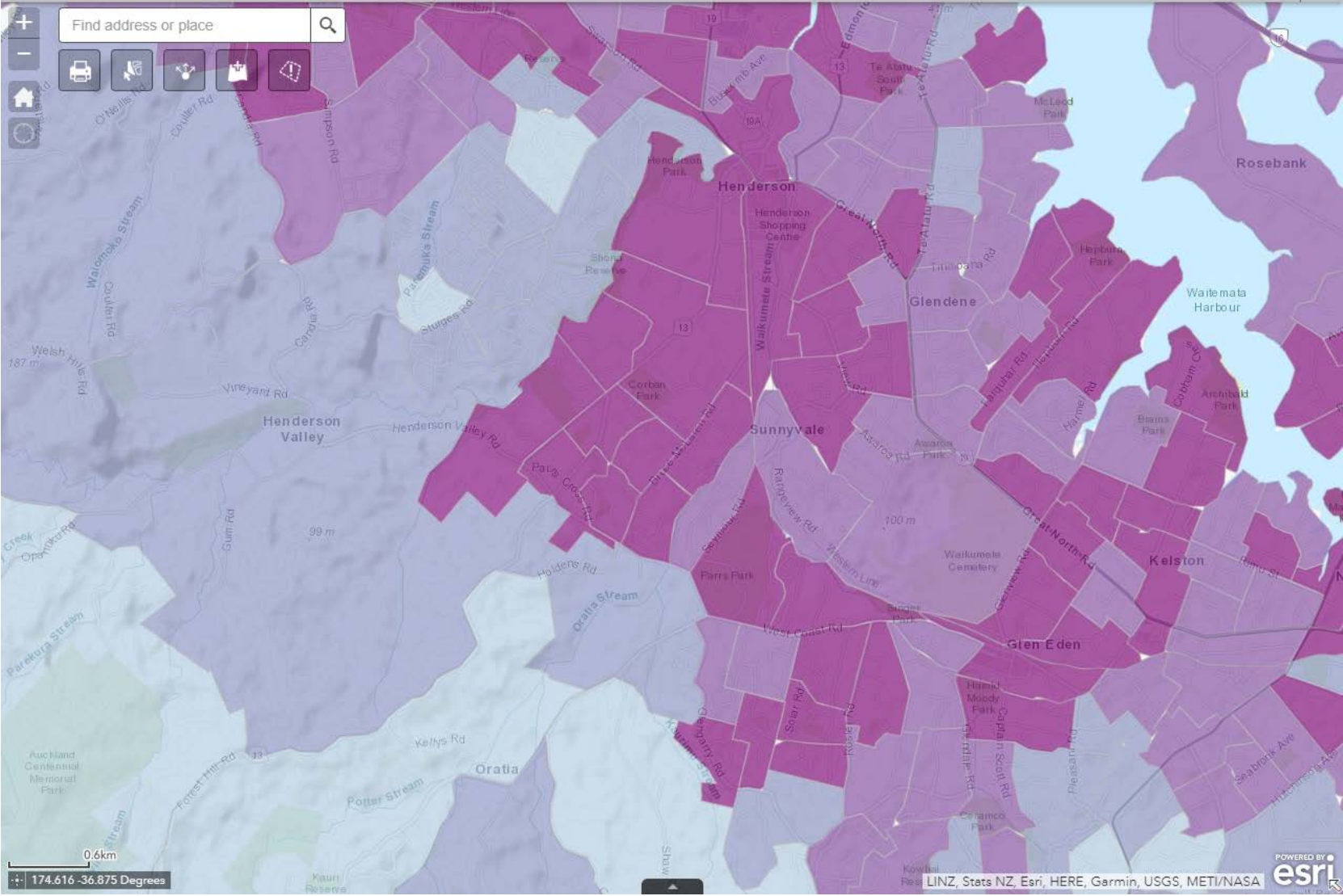


The probability of children having dental caries, by IMD decile and ethnicity



Some other uses of the IMD

- Ministry of Education used IMD for their analysis of participation and attainment rates
- Advocating against new liquor outlets opening
- Online surveys (with data zones and IMD embedded at source)
- Iwi understanding residents living in their rohe
- Councils putting together material to monitor long term outcomes for their populations
- High school geography students using the IMD to understand the social geography of their neighbourhood
- Postgraduate research students
 - Does the choice of index affect health funding?
 - Who lives in deprived areas?
 - Impact of geographic scale on data suppression and homogeneity





Enter your address and convert to data zone ID for IMD deprivation information

Convert to DatazoneID

Want to know more? [Visit IMD Website](#)

Created by the [Centre for eResearch, University of Auckland](#).

Q2. Enter your address and convert to data zone ID for IMD deprivation information

Convert to DatazoneID

Want to know more? [Visit IMD Website](#)

Created by the [Centre for eResearch, University of Auckland](#).

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Embedded Data

ImdRankD: 5

EmpRankD: 4

IncRankD: 4

CriRankD: 9

HouRankD: 8

HlthRankD: 5

EduRankD: 1

AccRankD: 2

Location Data

Location: [\(-36.86669921875, 174.76669311523\)](#)

Source: GeoIP Estimation



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
- All the info you need is available at www.fmhs.auckland.ac.nz/imd