

# DEFINING RURALITY: EVALUATING THE OPTIONS FOR THE DEVELOPMENT OF A NEW REGIONAL-RURAL ADMISSION SCHEME FOR PROFESSIONAL MEDICAL PROGRAMMES AT THE UNIVERSITY OF AUCKLAND

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UNIVERSITY OF  
AUCKLAND  
Waipapa Taumata Rau  
NEW ZEALAND

**MEDICAL AND  
HEALTH SCIENCES**

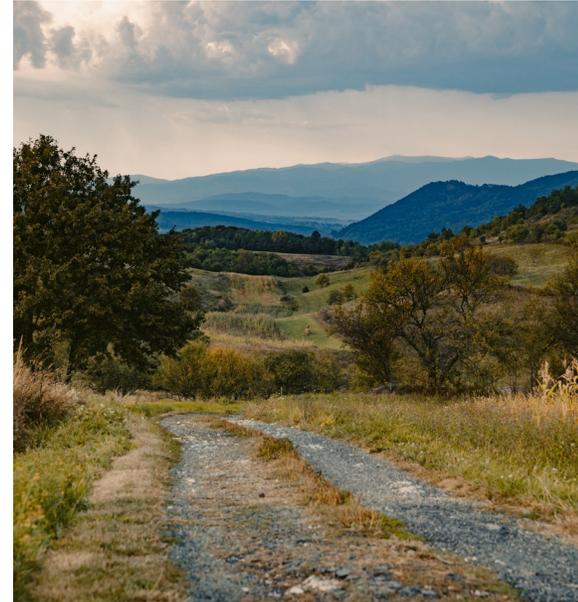
New Zealand Population  
Conference 2023  
29<sup>th</sup> and 30<sup>th</sup> August, Engineering  
Building, University of Auckland



# What is rural?

Open spaces, large areas?

Poor urban accessibility?



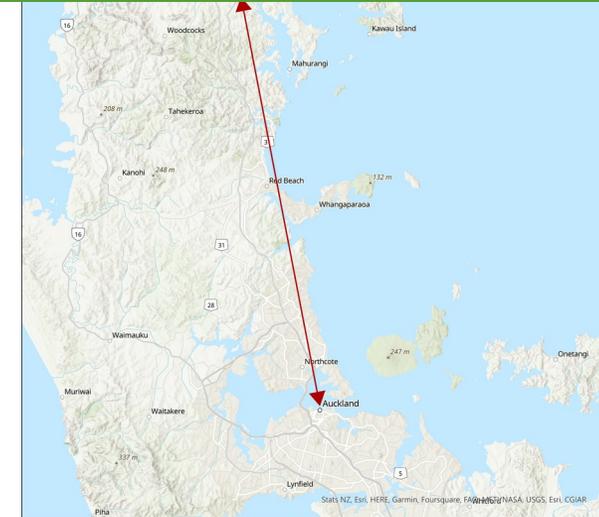
No standard international definition of “rural”

Small population size?

Geographical distance?



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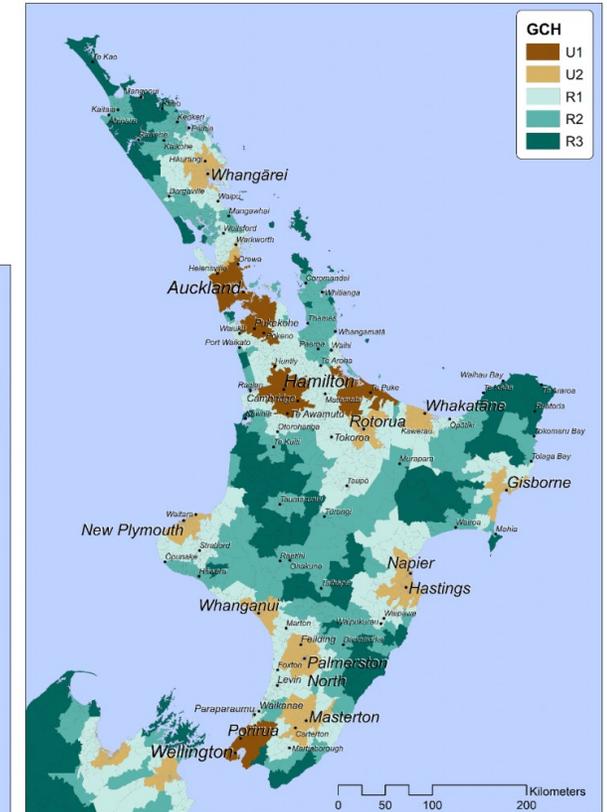
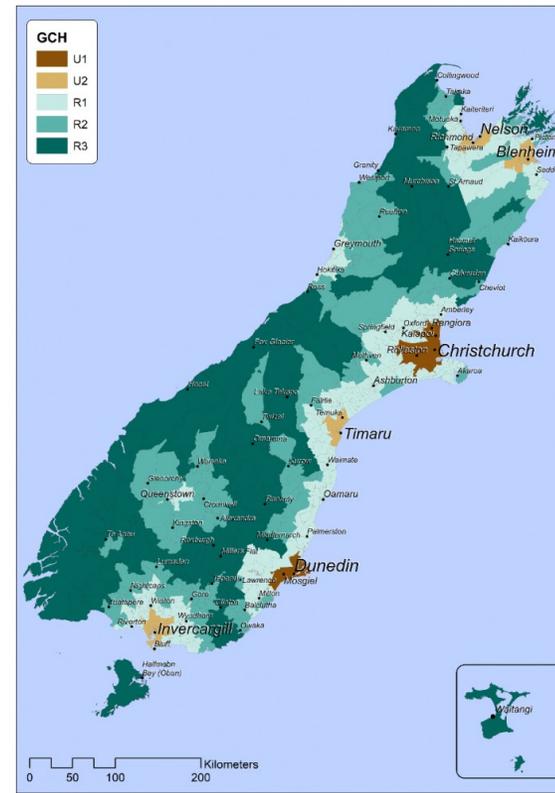
# Existing rural definitions in New Zealand

## Stats NZ - official

- Statistical Standard for Geographic Areas (SSGA) 2018 [updated 2023] (Stats NZ, 2017)
  - Urban Rural 2018 classification
- Urban Accessibility classification (UA) 2020 (Stats NZ, 2020)
- Functional Urban Area classification (FUA) 2021 (Stats NZ, 2021)

## Non-official

- Geographic Classification for Health (GCH), University of Otago (Nixon et al., 2021)
- Others developed for research purposes
  - Measuring relative rurality for health research (i.e. Zhao et al., 2019)
  - Measuring rurality using urban accessibility, based on Stats NZ UREP 2006 (i.e. Fearnley et al., 2016)



# Rural health

- Differences in health outcomes
  - Demographic differences;
  - Increased risk factors;
  - Ill-designed health systems not fit for purpose for rural communities;
  - Lack of rural medical professionals

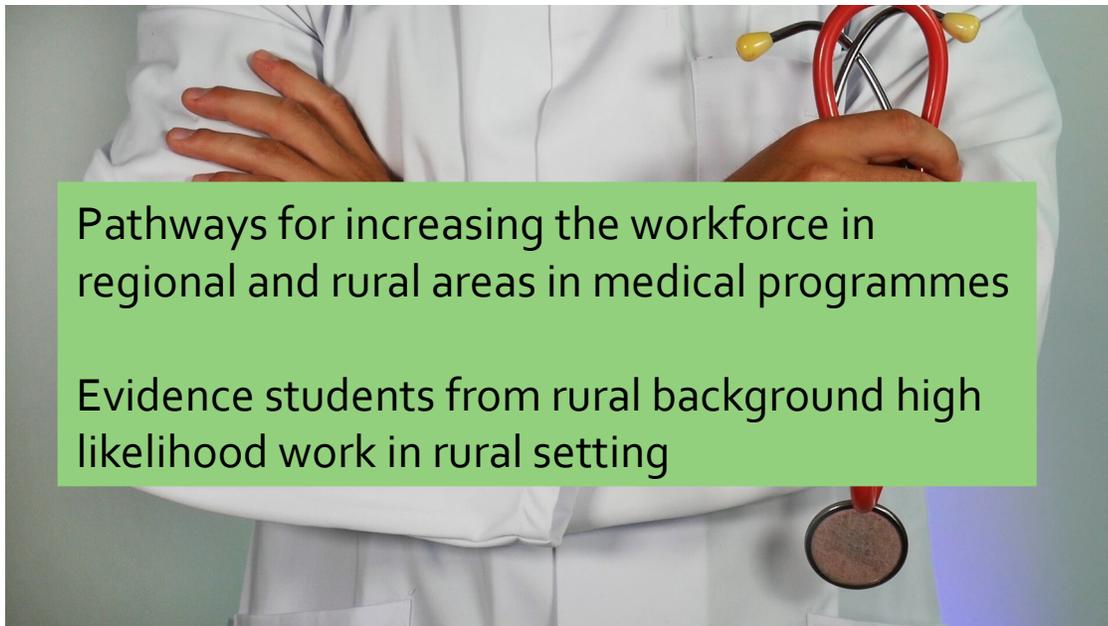


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# Regional Rural Admission Scheme (RRAS)

## Regional Rural Admission Scheme

We are dedicated to providing a solution to the critical shortage of rural health care workers in New Zealand.



Our Regional Rural Admission Scheme (RRAS) is designed to encourage people to train and return to their rural areas to work and utilise their education and skills. Evidence shows that students identifying with regional or rural backgrounds are more likely to work outside urban areas.

Places in the following undergraduate programmes are allocated for students of regional or rural origin to ensure equitable access:

- Bachelor of Medicine and Bachelor of Surgery (MBChB)
- Bachelor of Optometry (BOptom)
- Bachelor of Medical Imaging (Hons)
- Bachelor of Pharmacy (BPharm)

<https://www.auckland.ac.nz/en/fmhs/study-with-us/application-and-admission/admission-schemes/regional-rural-admission-scheme.html>

- Existing RRAS no longer equitable
- Based on outdated rurality definition:
  - Outdated spatial units
  - Does not take accessibility into consideration
- **Need to develop a more contemporary RRAS**

**AIM:** Develop an updated Regional Rural Admission Scheme at Waipapa Taumata Rau | The University of Auckland (UoA)



# Data and ethics

## University of Auckland applicant dataset

- De-identified applicant dataset for those enrolled in medical programme (MBChB) at UoA from 2017 to 2023 (n = 1,984)
- Both domestic and international applicants
- We filtered to applicants with a New Zealand school address (n = 1,808)
- School addresses geocoded using Google API

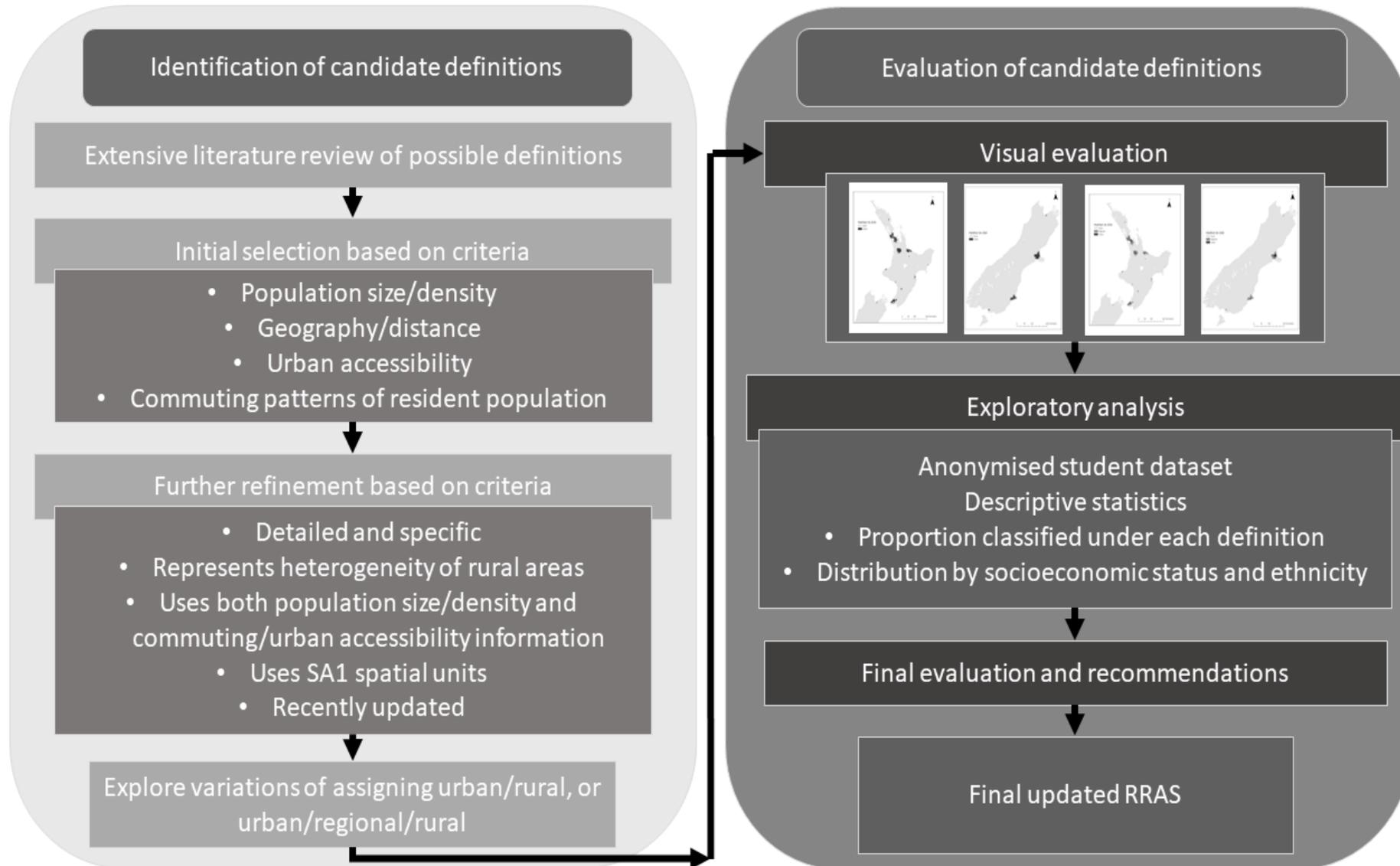
## Census dataset

- Statistical Area 2 2018 New Zealand Census, 15-29 Years CURPop count, by ethnic group (grouped total responses) (n = 963,687)

## Ethics

Ethics approval through UAHPEC (25706).

# Methodology

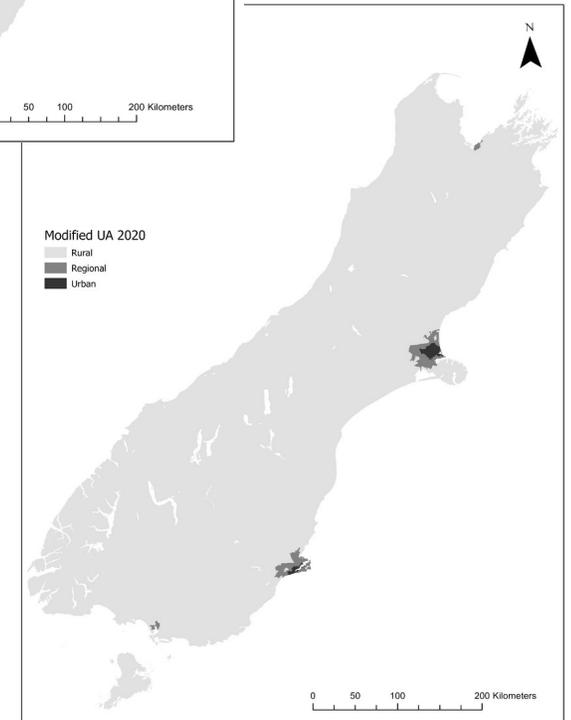
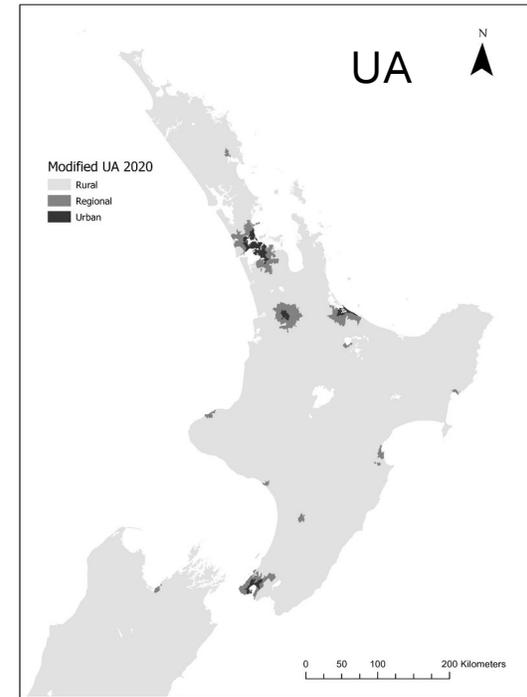
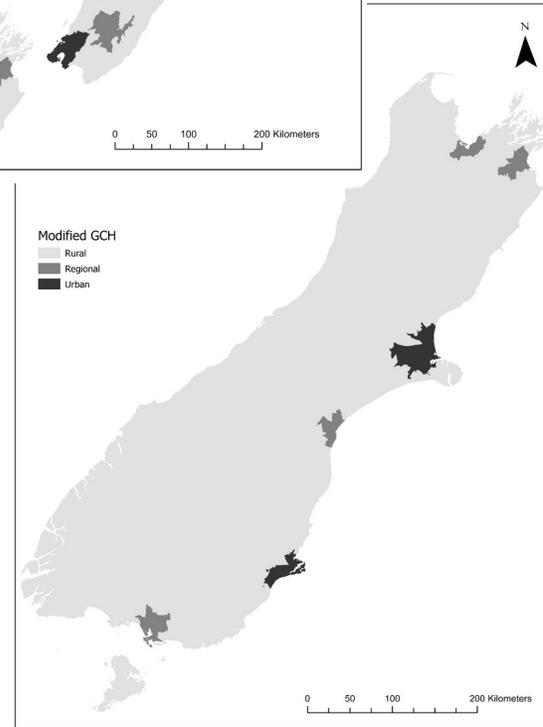
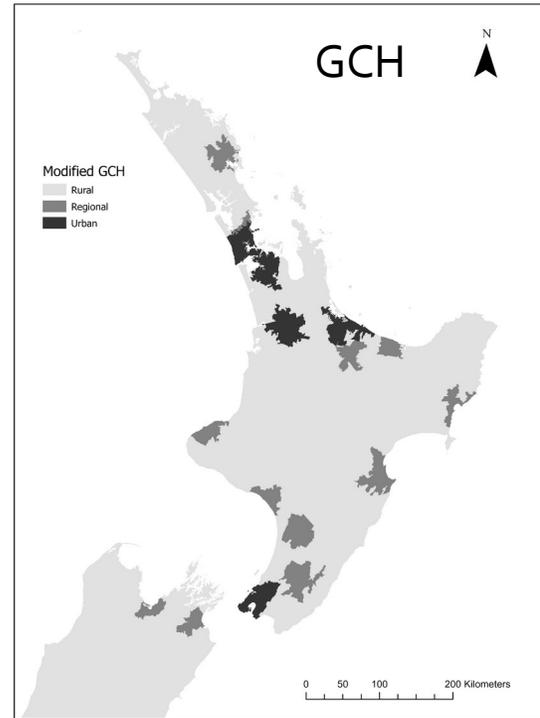
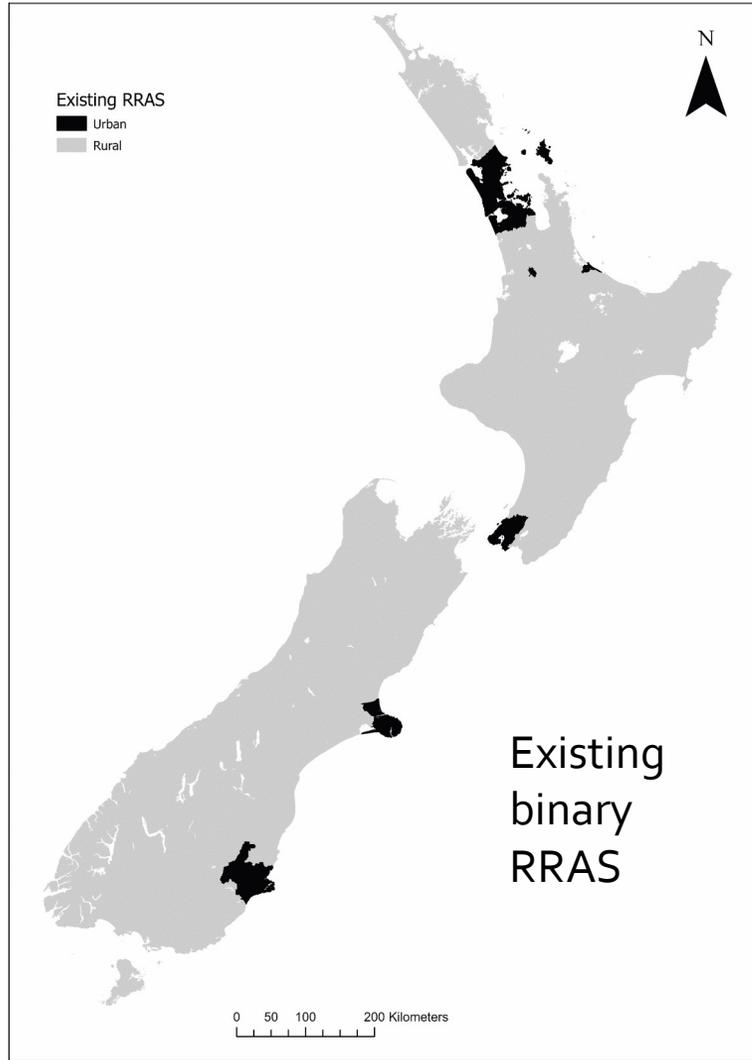


# Results

## Comparisons of candidate rurality definitions

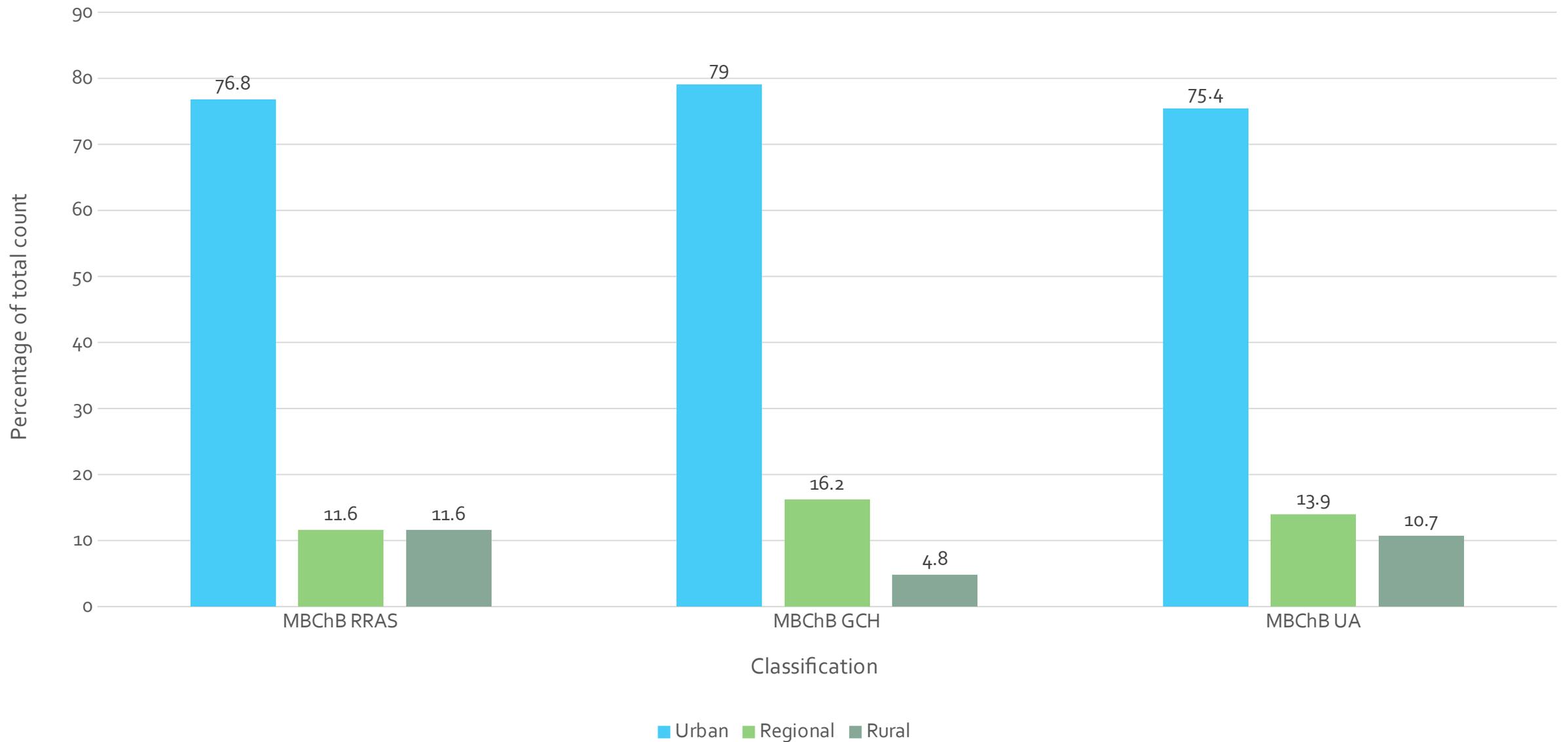
| Candidate definition | Population size/density                                                       | Geographic scale of units                   | Commuting patterns and urban accessibility                                                        | Temporality of dataset                         | Classification of areas                                                                                                                                |
|----------------------|-------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Existing RRAS</b> | NA                                                                            | Territorial Authority.<br>Regional scale.   | NA                                                                                                | TA boundaries updated as required by Stats NZ. | Urban, Rural.                                                                                                                                          |
| <b>GCH</b>           | Uses population size, density.                                                | SA1 2018 units.<br>Neighbourhood scale.     | Drive time from location to urban area, drive time to the edge of an urban area using thresholds. | Released 2021. Uses 2018 Census data.          | U1, U2, R1, R2, R3.                                                                                                                                    |
| <b>UA 2020</b>       | Major, large and medium urban areas.                                          | Based on SA1 2018 units.<br>Regional scale. | Potential urban accessibility, estimated drive times to closest urban area.                       | Released 2020. Uses 2018 Census data.          | Major, Large, Medium and Small urban areas, High/Medium/Low urban accessibility, Remote, Very Remote.                                                  |
| <b>FUA 2021</b>      | Activity space of pop., classifies FUA types and FUA components by pop. size. | Based on SA1 2018 units.<br>Regional scale  | Actual urban accessibility and commuting, actual commuting information to closest urban area.     | Released 2021. Uses 2018 Census data.          | Component: Urban core, Secondary urban core/s, Satellite urban core/s, Hinterland.<br><br>Type: Metropolitan area, Large/Medium/Small regional centre. |

# Results

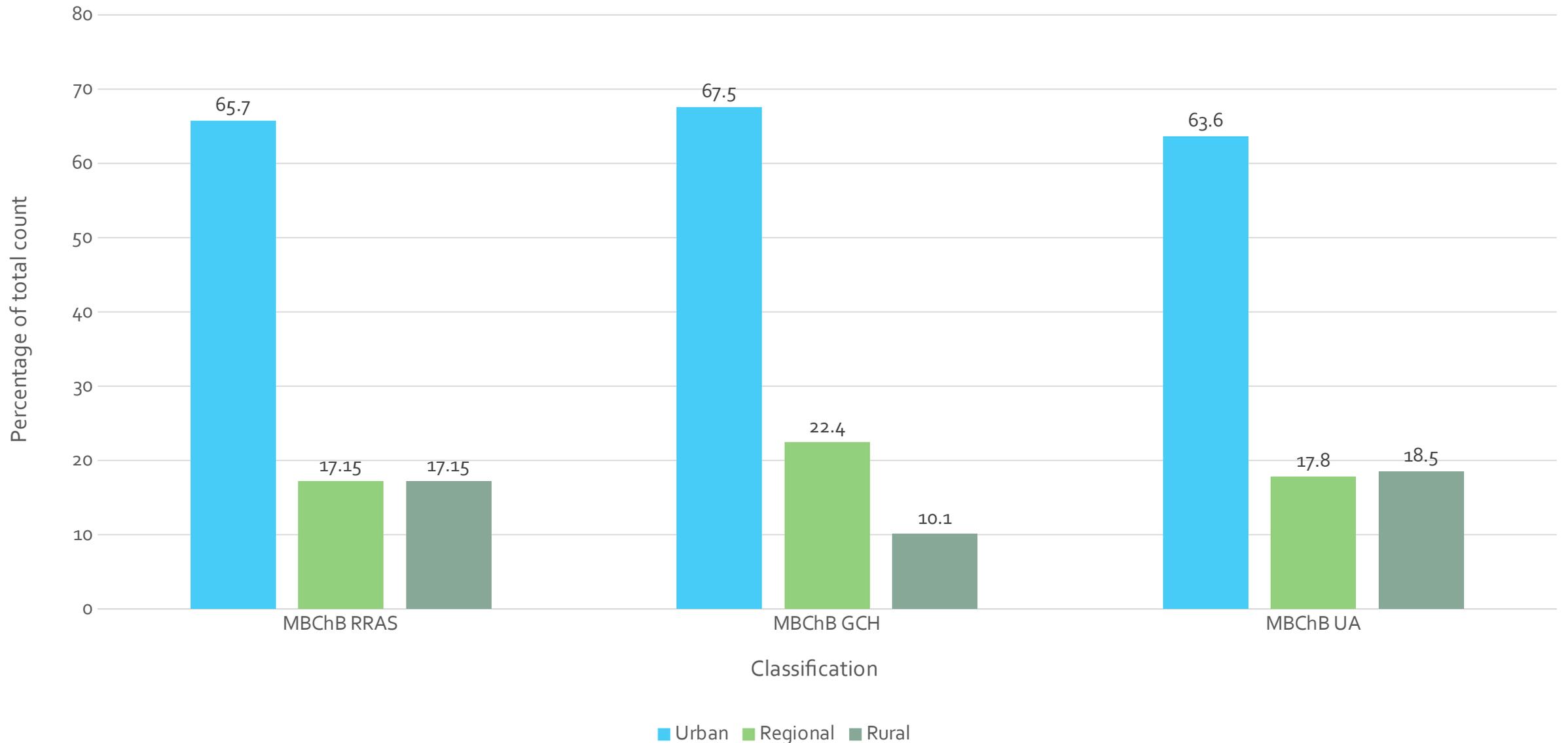


Modified ternary classifications (Urban/Regional/Rural)

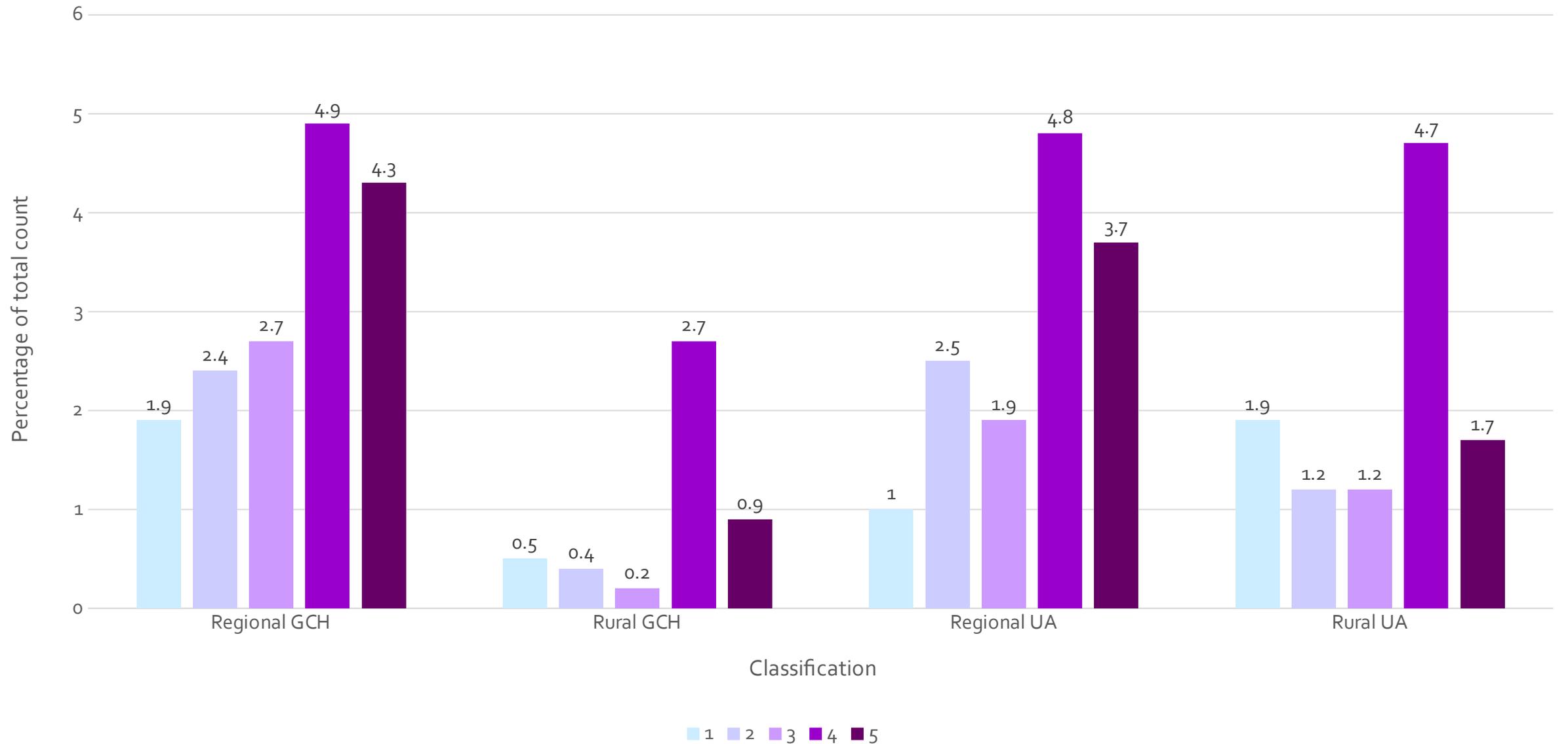
## Classification of MBChB applicants from University of Auckland with a NZ School address (2017-2023), by candidate rural definitions



# Classification of MBChB applicants from University of Auckland with a NZ School address (2017-2023) of Māori ethnicity, by candidate rural definitions



# Classification of MBChB applicants from University of Auckland with a NZ School address (2017-2023), by NZ Index of Multiple Deprivation quintile rank and candidate rural definitions



# Final recommendation

## Ternary Modified Urban Accessibility classification recommended to update RRAS

- Developed by Stats NZ
- Likely to be updated regularly
- Not defined by access to healthcare
- Captures majority of applicants who would identify as being of rural origin

**This has been implemented! →**

- Will assist in addressing underrepresentation of rural students admitted to professional health programmes at UoA

## Criteria

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As defined by the University of Auckland, you qualify under RRAS if you meet one of the following criteria:

1. Five years or more of primary education (Years 1-8) spent in a school within a regional/rural area, or
2. Three years or more of secondary education (Years 9-13) spent in a school within a regional/rural area

The definitions of "rural" and "regional" are derived from the Statistics New Zealand 2020 Urban Accessibility classification:

- Rural = Medium urban area, medium urban accessibility, low urban accessibility, remote, very remote
- Regional = Large urban area, high urban accessibility
- Urban = Major urban area

<https://www.auckland.ac.nz/en/fmhs/study-with-us/application-and-admission-admission-schemes/regional-rural-admission-scheme.html>

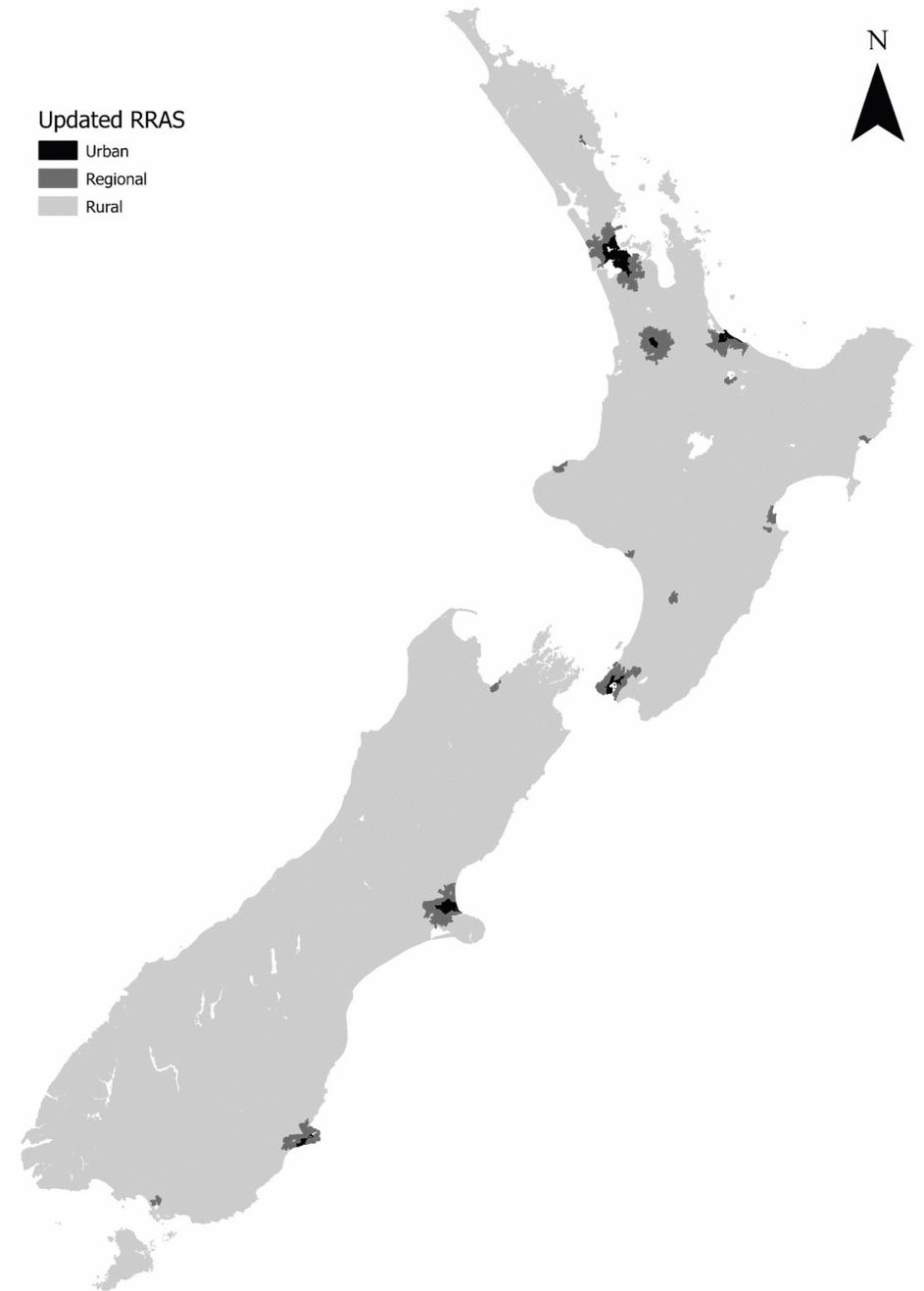
Existing RRAS

- Urban
- Rural



Updated RRAS

- Urban
- Regional
- Rural



# Discussion

- Modified UA consistently classified higher percentage of applicants as rural
- Modified UA classified higher percentage of Māori applicants and those in areas of higher deprivation as rural
- Methodology choices supported by literature
- Limitations
- Future work

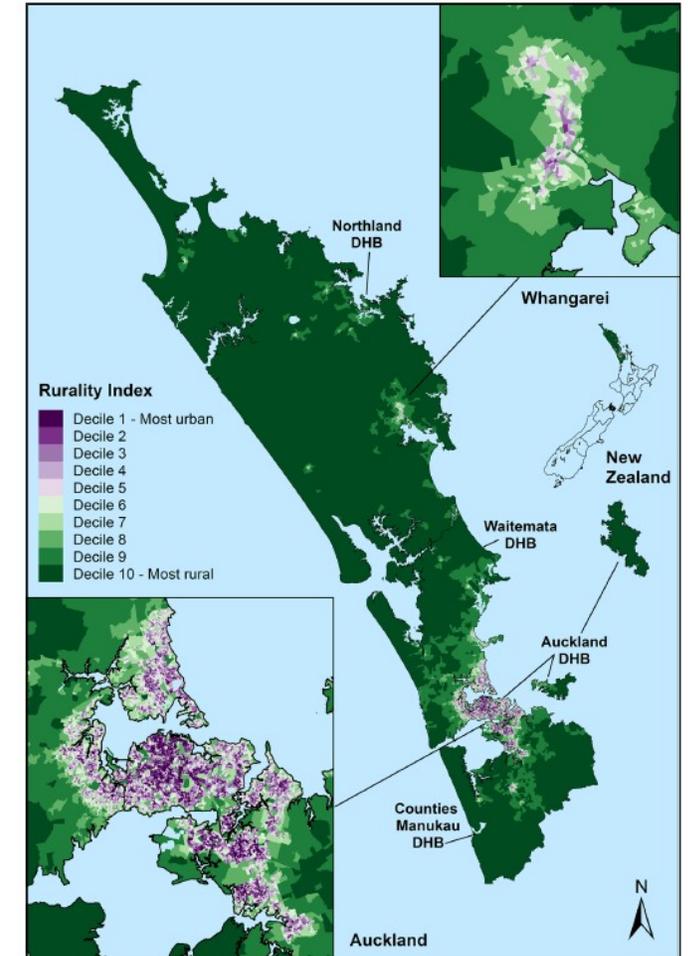


Fig. 3 The index of rurality for Auckland and Northland. Decile 1 represents the most urban areas and Decile 10 the most rural

Zhao et al., 2019

# Thank you!

## Questions?

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