

Socio-economic deprivation in the Waikato region

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Socio-economic Deprivation in the Waikato Region -

Using the 2018 versions of the NZ Deprivation Index (NZDep18) and the Index of Multiple Deprivation (IMD18) to understand drivers of deprivation in the Waikato Region and its Districts.

A report for the Waikato Regional Council

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Executive Summary

This background research document will help inform discussions on deprivation in the Waikato region. Socio-economic deprivation and associated poverty is a challenge that we face as a country. The Waikato Region is not immune to this issue. It is important that as a region we understand the deprivation that we experience to:

- Help the Waikato region to determine action priorities and areas to target.
- Promote more effective engagement with the Waikato Plan and other community initiatives in the Waikato, e.g. the Waikato Wellbeing project.
- Help local authorities in the Waikato region to further understand their communities to address their own unique mix of deprivation drivers.
- Work with community trusts and other community organisations to effectively target funding allocation.
- Harness government funding opportunities to help address inequalities.

Deprivation indices rank areas according to the proportion of the population who are experiencing different types of deprivation. In this report, we divide those areas into 5 categories (referred to as quintiles), in which Quintile 1 represents the 20% of areas across all of New Zealand that have the lowest levels of area deprivation. Quintile 1 is usually called the 'least deprived' category. Similarly, Quintile 5 represents the 'most deprived' 20% of areas across New Zealand.

This report explores deprivation across the Waikato region using two indices – the New Zealand Deprivation Index (NZDep) and the Index of Multiple Deprivation (IMD). The two indices measure deprivation in different ways, describing two different pictures of deprivation in the Waikato region. Despite their differences, both indices demonstrate that the level of socio-economic deprivation in the Waikato region is slightly worse than overall New Zealand.

Firstly, the **NZ Deprivation Index** has shown that the Waikato region is not experiencing the highest deprivation in New Zealand but is still amongst the six regions with the most deprivation challenges. Over the period 1991 – 2018:

- Overall deprivation has improved significantly at a sub-regional level for four districts within the Waikato (Waipa, Waikato, Thames-Coromandel and Taupo), relative to New Zealand as a whole.
- Marginal increases in deprivation were seen in Matamata-Piako, Hamilton, Otorohanga and Hauraki district
- Significant increases in deprivation were seen in South Waikato and Waitomo districts.
- South Waikato is the only district in the Waikato region that ranks within the 12 most deprived districts in the North Island with 74.4% of their population living in areas falling within the 20% most deprived areas in NZ. This means that three quarters of the residents in South Waikato are experiencing severe socio-economic hardship

- Over 60% of the populations in Waitomo, Hauraki, South Waikato, Rotorua and Hamilton City are living in area of high deprivation.

Secondly, the **Index of Multiple Deprivation (IMD)** provides the ability to explore a wider range of deprivation drivers at a small area level within each district. This analysis has shown that the Waikato Region is made up of very disparate communities. At the sub-regional level, no two communities have the same mix of drivers.

Overall, this report shows that it is simplistic to assess deprivation at a regional level. Each data zone has a different mix of drivers across each district. This has policy implications for considering the use of place-based policies versus blanket policies to improve social outcomes. This research suggests that Central Government, local authorities, social providers, community trusts and others will need to consider not only the different drivers in each locality and targeting interventions to address those but also how the underlying drivers work together to deepen deprivation. Interventions will need to be very specific to the location to address the unique factors in each locality.

1. Introduction

Socio-economic deprivation and associated poverty is a challenge that we face as a country. It is important that as a region we understand the deprivation that we experience to:

- Help the Waikato region to determine action priorities and areas to target.
- Promote more effective engagement with the Waikato Plan and other community initiatives in the Waikato, e.g. the Waikato Wellbeing project.
- Help local authorities in the Waikato region to further understand their communities to address their own unique mix of deprivation drivers.
- Work with community trusts and other community organisations to effectively target funding allocation.
- Harness government funding opportunities to help address inequalities.

This report is designed as a background research document to help inform the discussion on deprivation in the Waikato region and is an update of a report by the same name published in 2018.¹ An extensive Social Wellbeing Report was produced in 2013 for the development of the Waikato Plan.²

¹ McMillan, R. and Exeter, D. (2018). Socioeconomic Deprivation in the Waikato Region. Using the Index of Multiple Deprivation to understand drivers of deprivation. Waikato Plan Discussion Paper, Waikato Plan, Hamilton.

² McKenzie-Norton, E. (2013). Spatial Plan Project – Social Wellbeing Report. <http://www.waikatoplan.co.nz/assets/Waikato-Plan/About-the-plan-/Our-people-files/6-c-Social-Wellbeing-Report-December-2013.pdf>

Purpose

The purpose of this report is to outline:

- deprivation in the Waikato region
- the Waikato's comparative position amongst all regions in New Zealand
- how deprivation has changed over time in the Waikato region, relative to New Zealand as a whole
- deprivation across each district within the Waikato region
- the underlying drivers of deprivation in each district

2. What is socio-economic deprivation?

A working definition

Deprivation is often defined as “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”,^{3,4,5} and distinctions are made between material and social deprivation. Material deprivation considers goods and services, resources, and the availability of amenities and the physical environment. By contrast, social deprivation refers to the roles, relationships, customs and responsibilities associated with being members of society and its subgroups. Deprivation indexes use data from Census or administrative sources to measure patterns of socio-economic conditions in communities.⁶

Higher levels of socio-economic deprivation are associated with worse health.^{7,8} There are also connections between socio-economic deprivation and environmental risk.^{9,10} In general, people who live in more deprived areas are more susceptible to environmental

³ Townsend P. 1987. Deprivation. *Journal of Social Policy*, 16(2), 125-146. doi:10.1017/S0047279400020341

⁴ Exeter DJ, Zhao J, Crengle S, Lee A, Browne, M. (2017). The New Zealand Indices of Multiple Deprivation (IMD): A new suite of indicators for social and health research in Aotearoa, New Zealand.

⁵ Crampton P, Salmond C, Atkinson J. 2020. A comparison of the NZDep and the New Zealand IMD indexes of socioeconomic deprivation. *Kōtuitui: New Zealand Journal of Social Sciences Online*, 15(1), 154-169. doi: 10.1080/1177083X.2019.1676798

⁶ Atkinson, J., Salmond, C., and Crampton, P. (2019). NZDEP2018 Index of Deprivation. Department of Public Health, University of Otago, Wellington; Division of Health Sciences, University of Otago.

⁷ Shackleton, N, Broadbent, JM, Thornley, S, Milne, BJ, Crengle, S, Exeter, DJ. 2018. Inequalities in dental caries experience among 4-year-old New Zealand children. *Community Dentistry and Oral Epidemiology* 46: 288– 296. .

⁸ Sushil Z, Vandevijvere S, Exeter DJ, Swinburn B. (2017). Food swamps by area socioeconomic deprivation in New Zealand: a national study. *International Journal of Public Health*, 62, 869-877. doi: 10.1007/s00038-017-0983-4

⁹ Hales S, Black W, Skelly C, Salmond C, Weinstein P. 2003. Social deprivation and the public health risks of community drinking water supplies in New Zealand. *J Epidemiol Community Health* 57:581-583. <http://www.ehinz.ac.nz/indicators/population-information/socioeconomic-deprivation-profile/>

¹⁰ Doiron D, Setton EM, Shairsingh K, Brauer M, Hystad P, Ross NA, Brook JR. 2020. Healthy built environment: Spatial patterns and relationships of multiple exposures and deprivation in Toronto, Montreal and Vancouver. *Environment International*, 143, 106003. doi: <https://doi.org/10.1016/j.envint.2020.106003>

risks. They may also have less capacity to cope with the effects of environmental risks, and fewer resources to protect themselves from environmental hazards.¹¹

Rural-urban status and deprivation

Deprivation may have different impacts in rural areas compared to urban areas. Three types of deprivation have been recognised as contributing to this:

- Resource deprivation (low income, housing).
- Opportunity deprivation (lack of availability of services such as health, recreation)
- Mobility deprivation (higher transport costs, inaccessibility of jobs, services, facilities).¹²

Resource deprivation may be present in urban and rural areas, but opportunity and mobility deprivation relate specifically to geography. In addition, the degrees of resource deprivation, opportunity and mobility deprivation may vary between populations within an area type.¹³

3. Deprivation indices

History of measuring deprivation

The New Zealand Index of Deprivation (NZDep) was developed after the 1991 Census. It was conceived with three purposes in mind: resource allocation, community advocacy and research. NZDep used national Census data, and was based on international deprivation research. For the past 20 years, the New Zealand Deprivation Index (NZDep) has been the universal measure of area-based social circumstances for New Zealand and often the key social determinant used in population health and social research.¹⁴

In 2017, a new deprivation measure was released – the index of Multiple Deprivation (IMD) which was developed with Health Research Council funding by the University of Auckland's School of Population Health. The Index of Multiple Deprivation provides depth of understanding in terms of the drivers of deprivation. These drivers of deprivation are grouped into the 7 Domains, which combine to create the IMD.¹⁵ In November 2020, the

¹¹ Watkins, A., Curl, A, Mavoa, S, Tomintz, M, Todd V, Dicker, B. 2020. A socio-spatial analysis of pedestrian falls in Aotearoa New Zealand. *Social Science & Medicine*: 11 3212.

¹² Ikeda, E., Mavoa, S, Cavadino, A, Carroll, P, Hinckson, E, Witten K, Smith, M. 2020. Keeping kids safe for active travel to school: A mixed method examination of school policies and practices and children's school travel behaviour. *Travel Behaviour and Society* 21: 57-68.

¹³ Robson B, Purdie G, Cormack, D. 2010. *Unequal Impact II: Māori and Non-Māori Cancer Statistics by Deprivation and Rural–Urban Status, 2002–2006*. Wellington: Ministry of Health.

¹⁴ Exeter DJ, Zhao J, Crengle S, Lee A, Browne, M. (2017). *The New Zealand Indices of Multiple Deprivation (IMD): A new suite of indicators for social and health research in Aotearoa, New Zealand*.

¹⁵ Exeter DJ, Zhao J, Crengle S, Lee A, Browne, M. (2017). *The New Zealand Indices of Multiple Deprivation (IMD): A new suite of indicators for social and health research in Aotearoa, New Zealand*.

IMD was updated following the release of data from Census 2018. This report uses the recently released version of the IMD, referred to throughout as IMD18.¹⁶

The IMD18 and its 7 Domains are not official statistics, they have been created for research purposes from the Integrated Data Infrastructure (IDI), managed by Statistics New Zealand but help to provide a detailed understanding of each area's drivers.

The Dynamic Deprivation Index (DDI) has also been created to assign a deprivation score and deprivation index comparable to NZDep18 for Census Area Units in New Zealand. Using the NZDep13 as a baseline measure, the DDI uses a combination of publicly available and proprietary data, and is updated monthly.¹⁷ A particular strength of the DDI is its ability to provide deprivation on a more regular basis than the IMD18 or NZDep18, and is currently used by Trust Waikato. However, at the time of writing this report, the DDI is not freely available to the public. Therefore, the DDI is not considered in this report, and analyses in the remainder of this report use NZDep18 or the IMD18 measures.

Comparison of the Indices

Table 1 compares the indicators used in NZDep18 and IMD18. There is some overlap between the indices for some dimensions of deprivation but for others it varies significantly. The NZDep18 has 9 indicators across 8 dimensions (or domains) derived using data only from the 2018 census. By contrast, the IMD18 has 29 indicators across 7 domains and uses routinely collected data from government departments as well as Census data. Current editions of both indices utilise data from the 2018 Census.

¹⁶ <https://www.fmhs.auckland.ac.nz/en/soph/about/our-departments/epidemiology-and-biostatistics/research/hgd/research-themes/imd18.html>

¹⁷ Ward AD, Trowland H, Bracewell P. (2019). The Dynamic Deprivation Index: measuring relative socio-economic deprivation in NZ on a monthly basis. *Kōtuitui: New Zealand Journal of Social Sciences Online*. 14(1), 157-176. doi: 10.1080/1177083X.2019.1578807

Table 1: Comparison of New Zealand Deprivation and the Index of Multiple Deprivation

Domain of deprivation	NZ Dep indicators 2018	IMD18 Description of variable (in order of decreasing weight in the index)
Employment	People aged 18-64 unemployed.	No. of working age people receiving Jobseekers Support at a rate of \$44.99 or less per day.
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. No. of persons in households that are damp. No. of persons in households lacking access to basic amenities.
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 Enter • 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.	

It is important to note that deprivation is a relative measure. Therefore 20% of areas will always fall into the most deprived Quintile across the whole of New Zealand irrespective of the overall wealth of the country.

For further details on methodology used in the two indices see Appendix 1.

The importance for policy and funding

The NZ Deprivation Index and the Index of Multiple Deprivation can be used for measurement and interpretation of socio-economic status of communities for:

- application in funding formulas for extra resources for community-based services
- needs assessment
- resource allocation
- policy development
- research
- advocacy.^{18,19}

¹⁸ See the IMD Alcohol Report tool at <https://imdmapp.auckland.ac.nz> which allows users to create deprivation profiles within 1km of the address of a proposed off-license bottle store.

¹⁹ Atkinson, J., Salmond, C., and Crampton, P. (2014). NZDEP2013 Index of Deprivation. Department of Public Health, University of Otago, Wellington; Division of Health Sciences, University of Otago.

4. Socio-economic deprivation across the Waikato Region – NZDep18 index

Section 4 presents a comparative analysis of deprivation in the Waikato region using the New Zealand Deprivation Index.

In this section:

- Comparison of the Waikato region with other regions in New Zealand - 2018
- Trends: comparison with other regions over the period 1991-2018
- Comparison between different districts within the Waikato region – 2018
- Trends: comparison between different districts within the Waikato region over the period - 1991-2018

How to interpret the data

The New Zealand Deprivation Index (NZDep18) ranks small areas across New Zealand from least deprived to most deprived. NZDep18 can be displayed as deciles. The deciles rank from 1 to 10. NZDep18 deciles 9 and 10 equate to high deprivation or low socio-economic status. A score of NZDep18 deciles 1 and 2 is an area of low deprivation and relates to high socio-economic status.

At a national-level there are equal numbers of households in each of the ten decile categories but at a sub-national level there can be clusters of high deprivation areas in a region or district.

NZDep18 can also be presented as quintiles for ease of display. A NZDep18 quintile of 5 will contain the areas that are ranked as NZDep18 9 and 10. A NZDep18 quintile of 4 will contain the areas that are ranked as NZDep18 7 and 8 and so on.

Comparison with other regions

Figure 1 compares 16 regions in New Zealand. The Waikato Region ranks 9thth out of the 16 regions with a NZDep18 overall ranking of 6.06 in 2018. Otago is the least deprived and Gisborne the most deprived.

Figure 1: Comparison of Deprivation Scores across all regions 2018 ²⁰

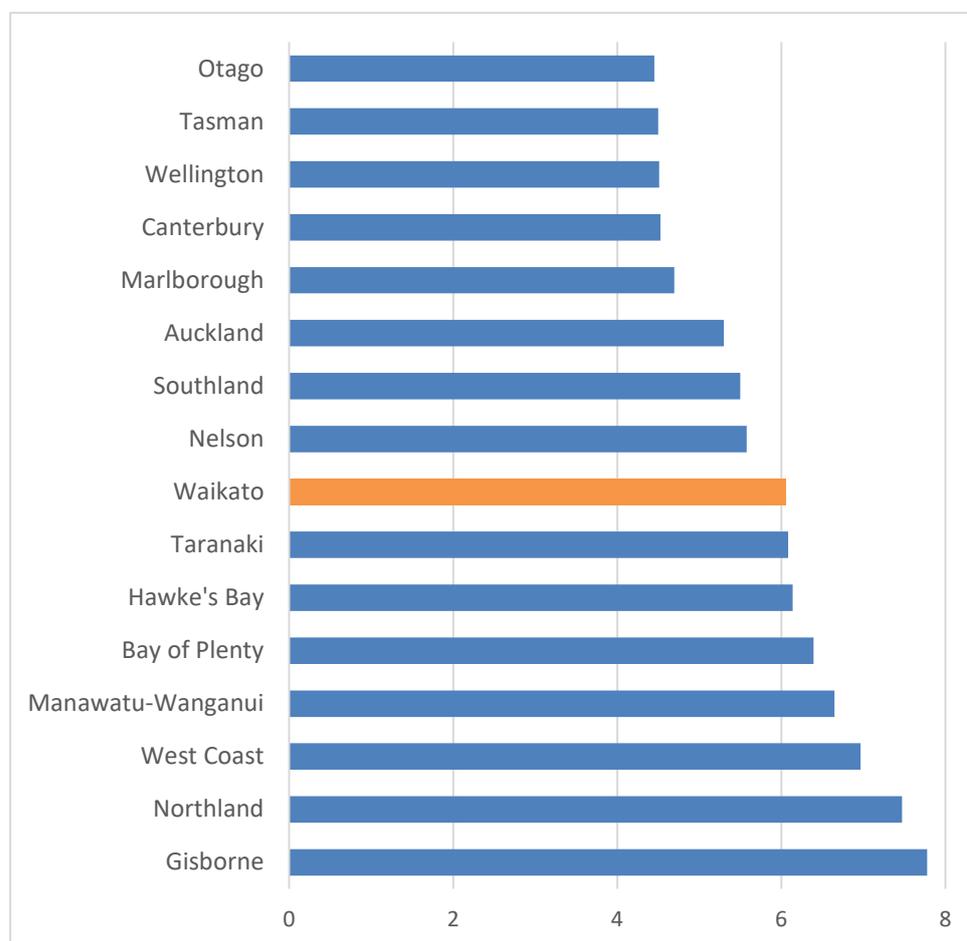


Table 2 and Figure 2 shows how the deprivation scores have changed over the period 1991 to 2018. These are ranked from the least deprived to the most deprived based on the end point in 2018. Overall deprivation has improved over most of the regions in the country from 1991, with the exception of Gisborne and Northland. In some areas deprivation has reduced quite markedly over the period, relative to New Zealand as a whole.

Compared to the rest of the country, the Tasman region has experienced the most significant reduction in relative deprivation between 1991 and 2018. Gisborne experienced the highest levels of deprivation, closely followed by Northland. Gisborne and Northland are the only two regions to experience an increase in their overall levels of relative deprivation, above that of 1991.

²⁰ Data for the comparison section is sourced from:

<https://www.otago.ac.nz/wellington/departments/publichealth/research/hirp/otago020194.html>

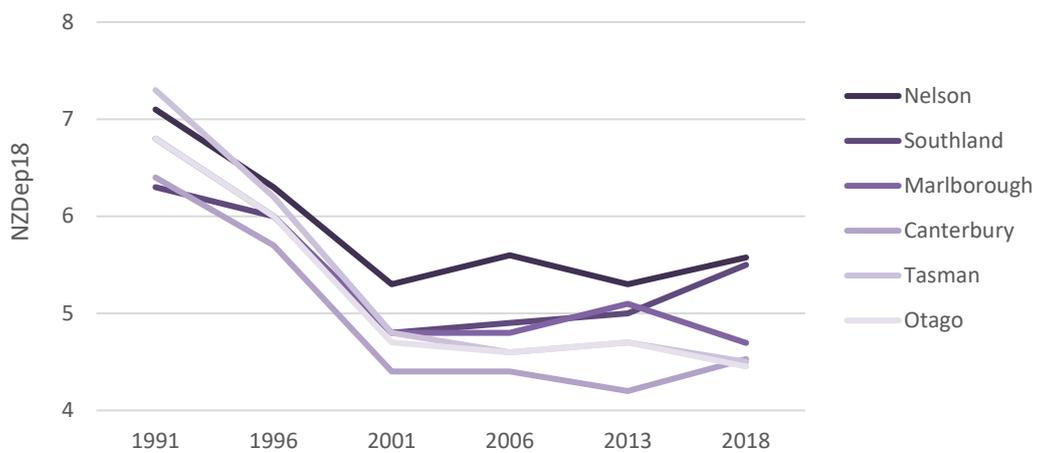
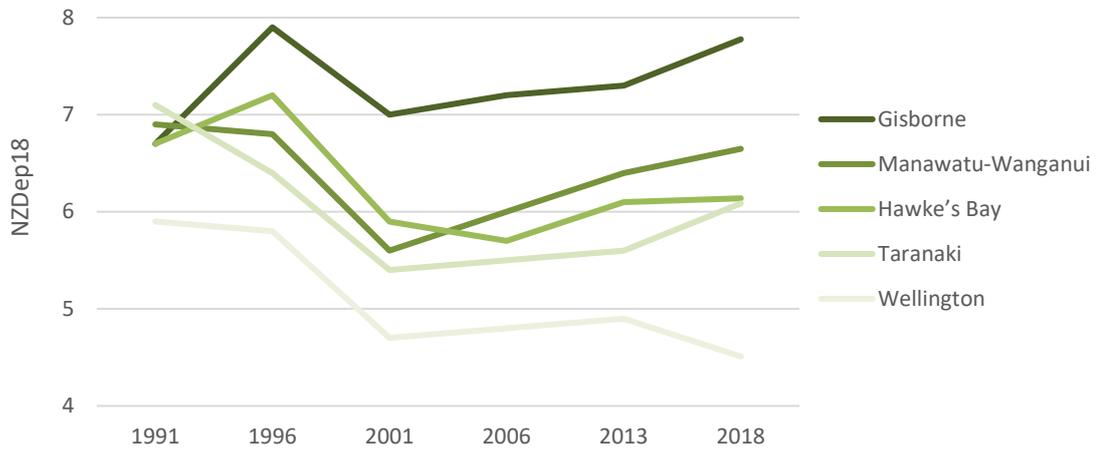
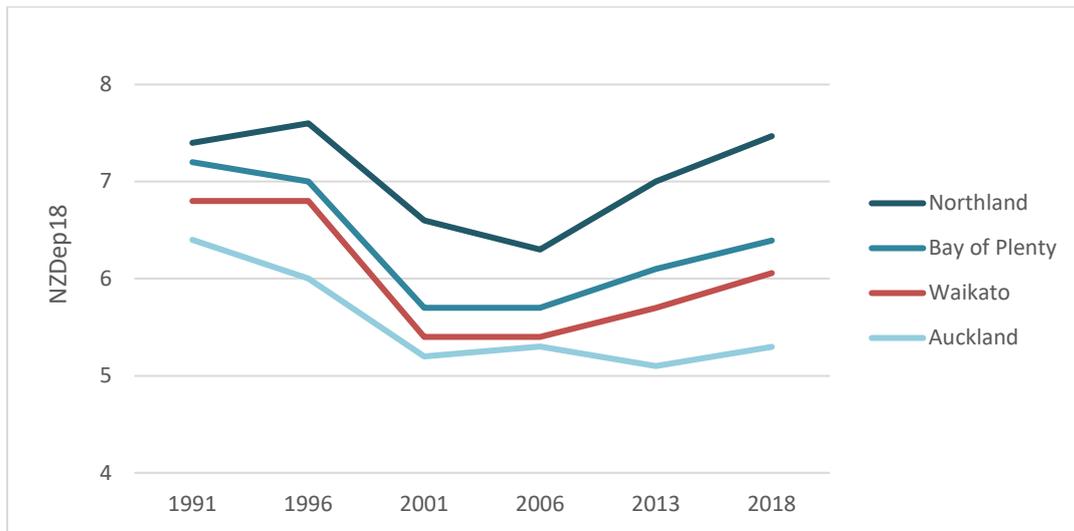
Table 2: Comparison of Deprivation Scores across all regions from 1991-2018

	1991	1996	2001	2006	2013	2018	Diff	Change
Otago	6.8	6	4.7	4.6	4.7	4.5	2.3	+++
Tasman	7.3	6.2	4.8	4.6	4.7	4.5	2.8	+++
Wellington	5.9	5.8	4.7	4.8	4.9	4.5	1.4	++
Canterbury	6.4	5.7	4.4	4.4	4.2	4.5	1.9	++
Marlborough	6.8	6	4.8	4.8	5.1	4.7	2.1	+++
Auckland	6.4	6	5.2	5.3	5.1	5.3	1.1	++
Southland	6.3	6	4.8	4.9	5	5.5	0.8	+
Nelson	7.1	6.3	5.3	5.6	5.3	5.6	1.5	++
Waikato	6.8	6.8	5.4	5.4	5.7	6.1	0.7	+
Taranaki	7.1	6.4	5.4	5.5	5.6	6.1	1.0	++
Hawke's Bay	6.7	7.2	5.9	5.7	6.1	6.1	0.6	+
Bay of Plenty	7.2	7	5.7	5.7	6.1	6.4	0.8	+
Manawatu-Wanganui	6.9	6.8	5.6	6	6.4	6.6	0.3	+
West Coast	8.1	7.3	6.1	5.8	5.7	7.0	1.1	++
Northland	7.4	7.6	6.6	6.3	7	7.5	-0.1	-
Gisborne	6.7	7.9	7	7.2	7.3	7.8	-1.1	--

Figure 2 Top and Centre show the changes of deprivation in the top and bottom half of the North Island, respectively, while the bottom graph shows these changes for the South Island. In the upper half of the North Island, deprivation levels in 2018 are generally lower than levels in 1991, despite the increases in the overall deprivation in the past decade. In the lower half of the North Island, there has been a general decline in the levels of relative deprivation, with the exception of Gisborne which is ranking worse in 2018 compared to 1991. There has been an increase in the levels of deprivation in the Manawatu-Wanganui region, almost reaching parity with the levels of deprivation in 1991.

The South Island is less deprived than the North Island. All regions in the South Island have seen improvements in their deprivation score, with all regions ranking better in 2018 compared to 1991.

Figure 2: Comparison of Deprivation Scores across all regions 1991 – 2018



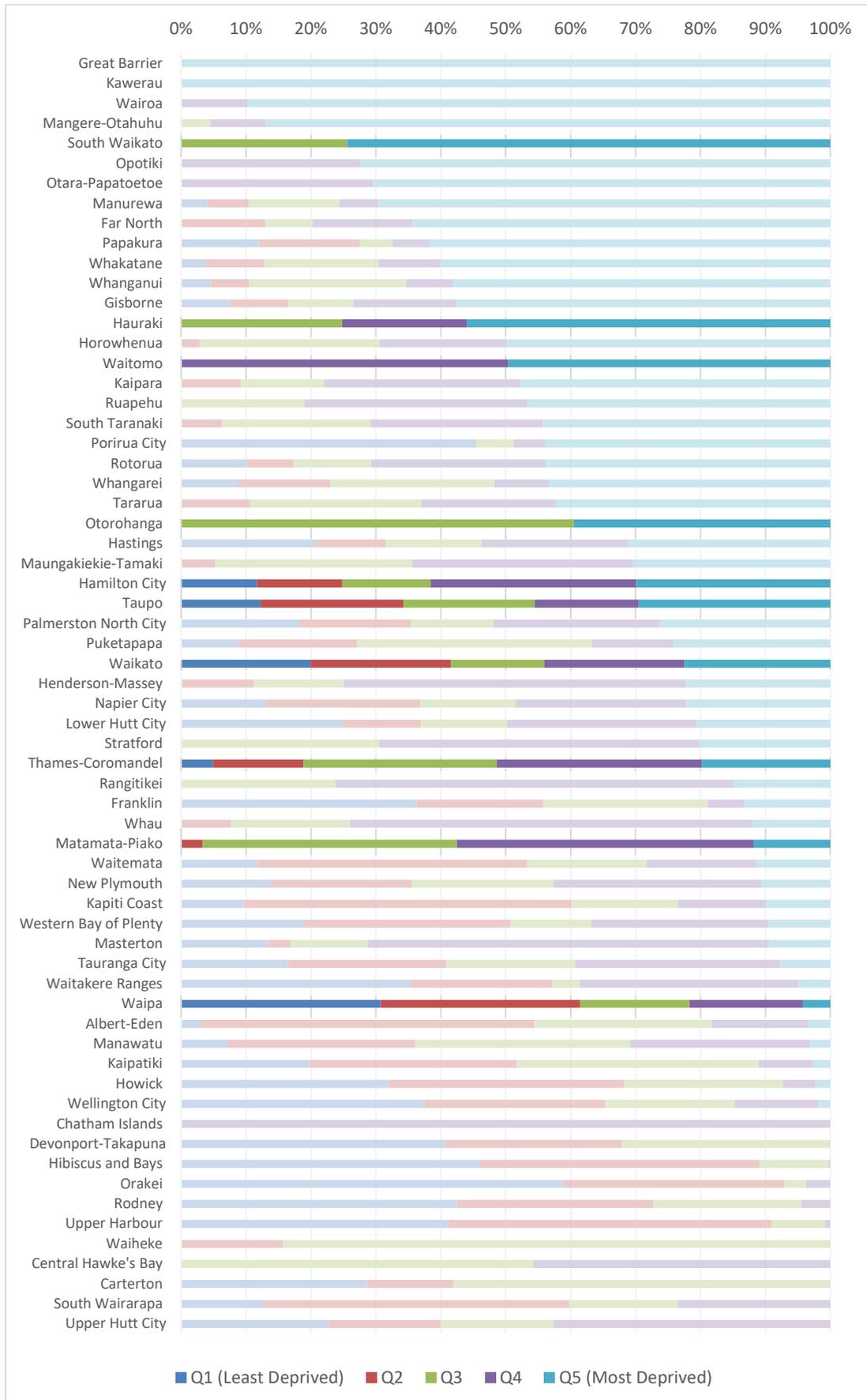
Most deprived districts in the North Island

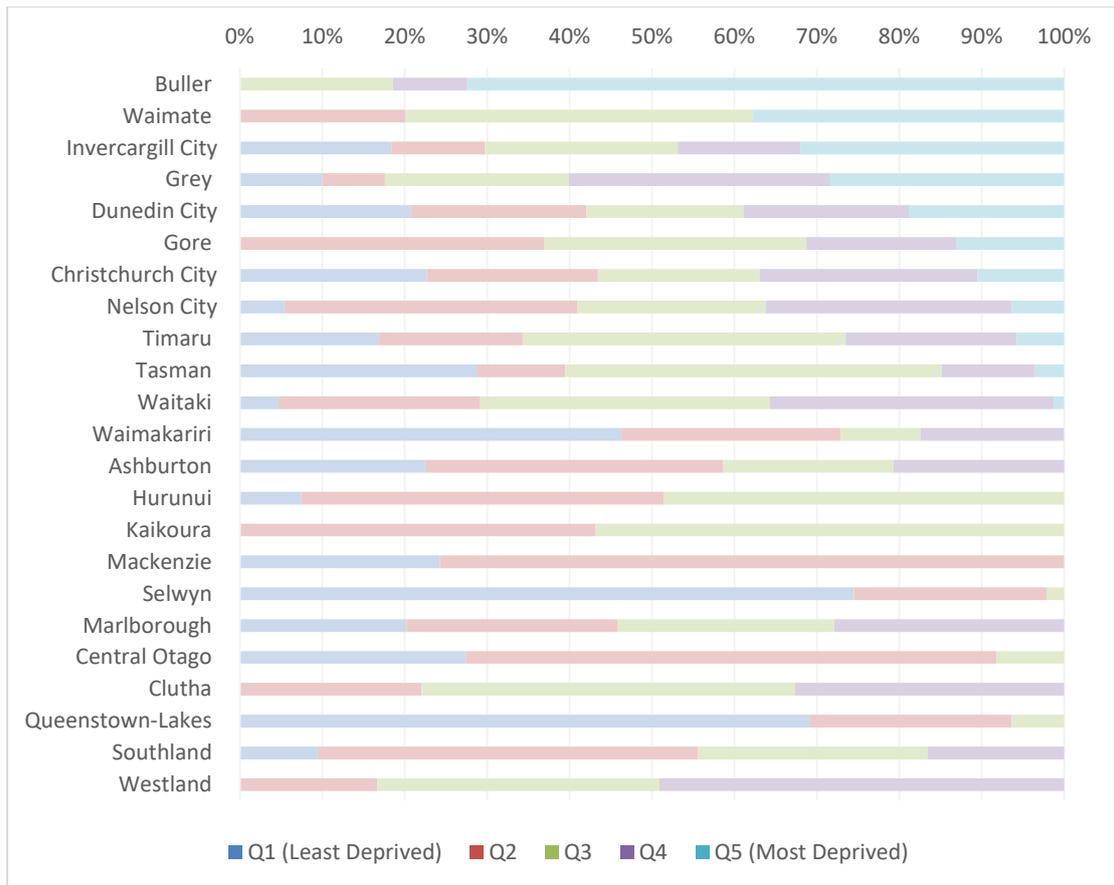
Figure 3 shows the percentage of the population living in each NZ deprivation quintile across the North Island districts, including Auckland Council's local boards. This figure shows the proportion of the population living in each quintile of NZDep18, and is ordered by the proportion of the population living in the most deprived quintile. One Waikato district, South Waikato, features in the 12 most deprived districts in the North Island. The most deprived districts by percentage of the district's population living in the NZDep18 quintile 5 areas are also shown in Table 3:

Table 3: Top 12 areas with the highest proportion of the population in Q5 areas according to NZDep18

Overall NZDep18 Ranking	Region	Area	% population living in Q5	
1=	Bay of Plenty	Kawerau	100%	(7,116/7116)
1=	Auckland	Great Barrier	100%	(930/930)
3	Hawke's Bay	Wairoa	89.7%	(7,509/8370)
4	Auckland	Mangere-Otahuhu	86.9%	(68,145/78,441)
5	Waikato	South Waikato	74.4%	(17,892/24,045)
6	West Coast	Buller	72.4%	(6,939/9,585)
7	Bay of Plenty	Opotiki	72.4%	(6,714/9,279)
8	Auckland	Otara-Papatoetoe	70.4%	(59,808/85,014)
9	Auckland	Manurewa	69.6%	(66,579/95,664)
10	Northland	Far North	64.4%	(42,021/65,253)
11	Auckland	Papakura	61.8%	(35,112/56,844)
12	Bay of Plenty	Whakatane	60.1%	(21,462/35,697)

Figure 3: Population living in each NZ Deprivation quintile by local authority, 2018. North Island this page, South Island following page.





Comparison over the Waikato Region

There is significant variation in socio-economic deprivation within the Waikato region. The least deprived territorial authority is Waipa district (overall NZDep18 4.2 - 2018) and the most deprived is Waitomo district (overall NZDep18 - 8.6).

Table 4 shows that Waipa is the least deprived and Waitomo the most deprived territorial authorities. Relative deprivation in Waipa, Waikato, Thames-Coromandel and Taupo have decreased since 1991 while marked increases in the levels of relative deprivation were observed in South Waikato and Waitomo.

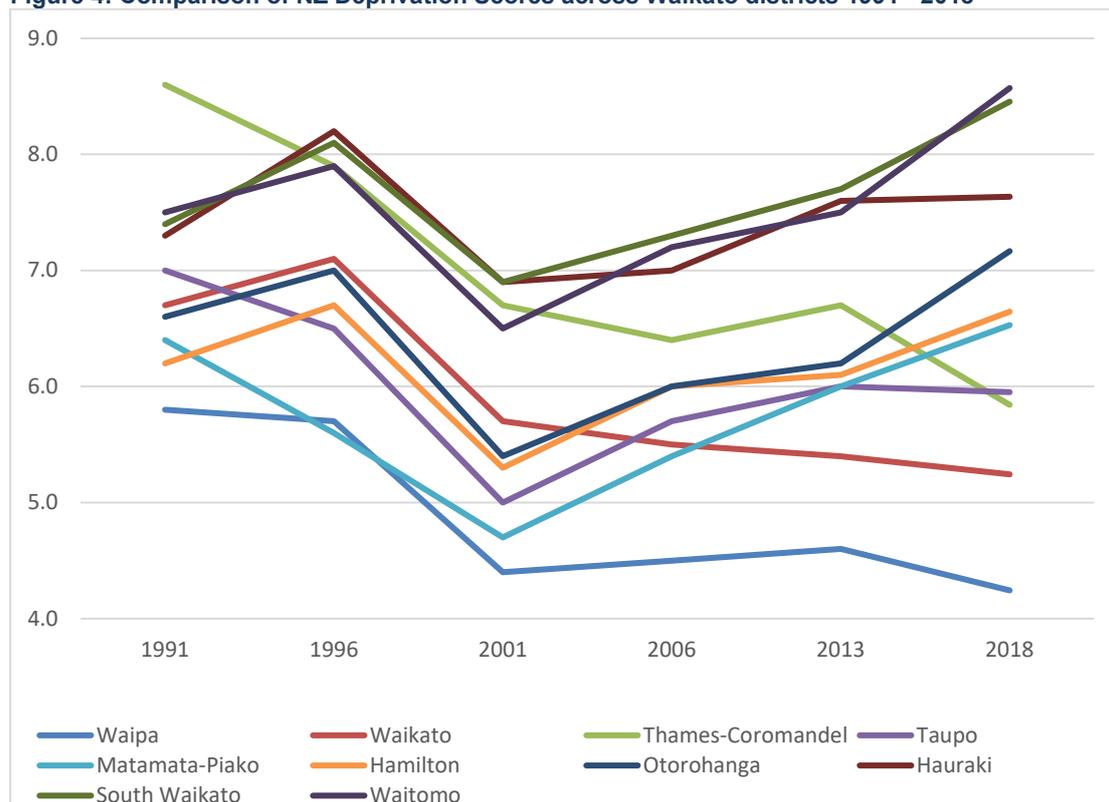
Table 4: Comparison of Overall Deprivation Scores across the districts in the Waikato region from 1991-2018.

Note that the NZDep can only be considered generally over time as changes have been made to indicators at various points.

Districts	1991	1996	2001	2006	2013	2018	Diff	Change
Waipa	5.8	5.7	4.4	4.5	4.6	4.2	1.6	++
Waikato	6.7	7.1	5.7	5.5	5.4	5.2	1.5	++
Thames-Coromandel	8.6	7.9	6.7	6.4	6.7	5.8	2.8	+++
Taupo	7.0	6.5	5.0	5.7	6.0	6.0	1.0	+
Matamata-Piako	6.4	5.6	4.7	5.4	6.0	6.5	-0.1	-
Hamilton	6.2	6.7	5.3	6.0	6.1	6.6	-0.4	-
Otorohanga	6.6	7.0	5.4	6.0	6.2	7.2	-0.6	-
Hauraki	7.3	8.2	6.9	7.0	7.6	7.6	-0.3	-
South Waikato	7.4	8.1	6.9	7.3	7.7	8.5	-1.1	--
Waitomo	7.5	7.9	6.5	7.2	7.5	8.6	-1.1	--

Figure 4 shows that that for most districts there was an increase in deprivation in 1996 and a reduction in 2001 before a general rise between 2006 and 2018, reaching or exceeding the levels of deprivation in 1991. This report does not attempt to identify the reasons for the changes in deprivation across this period. Significant demographic changes in the Waikato region in addition to shifts in in government social and economic policy, geopolitics and economic cycles are likely to have a factor in the changes over time.

Figure 4: Comparison of NZ Deprivation Scores across Waikato districts 1991 - 2018

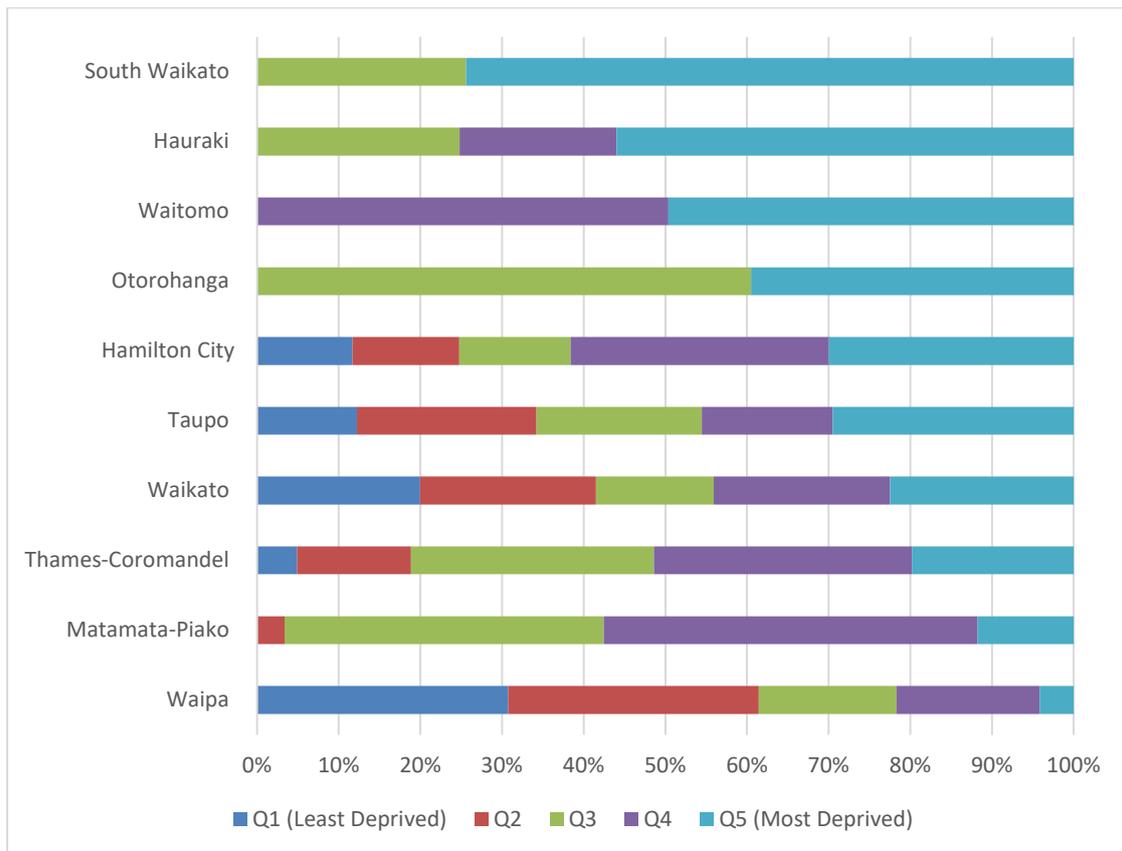


Deprivation as a proportion of district population

Figure 5 shows the deprivation profiles of different territorial authorities, based on the New Zealand Index of Deprivation 2018.²¹ A total of 74.4% of the population in South Waikato are residing in the NZDep18 quintile 5 (highest deprivation) areas. In Hauraki 75.2% of the population are living in either NZDep18 quintiles 4 or 5. All residents in Waitomo District live in either Q4 or Q5 areas. High proportions of the population in Hamilton City, Matamata-Piako and Thames-Coromandel Districts also reside in Q4 and Q5 areas, at 61.6%, 57.4% and 51.4% respectively.

²¹ Data for Figure 5 is sourced from <https://www.otago.ac.nz/wellington/departments/publichealth/research/hirp/otago020194.html>

Figure 5: Percentage of population living in each deprivation quintile by district – NZDep18



5. Index of Multiple Deprivation (IMD18)

– domain profiles

Section 5 looks at the underlying variables for each district using the NZ Index of Multiple Deprivation.²² The IMD18 measures deprivation at the neighbourhood level using custom designed data zones that were specifically developed for social and health research.²³ The IMD18 uses routinely collected data from government departments, census data and methods comparable to current international deprivation indices to measure different forms of disadvantage.

Data zones

There are 6,181 neighbourhood-level data zones in New Zealand. The IMD18 data zones have an average population of 712. Data zones are ranked from the least to most deprived (1 to 6181) and grouped into five quintiles. Quintile 1 (Q1) represents the least deprived 20 per cent of data zones in the whole of NZ, while quintile 5 (Q5) represents the most deprived 20 per cent.

Domains

There are 29 indicators grouped into seven domains of deprivation: Employment, Income, Crime, Housing, Health, Education and Access to services. See Appendix 1 for specific details of the 29 indicators. The overall IMD18 is the combination of these seven domains, which may be used individually or in combination to explore the geography of deprivation and its association with a given health or social outcome.

Note that the percentage of people living in deprivation will be different in the IMD18 compared to the NZDep18 as they contain different underlying indicators. See Chapter 3 for a brief comparison of the two indices and Appendix 1 for the methodology.

Weighting

Each small area in a district has a different mix of each domain that makes up the overall IMD18 score. 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. Indicators in the Employment, Income, Housing and Crime Domains were summed together and divided by

²² The New Zealand Index of Multiple Deprivation data are available at: <https://www.fmhs.auckland.ac.nz/en/soph/about/our-departments/epidemiology-and-biostatistics/research/hgd/research-themes/imd18.html>. See Exeter, DJ, Zhao, J., Crengle, S., Lee, A., & Browne, M. (2017). The New Zealand Indices of Multiple Deprivation (IMD): A new suite of indicators for social and health research in Aotearoa, New Zealand. PLoS One, 12 (8).10.1371/journal.pone.0181260 for more information

²³ See Zhao, J. and Exeter, DJ. (2016). Developing intermediate zones for analysing the social geography of Auckland, New Zealand. New Zealand Geographer, 72 (1), 14-27. In the development of the IMD, a 'Townsend Index' was developed for NZ and used for social homogeneity, not NZDep as described in Zhao and Exeter's pilot study.

the population denominator, meaning that they were given equal weight. The indicators included in the Health, Education and Access Domains were determined based on standardised scoring coefficients generated by factor analysis.²⁴ The domains are weighted when the overall IMD18 is calculated:

1. Employment – 28 per cent
2. Income – 28 per cent
3. Health – 14 per cent
4. Education – 14 per cent
5. Housing – 9 per cent
6. Crime – 9 per cent
7. Access – 2 per cent

Literature shows that some measures are more strongly associated with deprivation/social position than others. Employment and Income have the most direct and strongest associations, while Access has the least.²⁵

Comparison of Waikato districts overall IMD18 and quintiles

Each district has different reasons for its level of deprivation. Data zones are ranked from lowest to highest deprivation based on their overall IMD18 score. They are also ranked from lowest to highest deprivation for each specific domain. Each data zone therefore has a different profile of deprivation. For example, a data zone may rank as Q4 for overall IMD18 but rank as Q5 data zone for employment, Q3 for crime and Q1 for housing.

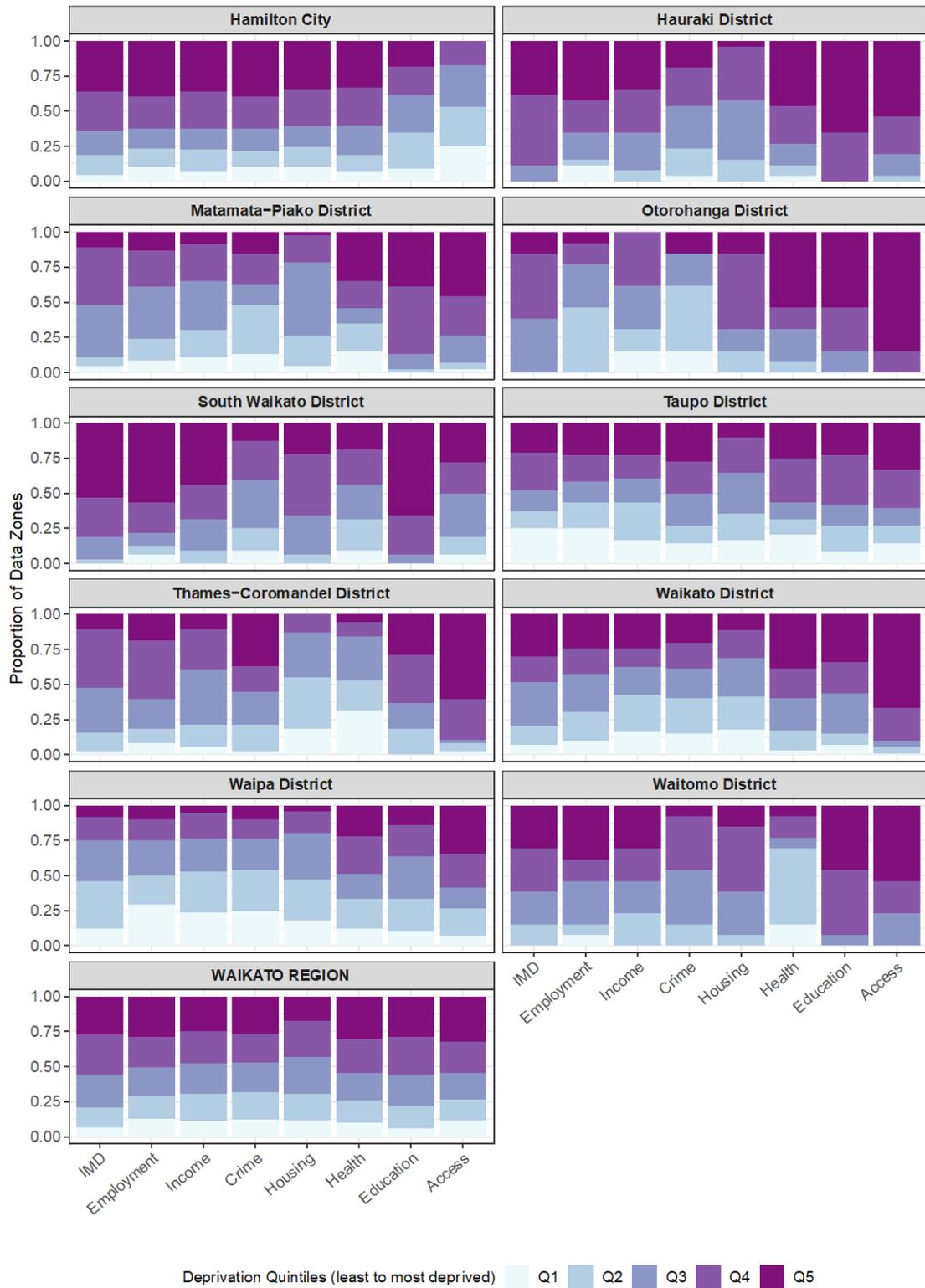
Figure 6 shows the proportion of IMD18 data zones by deprivation quintile and for each domain across the districts in the Waikato region. This figure shows the spread of deprivation across the region and the drivers of deprivation. Each district is experiencing a different mix of drivers. Some districts have a more even spread of deprivation across most deprivation domains, such as Hamilton, while others have very strong deprivation in just a couple of domains.

Waipa District has the smallest proportion of Q4 and Q5 zones, followed by Waikato and Taupo Districts. In order of largest to smallest: Hauraki, South Waikato, Hamilton, Otorohanga, Thames-Coromandel and Matamata-Piako Districts have the largest amount of the combined Q4 to Q5 zones.

²⁴ See Figure 56 at the end of this report for a graphical description of indicators, domains and methods used to create the IMD18

²⁵ McMillan, R. and Exeter, D. (2018). Using the Index of Multiple Deprivation (IMD) to understand the drivers of deprivation in your district. Presentation to Waikato Strategic Planners Network, Karapiro, Waipa (9 March 2018).

Figure 6: Comparison of percentage of data zones in each district by deprivation quintile and domain – IMD18²⁶



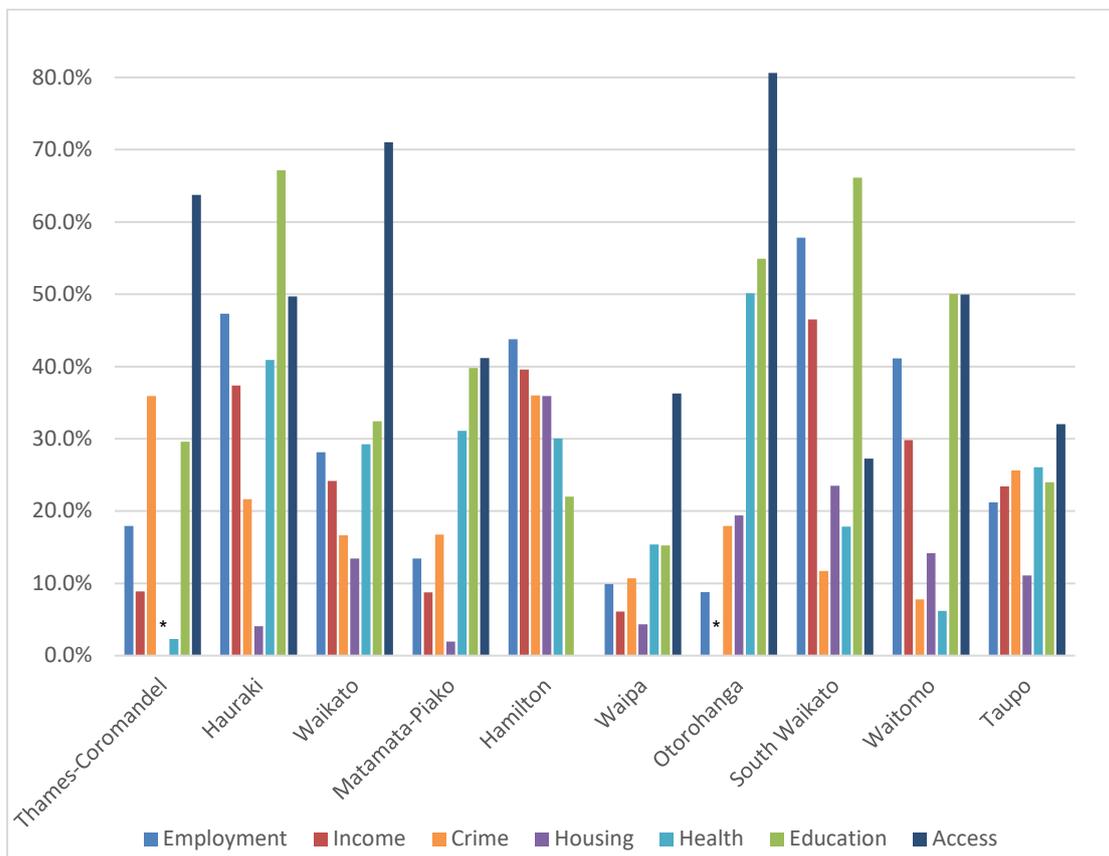
²⁶ stacked bar plots by Daniel Exeter for the Waikato Regional Council, using IMD18 data.

Comparison of Waikato districts Q5 deprivation domains

This section explores in more detail the highest deprivation quintile across the domains and the districts.²⁷

Figure 7 compares the percentage of population that are living in Q5 data zones for each domain. Access deprivation is the most obvious domain across all districts, with the exception of Hamilton. Access deprivation is also generally only found in the rural districts. Hamilton does not have any Q5 access deprivation whereas Otorohanga has 80.6 per cent of their population living with Q5 access deprivation. Access has a very low weighting in the IMD18. This means that although many data zones within each district may have a very high access deprivation, based on distance to services, but this does not necessarily translate into a high overall IMD18 score unless there are other high deprivation domains.

Figure 7: Comparison of high deprivation domains across the Waikato Districts - percentage of population living in Q5 deprivation on specific domains 2018. * indicates that there are no residents in the district living in Q5 deprivation for the specified domain.

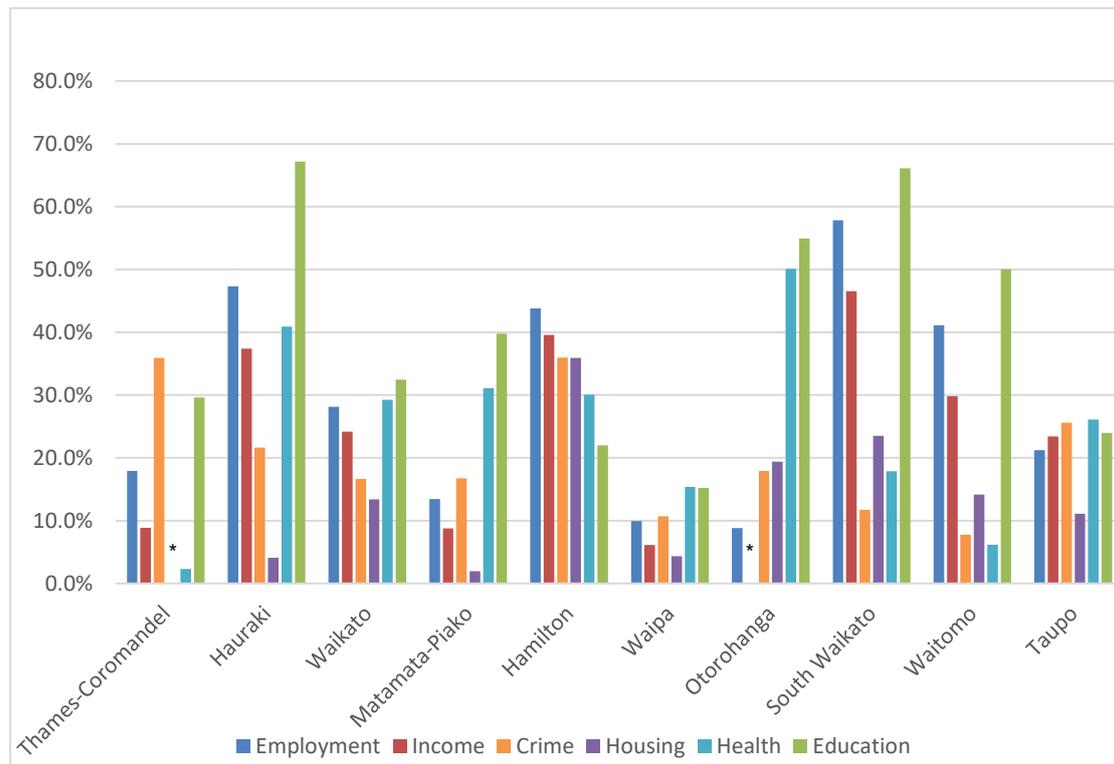


Since all districts have a significant number of rural data zones, with the exception of Hamilton, the access domain was removed in Figure 8 to enable the other domains to become more apparent.

²⁷ This data for this section was sourced from data tables from the New Zealand Index of Multiple Deprivation <https://www.fmhs.auckland.ac.nz/en/soph/about/our-departments/epidemiology-and-biostatistics/research/hgd/research-themes/imd.html>

Figure 8 shows the percentage of population that are living in data zones classified as most deprived (quintile 5) with the access domain removed. Figures 9 – 14 presents the data on each domain for ease of analysis. Figure 8 shows the spread of deprivation across the region. Figure 8 is useful to show that each district is dealing with a different mix of issues. This has policy implications for considering the use of place-based policies versus blanket policies to improve social outcomes. How those underlying indicators work together will be very specific to the location and is likely to require a unique approach for each locality.

Figure 8: Comparison of high deprivation domains across the Waikato Districts - percentage of population living in Q5 deprivation on specific domains 2018 – access removed. * indicates that there are no residents in the district living in Q5 deprivation for the specified domain.



Domain profiles – district comparison

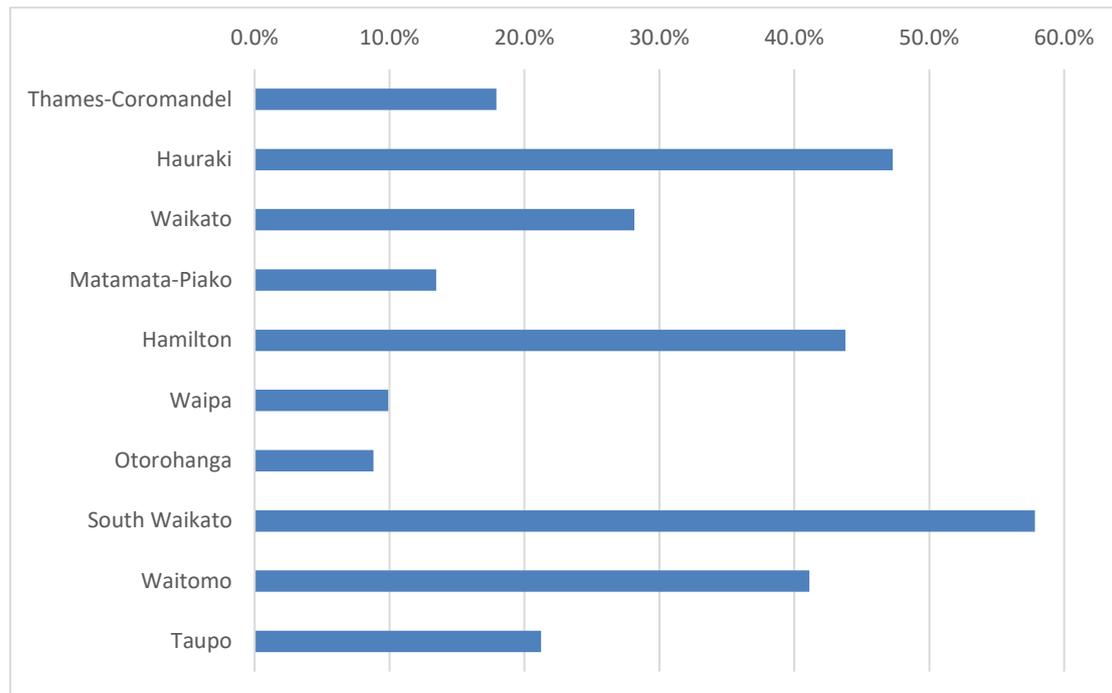
Employment

Figure 9 shows the percentage of the total district population that live in high deprivation data zones for the employment domain. The Employment Domain reflects the proportion of working age people who were receiving the Jobseekers Support in 2018 at a rate of \$45 per day or less.

South Waikato has the most people living in areas with Q5 employment deprivation – 57.8 per cent. Hauraki follows with 47.3 per cent and Hamilton at 43.8 per cent.

Employment deprivation is present in both rural data zones and urban data zones but is much more prevalent in urban areas. Employment deprivation is a strong characteristic of Meremere, Huntly, the Coromandel Peninsula, Paeroa, Waihi, Te Aroha, Hamilton, Raglan, Te Awamutu, Kihikihi, Putaruru, Tokoroa, Otorohanga, Te Kuiti, Taupo and Turangi .

Figure 9: Percentage of total district population that live in areas that are Q5 for employment - 2018



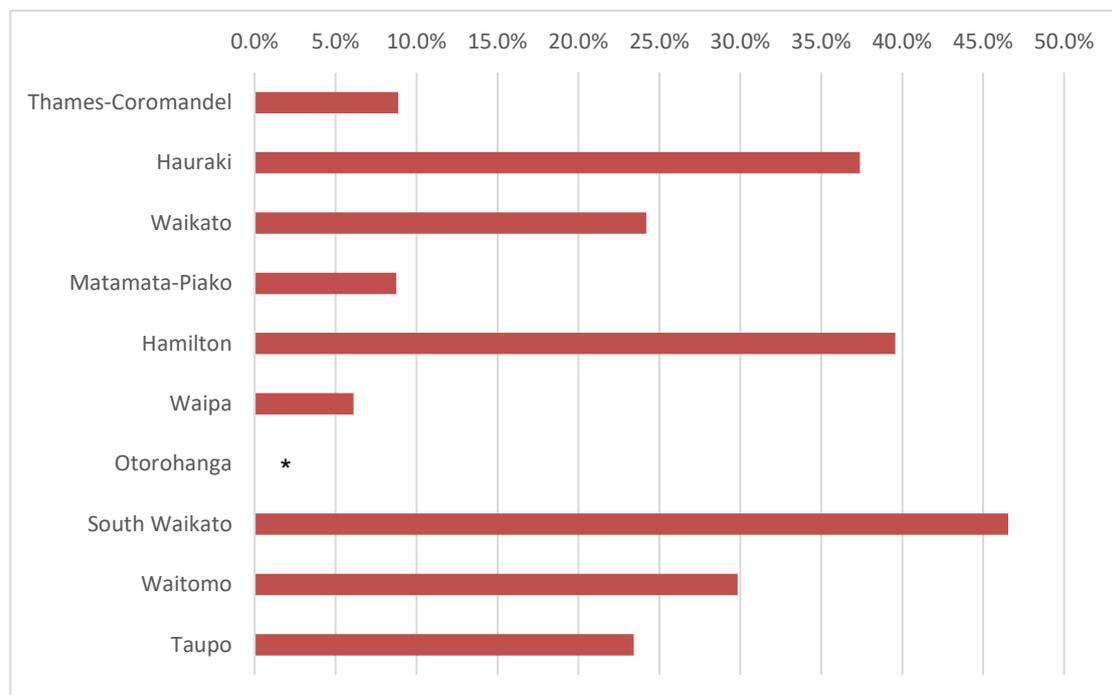
Income

Figure 10 shows the percentage of the total district population that live in high deprivation data zones for the Income Domain. 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.

South Waikato has the highest percentage of population living in a Q5 zone for income – 46.5 per cent followed by Hamilton City and Hauraki at 39.6 per cent and 37.4 per cent, respectively. Populations living in Q5 deprivation for Waitomo, Waikato and Taupo Districts are at 29.8, 24.2 and 23.4 per cent, respectively. There are no residents in Otorohanga living in Q5 for income deprivation.

All of the following towns are Q5 data zones for income deprivation – Huntly, Ngaruawahia, Hamilton City, Thames, Kerepehi, Paeroa, Waihi, Te Aroha, Morrinsville, Te Awamutu, Kihikihi, Mangakino, Te Kuiti, Putaruru Tokoroa, Taupo and Turangi.

Figure 10: Percentage of total district population that live in areas that are Q5 for income – 2018.
** indicates that there are no residents in the district living in Q5 deprivation for the specified domain.*

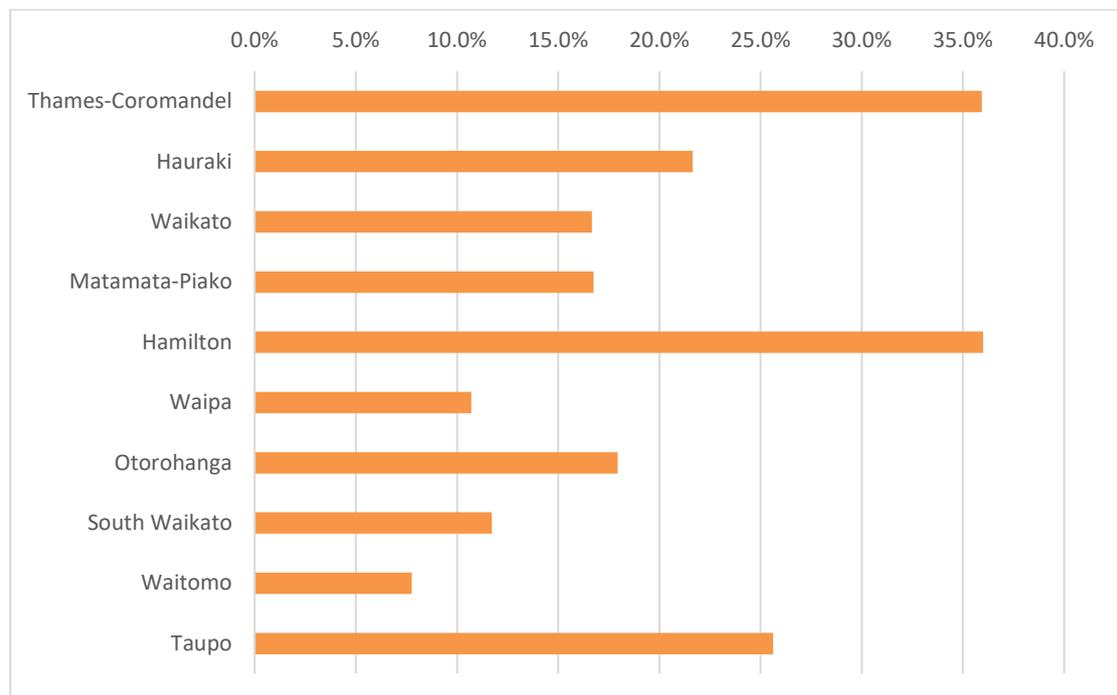


Crime

Figure 11 shows the percentage of the total district population that live in high deprivation data zones for the Crime Domain. The Crime Domain measures victimisations per 1000 people and is largely driven by thefts (51%), burglaries (26%) and assaults (19%).

Spatially high (Q5) rates of crime victimization occurred in large urban areas like Hamilton and in most towns. There was one small rural data zone with Q5 rates of crime victimization south of Te Awamutu and a cluster of data zones south-west of Taupo. Hamilton, Thames-Coromandel and Taupo have the highest percentage of their populations living in areas of Q5 crime victimization – 36.0 per cent, 35.9 per cent and 25.6 per cent respectively.

Figure 11: Percentage of total district population that live in areas that are Q5 for crime - 2018



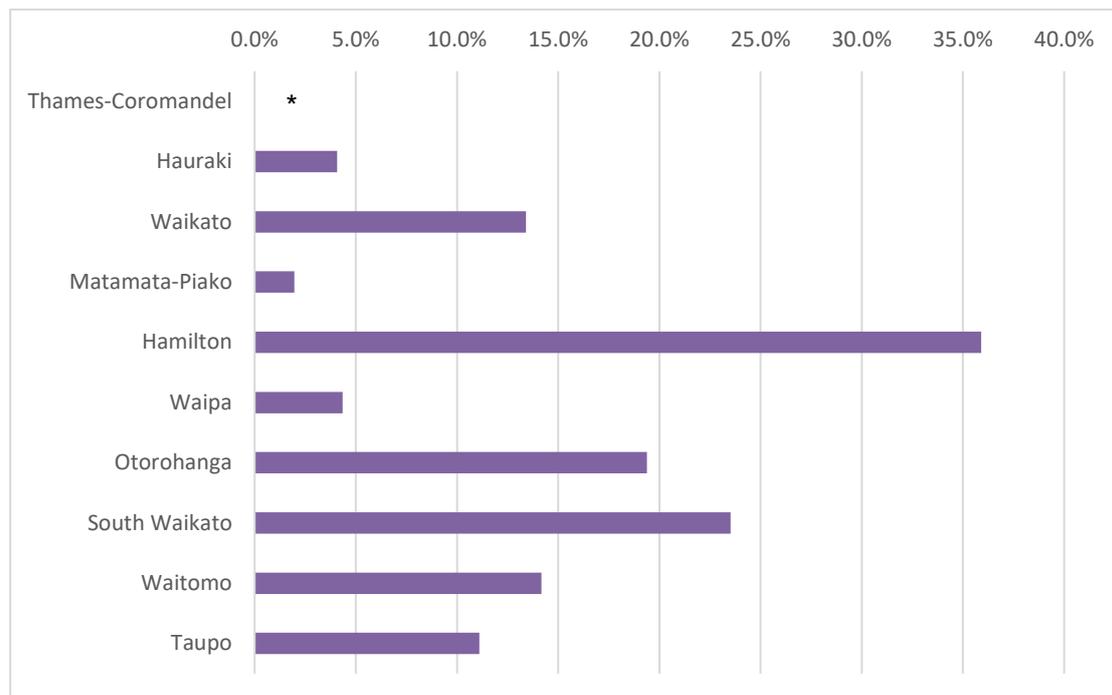
Housing

Figure 12 shows the percentage of the total district population that live in high deprivation data zones for the Housing Domain. The Housing Domain measures the proportion of people living in overcrowded households (24% of the weighting), rented dwellings (35%), damp dwellings (25% and dwellings lacking access to basic amenities (16%) in 2018.

Q5 housing deprivation was less concentrated than overall IMD18 deprivation. Most areas of housing deprivation are located in urban areas. There are very few rural data zones with Q5 housing deprivation, only Meremere, Te Kohanga and Managkino.

Hamilton City has the highest level of housing deprivation in the Waikato region, with 35.9% of the population living in Q5 areas. This is followed by South Waikato at 23.5%. All other districts have less than 20% of the population living in Q5, while Thames-Coromandel District has no Q5 data zones.

Figure 12: Percentage of total district population that live in areas that are Q5 for housing – 2018.
** indicates that there are no residents in the district living in Q5 deprivation for the specified domain.*



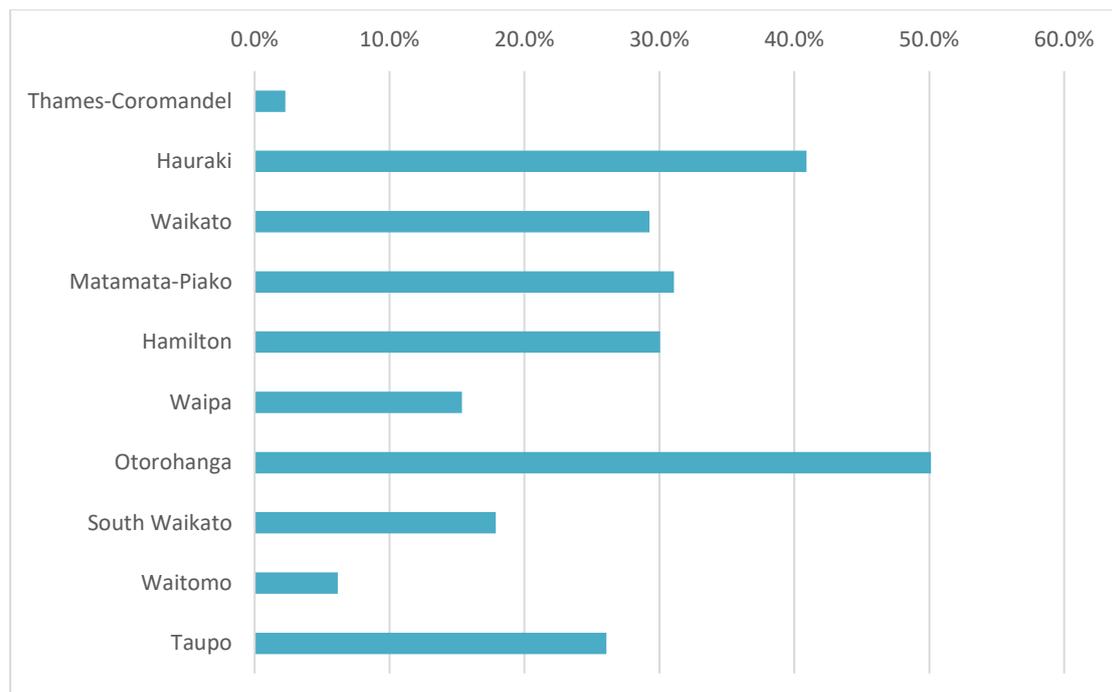
Health

Figure 13 shows the percentage of the total district population that live in high deprivation data zones for the Health Domain. 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.

The districts with the highest percentage of population living in the highest deprivation for health are Otorohanga and Hauraki at 50.5 and 40.9 per cent, respectively. Other districts with high levels of deprivation in terms of health are Matamata-Piako (31.1%), Hamilton City (30.1), Waikato (29.3%) and Taupo (26.1%).

Health deprivation is a characteristic of both rural and urban zones. There are pockets of Q5 health deprivation in most towns. Urban areas that don't feature on other deprivation domains are represented here, such as Cambridge and Ohaupo. Thames stands out as only having two Q5 health deprivation data zones which corresponds with the small percentage of the population living in Q5 areas.

Figure 13: Percentage of total district population that live in areas that are Q5 for health - 2018



Education

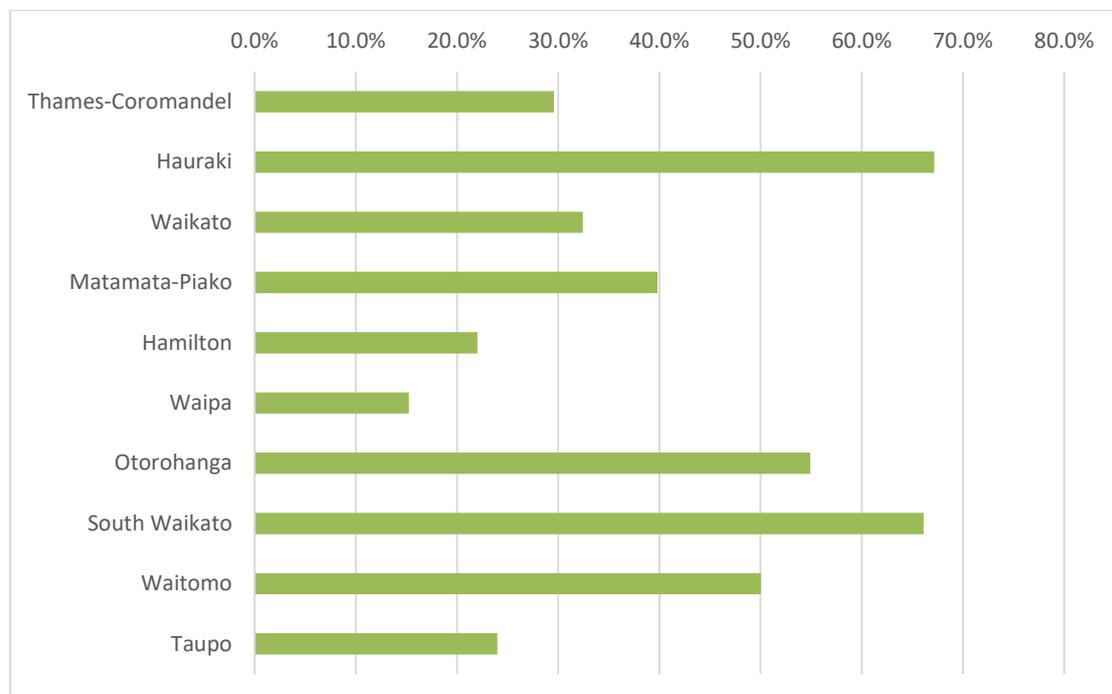
Figure 14 shows the percentage of the total district population that live in high deprivation data zones for the Education Domain. The Education Domain measures retention, achievement and transition to education or training for school leavers; as well as the proportion of working age people 15-64 with no formal qualifications; and the proportion of youth aged 15-24 not in education, employment or training (NEET).

The Waikato region ranks worse than the New Zealand median for education deprivation. The highest levels of education deprivation are seen in Hauraki (67.2%), South Waikato (66.1%), Otorohanga (54.9%) and Waitomo (50.0%).

Distance and mobility are a feature of education deprivation. However, education deprivation is a characteristic of both rural and urban areas, so the issues are not always geographical. All towns have some Q5 data zones.

All the towns of Turangi, Otorohanga, Paeroa, and Waihi, Putaruru, and Mangakino are Q5 education deprivation zones. Most of Ngaruawahia, Huntly, and Tokoroa is Q5. Some Hamilton, Taupo, Te Kuiti, Te Awamutu, Kihikihi, Cambridge, Thames, Te Aroha, Matamata, Morrinsville, and Tuakau is Q5. Many of the Q5 data zones were located in rural areas in Coromandel, around Putaruru and Meremere, and in a large rural data zone which stretched from Te Ahurei around the Kāwhia Harbour to Owhiro.

Figure 14: Percentage of total district population that live in areas that are Q5 for education - 2018



6. Waikato Profiles (IMD18)

Section 6 presents:

- The number of deprivation zones in each quintile for each district in the Waikato region.
- The percentage of population that live in Q5 areas for overall IMD18.
- The distribution of deprivation zones across each district.
- The type of deprivation that each district experiences and depth of deprivation in terms of ranking against all data zones in New Zealand.
- Population living in the areas of highest deprivation for each domain.

Waikato Region

The Waikato region has higher than New Zealand average overall IMD18 deprivation, with 55.8 per cent (333/597) of its data zones either in Q4 or Q5. There are 164 data zones that are ranked as most deprived (Q5). The median IMD18 rank in the Waikato region was 3952, 13.9 per cent (861 ranks) worse than the NZ median of 3091.²⁸

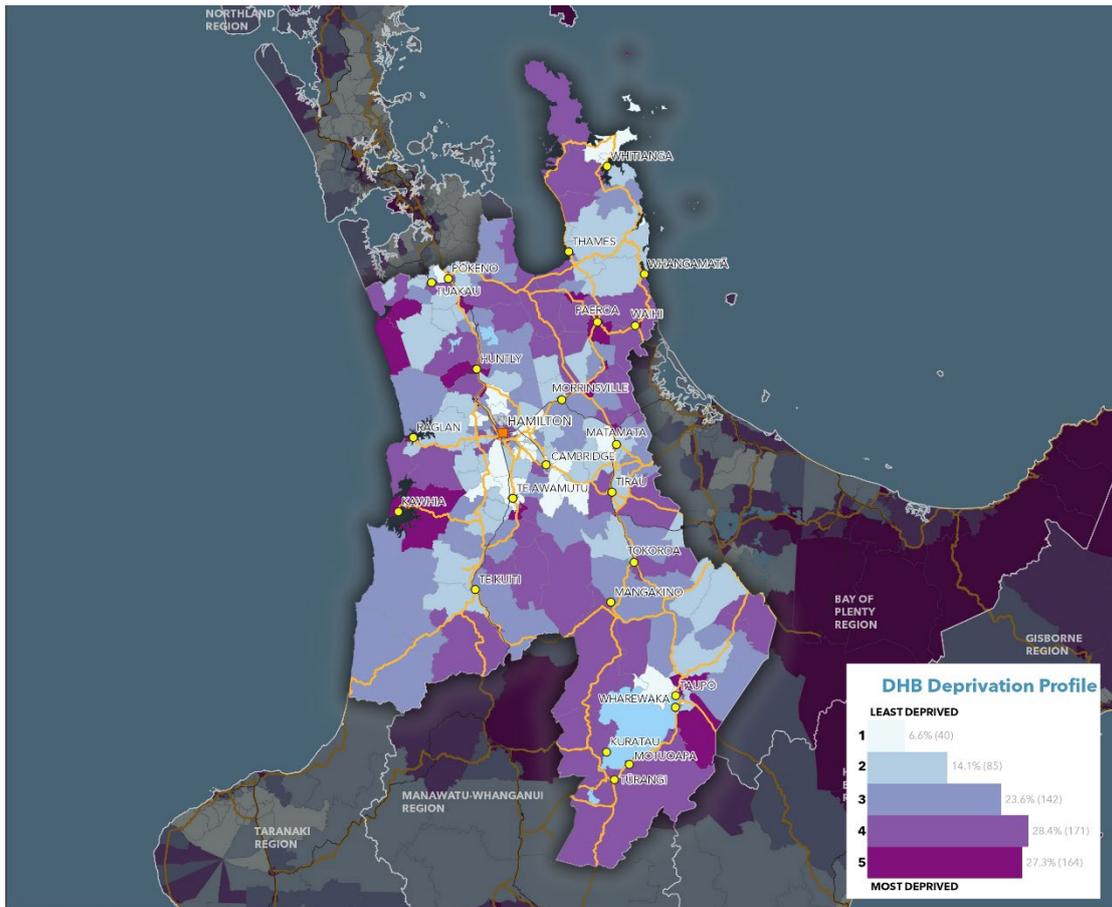
Figure 15 shows the spatial distribution of the IMD18 in the Waikato region, in addition to the proportion of IMD18 data zones in each deprivation quintile for the overall IMD18 and for each domain. Data zones are ranked from lowest to highest deprivation based on their overall IMD18 score. They are also ranked from lowest to highest deprivation for each specific domain.

The spatial distribution of deprivation (Figure 15, top) exhibits clustering of those least deprived areas around Hamilton City and to the South East of the City, such as around Matamata and Cambridge. Other areas of lower deprivation are seen in parts of the Coromandel, Taupo and near Pokeno. Areas of higher deprivation are dispersed around the periphery of the City, and can be located around small towns and in remote areas, such as near Kawhia, Huntly, Paeroa and South of Taupo.

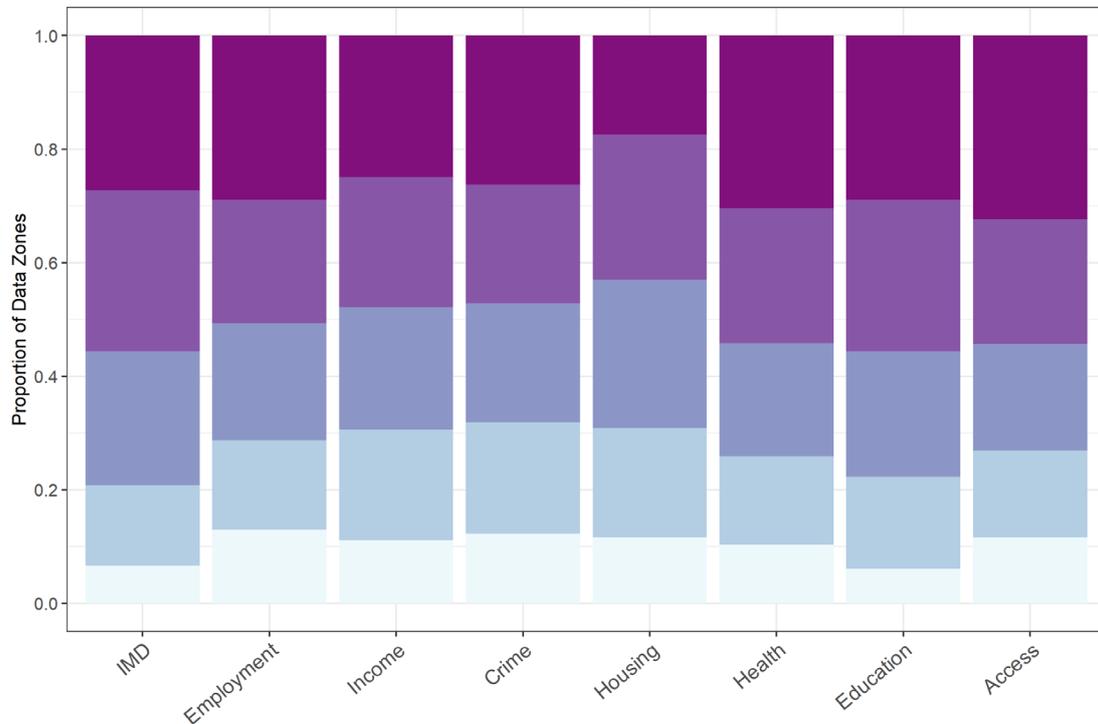
Figure 15 shows that the proportion of data zones with Q5 overall housing deprivation was less than 20 per cent, while the proportion with Q5 IMD18, employment, income, crime, health, education, access deprivation was greater than 20 per cent.

²⁸ The information in this section is sourced from Exeter et al (2020) The Index of Multiple Deprivation (IMD) 2018, available at www.fmhs.auckland.ac.nz/imd18. Interactive maps of the Waikato Regional Council may be accessed at http://www.imd.ac.nz/NZIMD_Single_animation_w_logos/atlas.html

Figure 15: The spatial distribution of deprivation in the Waikato region (top) and the proportion of data zones in each deprivation quintile (below)



Waikato Region



Deprivation Quintiles (in ascending levels of deprivation) Q1 Q2 Q3 Q4 Q5

Table 5 shows how the domains rank against the New Zealand median. When overall Waikato region is compared to the rest of New Zealand we find all domains are worse than the NZ median with education the most prevalent type of deprivation in the Waikato.

Table 5: Median district deprivation ranking per domain – Waikato Region

Domains	Median district deprivation rank per domain
Housing	3356, 4.1% (256 ranks) worse than the NZ
Crime	3553, 7.5% (462 ranks) worse than the NZ
Income	3578, 7.7% (479 ranks) worse than the NZ
Employment	3759, 10.8% (668 ranks) worse than the NZ
Access	3896, 13.0% (805 ranks) worse than the NZ
Health	3922, 13.4% (831 ranks) worse than the NZ
Education	3991 or 14.6% (900 ranks) worse than the NZ

Waikato Region Summary

The Waikato region has higher than average overall IMD18 deprivation, with 55.8 per cent of its data zones either in Q4 or Q5. The strongest drivers of deprivation in the Waikato Region are education, access, health, and employment.

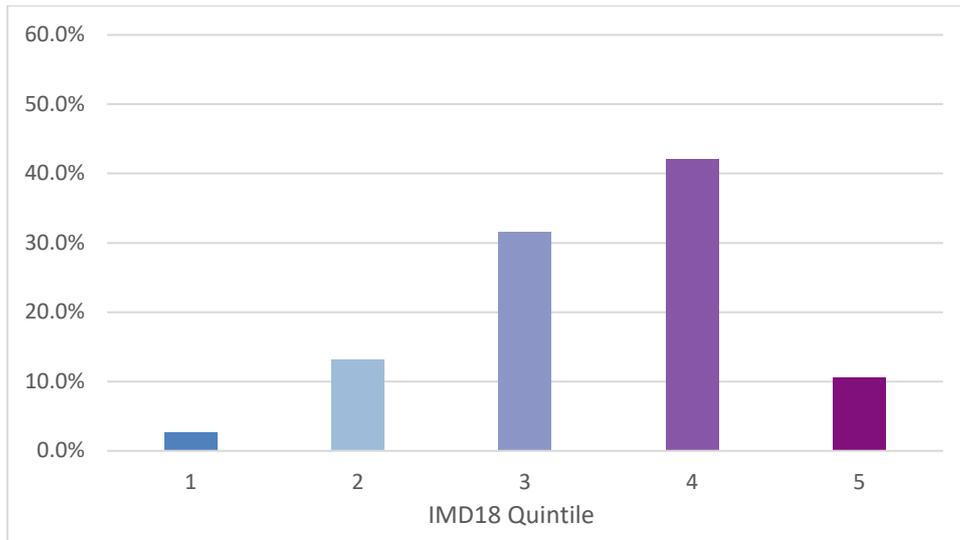
Thames-Coromandel District

Overall IMD18

Figure 16 shows the proportion of data zones in Thames-Coromandel District that fall into each IMD18 deprivation quintile. If the deprivation circumstances were the same for all of NZ, 20 per cent of Thames-Coromandel's 38 data zones would be in each quintile. A total of 10.5 per cent (4/38) of data zones were among the most deprived 20 per cent in NZ (Q5), while 2.6 per cent (1/38) were in the least deprived 20 per cent (Q1).

Thames-Coromandel has higher than average overall IMD18 deprivation, with 52.6 per cent (20/38) of its data zones either in Q4 or Q5.

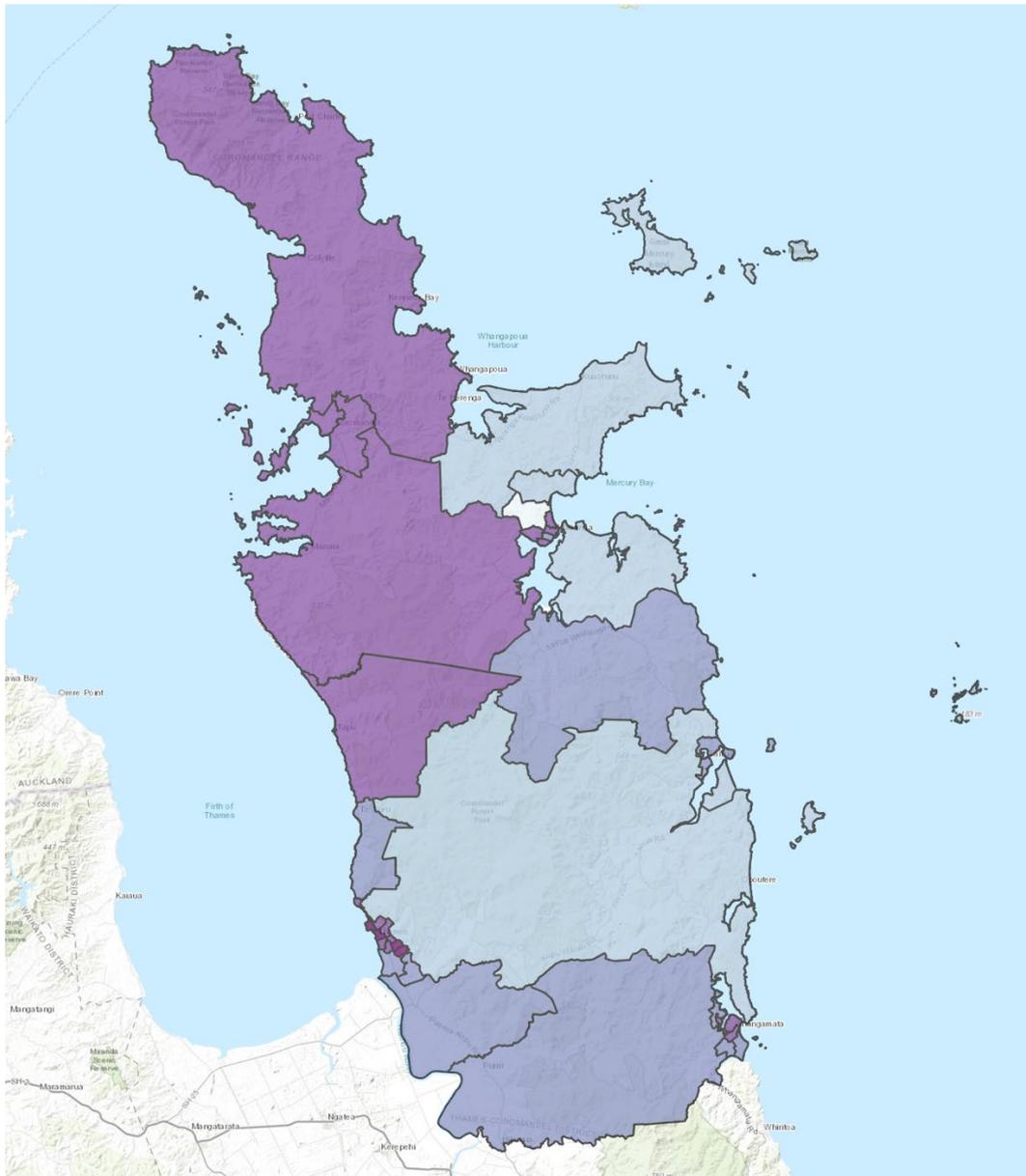
Figure 16: Spread of data zones for Thames-Coromandel – Q1 to Q5 for overall IMD18



Spatial distribution of overall IMD18

A total of 10.5 per cent of the population live in the most deprived zones – Q5. The four most deprived areas in TCDC (Q5) are located in Thames. These areas have particularly high median deprivation rankings for Income (5094/6181) and Education (5361/6181). The most northern point and north-west coast of the Coromandel peninsula are all Q4. Deprivation in these areas are driven by high levels of employment, income, crime, and education deprivation.

Figure 17: Distribution of overall IMD18 for Thames-Coromandel

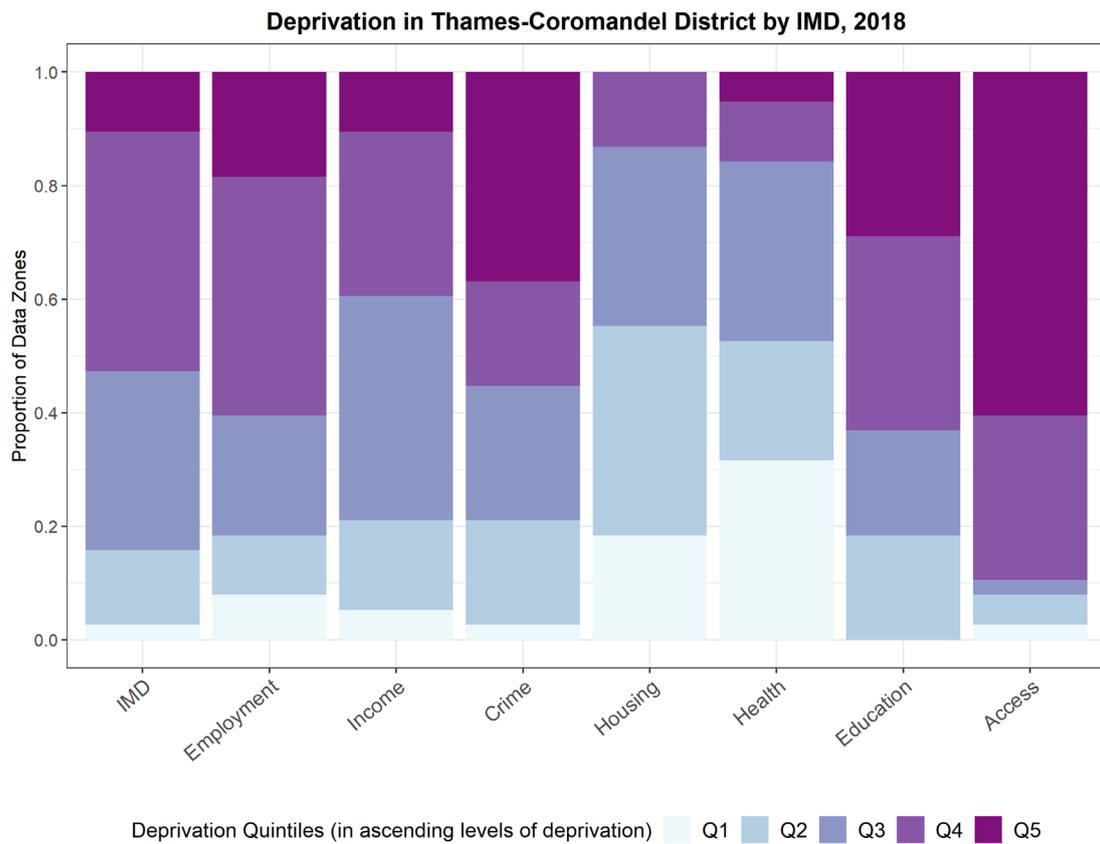


Individual Deprivation Domains

Figure 18 shows the proportion of IMD18 data zones in each deprivation quintile for the overall IMD18 and for each domain. Data zones are ranked from lowest to highest deprivation based on their overall IMD18 score. They are also ranked from lowest to highest deprivation for each specific domain.

Figure 18 shows that there are no zones in the Thames-Coromandel District that are in Q5 for housing deprivation. There are less than 20% of zones in Q5 deprivation in terms of the overall IMD18, health, income and employment. Over 20% zones are Q5 in terms of crime, education, and access deprivation.

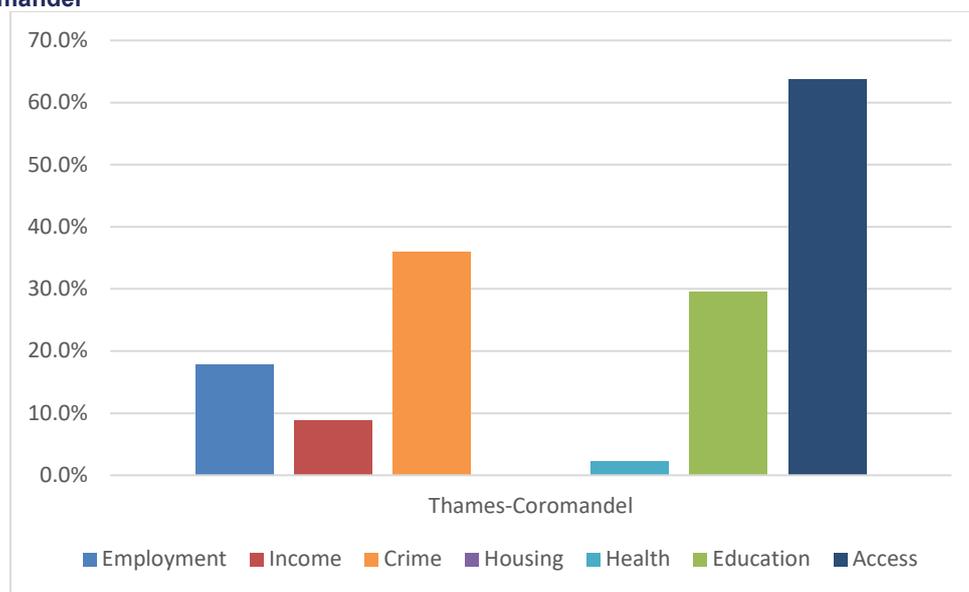
Figure 18: Deprivation Quintiles for Thames-Coromandel – proportion of data zones



Population living in the highest deprivation zones

When we look at the proportion of the population that is living in areas that are in the Q5 for specific domains we find that access and crime are the strongest deprivation factors in the Q5 areas, followed by education and employment.

Figure 19: Population living in the areas of highest deprivation on specific domains – Thames-Coromandel



Individual Deprivation Domains - Comparison with New Zealand median

Table 6 shows how the domains rank against the New Zealand median. When Thames-Coromandel is compared to the rest of New Zealand we find that income, employment, crime, and access are below the NZ median across all data zones. Health, housing, and education are better than the NZ median.

Table 6: Median district deprivation ranking per domain – Thames-Coromandel

Domains	Median district deprivation rank per domain
Health	2228, 14.0% (863 ranks) better than the NZ median
Housing	2292, 12.9% (799 ranks) better than the NZ median
Education	3074, 0.2% (17 ranks) better than the NZ median
Income	3464, 6.0% (373 ranks) worse than the NZ median
Employment	4088, 16.1% (997 ranks) worse than the NZ median
Crime	4160, 17.3% (1069 ranks) worse than the NZ median
Access	5501, 43.8% (2410 ranks) worse than the NZ median

Thames-Coromandel Summary

Just over 50 per cent of Thames-Coromandel are living in Q4 and Q5 areas with high levels of deprivation. The highest deprivation areas (Q5) are located in Thames, and on the north and northwest coast of the Coromandel Peninsula.

Compared to the rest of New Zealand, the Thames-Coromandel District has more areas of deprivation in terms of access, income, employment, and crime. In the most deprived data zones, the most important drivers are income, education, and employment. Since 2013, the median ranking for all domains has decreased (less deprivation), except for the crime domain which increased (more deprivation).

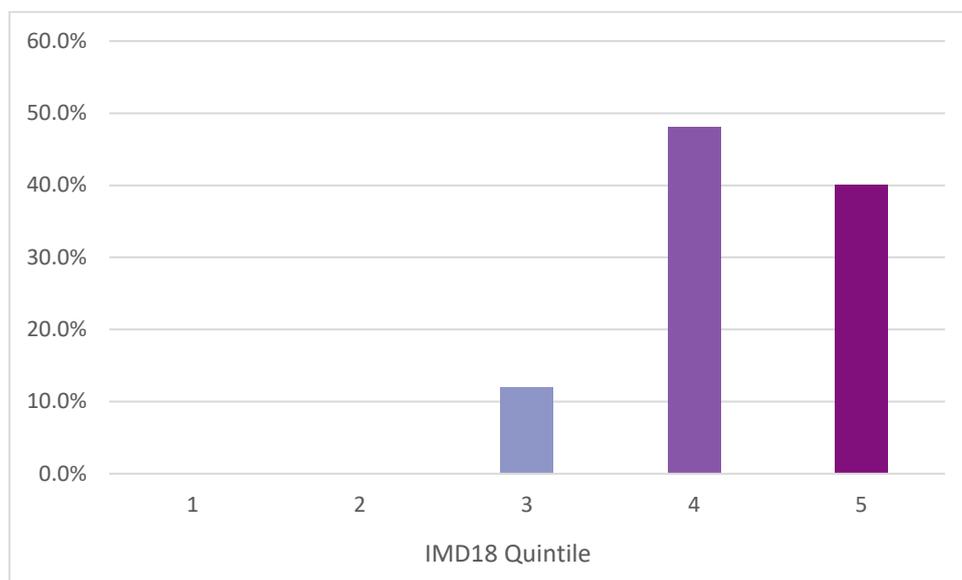
Hauraki District

Overall IMD18

Figure 20 shows the proportion of data zones in Hauraki that fall into each IMD18 deprivation quintile. If the deprivation circumstances were the same for all of NZ, 20 per cent of Hauraki's 25 data zones would be in each quintile. A total 40.0 per cent (10/25) of data zones were among the most deprived 20 per cent in NZ (Q5), while 0 per cent (0/25) were in the least deprived 20 per cent (Q1).

The Hauraki district has higher than average overall IMD18 deprivation, with 88.0 per cent (22/26) of its data zones either in Q4 or Q5.

Figure 20: Spread of data zones for Hauraki – Q1 to Q5 for overall IMD18

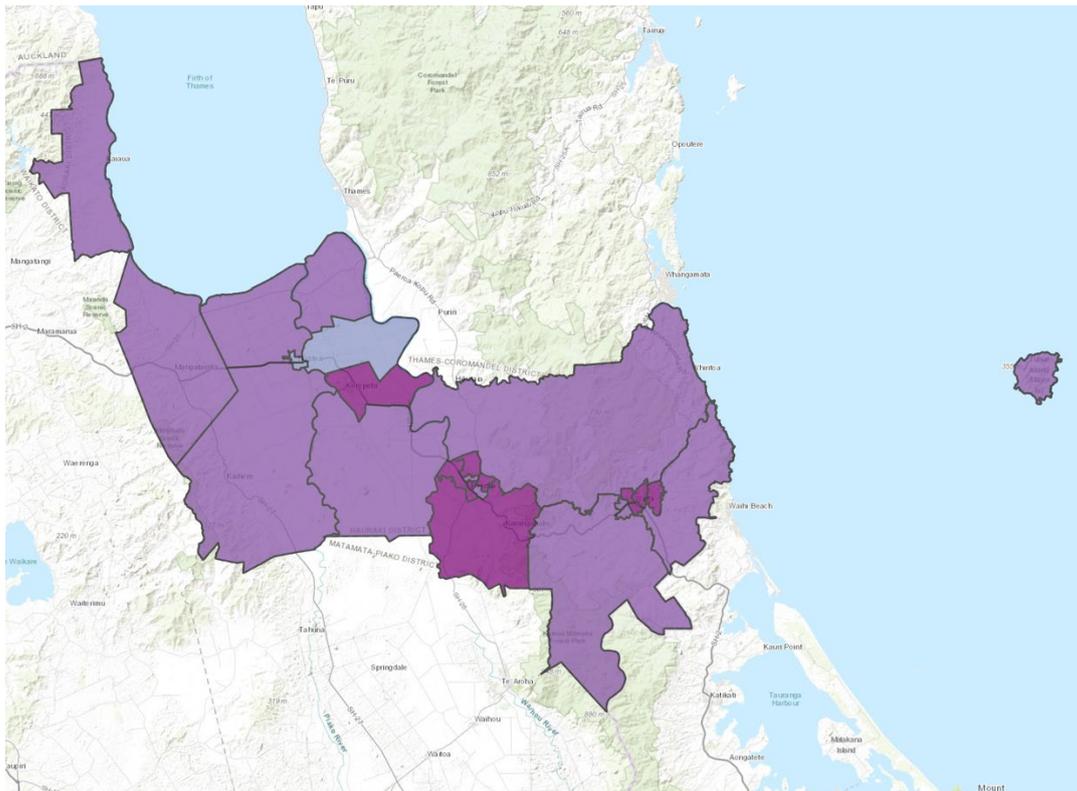


Spatial distribution of overall IMD18

A total of 40 per cent of the population live in the most deprived zones – Q5. Waihi and Paeroa are predominantly made up of Q5 zones. These areas have particularly high median deprivation rankings for Education (5699/6181), Employment (5811/6181), Income (5234/6181) and Health (5047/5958) contributing to high overall deprivation.

Figure 21 shows the distribution of the overall IMD18 data zones across the Hauraki district.

Figure 21: Distribution of data zones for Hauraki – Q1 to Q5 for overall IMD18

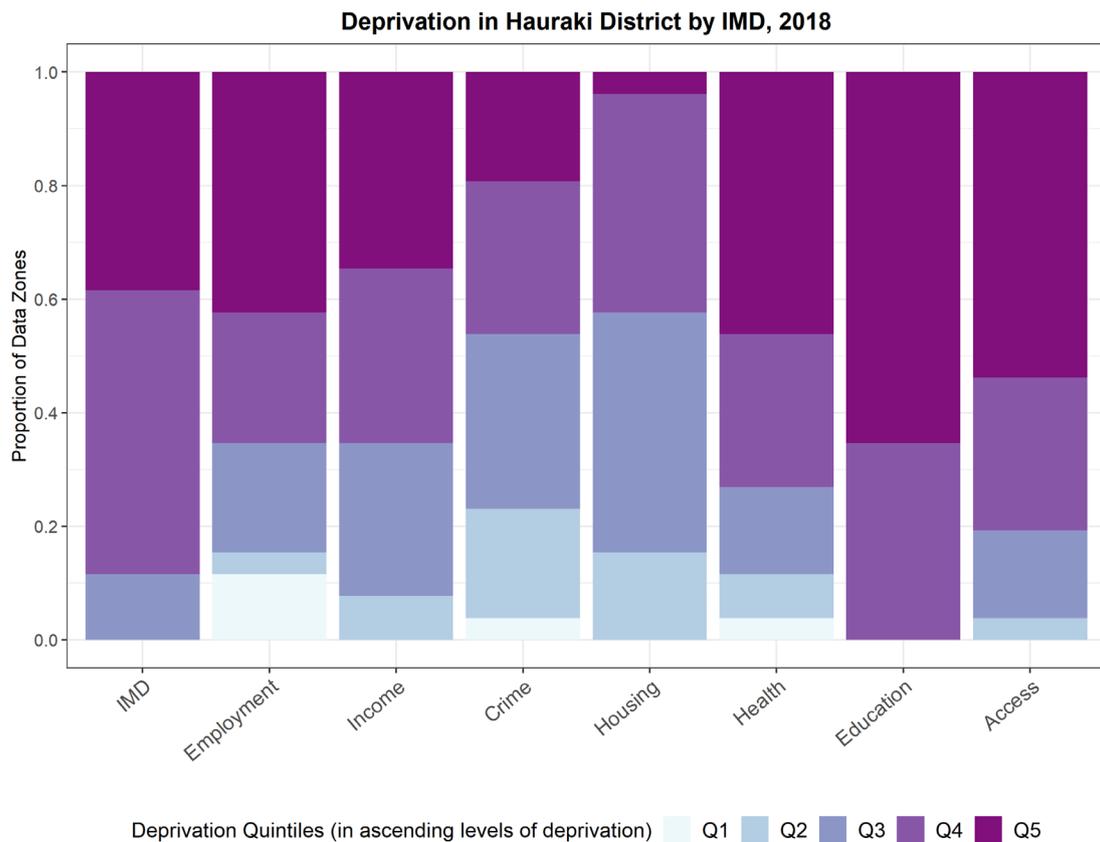


Individual Deprivation Domains

Figure 22 shows the proportion of IMD18 data zones in each deprivation quintile for the overall IMD18 and for each domain. Data zones are ranked from lowest to highest deprivation based on their overall IMD18 score. They are also ranked from lowest to highest deprivation for each specific domain.

Figure 22 that there is very few data zones in Q5 for housing deprivation, however over 20% of zones are in Q5 deprivation for all other domains and the overall IMD18. Note that all of the data zones in Hauraki District were in Q4 or Q5 for Education

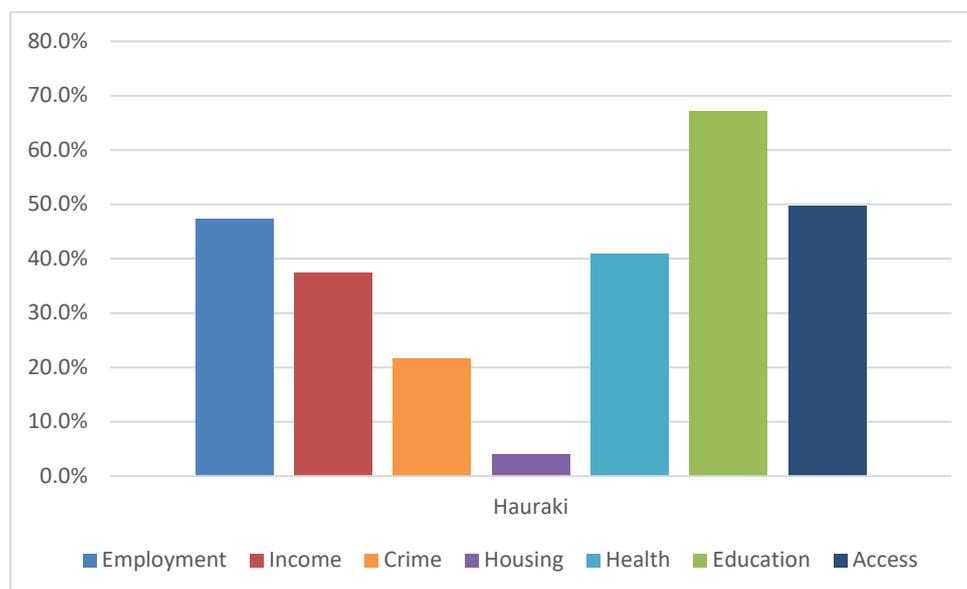
Figure 22: Deprivation quintiles for Hauraki – proportion of data zones



Population living in the highest deprivation zones

When we look at the proportion of the population that is living in areas that are in the highest deprivation for specific domains we find that education and access are the strongest deprivation issues in the Q5 zones followed by employment. Housing deprivation is not a strong factor.

Figure 23: Population living in the areas of highest deprivation on specific domains - Hauraki



Individual Deprivation Domains - Comparison with New Zealand median

When Hauraki is compared to the rest of New Zealand, we find that all domains rank below the NZ median across all data zones. Only Housing is better than the NZ median.

The median IMD18 rank in the Hauraki district was 4227, 18.4 per cent (1136 ranks) worse than the NZ median of 3091. Table 7 shows how the domains rank against the New Zealand median for each domain.

Table 7: Median district deprivation ranking per domain - Hauraki

Domains	Median district deprivation rank per domain
Access	5231, 34.6% (2140 ranks) worse than the NZ median
Education	5147, 33.3% (2056 ranks) worse than the NZ median
Health	4964, 28.7% (1773 ranks) worse than the NZ median
Income	4285, 19.3% (1194 ranks) worse than the NZ median
Employment	4350, 20.4% (1259 ranks) worse than the NZ median
Crime	3663, 9.25% (572 ranks) worse than the NZ median
Housing	3593, 8.1% (502 ranks) worse than the NZ median

Hauraki Summary

Hauraki has a large proportion of the population (40%) living in the most deprived zones. When the Hauraki is compared against the rest of New Zealand it is worse than the median on all domains, except for Housing.

When just the Q5 is considered the biggest drivers of deprivation in the Q5 zones within Hauraki are access, education income, employment and health in terms of the amount of people who living in high deprivation on those specific domains.

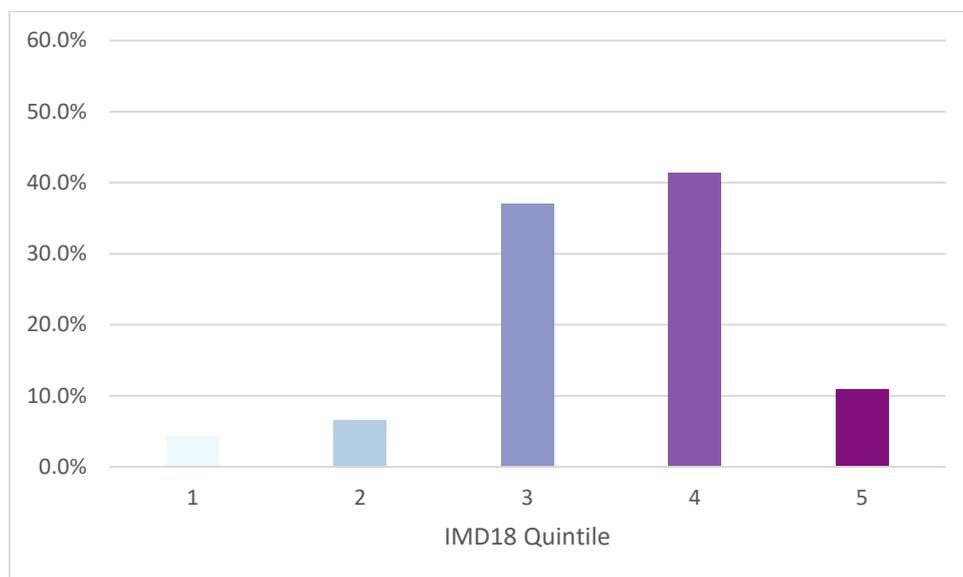
Matamata-Piako District

Overall IMD18

Figure 24 shows the proportion of data zones in Matamata-Piako District that fall into each IMD18 deprivation quintile. If the deprivation circumstances were the same for all of NZ, 20 per cent of Matamata-Piako's 46 data zones would be in each quintile. A total of 10.9 per cent (5/46) of data zones were among the most deprived 20 per cent in NZ (Q5), while 4.3 per cent (2/46) were in the least deprived 20 per cent (Q1).

The Matamata-Piako district has lower than average overall IMD18 deprivation, with 52.2 per cent (24/46) of its data zones either in Q4 or Q5.

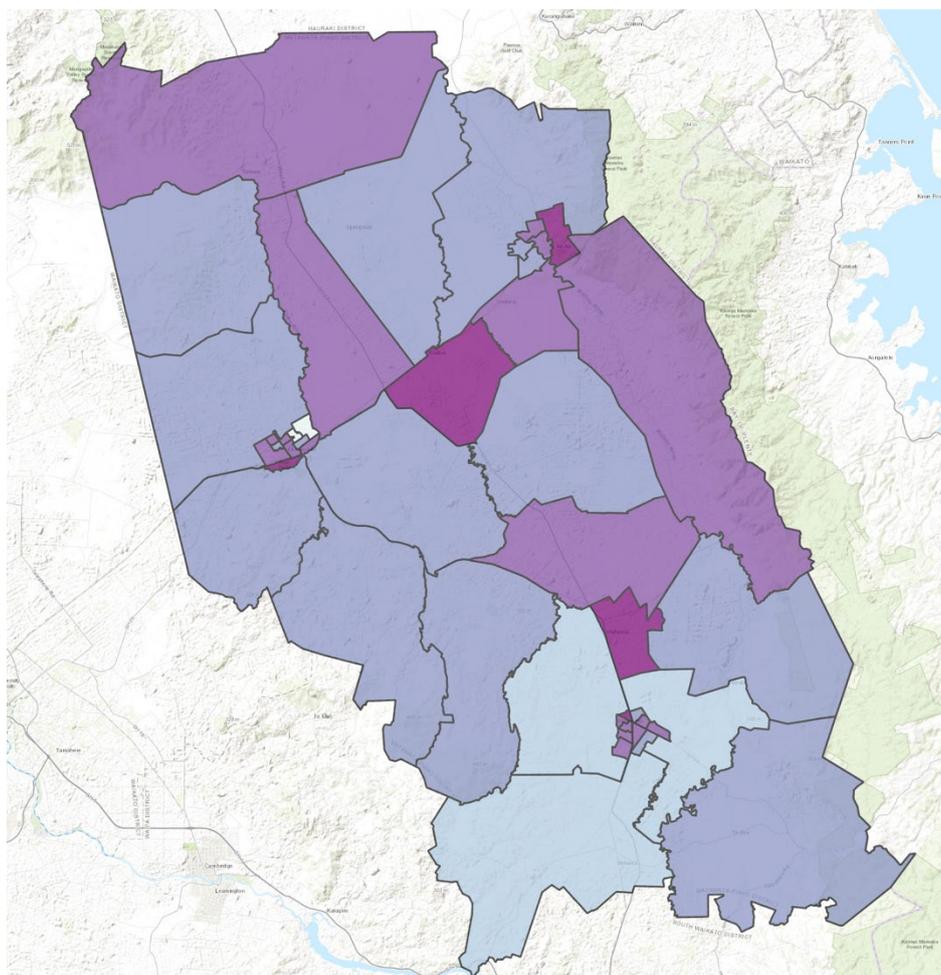
Figure 24: Spread of data zones for Matamata-Piako – Q1 to Q5 for overall IMD18



Spatial distribution of overall IMD18

A total of 9.3 per cent of the population live in the most deprived zones – Q5. Figure 25 shows the distribution of the data zones. The overall IMD18 Q5 zones dispersed throughout the regions, with Q5 data zones located in Matamata, Waharoa, Te Aroha, Waitoa and Morrinsville. These data zones are characterised by high deprivation - (Q5) median deprivation ranks for Health (5568/6181), Employment (5536/6181), Education (5343/6181) Income (5060/6181) and Crime (4753/6181).

Figure 25: Distribution of data zones for Matamata-Piako – Q1 to Q5 for overall IMD18

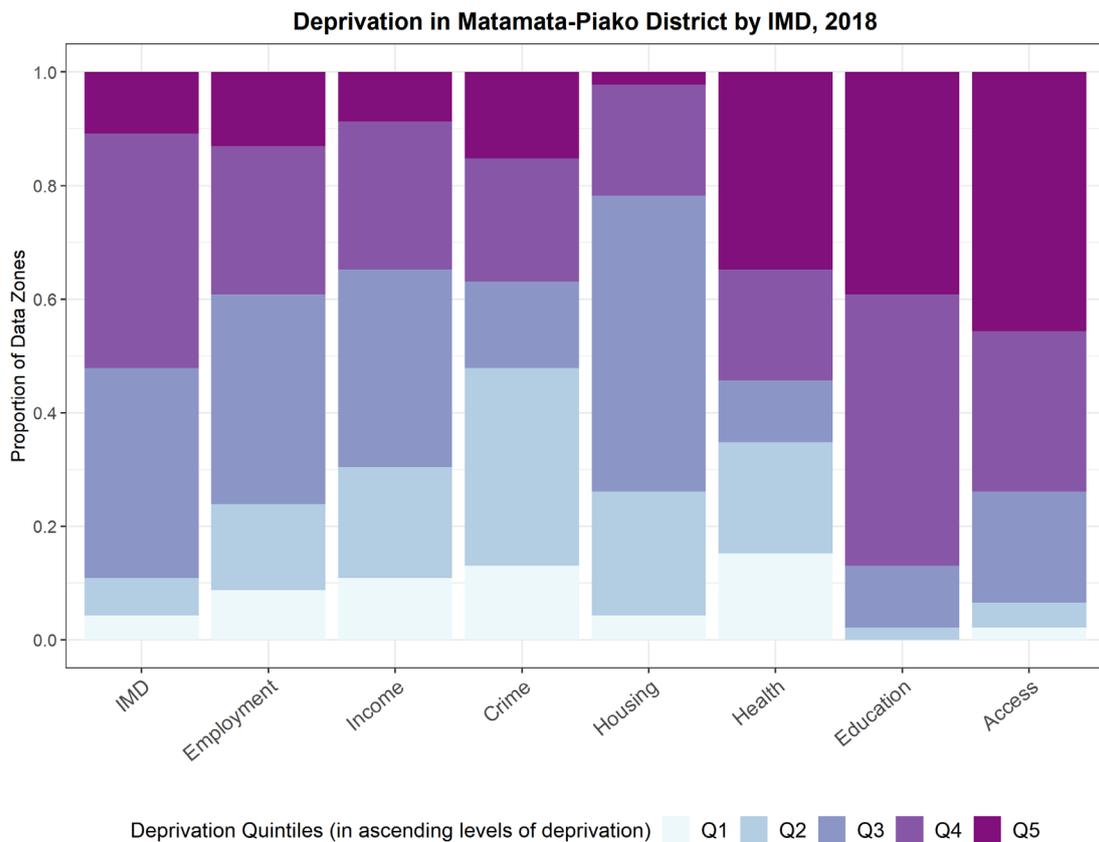


Individual Deprivation Domains

Figure 26 shows the proportion of IMD18 data zones in each deprivation quintile for the overall IMD18 and for each domain. Data zones are ranked from lowest to highest deprivation based on their overall IMD18 score. They are also ranked from lowest to highest deprivation for each specific domain.

Figure 26 shows that the proportion of data zones with Q5 overall IMD18, employment, income, crime and housing was less than 20 per cent, while the proportion with Q5 health, education, access deprivation was above 20 per cent, with over 40 per cent of data zones in Q5 for the access domain.

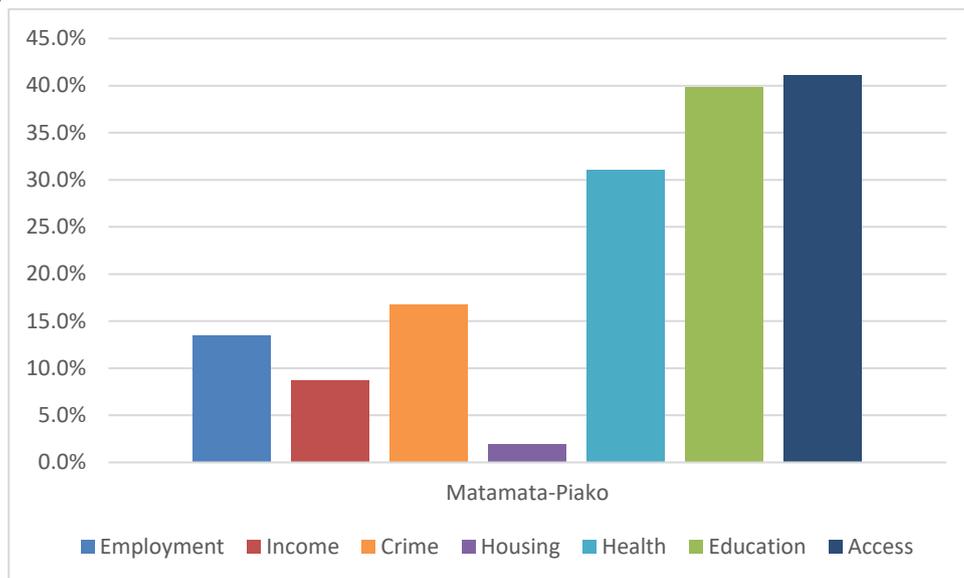
Figure 26: Deprivation quintiles for Matamata-Piako – proportion of data zones



Population living in the highest deprivation zones

When we look at the proportion of the population that is living in areas that are in the highest deprivation for specific domains, we find that access, education and crime are the strongest deprivation factors in the Q5 zones. Housing and employment do not appear to be strong drivers of deprivation Q5 zones in the Matamata-Piako District.

Figure 27: Population living in the areas of highest deprivation on specific domains – Matamata-Piako



Individual Deprivation Domains - Comparison with New Zealand median

Table 8 shows how the domains rank against the New Zealand median. When Matamata-Piako is compared to the rest of New Zealand we find that income, employment, health, education, and access are worse than the NZ median. Median crime and housing for the Matamata-Piako District rank better than the NZ median.

Table 8: Median district deprivation ranking per domain – Matamata-Piako

Domains	Median district deprivation rank per domain
Crime	2875, 3.5% (216 ranks) better than the NZ median
Housing	3025, 1.1% (66 ranks) better than the NZ median
Income	3227, 2.2% (136 ranks) worse than the NZ median
Employment	3402, 5.0% (311 ranks) worse than the NZ median
Health	3934, 13.6% (843 ranks) worse than the NZ median
Education	4618, 24.7% (1527 ranks) worse than the NZ median
Access	4634, 25.0% (1543 ranks) worse than the NZ median

Matamata-Piako Summary

Matamata-Piako has only a small proportion of the population living in the highest deprivation zones. The drivers of deprivation across Matamata-Piako are predominantly access, education, and health.

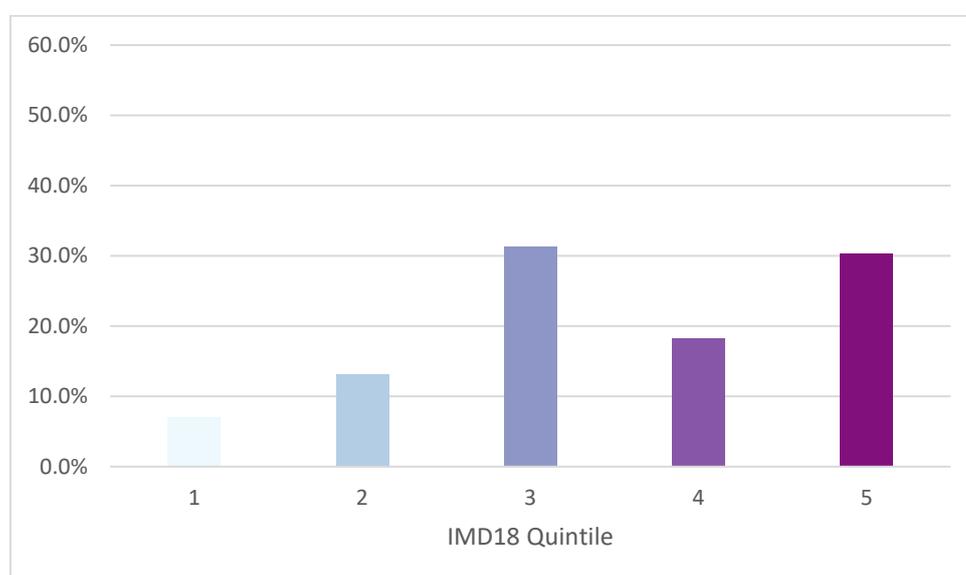
Waikato District

Overall IMD18

Figure 28 shows the proportion of data zones in Waikato District that fall into each IMD18 deprivation quintile. If the deprivation circumstances were the same for all of NZ, 20 per cent of Waikato District's 99 data zones would be in each quintile. A total of 30.3 per cent (30/99) of data zones were among the most deprived 20 per cent in NZ (Q5), while 7.1 per cent (7/99) were in the least deprived 20 per cent (Q1).

The Waikato district has lower than average overall IMD18 deprivation, with 48.5 per cent (48/99) of its data zones either in Q4 or Q5.

Figure 28: Spread of data zones for Waikato – Q1 to Q5 for overall IMD18



Spatial distribution of overall IMD18

A total of 28 per cent of the population live in the most deprived zones – Q5. Figure 29 shows that Q5 zones are located around Huntly, Ngaruawahia, Meremere, Port Waikato and Raglan. The zones with the highest deprivation rank for the District are clustered in Huntly and are characterised by high employment, income education and housing deprivation. The majority of Q1 and 2 zones are clustered around Hamilton.

Huntly has one of the most deprived data zones in the country ranking 6,165 out of 6,181 for the overall IMD18. This particular data Q5 zone has the following rankings for the separate domains:

Table 9: Deprivation ranks by domain for most deprived data zone – Waikato District

Employment	Income	Crime	Housing	Health	Education	Access
6179	6171	5843	5951	3105	6169	1557

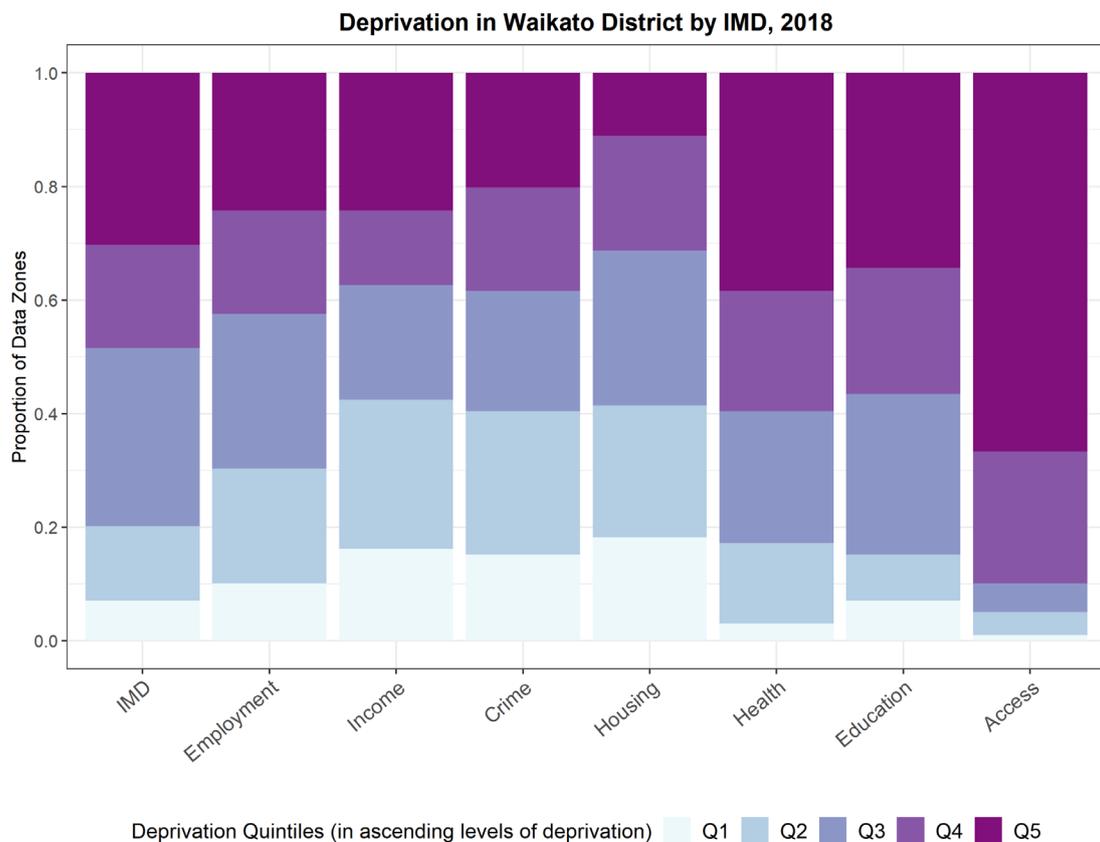
In descending order, the Waikato District has high (Q5) median deprivation ranks for Education (5721/6181), Employment (5619/6181), and Income (5523/6181) that were contributing to high overall deprivation in the Q5 26 data zones in 2018.

Individual Deprivation Domains

Figure 30 shows the proportion of IMD18 data zones in each deprivation quintile for the overall IMD18 and for each domain. Data zones are ranked from lowest to highest deprivation based on their overall IMD18 score. They are also ranked from lowest to highest deprivation for each specific domain.

Figure 30 shows that the proportion of data zones with Q5 overall crime, housing deprivation was less than 20 per cent, while the proportion with Q5 IMD18, employment, income, health, education, access deprivation was greater than 20 per cent.

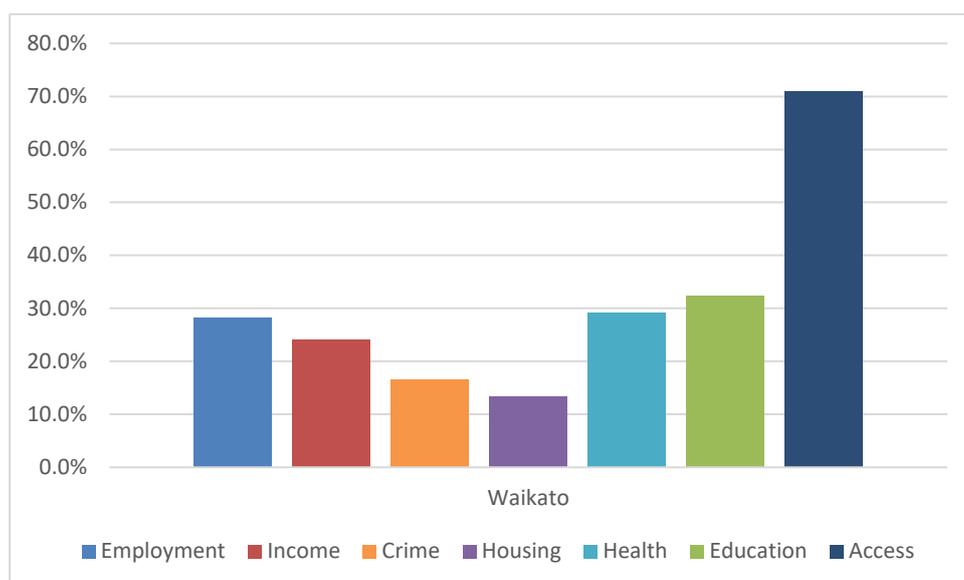
Figure 30: Deprivation quintiles for Waikato District – proportion of data zones



Population living in the highest deprivation zones

When we look at the proportion of the population that is living in areas that are in the highest deprivation for specific domains we find that access, education, and health are the strongest deprivation drivers in the Q5 areas followed by employment and income.

Figure 31: Population living in the areas of highest deprivation on specific domains – Waikato



Individual Deprivation Domains - Comparison with New Zealand median

Table 10 shows how the domains rank against the New Zealand median. When Waikato District as a whole is compared to the rest of New Zealand, we find that the median ranks for employment, education, health, and access deprivation ranks worse than the NZ median. The median rank for housing, income, and crime are better than the NZ median.

Table 10: Median district deprivation ranking per domain – Waikato

Domains	Median district deprivation rank per domain
Housing	2663, 6.9% (428 ranks) better than the NZ median
Income	2885.3.3% (206 ranks) better than the NZ median
Crime	2946, 2.3% (145 ranks) better than the NZ median
Employment	3328, 3.8% (237 ranks) worse than the NZ median
Education	4009, 14.9% (918 ranks) worse than the NZ median
Health	4505, 22.9% (1414 ranks) worse than the NZ median
Access	5182, 33.8% (2091 ranks) worse than the NZ median

Waikato District Summary

Over 45 percent of the population in Waikato District are living Q4 and Q5 zones of high deprivation. The highest deprivation areas are located in Huntly and Meremere.

When the Waikato district is compared against the rest of New Zealand there is more health, education, and housing deprivation. On the other measures of deprivation, the Waikato median ranks are comparable to that of the national median. When just the Q5 is considered the biggest drivers of deprivation in the Q5 zones within Waikato are education, income, and employment.

It must be noted that district level data can mask issues at individual data zone level. Huntly has one of the most deprived data zones in the country ranking 6,165 out of 6,181. We recommend using the online mapping tools to drill down into the detail of individual data zones.

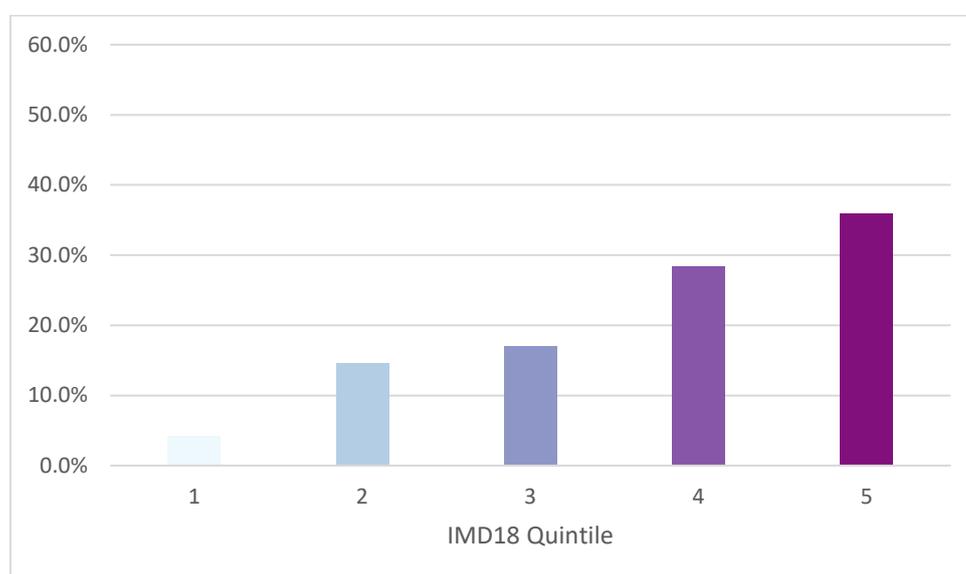
Hamilton City

Overall IMD18

Figure 32 shows the proportion of data zones in Hamilton City that fall into each IMD18 deprivation quintile. If the deprivation circumstances were the same for all of NZ, 20 per cent of Hamilton’s 212 data zones would be in each quintile. A total of 35.8 per cent (76/212) of data zones were among the most deprived 20 per cent in NZ (Q5), while 4.2 per cent (9/212) were in the least deprived 20 per cent (Q1).

Hamilton City has higher than average overall IMD18 deprivation, with 64.1 per cent (136/212) of its data zones either in Q4 or Q5.

Figure 32: Spread of data zones for Hamilton – Q1 to Q5 for overall IMD18



Spatial distribution of overall IMD18

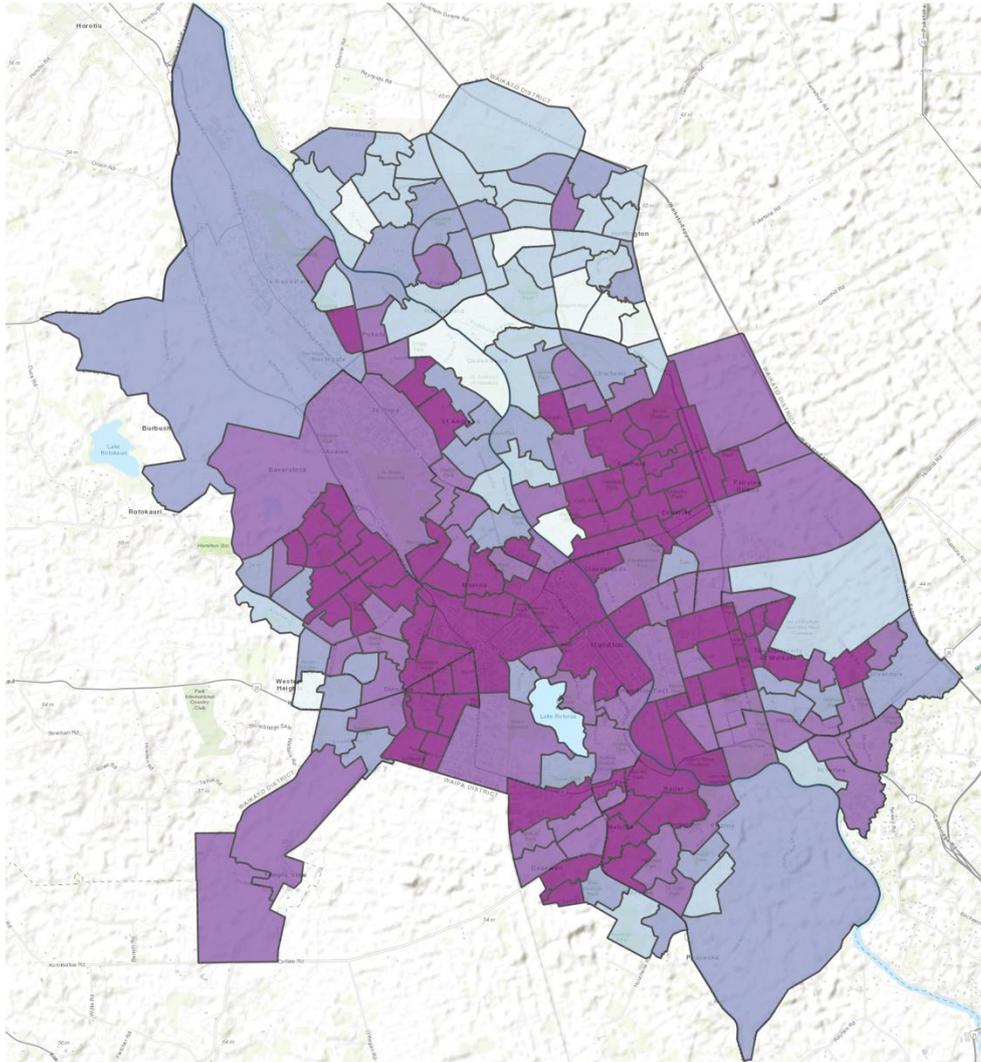
A large proportion of the city lives in Q4 and Q5 zones. A total of 38 per cent of the population live in the most deprived zones – Q5. There are 58 data zones that are high (Q5) deprivation. The median deprivation rank for the overall IMD18 for these 76 data zones is 5426/5,958. The drivers of deprivation for these 58 data zones in 2018, contributing to high overall deprivation are as follows:

Table 11: Median deprivation ranks by domain for 58 data zones with Q5 IMD18 – Hamilton

Employment	Income	Crime	Housing	Health	Education	Access
5592	5542	5186	5406	5070	4907	1511

Figure 33 shows the distribution of the Q5 within the city of Hamilton. The five most deprived Q5 zones in Hamilton are located in the suburb of Fairfield. These zones are characterised by very high deprivation on all domains except access. The suburbs of Enderley, Maeroa, Nawton, Dinsdale, Frankton, Bader, and Hamilton Central also contain Q5 zones.

Figure 33: Distribution of overall IMD18 for Hamilton



The most deprived zone in Hamilton has an overall IMD18 rank of 6,174 out of 6,181. Table 12 shows the deprivation ranks by domain of the most deprived zone.

Table 12: Deprivation ranks by domain for most deprived data zone – Hamilton

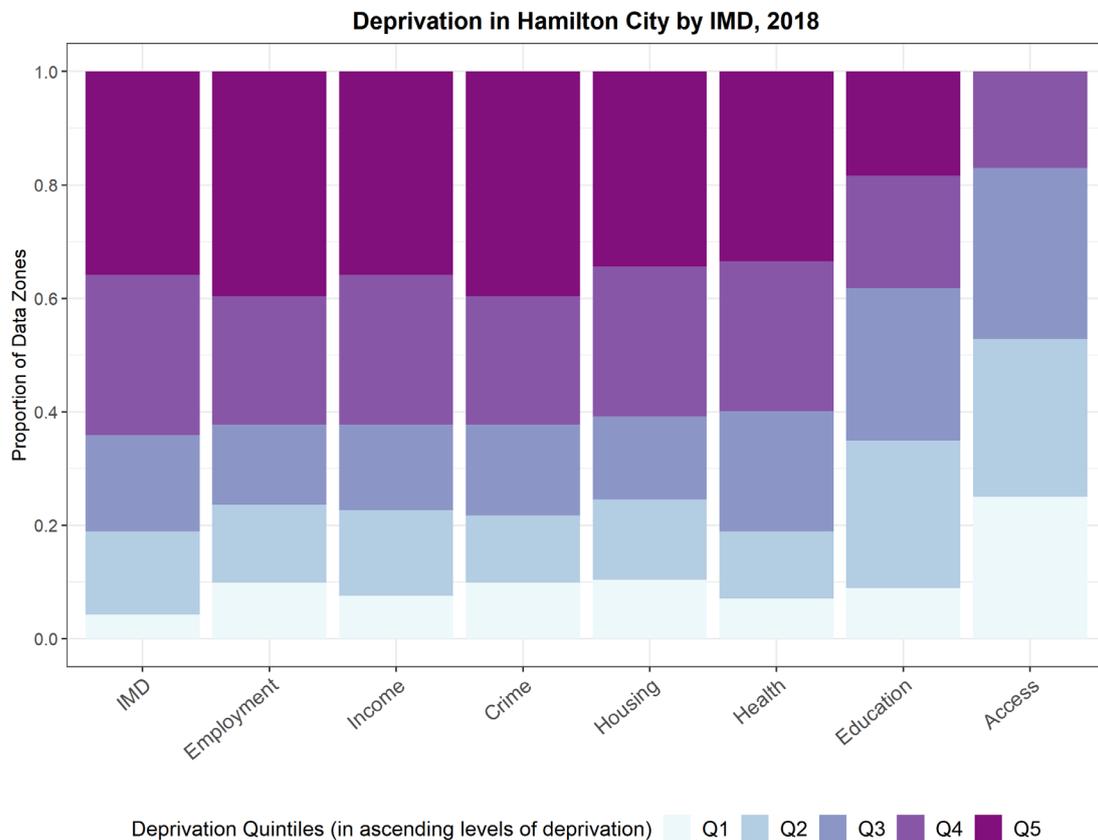
Employment	Income	Crime	Housing	Health	Education	Access
6131	6173	5328	6131	5534	6152	1962

Individual Deprivation Domains

Figure 34 shows the proportion of IMD18 data zones in each deprivation quintile for the overall IMD18 and for each domain. Data zones are ranked from lowest to highest deprivation based on their overall IMD18 score. They are also ranked from lowest to highest deprivation for each specific domain.

Figure 34 shows that there are no zones in Hamilton City ranked Q5 in terms of access deprivation. Less than 20% of zones are in Q5 for education deprivation. For the remaining domains, employment, income, crime, housing, health, and the overall IMD18, over 20% of zones in Hamilton are ranked in Q5. With the exception of Education, all of these domains have close to 40 per cent of their data zones in Q5 and over 60 per cent of the data zones are experiencing moderate to severe deprivation (Q4 and Q5).

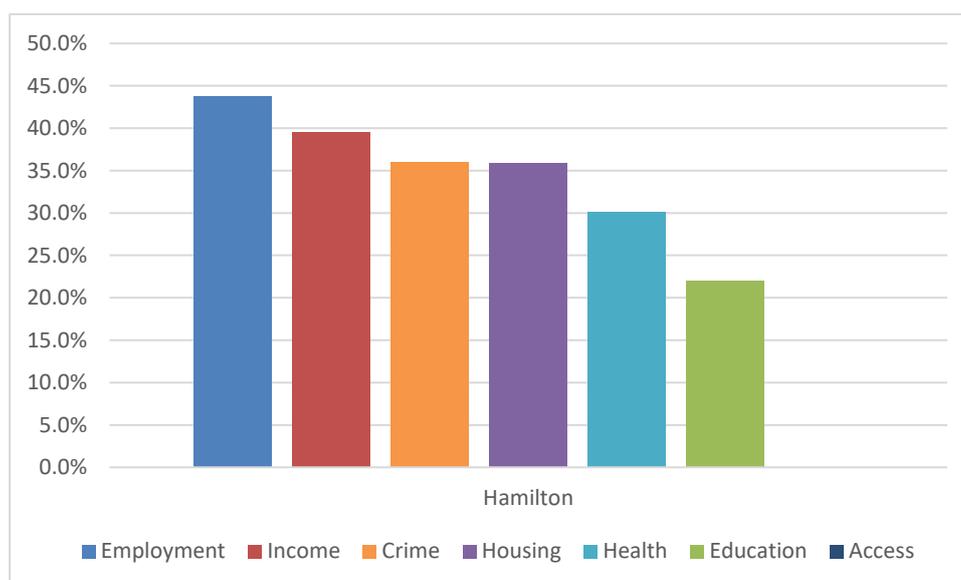
Figure 34: Deprivation quintiles for Hamilton – proportion of data zones



Population living in the highest deprivation zones

Figure 35 shows that employment and income are strongest deprivation issues in Hamilton followed by crime and housing. Being a particularly urban centre, there are no Q5 access zones in Hamilton.

Figure 35: Population living in the areas of highest deprivation on specific domains - Hamilton



Individual Deprivation Domains - Comparison with New Zealand median

Table 13 shows how the domains rank against the New Zealand median. When Hamilton City is compared to the rest of New Zealand we find that median ranks, except the access domain, rank worse than the NZ median. The median overall IMD18 rank in the Hamilton City district was 4360, 20.5 per cent (1269 ranks) worse than the NZ median of 3091.

Table 13: Median district deprivation ranking per domain - Hamilton

Domains	Median district deprivation rank per domain
Access	2268, 13.3% (823 ranks) better than the NZ median
Education	3224, 2.2% (133 ranks) worse than the NZ median
Health	4198, 17.9% (1107 ranks) worse than the NZ median
Income	4229, 18.4% (1138 ranks) worse than the NZ median
Housing	4270, 19.1% (1179 ranks) worse than the NZ median
Employment	4475, 22.4% (1384 ranks) worse than the NZ median
Crime	4535, 23.4% (1444 ranks) worse than the NZ median

Hamilton Summary

Hamilton has 35.8 per cent of the population living in the highest deprivation. Hamilton City has higher than average overall IMD18 deprivation, with 64.1 per cent of its data zones either in Q4 or Q5. When Hamilton is compared against the rest of New Zealand it is worse on all domains except access. The biggest drivers of deprivation in the Q5 zones are income, employment, crime, and housing.

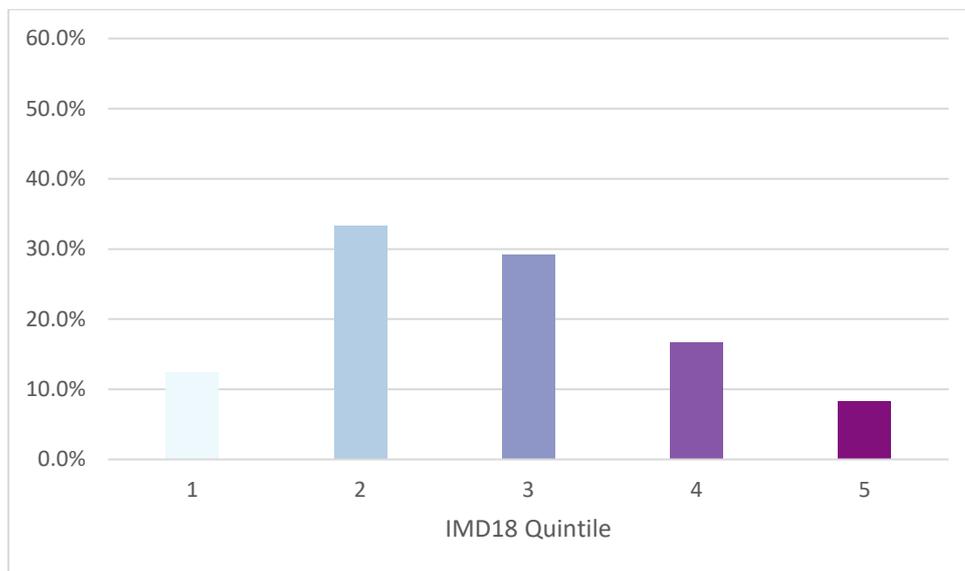
Waipa District

Overall IMD18

Figure 36 shows the proportion of data zones in Waipa in each IMD18 deprivation quintile. If the deprivation circumstances were the same for all of NZ, 20 per cent of Waipa's 72 data zones would be in each quintile. A total of 8.3 per cent (6/72) of data zones were among the most deprived 20 per cent in NZ (Q5), while 12.5 per cent (9/72) were in the least deprived 20 per cent (Q1).

The Waipa has lower than average overall IMD18 deprivation, with 25 per cent (18/72) of its data zones either in Q4 or Q5.

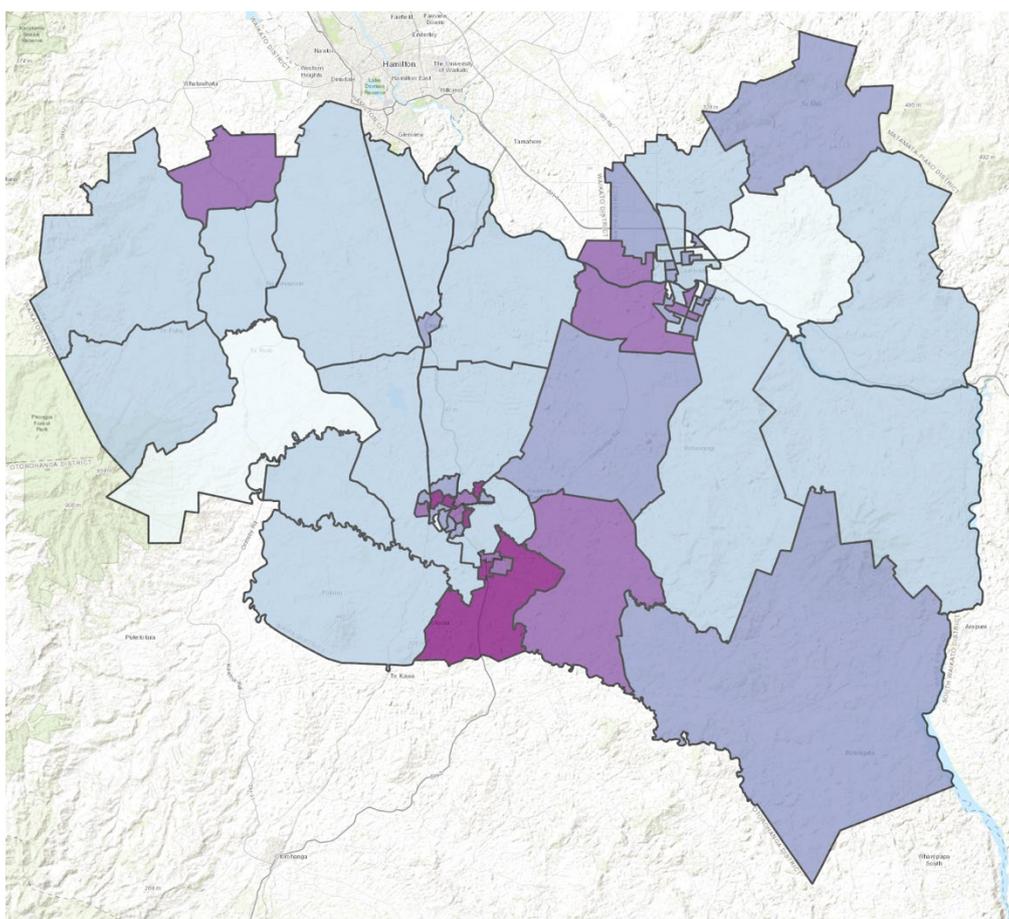
Figure 36: Spread of data zones for Waipa – Q1 to Q5 for overall IMD18



Spatial distribution of overall IMD18

A total of 8.6 per cent of the population live in the most deprived zones – Q5 according to the IMD18 overall. The Q5 zones are located in Te Awamutu and Kihikihi. These areas have particularly high median deprivation rankings for Employment (5703/6181) Education (5668/6181), and Income (5411/6181) contributing to high overall deprivation.

Figure 37: Distribution of overall IMD18 for Waipa

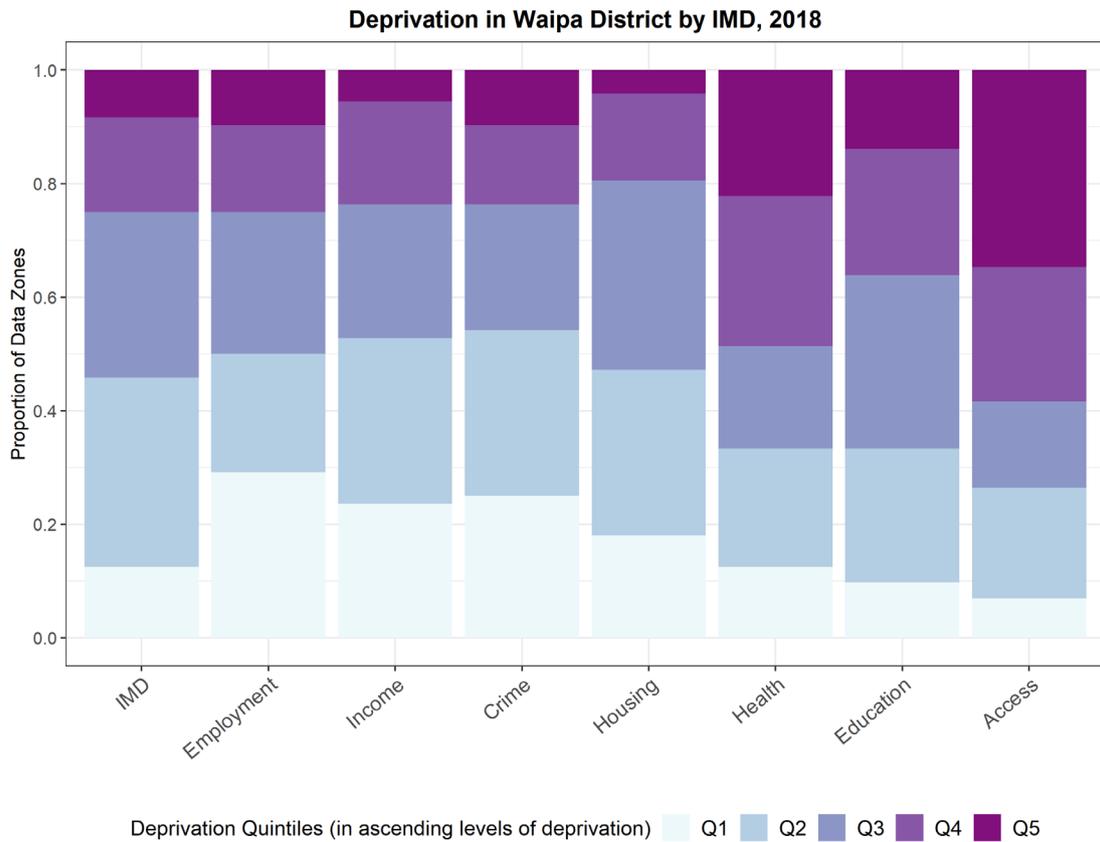


Individual Deprivation Domains

Figure 38 shows the proportion of IMD18 data zones in each deprivation quintile for the overall IMD18 and for each domain. Data zones are ranked from lowest to highest deprivation based on their overall IMD18 score. They are also ranked from lowest to highest deprivation for each specific domain.

Figure 38 shows that the proportion of data zones with Q5 overall IMD18, employment, income, crime, housing and education deprivation was less than 20 per cent, while the proportion with Q5 health was greater than 20 per cent, and access deprivation was nearly 40 per cent.

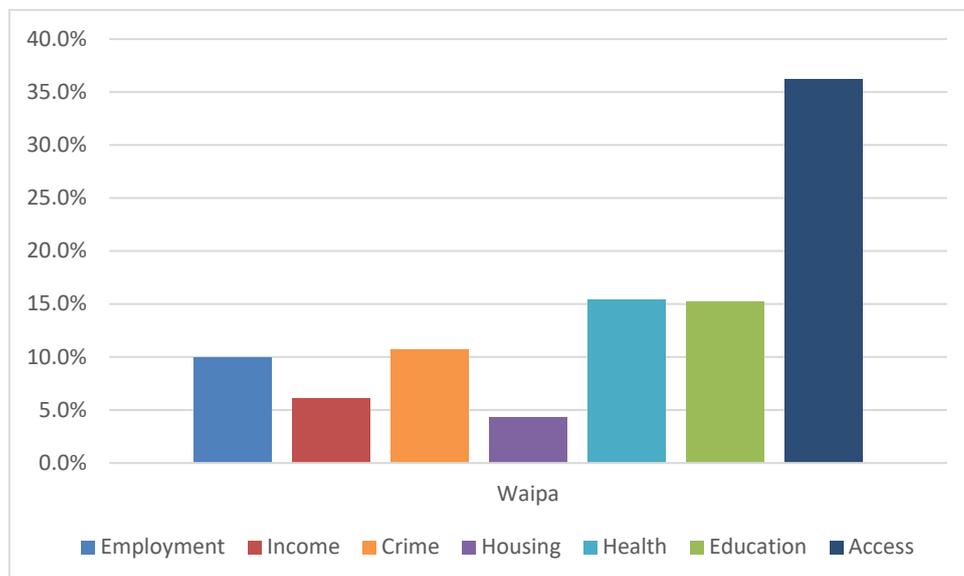
Figure 38: Deprivation quintiles for Waipa – proportion of data zones



Population living in the highest deprivation zones

When we look at the proportion of the population that is living in areas that are in the highest deprivation for specific domains, we find that access and education are the strongest deprivation issues in the Q5 zones followed by health and crime.

Figure 39: Population living in the areas of highest deprivation on specific domains - Waipa



Individual Deprivation Domains - Comparison with New Zealand median

Table 14 shows how the domains rank against the New Zealand median. When overall Waipa district is compared to the rest of New Zealand we find that health and access are ranked worse than the New Zealand median. The median education rank of 3107 out of 6181 is comparable to the NZ median while, income, crime, employment, and housing rank better than the NZ median.

Table 14: Median district deprivation ranking per domain - Waipa

Domains	Median district deprivation rank per domain
Income	2229, 13.9% (862 ranks) better than the NZ median
Crime	2244, 13.7% (847 ranks) better than the NZ median
Employment	2442, 10.5% (649 ranks) better than the NZ median
Housing	2578, 8.3% (513 ranks) better than the NZ median
Education	3107, 0.3% (16 ranks) worse than the NZ median
Health	3568, 7.7% (477 ranks) worse than the NZ median
Access	4148, 17.1% (1057 ranks) worse than the NZ median

Waipa Summary

Overall Waipa has very low deprivation with only 8.6 per cent of the population living in the most deprived zones – Q5. The factors that are contributing to high overall deprivation for the few Q5 zones, which are located in Te Awamutu and Kihikihi, are education, employment and income.

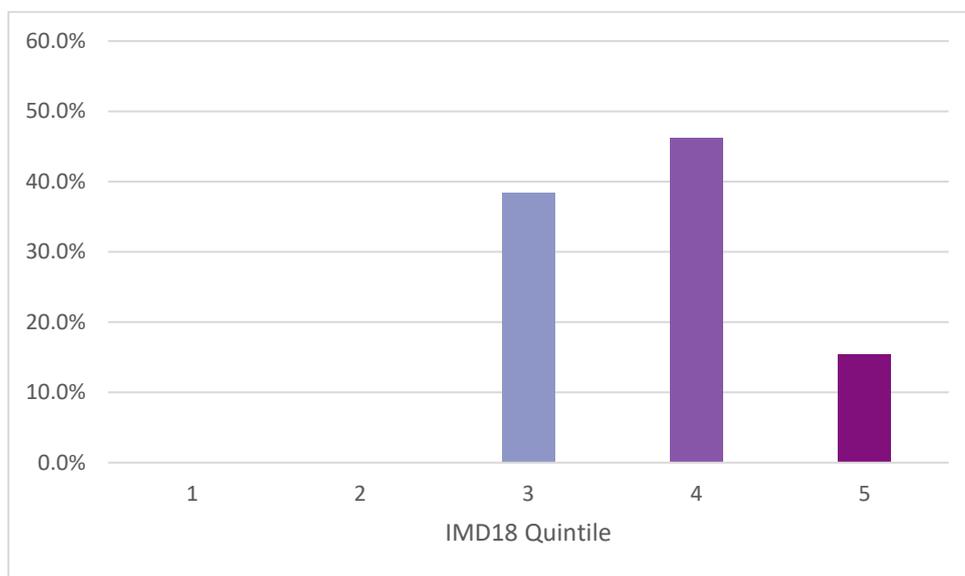
Otorohanga District

Overall IMD18

Figure 40 shows the proportion of data zones in Otorohanga District that fall into each IMD18 deprivation quintile. If the deprivation circumstances were the same for all of NZ, 20 per cent of Otorohanga’s 13 data zones would be in each quintile. A total of 15.4 per cent (2/13) of data zones were among the most deprived 20 per cent in NZ (Q5), while none (0/13) were in the least deprived 20 per cent (Q1).

The Otorohanga district has higher than average overall IMD18 deprivation, with 61.6 per cent (8/13) of its data zones either in Q4 or Q5.

Figure 40: Spread of data zones for Otorohanga – Q1 to Q5 for overall IMD18



Spatial distribution of overall IMD18

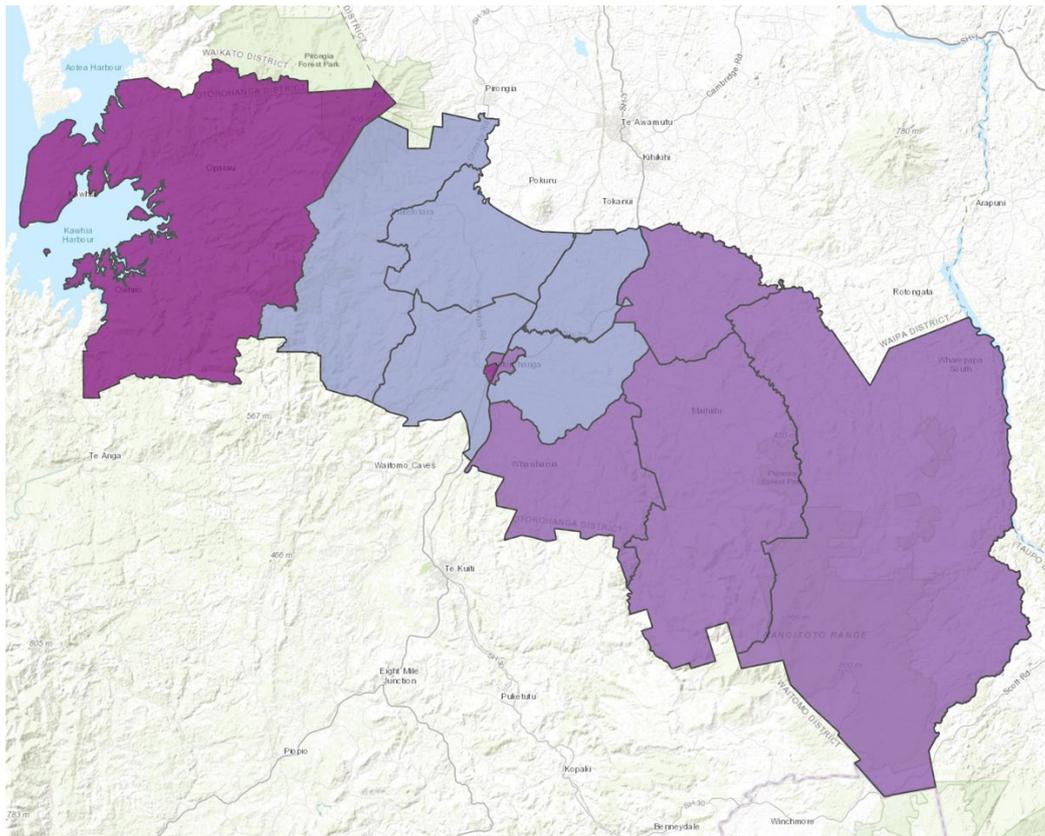
A total of 17.9 per cent of the population live in the most deprived zones – Q5. Of the two Q5 zones, one is located in Otorohanga, the other is encompasses the Kawhia Harbour. The Otorohanga zone is the most deprived, with an overall IMD18 rank of 5,623 out of 6,181. Deprivation in this area is characterised by education, employment, and housing deprivation. Details on the ranking for this zone is shown in Table 15.

Table 15: Deprivation ranking per domain for the most deprived Q5 zone in Otorohanga District

Employment	Income	Crime	Housing	Health	Education	Access
5854	4919	5272	5619	4146	5909	4487

Figure 41 shows the distribution of the overall IMD18 data zones across the Otorohanga district.

Figure 41: Distribution of overall IMD18 for Otorohanga

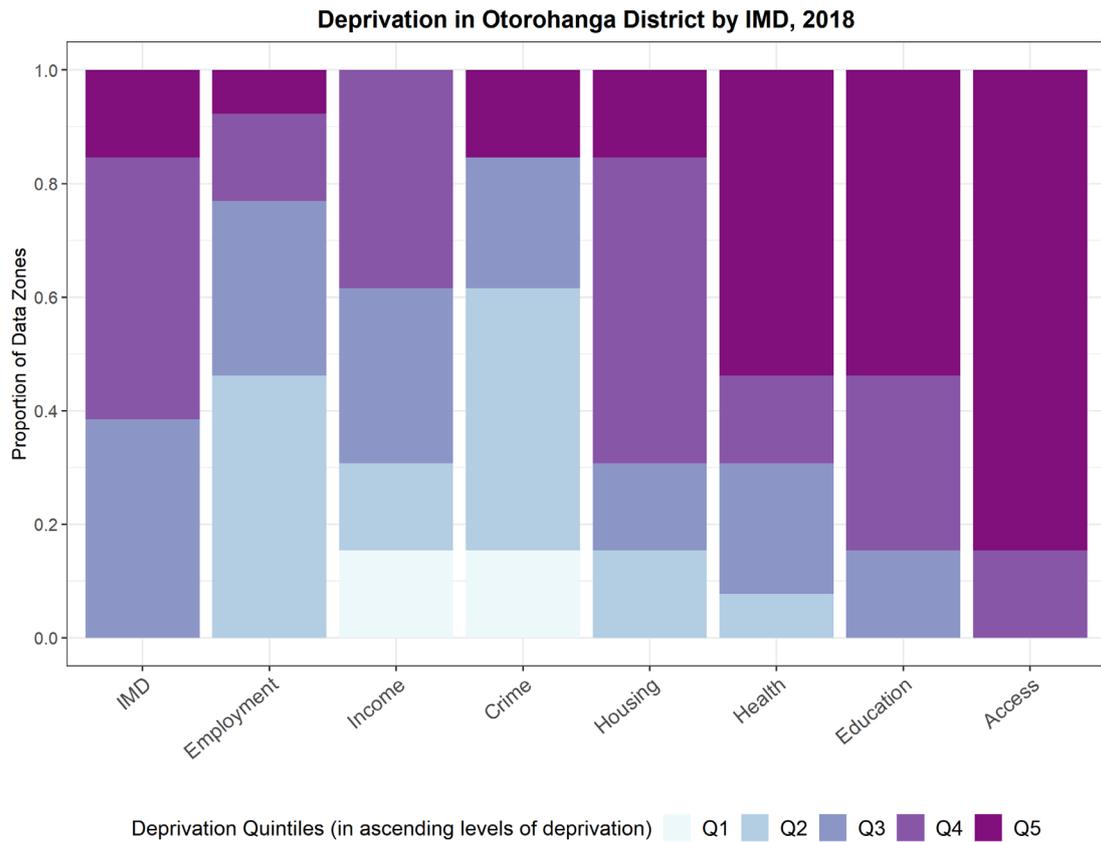


Individual Deprivation Domains

Figure 42 shows the proportion of IMD18 data zones in each deprivation quintile for the overall IMD18 and for each domain. Data zones are ranked from lowest to highest deprivation based on their overall IMD18 score. They are also ranked from lowest to highest deprivation for each specific domain.

Figure 42 shows that there is no zone in Otorohanga District ranked within Q5 for income deprivation. Less than 20% of zones are ranked with Q5 for employment, crime, and housing deprivation. More than 20% of zones are ranked with Q5 in terms of health, and education and all zones were Q4 or Q5 for access deprivation.

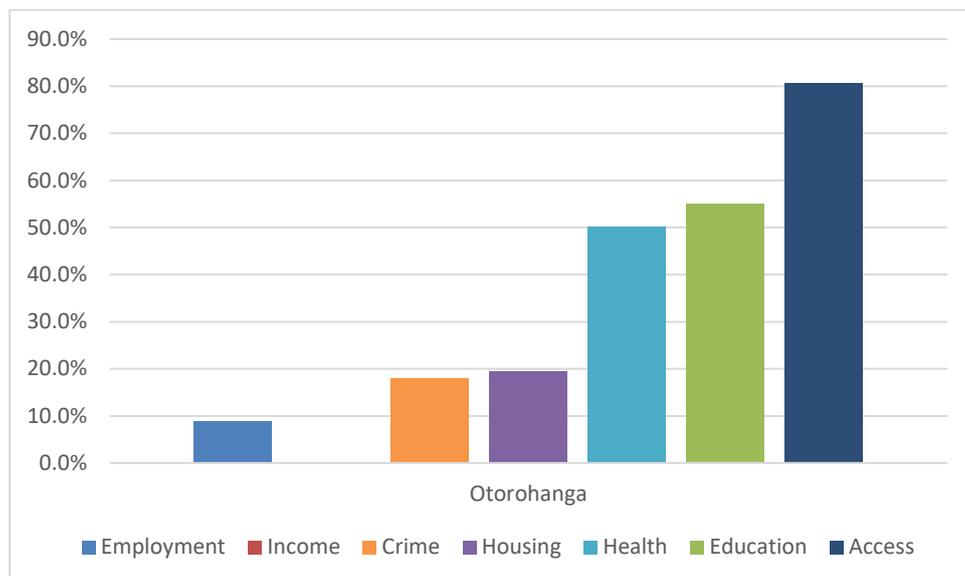
Figure 42: Deprivation quintiles for Otorohanga – proportion of data zones



Population living in the highest deprivation zones

When we look at the proportion of the population that is living in areas that are in the highest deprivation for specific domains, we find that access and education are the strongest deprivation issues in the Q5 zones.

Figure 43: Population living in the areas of highest deprivation on specific domains - Otorohanga



Individual Deprivation Domains - Comparison with New Zealand median

Table 16 shows how the domains rank against the New Zealand median. If Otorohanga is compared to the rest of New Zealand we find that access, education, health, and housing are below the NZ median across all data zones. The median rank for the crime, employment, and income domains are better than the NZ median.

Table 16: Median district deprivation ranking per domain - Otorohanga

Domains	Median district deprivation rank per domain
Crime	2338, 12.2% (753 ranks) better than the NZ median
Employment	2989, 1.7% (102 ranks) better than the NZ median
Income	3037, 0.9% (54 ranks) better than the NZ median
Housing	4176, 17.6% (1085 ranks) worse than the NZ median
Health	4949, 30.1% (1858 ranks) worse than the NZ median
Education	5030, 31.4% (1939 ranks) worse than the NZ median
Access	5690, 42.0% (2599 ranks) worse than the NZ median

Otorohanga Summary

The Otorohanga district has lower than average overall IMD18 deprivation with a total of 17.9 per cent of the population live in the most deprived zones – Q5. The two Q5 zones are located in Otorohanga and on the Kawhia Harbour. Both Q5 zones are characterised by high education, income, and crime deprivation.

When overall IMD18 deprivation in Otorohanga is compared to the rest of New Zealand we find that access, education, health, and housing are below the NZ median across all data zones. All other domains are better than the NZ median.

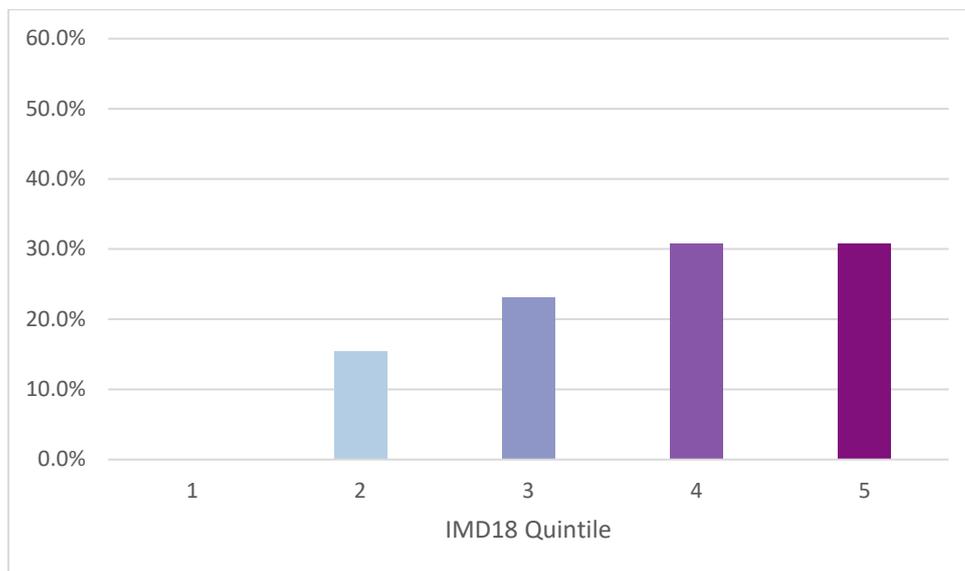
Waitomo District

Overall IMD18

Figure 44 shows the proportion of data zones in Waitomo that fall into each IMD18 deprivation quintile. If the deprivation circumstances were the same for all of NZ, we would see 20 per cent of Waitomo's 13 data zones in each quintile. A total of 30.8 per cent (4/13) of data zones were among the most deprived 20 per cent in NZ (Q5), while 0 per cent (0/13) were in the least deprived 20 per cent (Q1).

Waitomo has higher than average overall IMD18 deprivation, with 61.6 per cent (8/13) of its data zones either in Q4 or Q5.

Figure 44: Spread of data zones for Waitomo – Q1 to Q5 for overall IMD18



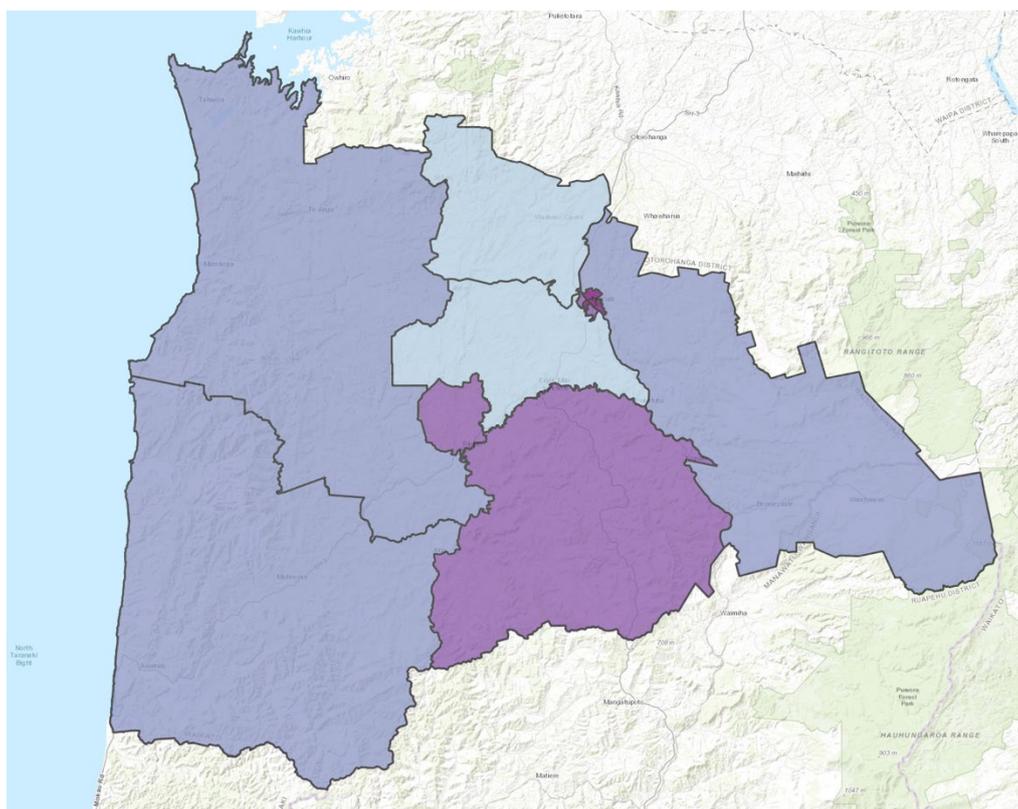
Spatial distribution of overall IMD18

A total of 29.8 per cent of the population live in the most deprived zones – Q5. Figure 45 shows the distribution of the data zones. All of Te Kuiti is classified as either Q5 and Q4. These areas have particularly high median deprivation rankings for Education (6065/6181), Housing (5053/6181), Income (5824/6181) and Employment (5539/6181), contributing to high overall deprivation. The zones located in Te Kuiti are characterised by high levels of education, employment, income, and housing deprivation.

Table 17: Rankings per domain for the four Q5 zones in Te Kuiti

Zone	Employment	Income	Crime	Housing	Health	Education	Access
1	5681	5947	4058	5254	2419	6179	4058
2	5513	5815	5440	5375	2429	5836	2802
3	5160	5369	4421	4851	1716	6146	4569
4	5565	5832	2784	4664	1127	5984	3000

Figure 45: Distribution of overall IMD18 for Waitomo

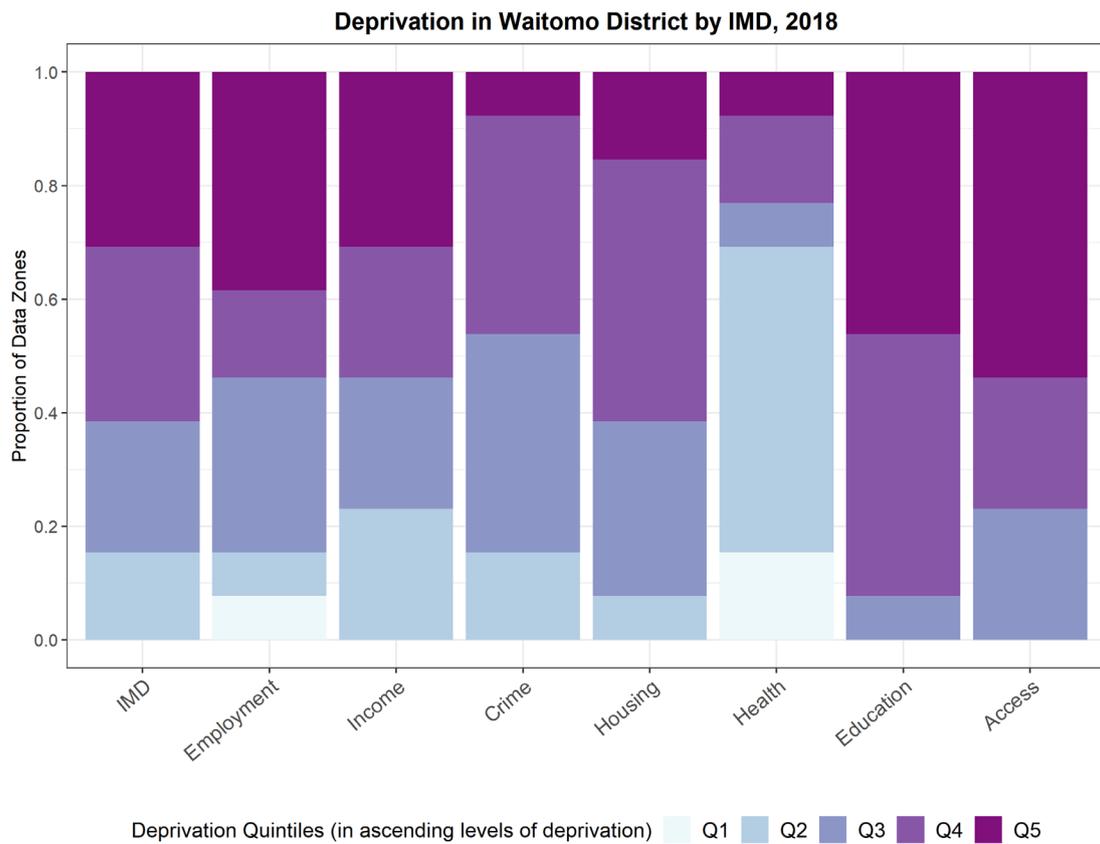


Individual Deprivation Domains

Figure 46 shows the proportion of IMD18 data zones in each deprivation quintile for the overall IMD18 and for each domain. Data zones are ranked from lowest to highest deprivation based on their overall IMD18 score. They are also ranked from lowest to highest deprivation for each specific domain.

Figure 46 shows that the proportion of data zones with Q5 overall crime, housing and health was less than 20 per cent, while the proportion with Q5 overall IMD18, employment, income, education and access deprivation was greater than 20 per cent.

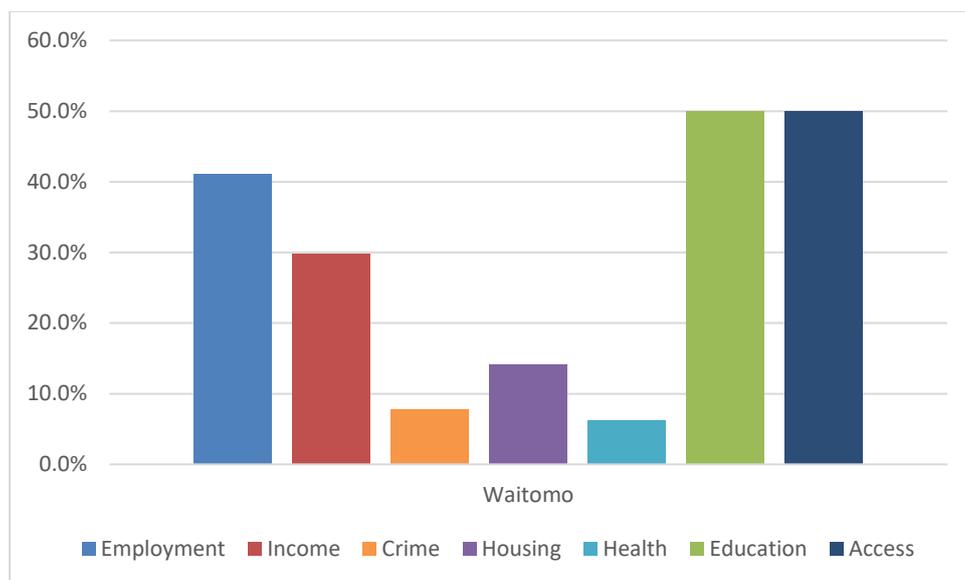
Figure 46: Deprivation quintiles for Waitomo – proportion of data zones



Population living in the highest deprivation zones

When we look at the proportion of the population that is living in areas that are in the highest deprivation for specific domains, we find that access, education and health are the strongest deprivation issues in the Q5 zones.

Figure 47: Population living in the areas of highest deprivation on specific domains - Waitomo



Individual Deprivation Domains - Comparison with New Zealand median

Table 18 shows how the domains rank against the New Zealand median. When overall Waitomo is compared to the rest of New Zealand, we find that only health ranks better than the NZ median. All other domains rank worse than the NZ median.

Table 18: Median district deprivation ranking per domain - Waitomo

Domains	Median district deprivation rank per domain
Health	1816, 20.6% (1275 ranks) better than the NZ median
Crime	3562, 7.6% (471 ranks) worse than the NZ median
Employment	3982, 14.4% (891 ranks) worse than the NZ median
Housing	4059, 15.7% (968 ranks) worse than the NZ median
Income	4663, 25.4% (1572 ranks) worse than the NZ median
Education	4786, 27.4% (1695 ranks) worse than the NZ median
Access	5797, 43.8% (2706 ranks) worse than the NZ median

Waitomo Summary

Waitomo has higher than average overall IMD18 deprivation, with 62.4 per cent of its data zones either in Q4 or Q5. All of Te Kuiti is classified as either Q5 or Q4.

A total of 29.8 per cent of the population live in the most deprived zones – Q5. There is a different mix of deprivation domains across the four Q5 zones in Te Kuiti. District level data can mask issues at individual data zone level. We recommend using the online mapping tools to drill down into the detail of individual data zones.

When overall Waitomo is compared to the rest of New Zealand only health ranks better than the NZ median and these domains only just make it into the better category.

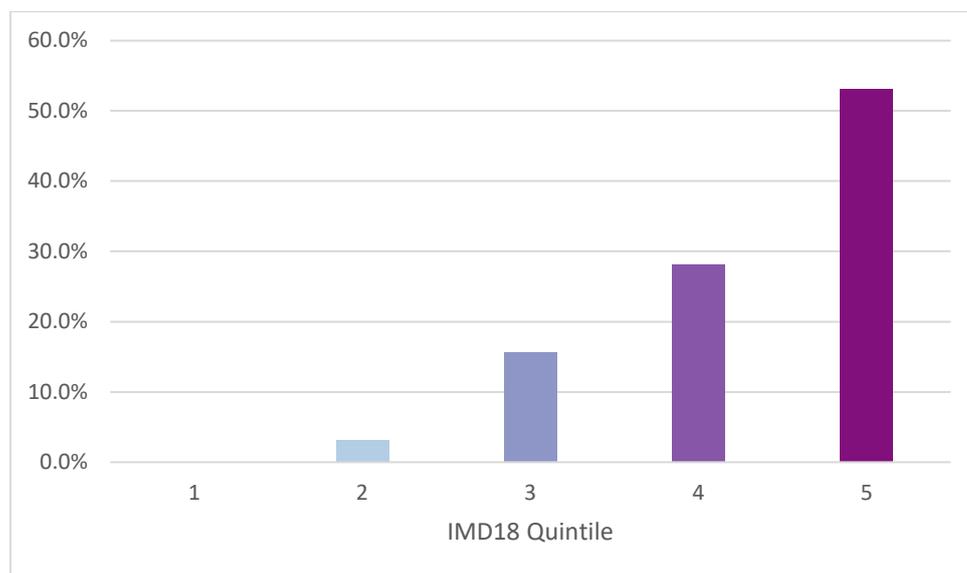
South Waikato District

Overall IMD18

Figure 48 shows the proportion of data zones in South Waikato that fall into each IMD18 deprivation quintile. If the deprivation circumstances were the same for all of NZ, we would see 20 per cent of South Waikato's 32 data zones in each quintile. A total of 53.1 per cent (17/32) of data zones were among the most deprived 20 per cent in NZ (Q5), while 0 per cent (0/32) were in the least deprived 20 per cent (Q1).

The South Waikato district has higher than average overall IMD18 deprivation, with 81.4 per cent (26/32) of its data zones either in Q4 or Q5.

Figure 48: Spread of data zones for South Waikato – Q1 to Q5 for overall IMD18



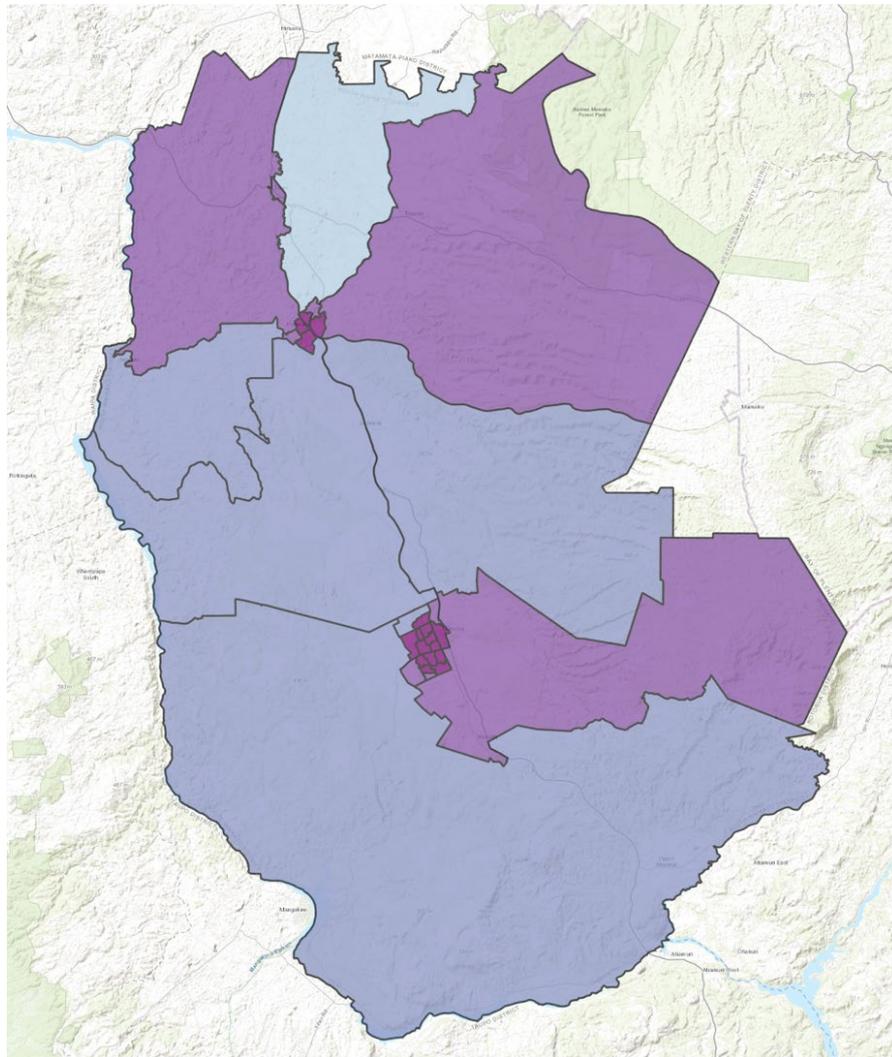
Spatial distribution of overall IMD18

A total of 54.7 per cent of the population live in the most deprived zones – Q5. Tokoroa and Putaruru are predominantly made up of Q5 zones. The nine highest Q5 zones are all located in Tokoroa. These zones are characterised by very high employment, income, and education deprivation.

These areas also have particularly high median deprivation rankings for Education (5989/6181), Employment (5968/6181) and Income (5632/6181) contributing to high overall deprivation.

Figure 49 shows the distribution of the data zones across the South Waikato district.

Figure 49: Distribution of overall IMD18 for Waitomo

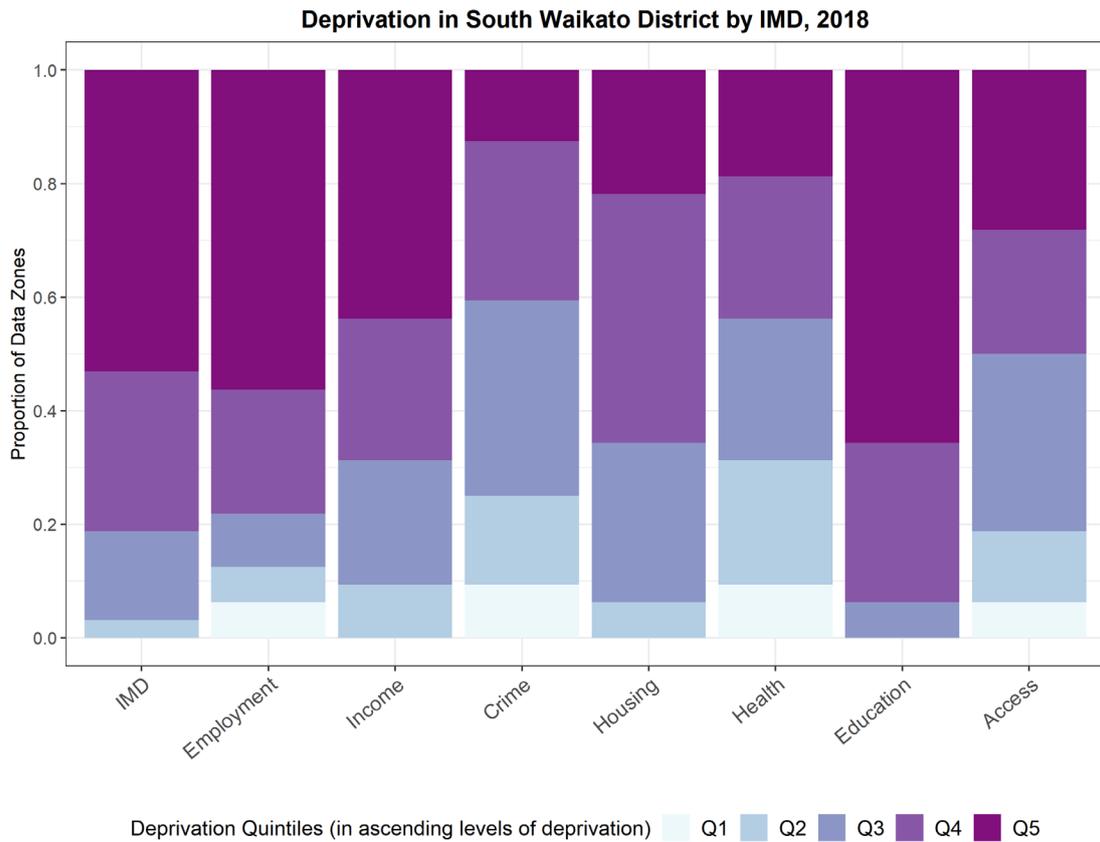


Individual Deprivation Domains

Figure 50 shows the proportion of IMD18 data zones in each deprivation quintile for the overall IMD18 and for each domain. Data zones are ranked from lowest to highest deprivation based on their overall IMD18 score. They are also ranked from lowest to highest deprivation for each specific domain.

Figure 50 shows that the proportion of data zones with Q5 crime and education deprivation was less than 20 per cent. Over 20% of zones rank within Q5 in terms of overall IMD18, employment, income, housing, education, and access deprivation.

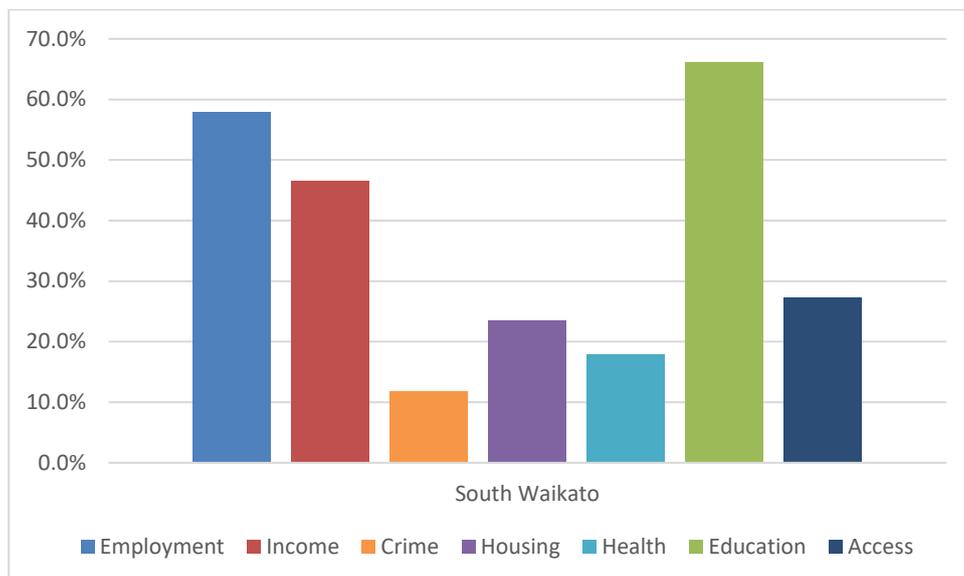
Figure 50: Deprivation quintiles for South Waikato – proportion of data zones



Population living in the highest deprivation zones

When we look at the proportion of the population that is living in areas that are in the highest deprivation for specific domains, we find that employment, education and income deprivation are the strongest drivers of deprivation in South Waikato.

Figure 51: Population living in the areas of highest deprivation on specific domains – South Waikato



Individual Deprivation Domains - Comparison with New Zealand median

Table 19 shows how the domains rank against the New Zealand median. When South Waikato is compared to the rest of New Zealand, we find that all domains are below the NZ median across all data zones. The factors that have the smallest impact are access, crime and housing. Employment and education are major drivers of deprivation followed by income and health.

Table 19: Median district deprivation ranking per domain – South Waikato

Domains	Median district deprivation rank per domain
Crime	3414, 5.2% (323 ranks) worse than the NZ median
Health	3442, 5.7% (351 ranks) worse than the NZ median
Access	3678, 9.5% (587 ranks) worse than the NZ median
Housing	3930, 13.6% (839 ranks) worse than the NZ median
Income	4662, 25.4% (1571 ranks) worse than the NZ median
Employment	5568, 40.1% (2477 ranks) worse than the NZ median
Education	5623, 41.0% (2532 ranks) worse than the NZ median

South Waikato Summary

The South Waikato district has higher than average overall IMD18 deprivation, with 81.4 per cent of its data zones either in Q4 or Q5. A total of 54.7 per cent of the population live in the most deprived zones – Q5. Tokoroa and Putaruru are predominantly made up of Q5 zones. These zones are characterised by very high employment, income and education deprivation.

When South Waikato is compared to the rest of New Zealand, we find that all domains are below the NZ median across all data zones. Employment and education are major drivers of deprivation followed by income and housing.

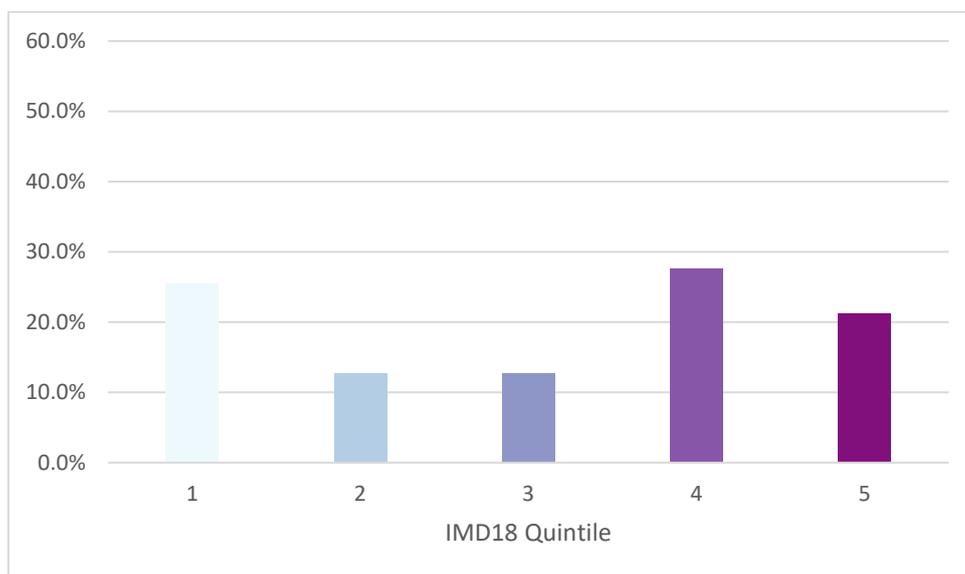
Taupo District

Overall IMD18

Figure 52 shows the proportion of data zones in Taupo that fall into each IMD18 deprivation quintile. If the deprivation circumstances were the same for all of NZ, 20 per cent of Taupo's 47 data zones would be in each quintile. A total of 21.3 per cent (10/47) of data zones were among the most deprived 20 per cent in NZ (Q5), while 25.5 per cent (12/47) were in the least deprived 20 per cent (Q1).

The Taupo district has lower than average overall IMD18 deprivation, with 49 per cent (23/47) of its data zones either in Q4 or Q5.

Figure 52: Spread of data zones for Taupo – Q1 to Q5 for overall IMD18



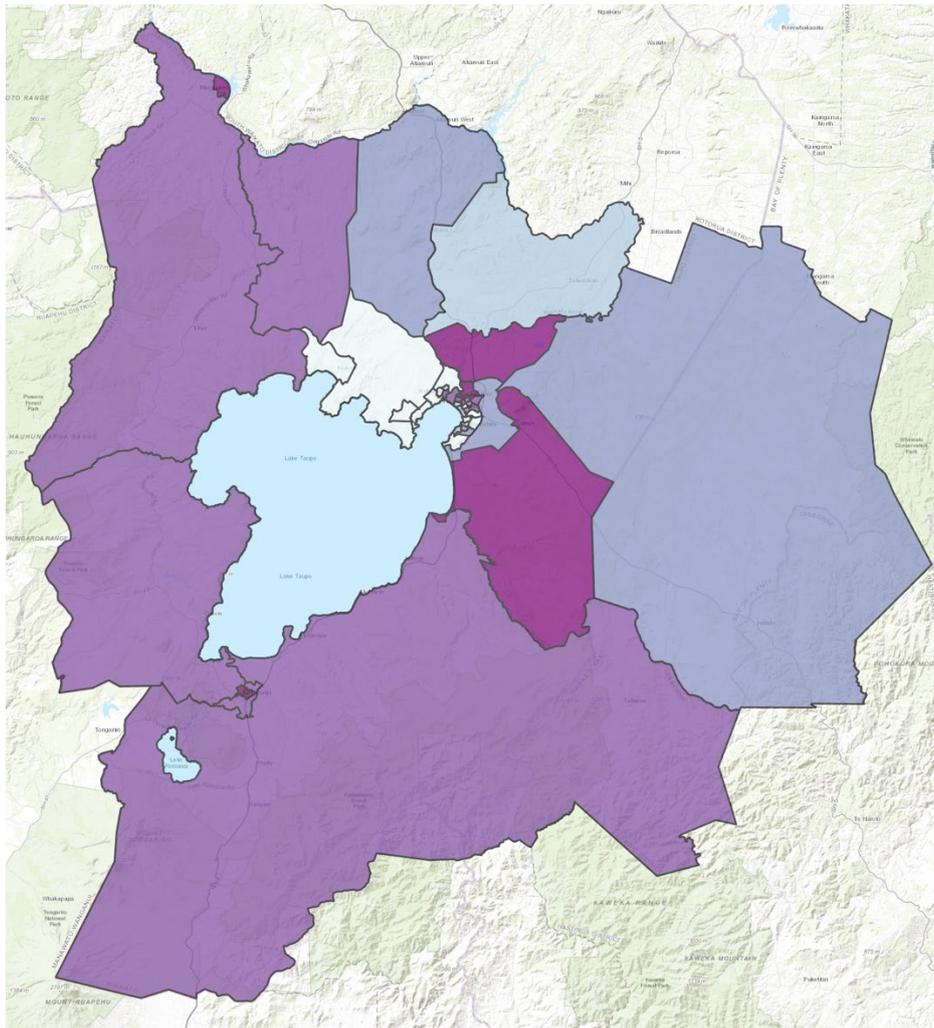
Spatial distribution of overall IMD18

A total of 18.9 per cent of the population live in the most deprived zones – Q5. Figure 53 shows the distribution of overall IMD18 Q5 zones for Taupo district.

The highest deprivation Q5 zones are located in Tauhara, Turangi, Waitahanui and Mangakino. The most deprived zone in the Taupo District is located in Mangakino. The rest of the Q5 zones are located in Taupo. The Q5 zones are characterised by Q5 levels of deprivation for employment, income, housing, health, and education.

The 11 data zones that are Q5 in the Taupo District have particularly high median deprivation rankings for Employment (5617/6181), Income (5549/6181), Health (5533/6181) Education (5476/6181) and Crime (5066/6181) contributing to their high overall deprivation.

Figure 53: Distribution of overall IMD18 for Taupo

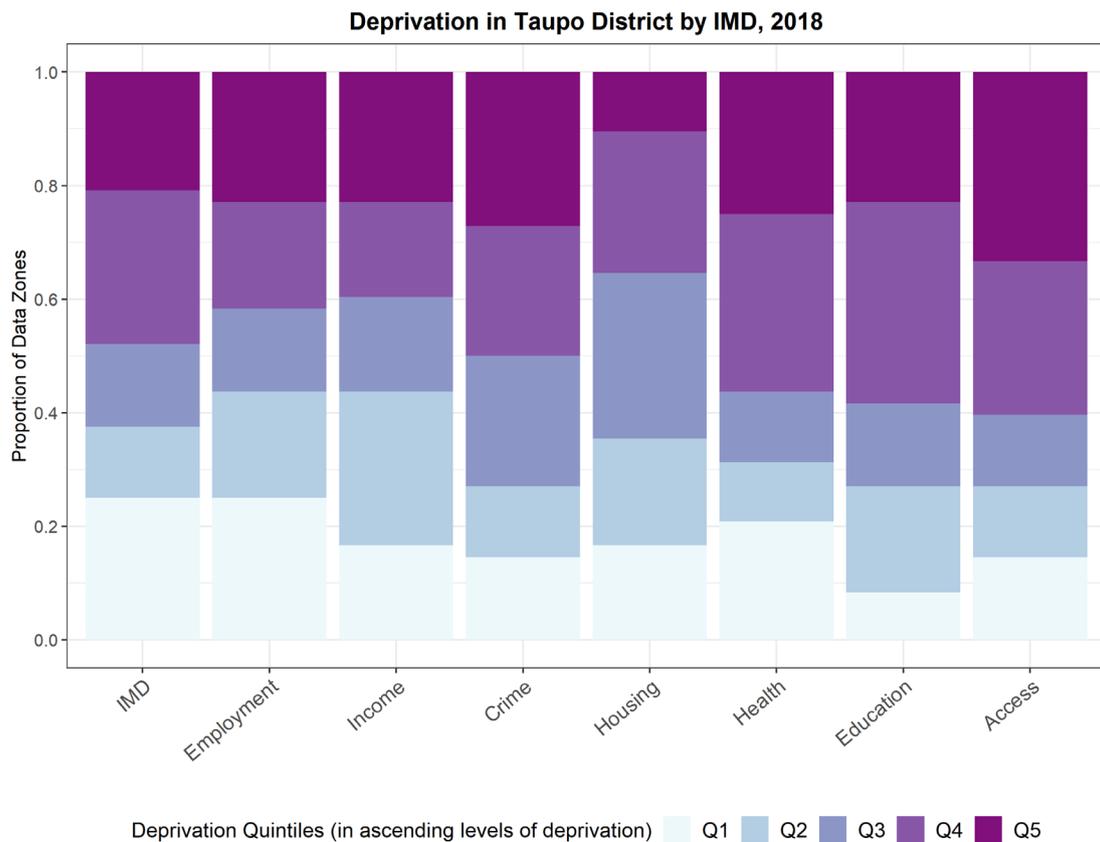


Individual Deprivation Domains

Figure 54 shows the proportion of IMD18 data zones in each deprivation quintile for the overall IMD18 and for each domain. Data zones are ranked from lowest to highest deprivation based on their overall IMD18 score. They are also ranked from lowest to highest deprivation for each specific domain.

Figure 54 shows that less than 20% of zones in Taupo District rank within Q5 for housing deprivation. Over 20% of zones rank with Q5 in terms of all other domains and overall IMD18.

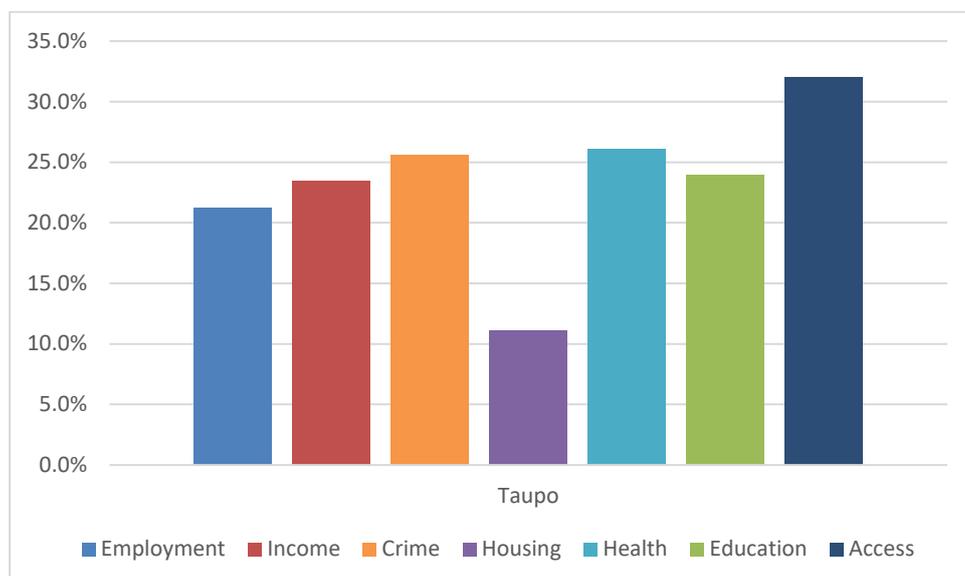
Figure 54: Deprivation quintiles for Taupo – proportion of data zones



Population living in the highest deprivation zones

When we look at the proportion of the population that is living in areas that are in the highest deprivation for specific domains, we find that access and education are the major drivers, followed by crime and income.

Figure 55: Population living in the areas of highest deprivation on specific domains - Taupo



Individual Deprivation Domains - Comparison with New Zealand median

Table 20 shows how the domains rank against the New Zealand median. When Taupo is compared to the rest of New Zealand, we find that employment and income ranks slightly better than the New Zealand median. The rest of the domains rank below the NZ median.

Table 20: Median district deprivation ranking per domain - Taupo

Domains	Median district deprivation rank per domain
Employment	2804, 4.6% (287 ranks) better than the NZ median
Income	2827, 4.3% (264 ranks) better than the NZ median
Housing	3247, 2.5% (156 ranks) worse than the NZ median
Crime	3744, 10.6% (653 ranks) worse than the NZ median
Education	3884, 12.8% (793 ranks) worse than the NZ median
Health	3894, 13.0% (803 ranks) worse than the NZ median
Access	4227, 18.4% (1136 ranks) worse than the NZ median

Taupo Summary

The Taupo district has lower than average overall IMD18 deprivation, with 49 per cent (23/47) of its data zones either in Q4 or Q5. A total of 21.3 per cent of the population live in the most deprived zones – Q5.

The major drivers in the most deprived zones in Taupo are employment, income, and crime.

7. Conclusions

This report has explored deprivation across the Waikato region in 2018 using two indices – the New Zealand Deprivation Index and the Index of Multiple Deprivation. The two indices provided different pictures of conditions in the Waikato, yet both indices demonstrate that the level of social-economic deprivation in the Waikato region is slightly worse than the New Zealand average. The next iteration of NZDep will be released following the 2023 Census, while the IMD may be updated again in 2022.

The NZ Deprivation Index (NZDep18) shows that the Waikato region ranks seventh for the most deprived region in NZ. Over the period 1991 – 2018 overall deprivation has improved at a sub-regional level for four districts (Waipa, Waikato, Thames-Coromandel, Taupo). Marginal increases in deprivation were seen in Matamata-Piako, Hamilton, Otorohanga and Hauraki districts. However, more substantial increases in deprivation were seen in South Waikato and Waitomo districts. In 2018, one Waikato district (South Waikato) ranked among the 12 most deprived districts in the North Island with more than 74 per cent of their population living in areas of NZ Dep quintile 5 deprivation. When both quintile 4 and quintile 5 are considered, three districts have over 70% of their population in high deprivation areas: Waitomo (100%), Hauraki (75.2%) and South Waikato (74.4%).

The Index of Multiple Deprivation (IMD) provides the ability to explore a wider range of deprivation drivers at a small area level within each district. This analysis has shown that the Waikato region is made up of very disparate communities. At the sub-regional level, no two communities have the same mix of deprivation drivers and there is no clear association between urban and rural setting and overall levels of deprivation or particular domains of deprivation.

Among the most deprived (Q5) areas, education appears to be a key driver across the region, with all districts except Waipa having over 20% of their population in areas of quintile 5 education deprivation. Disproportionately high levels of both employment and income deprivation are observed in six of 10 districts (Hauraki, Waikato, Hamilton, South Waikato, Waitomo and Taupo). Of these, four districts (Hauraki, Waikato, Hamilton, and Taupo) also have a disproportionately high proportion of their population in areas of high health deprivation. High levels of health deprivation are also observed in Matamata-Piako District and Otorohanga, though these areas do not have high levels of Q5 income and employment deprivation. Crime deprivation is disproportionately high in three districts (Thames-Coromandel, Hauraki and Taupo).

Overall, this report provides a simple assessment of deprivation across the Waikato region and demonstrates that the drivers of deprivation vary between districts. Place-based decision-making, which addresses the specific needs of a district, has the potential to enhance the gains from policies aimed at improving social outcomes.

Appendix 1 - Methodology

NZDep18 Index of Deprivation

The NZDep18 is a measure of socio-economic status for households and is based on nine variables. Analysis of the nine variables produce a component score for a single or a combination of Statistical Area 1 (SA1) areas. SA1 areas are geographical units that contain between 100 and 200 people. The ordinal form of NZDep18, derived from the component scores, ranges from 1 to 10, where 1 represents the tenth of areas with the least deprived scores, while 10 represents the tenth of areas with the most deprived scores.²⁹

NZDep18 combines nine variables from the 2018 census which reflect nine dimensions of deprivation. NZDep18 combines the following census data (calculated as proportions for each small area):

Dimension of deprivation	Description of variable (in order of decreasing weight in the index)
Communication	People aged <65 with no access to the Internet at home
Income	People aged 18-64 receiving a means tested benefit
Income	People living in equivalised* households with income below an income threshold
Employment	People aged 18-64 unemployed
Qualifications	People aged 18-64 without any qualifications
Owned home	People not living in own home
Support	People aged <65 living in a single parent family
Living space	People living in equivalised* households below a bedroom occupancy threshold
Living Condition	People living in dwellings that are always damp and/or always have mould greater than A4 size

*Equivalisation: methods used to control for household composition.

NZDep18 can be displayed as deciles or quintiles. Each NZDep18 quintile contains about 20 percent of small areas (meshblocks or census area units) in New Zealand.

- Quintile 1 represents people living in the least deprived 20 percent of small areas
- Quintile 5 represents people living in the most deprived 20 percent of small areas.

At a national level there are equal numbers of geographical units in each of the ten categories but at a sub-national level there can be clusters of low and high deprivation SA1

²⁹ Atkinson, J., Salmond, C., and Crampton, P. (2019). NZDEP2018 Index of Deprivation. Department of Public Health, University of Otago, Wellington; Division of Health Sciences, University of Otago.

in a region or district. An area's decile score does not necessarily mean all individuals living in that area experience an equivalent level of deprivation.

Data Limitations

It is difficult to compare changes in the level of deprivation across the region over time because of changes in meshblock boundaries and changes to some of the census variables used. The telecommunication variable used in previous versions of NZDep18 – no access to any phone at home – was dropped in 2013 and replaced by another telecommunication variable – no access to the Internet at home. The transport variable – people with no access to a car – was also dropped in 2018 and replaced with the Living Conditions variable. The Income variables have also been very slightly modified over time with changes to the Census questions.

Caution

- It is important to be aware that the NZDep Index is a proxy or partial measure.
- The index measures relative socio-economic deprivation, not absolute socio-economic deprivation, therefore 10 per cent of areas will always fall into the most deprived decile of NZDep18 scores.

Certain variables which are used in creating the index, such as 'no access to a car' or 'no access to the internet', may for some individuals be a lifestyle choice rather than a reflection of economic hardship. The authors of the NZDep18 caution that by definition 10 per cent of small areas will always fall into the most deprived group—irrespective of the absolute deprivation in those areas at that time, or the overall wealth of the country.

Index of Multiple Deprivation

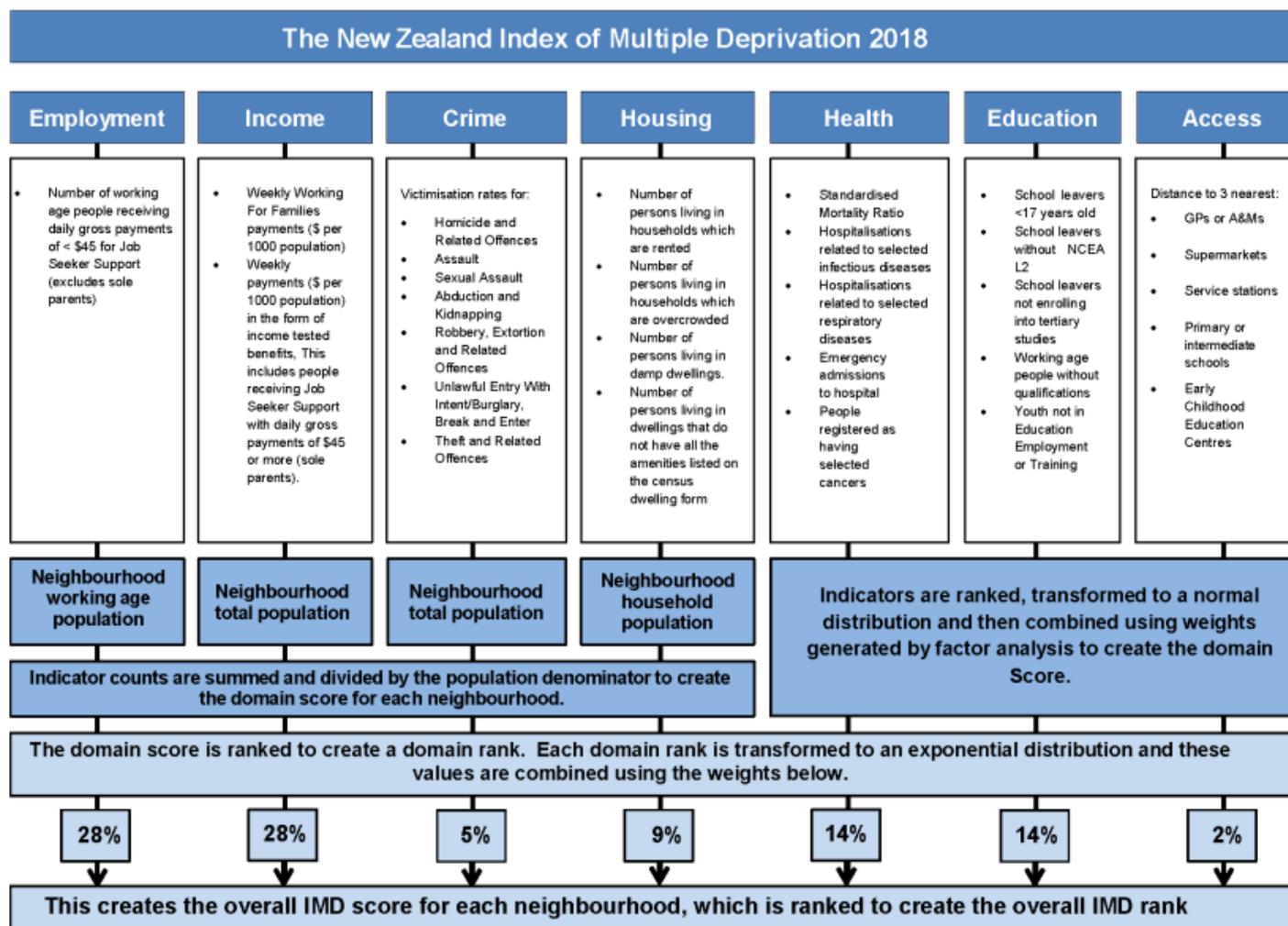
The New Zealand Index of Multiple Deprivation (IMD18) is a set of tools for identifying concentrations of deprivation in New Zealand. It measures deprivation at the neighbourhood-level in custom designed data zones that have an average population of 761. The IMD uses routinely collected data from government departments, census data and methods comparable to current international deprivation indices to measure different forms of disadvantage.

It is comprised of 29 indicators grouped into seven domains of deprivation: Employment, Income, Crime, Housing, Health, Education and Access to services. The IMD is the combination of these seven domains, which may be used individually or in combination to explore the geography of deprivation and its association with a given health or social outcome.³⁰

Figure 56 shows the IMD18's 29 indicators and seven domains with their weightings.

³⁰ The New Zealand Indices of Multiple Deprivation (IMD): A new suite of indicators for social and health research in Aotearoa, New Zealand Daniel John Exeter, Jinfeng Zhao, Sue Crengle, Arier Lee, Michael Browne

Figure 56 Developing the 2018 NZ Index of Multiple Deprivation: An overview of 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).



Disclaimer Statement

The results presented in this spreadsheet are not official statistics, they have been created for research purposes using data provided by government departments and agencies, and data extracted from the Integrated Data Infrastructure (IDI), managed by Statistics New Zealand.

The results presented in this report were developed by the author(s) not Statistics NZ, the University of Auckland, or the Waikato Regional Council.

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.