

Our people – Multidimensional wellbeing in New Zealand

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Executive summary

Background and approach

This paper sets out to measure and reflect the wellbeing of New Zealanders across different areas of their lives, as expressed in the Treasury's Living Standards Framework (LSF). We are publishing the paper alongside the first version of the LSF Dashboard, which the Treasury is developing to inform its policy advice. The analysis in the paper provides the basis for the Our People section of the Dashboard.

Reflecting the importance of the multidimensional nature of wellbeing, the paper presents estimates of wellbeing across multiple domains at the same time, assesses the extent to which these domains relate to each other, and looks at the distribution of wellbeing across these domains according to a set of key population demographic and socio-economic characteristics.

Levels of wellbeing are defined for nine of the 12 LSF current wellbeing domains: Subjective wellbeing, Civic engagement and governance, Cultural identity, Health, Housing, Income and consumption, Knowledge and skills, Safety, and Social connections. We were unable to calculate measures for the remaining three domains: Environment, Time use, and Jobs and earnings.

We define wellbeing for each LSF domain at both the high and low ends of the wellbeing spectrum, with the rest of the population described as having medium wellbeing on each domain. We also distinguish between descriptions of 'multidimensional wellbeing', where we examine all measured LSF domains at once, and a newly developed 'cross-domain wellbeing' measure; an aggregate measure that seeks to reflect a person's overall wellbeing across the continuum and across domains.

In the construction of our cross-domain wellbeing measure, we exclude the Subjective wellbeing domain, as we view this as representing an alternative proxy measure of overall (cross-domain) wellbeing. By incorporating both ends of the wellbeing spectrum in our analysis we capture both the risk and the resilience associated with aspects of people's overall wellbeing. We show that 'high' wellbeing in a domain can offset 'low' wellbeing in another domain, at least with respect to subjective wellbeing.

Measures are constructed using data from the NZ General Social Survey (GSS), undertaken biennially by Stats NZ since 2008. In this report, we use a combined dataset derived from the 2014 and 2016 survey years, giving a total sample of approximately 16,000 respondents. The use of a single survey instrument to construct measures of multidimensional wellbeing has the obvious advantage that the relationship between dimensions can be examined for the same group of people, providing insights into the way the different dimensions interact.

Measurement of wellbeing for some domains is more nuanced than for others, and likely to be more robust in reflecting the underlying concept of interest. In particular, Cultural identity wellbeing, and Knowledge and skills wellbeing, are not very well measured in this paper. Each of these measures reflects responses to a single question in the GSS, and could be seen as representing only one aspect of that domain.

High level results

Wellbeing on each of the measured LSF domains is associated with wellbeing on other domains to varying degrees. In general, Knowledge and skills has the weakest association with other domains. This does not mean education is not important for wellbeing, as it clearly shows a statistically significant association with many domains. Even though these may be weaker than in other areas, education may nevertheless be an important lever to improve wellbeing outcomes across a number of areas. It is particularly strongly associated with Income and consumption wellbeing, particularly for those aged under 65. Finally, the relatively weak association with other domains could reflect a weakness in the Knowledge and skills measure adopted¹, rather than the true absence of a relationship between the underlying LSF concept and broader wellbeing.

Most domains are independently associated with Subjective wellbeing, even when controlling for wellbeing in other domains and basic demographic characteristics. The exception to this is Knowledge and skills (as measured through qualification attainment), and Safety. Domains with particularly high associations with Subjective wellbeing are Health, Income and consumption, Civic and governance, and Cultural identity. We measure Civic and governance wellbeing using questions about the level of trust a person has with other New Zealanders and with institutions, while we define Cultural identity wellbeing according to how easy a person feels it is to 'be themselves' in New Zealand.

In this paper, we focus attention primarily on the individual domain measures, as we view these as being individually important for overall wellbeing. We also present a 'cross-domain wellbeing score' and 'cross-domain wellbeing groups', based on the different domain measures, however. These have the potential to complement Subjective wellbeing as measures of overall wellbeing. We exclude Subjective wellbeing from the construction of the score, but it has a strong association with that measure, reinforcing the validity of the new measure. In constructing the score, we weight each of the LSF domains equally, but this may not be appropriate in all situations, and more work is required to investigate alternative weighting approaches. The differing strength of the associations between Subjective wellbeing and other domains suggests some LSF domains could be weighted more highly than others if Subjective wellbeing is of primary concern.

Results by population group

Differences in multidimensional wellbeing (across individual domains), and cross-domain wellbeing (as a single constructed measure), were examined by sex, ethnicity, and age group, and in less detail for other selected population characteristics. A number of findings are of particular note.

- Women are more likely than men to have low cross-domain wellbeing. They are more likely to have low wellbeing on most domains, but particularly on the Safety domain. Women were much more likely than men to report feeling unsafe in a number of situations.

¹ Our measure is based solely on formal qualifications, measured very simply at either extreme according to whether someone has no qualification, or has a bachelor's degree or higher.

- The wellbeing of people over the age of 65 was better than that of younger people in both a multidimensional context, and using our cross-domain wellbeing measure. Older people were also much more likely to report high Subjective wellbeing (being satisfied with their life). The only areas where older people had worse wellbeing than younger people were in terms of their physical health, and their educational qualifications. Both of these measures had a weaker relationship with other wellbeing domains for older people than they did for younger people, however.
- Both Pacific people and Māori were more likely than other ethnic groups to experience relatively low cross-domain wellbeing. For Māori, the higher probability of low wellbeing was spread across most domains, while for Pacific peoples, low wellbeing was particularly concentrated in the material domains of Housing and Income and consumption. Both Pacific and Asian peoples were more likely to report not easily being able to be themselves in New Zealand (low Cultural identity wellbeing). For Asian people, in particular, the relationship between different domains of wellbeing was less strong than for other ethnic groups.
- Sole parents were particularly likely to experience low cross-domain wellbeing, as were people living in high-deprivation neighbourhoods. For sole parents, especially, this was also reflected in low Subjective wellbeing. Region and hours worked were also associated with differences in wellbeing to some degree. People under the age of 65 who were not working were more likely to have low wellbeing across most domains than other New Zealanders.

As the GSS was only administered to people aged 15 and over, the wellbeing of children is only able to be measured through the wellbeing of the adult respondent living in the same household as them. This was used to create child-weighted wellbeing measures. According to these measures, children were more likely than adults to live in households where a respondent reported low Housing and Income and consumption wellbeing; as well as, to a lesser degree, low Safety, and Social connections wellbeing. Overall, 23 percent of children lived in a household where the adult respondent had low or very low cross-domain wellbeing, compared to 18 percent of adults.

Next steps

This paper represents a starting point for measuring multidimensional wellbeing in New Zealand using the Living Standards Framework. More work is required to better understand the relationships uncovered, to provide better information about the wellbeing of children and young people, to improve the measures used in this paper, and to provide measures for the LSF domains that were not able to be included here. Future work is likely to continue to draw on the GSS, but also to complement it with other sources, including administrative sources collected in the Integrated Data Infrastructure (IDI).

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Our people – Multidimensional wellbeing in New Zealand

1 Introduction

The Treasury developed the Living Standards Framework (LSF) over a number of years as a way of measuring and understanding the impact government has on the wellbeing of New Zealanders. The LSF sets out a framework for intergenerational wellbeing, consisting of four 'capitals', representing future wellbeing, and 12 domains of current wellbeing. It builds on earlier wellbeing measurement approaches in New Zealand, such as the Ministry of Social Development's Social Report (see Ministry of Social Development, 2001).

Under the LSF, we view wellbeing as a multi-faceted concept, which is unable to be represented completely by a single measure. Consistent with this view, King et al. (2018) propose a dashboard-type approach to the measurement and monitoring of current wellbeing in New Zealand. King et al. further propose that the Treasury adopt the 11 domains from the OECD's 'How's Life?' report (OECD 2017) as the basis for its own Living Standards Framework wellbeing measures, with one additional domain representing Cultural Identity, reflecting the importance of the cultural dimension to wellbeing in New Zealand.

This paper is one of a number of supporting documents the Treasury is publishing in December 2018 alongside Version 1 of the LSF Dashboard (the Dashboard). We developed the analysis described in the paper for the Our People section of the Dashboard. The Our People section is person-focussed and describes the current wellbeing of New Zealanders across the multiple dimensions of the LSF.

Other sections of the Dashboard focus on key measures of change in wellbeing in New Zealand over time, compare New Zealand's outcomes with other countries, and look at the way wellbeing measures are changing for different population groups. The Our Country section looks at measures associated with the 12 current wellbeing domains, while the Our Future section looks at measures associated with the 4 capitals. Indicators for these sections were chosen through a public consultation process, following the publication of a discussion paper by wellbeing expert, Conal Smith (Smith 2018).

Smith (2018) notes the importance of looking at the joint distribution of wellbeing – understanding the extent to which advantage or disadvantage across multiple domains is concentrated amongst a small number of people, or spread throughout the population. In this paper, we seek to understand this joint distribution better, using the LSF as a guiding framework. Rather than looking at each domain in isolation, the analysis looks at:

- the extent to which people's wellbeing in a particular domain coincides with wellbeing in other areas
- the extent that individuals have different levels of wellbeing across multiple domains (ie, 'multidimensional' wellbeing), and

- the relationship between different population characteristics and wellbeing.

The analysis represents the Treasury's first attempt to measure and describe multidimensional wellbeing in New Zealand. The results are heavily dependent on the available data, and are both partial and preliminary. Findings should be treated with caution. The measures used in the report will be refined over time, following consultation and further research.

The analysis uses an aggregate dataset formed from the 2014 and 2016 New Zealand General Social Surveys (GSS), administered by Stats NZ. The GSS collects information from the population aged 15 years and over, and as such does not provide direct information on the wellbeing of children. Nevertheless, for some domains (for example, the Housing domain), responses from adults in the same household are likely to act as a proxy for the wellbeing of children. Classifying respondents according to family type allows us to indirectly, albeit partially, describe child wellbeing, while similar measures can be derived by weighting results according to the number of children in each household.

In addition, some LSF domains (such as Jobs and earnings) are less relevant to children than adults, while child wellbeing frameworks might incorporate other dimensions not directly captured by the LSF. For example, in the child wellbeing framework outlined in its 2009 report on child wellbeing, the OECD included dimensions related to 'Risk behaviours' and 'Quality of school life' (OECD 2009). This type of information is not collected in the GSS, and there are few robust alternative sources of such information for New Zealand.

The questions asked in the GSS impact on the framing of wellbeing in this paper. The GSS does not collect any data for some wellbeing domains, while it reflects other domains to varying extents. Some domain measures are objectively defined, while others are much more dependent on a respondent's subjective view, often due to the inherent nature of that domain.

Choices of categories of wellbeing and the aggregation of these categories across domains were also subjective exercises. Care was taken in the choices made, and these are outlined in detail. Nevertheless, different choices may have resulted in different results, and interpretation of results should be made with care, and cognisant of the definitions adopted.

The literature on wellbeing is vast, and this paper is not intended to provide a thorough review of the literature, however some specific references are made, where particularly relevant.

Section 2 describes the measurement of multidimensional wellbeing adopted in this report. Section 3 looks at the relationship between wellbeing on different LSF domains. Section 4 describes the multidimensional wellbeing of selected NZ population groups, while Section 5 discusses possible next steps.

Tables containing the numbers that underlie all of the graphs presented in this report are published separately on the Treasury website, and are available for download.

2 Measuring multidimensional wellbeing

2.1 Data and approach

2.1.1 Approach

The general approach we adopt in this paper involves classifying each person as having one of three levels of wellbeing for each LSF domain. These three levels of wellbeing are based on an assumption that a large proportion of the population are doing quite well on each domain, with a minority experiencing some level of difficulty, and a minority doing especially well. While this is to some extent an arbitrary decision, it does reflect the way people in NZ generally report satisfaction with their life. For example, in the 2012 GSS, 54 percent of people reported being satisfied with their life overall, while 33 percent were very satisfied, and the remaining 13 percent reported some level of dissatisfaction.²

We applied the labels ‘medium’, ‘low’, and ‘high’, respectively to these three states of wellbeing in each domain. In general, ‘low’ wellbeing reflects a respondent reporting at least one (or sometimes more than one) aspect of their life that is not going well in a particular domain. ‘High’ wellbeing, on the other hand, reflects a person reporting positively on every aspect of wellbeing measured for that domain.

Given that, in some cases, a large number of questions were asked with respect to a particular domain, it was a largely subjective process to select the questions to include for each domain, how to treat the different response categories, and how to combine the questions. It is important that all results are interpreted with the chosen definitions in mind. In some cases, different definitions could have produced very different results.

Definitions of levels of wellbeing are very different for different domains, represent these domains to differing degrees, and vary considerably in both the nature and number of the questions that underlie them. This means that comparisons across domains are unlikely to be meaningful. The fact that more people in NZ have low Social connections wellbeing than have low Civic engagement and governance wellbeing does not tell us that New Zealand has more of a problem with social connections wellbeing than civic engagement and governance wellbeing.

Rather than informing comparisons of wellbeing across domains, our wellbeing definitions are designed to facilitate comparisons across population groups, and to assess the extent to which the different domains relate to each other. Nevertheless, the results should be interpreted cautiously, and with the definitions that underlie each domain in mind.

² This group also includes those who said they were neither satisfied nor dissatisfied with their life.

We define measures of wellbeing for 9 out of the 12 LSF domains. As proposed in Smith (2018), we view subjective wellbeing primarily as a proxy measure of a person's general wellbeing across multiple domains, rather than capturing a specific aspect of wellbeing, as other domains do. As such, we treat it somewhat differently from other domains in this analysis. We include measures for the following domains:

- 1 Subjective wellbeing
- 2 Civic engagement and governance
- 3 Cultural identity
- 4 Health
- 5 Housing
- 6 Income and consumption
- 7 Knowledge and skills
- 8 Safety
- 9 Social connections.

Consistent with a view that wellbeing is inherently multidimensional; each LSF domain can itself be considered multidimensional. As such, classification of wellbeing for most domains is derived from multiple GSS questions, representing these different dimensions. We refer to these dimensions as wellbeing sub-domains. For some domains, it is not possible to define sub-domain wellbeing, either because a single question captures the domain fairly broadly, or because no questions are available to us that capture other dimensions of wellbeing for that domain.

This study adopts a similar approach to that used by Superu in its Family and Whānau research programme (Superu 2017), which looked at multiple disadvantage across New Zealand families, also using the GSS. The difference between our approach and the Superu work is primarily that:

- our focus was on the individual rather than the family,
- we used the Treasury's Living Standards Framework as the basis for our analysis,
- we endeavoured to measure and describe both ends of the wellbeing continuum ie, both advantage and disadvantage, and
- we made different decisions about both the domains to include or exclude from our work, and the way to treat them in the analysis.

2.1.2 Data

Results in this paper are derived from the General Social Survey, aggregated across the two most recent years, 2014 and 2016. Three earlier iterations of the GSS were undertaken between 2008 and 2012, but there was a significant re-design before the 2014 survey, and many questions were changed. As a result, there are some inconsistencies in the measures we are interested in, affecting the comparability over time.

We describe in detail the way wellbeing measures used in this paper are derived in section 2.2 below. Results in the paper are weighted to represent the (combined 2014 and 2016) New Zealand population aged 15 and over, and sampling errors take account of the complex sample design of the surveys.

Given our interest in the joint distribution of wellbeing, it is important that we have responses for all individuals to all wellbeing questions. As such, we exclude people from our analysis if they provided a 'don't know' or 'refused' response to any of these questions. This results in the exclusion of 5% of survey records. We do not adjust our weighting to account for this non-response.

We make comparisons for different population groups based on a number of broadly defined socio-demographic characteristics:

- Sex – Female and male: No other categories are collected in the GSS, nor is information collected on gender identity.
- Ethnicity – We report four broad ethnic groups. These are Asian, European, Māori, and Pacific. Due to small sample sizes, other ethnic groups are not reported, nor are more detailed breakdowns. Unlike other population breakdowns, people can report that they identify with multiple ethnic groups, and therefore be included in multiple categories.
- Age group – The population is broken up into three broad groups: 15 to 34, 35 to 64, and 65 years and over.
- Family type – We identify four family types: Couples with children, Couples without children, Sole parents, and people not living in a family nucleus (for example, people living alone, or in a flatting situation).
- Region – We report 6 broad regions, constructed by Stats NZ for GSS reporting. These are: Auckland; Northland, Bay of Plenty, and Gisborne; Wellington; Rest of North Island; Canterbury; and Rest of South Island.
- Area deprivation – Neighbourhood deprivation is calculated using the New Zealand Deprivation Index (NZDEP).³ We report NZDEP by quintile, representing the twenty percent of most deprived neighbourhoods in New Zealand through to the twenty percent of least deprived neighbourhoods.
- Hours worked – We report on the population according to the number of hours usually worked. For the 65 years and over population, we report whether people are working or not. For the population aged 15 to 64 we report on whether they are not working, working part-time (fewer than 30 hours per week), working full-time (30 to 49 hours per week), or working long hours (50 or more hours per week).

Table 1 shows the percentage of the population in each group defined according to these characteristics.

³ We used NZDEP 2013 in this study. See Atkinson et al. (2014) for more information.

Table 1: Population distribution by selected characteristics, 2014/2016 GSS

| Population characteristic | Population group | % of adult population |
|---------------------------|------------------------------------|-----------------------|
| Sex | Female | 51.6 |
| | Male | 48.4 |
| Age group | 15 to 34 years | 32.6 |
| | 35 to 64 years | 49.2 |
| | 65 years and over | 18.2 |
| Ethnic group | Asian ethnicity | 12.4 |
| | European ethnicity | 73.6 |
| | Maori ethnicity | 12.5 |
| | Pacific ethnicity | 6.5 |
| Family type | Couple with children | 40.5 |
| | Couple without children | 30.5 |
| | Not in a family nucleus | 19.6 |
| | Sole parent | 9.5 |
| Hours worked | Under 65 not working | 18.4 |
| | Under 65 working part-time | 12.8 |
| | Under 65 working full-time | 38.2 |
| | Under 65 working long hours | 11.9 |
| | Over 65 not working | 13.5 |
| | Over 65 working | 4.5 |
| | Missing | 0.7 |
| NZDEP quintile | Quintile 1 (least deprived) | 22.6 |
| | Quintile 2 | 20.2 |
| | Quintile 3 | 19.3 |
| | Quintile 4 | 20.1 |
| | Quintile 5 (most deprived) | 17.6 |
| | Missing | 0.2 |
| Region | Northland, Bay of Plenty, Gisborne | 10.5 |
| | Auckland | 34.0 |
| | Wellington | 11.1 |
| | Rest of North Island | 20.3 |
| | Canterbury | 13.2 |
| | Rest of South Island | 10.8 |

2.2 Wellbeing measures by domain

We constructed measures for 9 of the 12 LSF current wellbeing domains, using questions asked in the 2014 and 2016 GSS surveys. Each domain has different measurement challenges, and this study represents our first attempt at summarising the joint distribution of people's wellbeing at both ends of the scale. This section describes the decisions made for each domain represented in the analysis. Section 2.2.1 describes the way the GSS was used to measure each domain, outlining the questions used to define these measures. Section 2.2.2 then describes the LSF domains which were excluded from our analysis, and outlines the reasons why they were excluded. Finally, section 2.2.3 provides detailed definitions of wellbeing for each domain and sub-domain, and presents estimates of the population distribution according to the resulting measures.

2.2.1 Included dimensions of wellbeing

Nine domains of wellbeing were included in our analysis, as described below.

Civic engagement and governance

Smith (2018) notes that Civic engagement and governance wellbeing “is concerned with quality of government, procedural fairness and how these affect people’s ability to participate in society, make choices about their lives and live with dignity”. Where people are treated unfairly by others in society, or by institutions, trust may be eroded, people may have more limited opportunities to achieve high wellbeing, and they may feel marginalised from society. We use a number of questions from GSS on people’s trust of other New Zealanders (‘generalised trust’), and their trust in institutions such as parliament and the police to define our measure of Civic engagement and governance wellbeing.

Civic engagement wellbeing can also be measured through people’s reported participation in, or valuing of, civic or political processes, such as voting. Voting questions were asked in most GSS survey years, but not in 2014, and we do not use these questions in this analysis.

Cultural identity

Cultural identity wellbeing is not represented as a separate domain in the OECD’s ‘How’s Life?’ framework. However, we consider it as particularly important to wellbeing in New Zealand, given both the multicultural nature of New Zealand society, and the unique place Māori culture has in New Zealand, with the Crown’s associated obligations under Te Tiriti o Waitangi/The Treaty of Waitangi. The protection of Māori culture and language is an important aspect of cultural wellbeing for New Zealand, but for the most part has not been captured well in GSS. In 2016, a number of questions were asked in the GSS about Māori language and culture, and the perceived value of Māori culture for New Zealand. Even with these questions, it could be argued that they reflect the broader wellbeing of society better than the wellbeing of the individuals being surveyed.

Two broader aspects of Cultural identity wellbeing are the extent to which a person feels free to be themselves and to be accepted in New Zealand, and the extent to which a person feels a sense of belonging to the country. The first of these questions was asked in both 2014 and 2016, and forms the basis of our cultural identity wellbeing measure, while the latter question was asked in 2016, and in earlier years, but not in 2014, and is not used in this report.

Health

We defined both mental health and physical health measures using the SF-12 health screening questions⁴ administered in the 2014 and 2016 GSS survey years. These 12 questions result in scores from 0 to 100 for both mental and physical health. Note, however, that the SF-12 has not been included in the 2018 GSS. This is likely to disrupt our ability to measure Health wellbeing when we update this analysis after 2018 GSS data becomes available.

⁴ See Ware et al. 1996 for more detail about the derivation of the SF-12. SF-12 questions used in the GSS are given in Appendix 1.

Housing

Housing wellbeing incorporates both availability and quality dimensions, and questions asked in the GSS reflect both of these aspects to different degrees. Quality measures can be derived from questions about the extent to which a respondent's house is cold, mouldy, or in need of urgent maintenance. The availability of housing is captured to some extent through questions about the number of people and bedrooms in the house, allowing a measure of crowding to be developed.⁵ We construct a classification of overall housing wellbeing based on a combination of these questions.

Income and consumption

Income information is collected in the GSS at both an individual and household level. This means that we can derive measures of both personal income and household income.⁶ In recommending indicators for the Income and consumption domain of the LSF⁷, Smith (2018) suggested two measures of disposable income, however income is only collected in broad bands in the GSS, and disposable income cannot be easily and accurately calculated. Income bands introduce error in the estimation of income, which is magnified when aggregating to a household level. This limits the usefulness of GSS-derived income measures as indicators of wellbeing.

An alternative set of questions are also asked in GSS that relate to respondents' non-income material wellbeing. A set of 9 questions are used to calculate the short-form Material Wellbeing Index (or MWI-9), as described in Perry (2015). These questions were asked in both the 2014 and 2016 GSS survey years, replacing the Economic Living Standards Index (ELSI) short-form questions asked in earlier survey years. Perry describes the MWI as measuring "the actual day-to-day living conditions of households in terms of the basics of food, clothing, accommodation, heating, and transport, and more widely in terms of their ability to maintain or replace broken household appliances, purchase desirable non-essentials, cope with unexpected demands on the household budget, and so on".

We use the MWI-9⁸ as the basis for the classification of Income and consumption wellbeing in this paper, alongside responses to a question asking about the sufficiency of respondents' income to meet their everyday needs.

Knowledge and skills

Having good knowledge and skills makes both a direct contribution to a person's wellbeing, and an indirect contribution, through enabling them to achieve good wellbeing in other areas of their lives. The GSS asks about a respondent's formal qualifications, but does not capture the knowledge and skills they acquire informally, either in the workplace, or in their general life outside of formal work and education. While formal qualifications are a useful proxy measure of knowledge and skills, particularly with regard to a person's success in the labour market, it is likely to be an imperfect measure at best for the purpose of measuring wellbeing across all dimensions of knowledge and skills.

⁵ We adopt the Stats NZ measure of household crowding, which is calculated using the Canadian National Occupancy Standard. See Goodyear et al. (2011) for more information.

⁶ Including equivalised measures that take into account the size of the household.

⁷ At the time of publication, the domain was referred to as the 'Material standard of living' domain.

⁸ The 9 questions used in the calculation of the MWI-9 are given in Appendix 1.

Unlike some other domains, the knowledge and skills domain is an exclusively objective measure. It may not be as closely related to domains which are more subjectively defined. In earlier GSS survey years people were asked about their satisfaction with their knowledge, skills and abilities, providing a more subjective alternative measure of Knowledge and skills wellbeing. This question has the potential to supplement information about formal qualifications, however the question has not been asked since 2012, and was not available in the 2014 or 2016 GSS surveys.

Social connections

Social connections are a source of resilience, as well as being a contributor to wellbeing in their own right. While there is no single accepted definition of social connectedness, the literature commonly identifies three important aspects (see Frieling 2018). These are: socialising, or the wellbeing we gain as social beings from interacting positively with others; social support, covering the help people receive, or are able to call on in times of need from people in their social network; and sense of belonging, representing the wellbeing people gain from the feeling of being part of a social group.

The GSS captures these aspects of wellbeing to varying degrees across survey iterations. The 2014 iteration was the first to contain a specific module relating to social connections, and asked very detailed questions, while the earlier and later surveys included a smaller subset of questions. There were some differences in the way questions about social connections were asked in the 2014 and 2016 surveys, however these do not appear to have affected the results in any meaningful way.⁹

For the purpose of this analysis, we focus on three question areas: loneliness, which provides information on people's sense of belonging; satisfaction with the amount of social contact respondents have with family and friends, reflecting people's wellbeing from socialising, and a sense of their social support network; and perceived discrimination, reflecting social exclusion. Future work could look to incorporate additional questions, particularly relating to people's social supports, either received, or perceived to be available to them.

Safety

Being safe from crime, abuse and violence, both physical and mental, are critical to good wellbeing. Feeling unsafe can also compromise wellbeing, whether the threat is real or perceived. If someone feels unsafe, this can affect their wellbeing both directly and indirectly, through its impact on the choices they make in their lives. As Smith (2018) notes, measures of safety and security need to capture both actual victimisation, as well as perceptions of safety. We use a number of questions from the GSS to derive our Safety wellbeing classification, including; questions about respondents' perceptions of safety in various situations; whether they have been a victim of crime in the last year; and problems with crime in their neighbourhood, reflecting the potential risk of victimisation.

⁹ The same is not true of questions related to the frequency of contact with friends and family. The 2014 results for these questions do not appear to be comparable with other years' results.

Subjective wellbeing

The wellbeing literature often identifies three key aspects of subjective wellbeing (Dolan and Metcalfe 2012). The first of these, evaluation, reflects people's satisfaction with their life, or aspects of their life; the second, experience, also referred to as affect, reflects a person's emotional state or mood; while the third, eudemonia, reflects a person's sense of purpose. For the purposes of this study we explored measures of both evaluation (general life satisfaction) and eudemonia (sense of purpose or whether 'life is worthwhile'). In the end we focussed on the former as our sole measure of subjective wellbeing, both for the sake of simplicity, and because results for the sense of purpose measure were similar in most cases to results for life satisfaction.

2.2.2 Excluded dimensions of wellbeing

Three LSF wellbeing domains were not included in our analysis. These are Jobs and earnings, Environment, and Time use.

Jobs and earnings

Jobs are a key dimension of wellbeing for many people. As noted in Smith (2018), access to a job is "fundamental to people's ability to shape their lives, both because of the role of jobs as a source of income, and because of their link to people's identity, social networks, skills and self-esteem". Nevertheless, many people make a choice not to do paid work, for a wide range of reasons, including: because they have retired and no longer wish to work; because they are studying and are not ready to enter the labour market; or because they make a choice to take on a caring role or other unpaid work.

We consider wellbeing in the Jobs and earnings domain to encompass both job availability and job quality. In the context of individual wellbeing, job availability represents a person's ability to work if they wish to work, while job quality encapsulates a person being safe, happy and fulfilled in their job. An example of a potential measure from the GSS is as follows.

- High wellbeing – Respondent reports having worked in the last four weeks and being 'very satisfied' with their job.
- Medium wellbeing – Respondent reports working and being 'satisfied' or 'neither satisfied nor dissatisfied' with their job; or reports not working and either not looking for work, or not being available for work.
- Low wellbeing – Respondent either reports being 'dissatisfied' or 'very dissatisfied' with their job, or being unemployed.¹⁰

We exclude Jobs and earnings from our analysis of multidimensional wellbeing for two main reasons. The first is that Jobs and earnings wellbeing (at least insofar as we can measure it) is not necessarily of similar importance to all people in the population. Most people in the over 65-year-old population would be neither classified as having high nor low wellbeing using the measure as defined above. Secondly, the GSS does not allow us to construct a measure of individual Jobs and earnings wellbeing that is particularly nuanced. A person who is not working and not actively seeking work, but would like to be working, will be considered to have 'medium' rather than 'low' Jobs wellbeing according to the definition described above.

¹⁰ A respondent is considered to be unemployed if they have not worked in the last four weeks, have looked for a job in the last four weeks, do not have a job they will start in the next four weeks, and were available for work if a job had been available.

Environment

While environmental wellbeing is of great importance to New Zealand and New Zealanders, measuring it at an individual level is challenging. In particular, questions of direct relevance to environmental wellbeing were only asked in the 2008, 2010, and 2012 GSS survey years, and no data is available for 2014 or 2016. In these earlier survey years questions related to respondents' access to natural spaces, such as forests, rivers and lakes, and their satisfaction with these spaces. A physical environment module forms part of the 2018 GSS (Stats NZ 2018), however this may not allow us to measure individuals' wellbeing on the Environment domain.¹¹

Time use

The concept of Time use wellbeing was not captured well in the 2016 GSS. While some questions about quality time with family were asked in 2014, they were not repeated in 2016. Long work hours are measured and could reflect lack of time for leisure and recreation, however this is not likely to be a consistent and reliable measure of Time use wellbeing for individuals. None of the questions asked in the 2016 survey enable measures to be derived that are relevant to the entire population (some people do not work, but may not have easy access to leisure activities, while others do not have a spouse or children). Time use is also not covered in the 2018 GSS, but will be an area of focus for the 2020 survey.

2.2.3 Wellbeing domain and sub-domain definitions

As discussed above, for some domains we are able to identify and measure more than one aspect of wellbeing within that domain. Where this is the case, we define sub-domains that reflect these different aspects. While most of the analysis in this report is concentrated at the domain level, we also report on sub-domain wellbeing to a more limited degree. We constructed measures of wellbeing for sub-domains where they were easily identifiable from the data and conceptually distinct. Table 2 defines wellbeing for each domain and sub-domain. In almost all cases, where a domain has more than one sub-domain:

- we consider a person as having low wellbeing on that domain if they have low wellbeing for any of the sub-domains
- we consider a person as having high wellbeing on that domain if they have high wellbeing for all of the sub-domains.

The exception to this is the Safety domain, where the sub-domains each have relatively high low wellbeing prevalence. In this case, we consider a person to have low domain wellbeing if they have more than one sub-domain with low wellbeing.

¹¹ The 2018 content differs from that used in 2008-2012 surveys. The focus of questions is on 'sustainable living behaviours', 'perceived environmental issues', and 'participation in environmental projects'.

Table 2: Definitions of wellbeing by LSF domain using 2014 and 2016 GSS

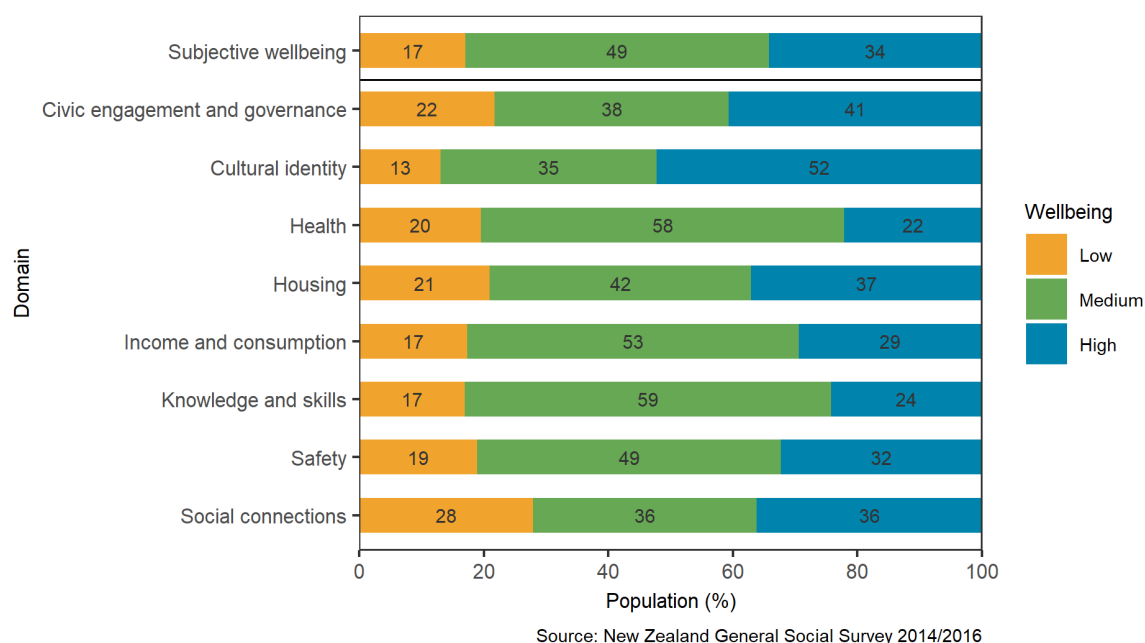
| Domain | Sub-domain | Low wellbeing | Medium wellbeing | High wellbeing |
|------------------------|-------------------------------------|--|--|---|
| Subjective wellbeing | Life satisfaction | General life satisfaction 0-6 out of 10 | General life satisfaction 7-8 out of 10 | General life satisfaction 9-10 out of 10 |
| Income and consumption | Material wellbeing | Material wellbeing index (MWI-9) of 0-7 | MWI-9 of 8-17 | MWI-9 of 18-20 |
| | Income sufficiency | Not enough money to meet everyday needs | Only just enough money to meet everyday needs | Enough or more than enough money to meet everyday needs |
| Health | Mental health | <36 on SF-12 mental health index | 37-53 on SF-12 mental health index | >54 on SF-12 mental health index |
| | Physical health | <36 on SF-12 physical health index | 37-53 on SF-12 physical health index | >54 on SF-12 physical health index |
| Housing | Condition | Immediate repairs or maintenance needed | Some repairs or maintenance needed | Only minor repairs or maintenance needed |
| | Mould problem | Major dampness or mould problem | Minor dampness or mould problem | No dampness or mould problem |
| | Cold problem | House always too cold in winter | House sometimes or often too cold in winter | House never too cold in winter |
| | Crowding | Bedrooms needed | N/A | No bedrooms needed |
| Knowledge and skills | Qualifications | No qualification | School or lower level tertiary qualification | Bachelor's degree or higher |
| Social connections | Loneliness | Lonely most or all of the time | Lonely a little or some of the time | Never lonely |
| | Friend and family contact | Not enough/too much contact with friends or family | Right amount of contact with friends or family, but not both | Right amount of contact with friends and family |
| | Discrimination | Discriminated against in past year | N/A | Not discriminated against in past year. |
| Safety | Feeling unsafe | Feels unsafe at home alone at night, walking home after dark, using public transport, or doing online transactions | Does not feel unsafe in any listed situation, nor safe in all situations | Feels safe in all listed situations |
| | Victim of crime | Victim of crime in past year | N/A | Not a victim of crime in past year |
| | Neighbourhood crime | Problem with vandalism, burglaries, assaults, harassment or drugs in neighbourhood | N/A | No problem with vandalism, burglaries, assaults, harassment or drugs in neighbourhood |
| Civic and governance | Trust in people | Trust in most people in NZ 0-4 out of 10. | Trust in most people in NZ 5-6 out of 10 | Trust in most people in NZ 7-10 out of 10 |
| | Trust in institutions ¹² | Low trust in more than one out of five institutions (0-4 out of 10) | Low trust in fewer than two and high trust in fewer than four institutions | High trust in at least four out of five institutions (7-10 out of 10) |
| Cultural identity | Able to be yourself in NZ | Very hard, hard, or sometimes easy, sometimes hard | Easy | Very easy |

¹² Institutions included are the courts, education and health systems, parliament, and police.

In a few cases, we define sub-domains in a binary way, as, for example, with discrimination, or being a victim of crime. In these cases, we are unable to define three wellbeing categories, and instead report wellbeing as being either low or high, excluding the medium category.

The distribution of wellbeing in the adult population by LSF domain according to these definitions is shown in Figure 1, while Figure 2 gives a greater level of nuance in understanding sub-domain wellbeing in the Civic and governance, Health, Housing, Safety, and Social connections domains.

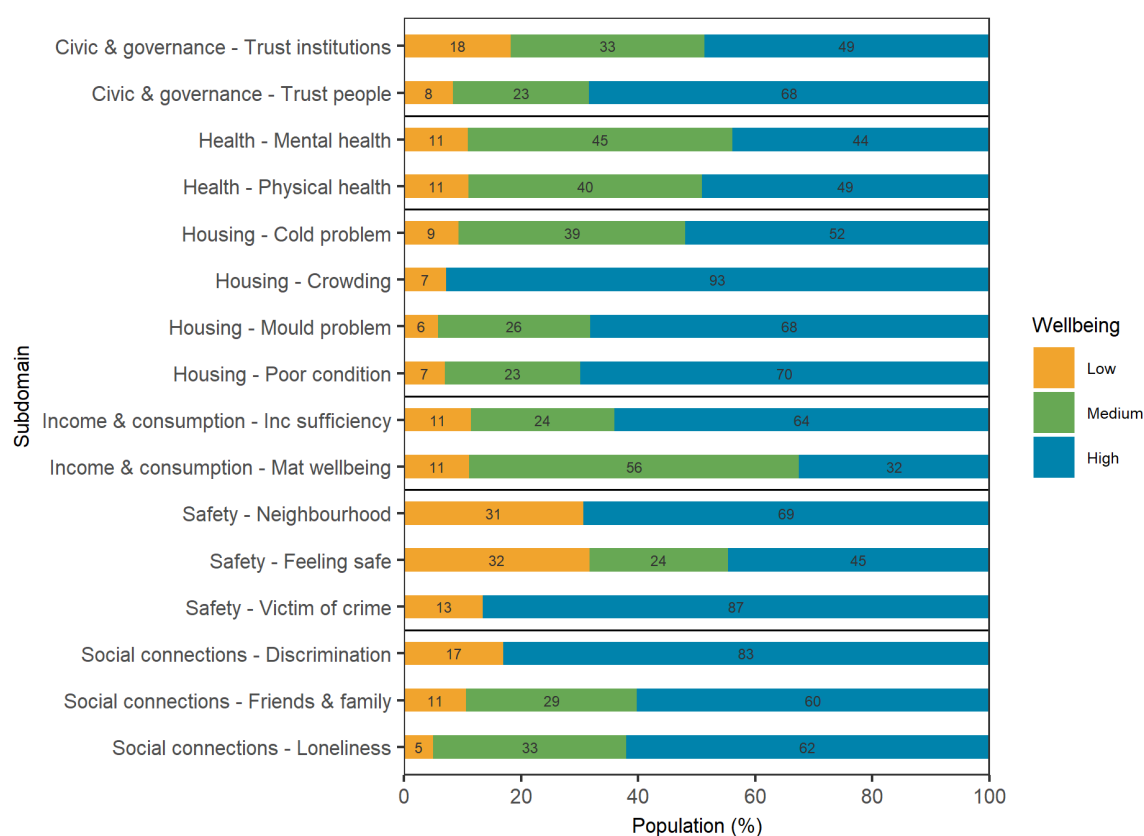
Figure 1: Estimated wellbeing of the NZ population aged 15 and over by LSF domain



As Figure 2 illustrates, we were only able to define some sub-domains in a binary way due to the nature of the questions asked. These domains were classified as 'low' or 'high'. More generally, a far greater proportion of the population are classified as having 'high' subdomain wellbeing at the sub-domain level than at the domain level, and considerably fewer people are classified as having 'low' subdomain wellbeing.

As outlined earlier, the varying nature of the questions used to define wellbeing for the different domains means that levels of wellbeing across the different domains are not directly comparable. Instead, we use them as a means to investigating the relationships between the domains (section 3), and to exploring differences in wellbeing across domains for different population groups (section 4).

Figure 2: Estimated wellbeing of the NZ population aged 15 and over by LSF sub-domains



Source: New Zealand General Social Survey 2014/2016

2.3 Measuring overall wellbeing across domains

An important aspect of multidimensional wellbeing is the extent to which the same people have wellbeing at either end of the spectrum on multiple domains. One approach to measuring this 'overall wellbeing' is to use people's self-reported subjective wellbeing, however there are concerns about such measures.¹³ Subjective wellbeing provides an important assessment of overall wellbeing, as it allows individuals to apply their own implicit weighting to the different areas of their lives. Nevertheless, concerns around its measurement caution against an over-reliance on Subjective wellbeing as the only measure of interest to policy-makers. For this reason, it is useful to consider a complementary alternative measure of overall wellbeing.

We define a 'cross-domain wellbeing' measure to provide such an alternative. Given our view of Subjective wellbeing as a proxy for overall wellbeing, we exclude it from our cross-domain wellbeing measurement and focus our analysis on the eight individual domains outlined above. Subjective wellbeing then provides a useful independent test of our measure, as discussed below.

To begin with, we simply add up the number of domains that each person has with low wellbeing, and the number of domains they have with high wellbeing. This gives a score of 0 to 8 for each person for both low and high wellbeing. Figure 3 below shows the number of people who have each combination of domains in high or low wellbeing, the size of the bubble representing the estimated number of people in the population with that combination.

¹³ Two commonly cited criticisms of subjective wellbeing are the extent to which it is influenced by expectations, which can vary across different age, cultural, and socio-economic groups (see, for example, Duncan 2005), and adaptation, whereby life events that affect subjective wellbeing are followed by an adjustment which offsets the impact of the event (see, for example, Lucas 2007).

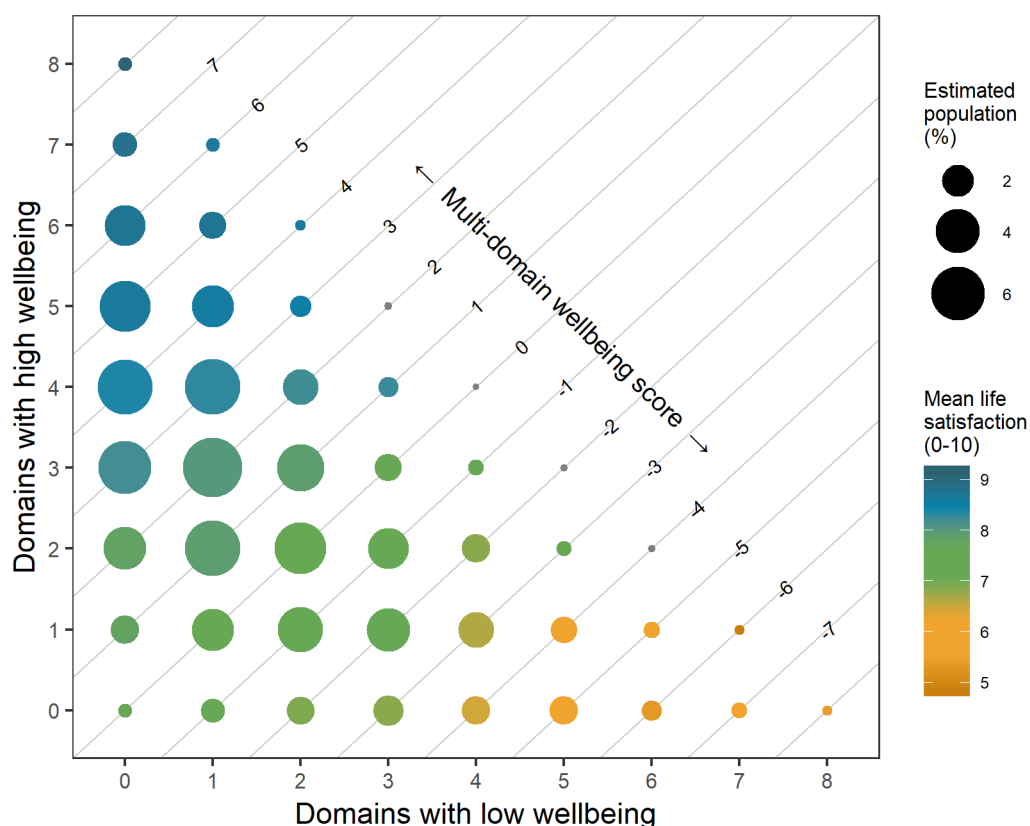
Around half of the population have 2 to 4 domains with high wellbeing, and 0 to 2 domains with low wellbeing.

The bubbles are shaded to show the mean general life satisfaction (our main subjective wellbeing measure) of the population with that combination of wellbeing domains. The higher in the graph a bubble lies (representing more domains with high wellbeing), the better the average subjective wellbeing of that population. The further right you go on the graph (representing more domains with low wellbeing), the worse the subjective wellbeing of that population.

Given an assumption that having high wellbeing in a domain might be an indicator of resilience that could counteract the negative impact of low wellbeing in another domain, we propose a simple netting out of the low wellbeing from the high. A simple subtraction of the score on the x-axis from the score on the y-axis then gives us a 'cross-domain wellbeing' score from -8 to 8, as indicated by the diagonal lines in Figure 3.

It is also clear from the graph that the shading of the bubbles on each diagonal are reasonably consistent with each other. This suggests that an additional domain in low wellbeing does seem to be largely cancelled out by an additional domain in high wellbeing (as we assume above), at least with respect to its impact on Subjective wellbeing. On average, a person with high wellbeing in zero domains and low wellbeing in zero domains has similar subjective wellbeing to a person with high wellbeing in 3 domains and low wellbeing in 3 domains.

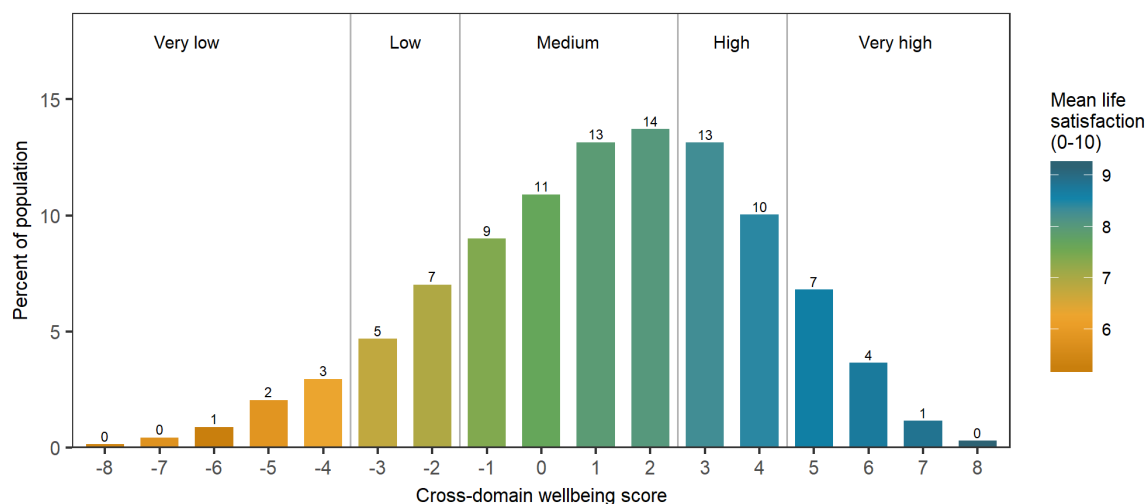
Figure 3: Number of domains with high and low wellbeing by mean life satisfaction score



Source: New Zealand General Social Survey 2014/2016
Diagonal lines indicate multi-domain wellbeing scores.

The population distribution of the cross-domain wellbeing score derived in this way is shown in Figure 4. Because of the specification of wellbeing domains above, where somewhat more people have high wellbeing than low wellbeing, the graph is skewed to the left, with fewer people reporting multiple domains in low wellbeing than report multiple domains in high wellbeing. As we would expect from Figure 3 above, people with higher cross-domain wellbeing also report higher life satisfaction on average.

Figure 4: Distribution of the population by cross-domain wellbeing score



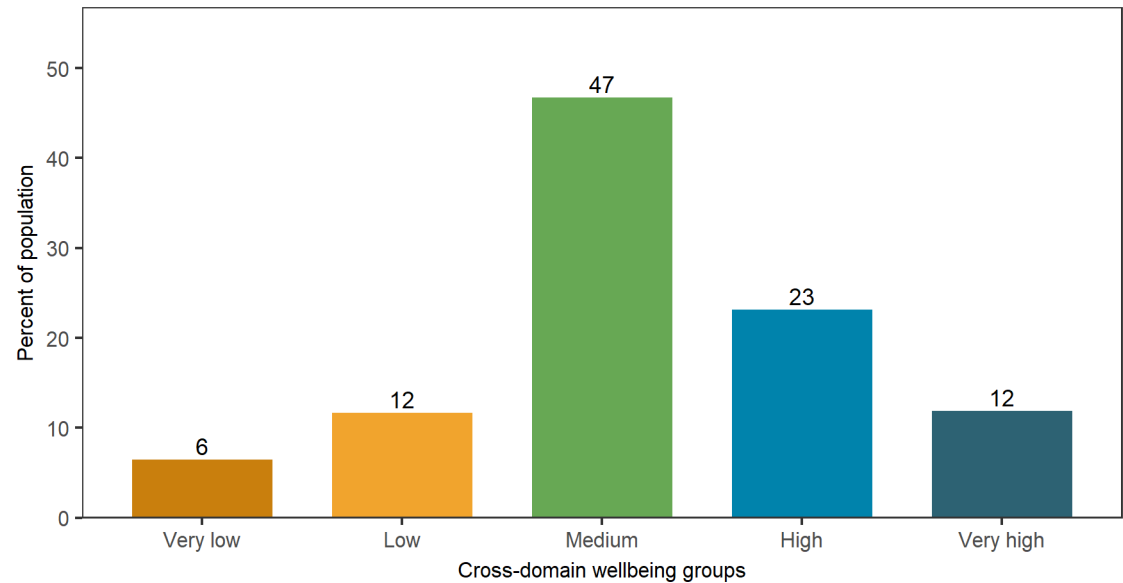
Source: New Zealand General Social Survey 2014/2016

While the dimensionality has been reduced by collapsing cross-domain wellbeing in this way (from around 45 categories to 17), it is still complex to present in practice. For this reason, we further simplify our cross-domain wellbeing scores into groups. The choice of cut-offs and the number of groups is to some extent arbitrary, however we are guided by the population distribution illustrated in Figure 4, and by our earlier approach for individual domains. This assumes that most of the population is doing well (some very well), with the remainder having low wellbeing, in this case across multiple domains.

We further take advantage of the additional nuance inherent in our cross-domain wellbeing measure, by adding additional groups at the extremes, reflecting 'Very low' and 'Very high' wellbeing respectively. As such, we create five groups, as indicated in Figure 4, which are labelled Very low, Low, Medium, High, and Very high. We adopt cut-offs between -4 and -3, between -2 and -1, between 2 and 3, and between 4 and 5. When we look at changes in mean life satisfaction at each of these points, we observe an increase of between 0.25 and 0.5 points, providing further reinforcement for their selection. Figure 5, below, illustrates the size of these groups in the population. Around half of the population are defined as having medium wellbeing, with around a third having high or very high wellbeing (23 percent and 11 percent respectively) and 1 in 5 having low or very low wellbeing (12 percent and 6 percent respectively).

Although we do not apply an explicit weighting of the different domains in constructing our cross-domain wellbeing score and groups, there is clearly an implicit weight being applied with each domain given an equal contribution, and hence an equal weight, towards overall wellbeing. An alternative approach might be to use weightings based on people’s stated preferences, and such an approach has been used in an NZ context, albeit with national data, by Au and Karacaoglu (2018). As noted by Jia and Smith (2016), however, there are some concerns about the validity of these weights given selection bias, and the potential for misreporting. There is also a misalignment between stated preferences and the objectively defined relationship with life satisfaction, which could indicate “a potential disconnect between perception and reality” (ibid). In practice, applying weights based on stated preferences is unlikely to alter our results to any great extent, as the weights do not vary much (11 of the 13 weights used by Au and Karacaoglu (2018) ranged between 0.08 and 0.101).

Figure 5: Distribution of the population by cross-domain wellbeing group



3 The relationship between LSF domains

While our expectation is that each domain represents a different aspect of wellbeing, and as such is of individual importance, the domains relate to each other in various ways, and these relationships are reflected in differing statistical associations between the measures.

The relationships occur for different reasons. In some cases, wellbeing in one domain is likely to have a direct causal link to wellbeing in another domain. For example, high Knowledge and skills wellbeing (reflecting high qualifications) is likely to be a factor that influences a person's ability to get a high-paying job, leading to high Income and consumption wellbeing. More directly, a person with low Income and consumption wellbeing may find it difficult to find high quality, affordable housing, and as a result experience low Housing wellbeing.

In other cases, the way different domains are measured may reflect similar underlying concepts. For example, some mental health screening questions are similar to the question that underpins our Subjective wellbeing measure. Finally, it is possible that one underlying phenomenon could underpin low wellbeing in more than one domain. For example, social isolation could lead to both loneliness (low Social connections wellbeing), and to distrust of others (low Civic and governance wellbeing).

Because of these different underlying mechanisms, and because of the varying quality of the measurement of different domains, care needs to be taken in interpreting these relationships. Nevertheless, it is useful to look at the degree to which different domains relate to each other, as this allows us to better understand the mechanisms at play, to consider which services might best be offered together to impact on multiple areas of people's lives, and to inform the ways in which services might best be targeted.

3.1 The relationship between combinations of domains

The 'heat map' in Figure 6 illustrates the strength of the association between different domains at the bottom end of the wellbeing spectrum. The numbers in each square represent the difference in the probability that a person with low wellbeing in domain 1 (as labelled down the left side of the graph) also has low wellbeing in domain 2 (as labelled across the top of the graph), compared to a person who does not have low wellbeing in domain 1. We express these comparisons as percentage point differences. For example, a person with low Subjective wellbeing is 24 percentage points more likely than a person without low Subjective wellbeing to have low Civic and governance wellbeing. Darker shades represent stronger associations, with the yellow shading being indicative of lower levels of wellbeing, and the blue shading indicating higher levels of wellbeing.

Low Health and low Income and consumption wellbeing are most closely associated with low Subjective wellbeing. Unsurprisingly, Housing, and Income and consumption are also closely associated with each other. Having low Cultural identity wellbeing or low Safety wellbeing is associated with low Social connections wellbeing. The weakest associations are between low Knowledge and skills wellbeing (having no qualification) and many other domains.

While having low Knowledge and skills wellbeing is statistically associated with low Subjective wellbeing, Civic engagement and governance, Health, and Income and consumption wellbeing (+7, +10, +13, and +11 percentage points respectively), it is less strongly associated with other domains. In particular, there is no statistically significant relationship between low Knowledge and skills wellbeing on the one hand, and low Cultural identity wellbeing, or low Safety wellbeing on the other. Low Knowledge and skills wellbeing has a statistically significant negative (albeit small) association with low Social connections wellbeing, indicating that people with low Knowledge and skills are 6 percentage points less likely to report low Social connections wellbeing.

These relationships for Knowledge and skills wellbeing should be interpreted cautiously, as our measurement is restricted to formal qualifications and to either extreme of the distribution (having no qualification or having a university degree). As discussed earlier, our measure of Knowledge and skills is objectively defined, and as such is less likely to relate to more subjective measures. In addition, older people are much less likely to have a qualification, but generally report high levels of wellbeing in other domains.¹⁴

Figure 6: Differences in the probability of having low wellbeing in one domain if a person has low wellbeing in another domain (percentage point difference)

| | | Domain 2 Low wellbeing | | | | | | | | |
|------------------------|---------------------------------|------------------------|---------------------------------|-------------------|--------|---------|------------------------|----------------------|--------|--------------------|
| | | Subjective wellbeing | Civic engagement and governance | Cultural identity | Health | Housing | Income and consumption | Knowledge and skills | Safety | Social connections |
| Domain 1 Low wellbeing | Subjective wellbeing | | 24* | 17* | 32* | 16* | 23* | 7.2* | 11* | 16* |
| | Civic engagement and governance | 20* | | 11* | 16* | 13* | 17* | 8.3* | 14* | 14* |
| | Cultural identity | 21* | 16* | | 18* | 15* | 17* | 0.41 | 11* | 25* |
| | Health | 28* | 18* | 13* | | 11* | 17* | 12* | 10* | 15* |
| | Housing | 13* | 13* | 9.9* | 10* | | 27* | 4.1* | 11* | 12* |
| | Income and consumption | 23* | 20* | 13* | 19* | 31* | | 11* | 13* | 14* |
| | Knowledge and skills | 7.2* | 10* | 0.33 | 13* | 4.8* | 11* | | 0.62 | -6.2* |
| | Safety | 10* | 15* | 7.8* | 11* | 12* | 12* | 0.57 | | 18* |
| | Social connections | 11* | 12* | 14* | 12* | 9.8* | 10* | -4.4* | 14* | |

Source: New Zealand General Social Survey 2014/2016
* indicates statistically significant differences from 0 at the 95% level

Where Figure 6 focusses on low wellbeing, Figure 7 now shows the relationship between having high wellbeing in one domain and high wellbeing in other domains. The relationships are similar to those observed in Figure 6. Across both graphs, the relationship between Knowledge and skills wellbeing and other domains is shown to be particularly weak, and sometimes in the opposite direction we would expect. This is particularly the case for the association between Knowledge and skills wellbeing and Social connections wellbeing, potentially reflecting the high mobility of highly educated people, which could affect their ability to maintain connections with friends and family.

¹⁴ Nevertheless, section 4.2.2 presents heat maps for different age groups, and the relationship is still relatively weak between Knowledge and skills and other domains at younger ages (except for Income and consumption wellbeing).

While Health and Income and consumption are closely linked to Subjective wellbeing at the low end of the spectrum, Social connections wellbeing is also very closely related to Subjective wellbeing at the high end. People with high Social connections wellbeing are 18 percentage points more likely to have high Subjective wellbeing than those with lower levels of Social connections wellbeing.

Figure 7: Differences in the probability of having high wellbeing in one domain if a person has high wellbeing in another domain (percentage point difference)

| | | Domain 2 High wellbeing | | | | | | | | |
|-------------------------|---------------------------------|-------------------------|---------------------------------|-------------------|--------|---------|------------------------|----------------------|--------|--------------------|
| | | Subjective wellbeing | Civic engagement and governance | Cultural identity | Health | Housing | Income and consumption | Knowledge and skills | Safety | Social connections |
| Domain 1 High wellbeing | Subjective wellbeing | | 15* | 14* | 16* | 16* | 16* | -1.1 | 7.6* | 18* |
| | Civic engagement and governance | 14* | | 12* | 8.7* | 9.5* | 11* | 12* | 14* | 5.5* |
| | Cultural identity | 13* | 11* | | 7.7* | 11* | 13* | 1.2 | 5.6* | 9.4* |
| | Health | 21* | 12* | 11* | | 13* | 14* | 3.1* | 13* | 20* |
| | Housing | 15* | 9.8* | 11* | 9.6* | | 23* | 1.2 | 14* | 14* |
| | Income and consumption | 17* | 13* | 15* | 12* | 26* | | 6* | 13* | 17* |
| | Knowledge and skills | -1.3 | 16* | 1.6 | 2.9* | 1.6 | 6.8* | | 4.7* | -8.2* |
| | Safety | 7.8* | 15* | 6.3* | 10* | 14* | 12* | 4* | | 13* |
| | Social connections | 18* | 5.7* | 10* | 15* | 14* | 15* | -6.6* | 12* | |

Source: New Zealand General Social Survey 2014/2016
* indicates statistically significant differences from 0 at the 95% level

3.2 The relationship between subjective wellbeing and other LSF domains

The heat maps shown above give some indication of the way wellbeing in each domain tends to coincide with wellbeing in other domains, including Subjective wellbeing. Given the role of Subjective wellbeing as a proxy measure for overall wellbeing, it is useful for us to explore the link between subjective wellbeing and specific domain wellbeing in a bit more depth, however. We propose in this paper an alternative overall 'cross-domain' wellbeing measure (see section 2.3), and it is of further interest to explore the relationship between this measure and Subjective wellbeing.

In this section, we explore these relationships by running a series of regression models. This gives us a sense of the extent to which different individual domain and cross-domain wellbeing measures predict Subjective wellbeing, and of the explanatory power we lose by simplifying multidimensional wellbeing to a single cross-domain score, or groupings.

Caution needs to be taken in interpreting these results. As discussed above, we know that Subjective wellbeing may mean different things to different people in different stages of their lives. For this reason, we regard it only as a proxy measure of overall wellbeing, albeit a useful one. As such, establishing a strong relationship between wellbeing in a domain and Subjective wellbeing does not necessarily mean that domain is more important for overall wellbeing than other domains. Nor does the absence of such a relationship mean that the domain is unimportant for overall wellbeing.

In all of the models presented here, the dependent variable in the model is the respondent's life satisfaction score on a scale from 0 to 10. We run ordinary least squares regressions, accounting for sample design, and assuming life satisfaction is a continuous scale. The results should be treated as indicative only, as life satisfaction scores are heavily skewed to the left, with most people reporting scores at the top of the range. As a result, the model clearly violates standard linear regression normality assumptions. In addition, the model assumes different individuals have the same reporting function for life satisfaction (ie, the same score means the same thing to different people)¹⁵, and cardinality (ie, the difference between any two scores across the scale represent equivalent differences in underlying life satisfaction).

It is not possible to formally test whether people report life satisfaction in the same way, however we can, to some degree, test whether the cardinality assumption materially affects our results. As in Jia and Smith (2016), we run equivalent ordered probit models which treat life satisfaction as an ordinal categorical variable. These regressions produce substantively similar results to our linear models in terms of both the relative magnitude of parameters, and their statistical significance, providing some level of reassurance. We present the linear regression results here for the sake of simplicity and ease of interpretation. As indicated above, domains of wellbeing tend to be correlated with each other, and as such, multi-collinearity is also likely to be an issue to some degree in our models.

We begin by running models of each domain individually against the life satisfaction score (specifications (a) to (h)), before running a model with all domains included (specification (i)). We firstly run the models with no additional control variables (see Appendix 2), and then include some basic demographic controls.¹⁶ Table 3 presents the results from this latter set of models.

Under all specifications, having low wellbeing in a domain has a statistically significant association with lower life satisfaction, with coefficients for low wellbeing ranging from -0.15 for Knowledge and skills to -1.29 for Health. This indicates, for example, that a person with low Health wellbeing has a life satisfaction score 1.29 lower than someone with medium Health wellbeing on average. High wellbeing coefficients range from 0.17 to 0.67, again for Knowledge and skills and Health respectively. R-squared scores for these models range from 0.02 for the Knowledge and skills model (specification (f)) up to 0.15 for the Health model (specification (c)). This indicates that these models explain between 2% and 15% of variation in reported life satisfaction scores.

¹⁵ Bond and Lang (2014) discuss the implications of different distributional assumptions about the reporting function, and the way this can lead to different conclusions in the analysis of life satisfaction.

¹⁶ Controls included in the model are sex, ethnicity, and age group (broken into 5 broad bands).

Once all domains are included in the life satisfaction model at the same time (specification (i)), the r-squared increases to 0.24, indicating that almost a quarter of the variation in life satisfaction is explained by these scores. Unsurprisingly, given the correlation between wellbeing domains described above, the coefficients associated with every wellbeing domain reduce in magnitude, generally by between a quarter and three quarters. The two exceptions to this finding are the Knowledge and skills, and Safety domains. Once we control for other wellbeing domains, the association between these two domains and life satisfaction disappears completely. The associated coefficients reduce in magnitude by at least 90 percent in model (i), in some cases reversing in sign, and are no longer statistically significant.

The inclusion of demographic control variables improves the explanatory power of each model, but not to a great extent, and makes almost no difference to the coefficients for each wellbeing domain. The exception to this is Knowledge and skills. Without including controls, the association between Knowledge and skills wellbeing and life satisfaction is considerably weaker. This is likely to be because older people tend to report better life satisfaction, and, due to cohort effects, to have fewer qualifications.

Table 3: Regression models of domain wellbeing against life satisfaction score with controls

| Variable | Value | Specification | | | | | | | | |
|---------------------------------|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | | (a) | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) |
| Civic engagement and governance | Low | -0.60** [0.052] | | | | | | | | -0.29** [0.044] |
| | High | 0.53** [0.032] | | | | | | | | 0.31** [0.029] |
| Cultural identity | Low | | -0.73** [0.059] | | | | | | | -0.28** [0.062] |
| | High | | 0.46** [0.035] | | | | | | | 0.26** [0.032] |
| Health | Low | | | -1.29** [0.046] | | | | | | -0.92** [0.045] |
| | High | | | 0.67** [0.041] | | | | | | 0.44** [0.042] |
| Housing | Low | | | | -0.47** [0.046] | | | | | -0.13** [0.041] |
| | High | | | | 0.45** [0.034] | | | | | 0.19** [0.033] |
| Income and consumption | Low | | | | | -0.99** [0.044] | | | | -0.55** [0.043] |
| | High | | | | | 0.53** [0.031] | | | | 0.23** [0.030] |
| Knowledge and skills | Low | | | | | | -0.15** [0.049] | | | 0.07 [0.048] |
| | High | | | | | | 0.17** [0.038] | | | -0.01 [0.030] |
| Safety | Low | | | | | | | -0.38** [0.048] | | -0.04 [0.043] |
| | High | | | | | | | 0.24** [0.032] | | -0.02 [0.029] |
| Social connections | Low | | | | | | | | -0.33** [0.041] | -0.06 [0.039] |
| | High | | | | | | | | 0.57** [0.036] | 0.31** [0.037] |
| Controls included? | | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| R-squared | | 0.08 | 0.07 | 0.15 | 0.06 | 0.10 | 0.02 | 0.04 | 0.06 | 0.24 |

Note: ** = significant at the 1% level. * = significant at the 5% level.

3.3 The relationship between subjective wellbeing and cross-domain wellbeing

Our next set of models look at the extent to which we lose explanatory power as we simplify our multiple domains to a single cross-domain wellbeing classification (see Table 4). We begin by including the number of domains in low wellbeing as a linear variable, the number of domains in high wellbeing as a linear variable, and both variables in combination (specifications (a) to (c) respectively). We then run a model using the overall cross-domain wellbeing score illustrated in Figure 4, before running models on the groups derived from this and illustrated in Figure 5. These are illustrated in specifications (d) to (f). Table 4 includes the same demographic controls as used above, while Appendix 2 again summarises equivalent models without controls.

Table 4: Regression models of cross-domain wellbeing measures against life satisfaction score with controls

| Variable | Value | Specification | | | | | |
|---|----------------------|--------------------|-------------------|--------------------|-------------------|--------------------|--------------------|
| | | (a) | (b) | (c) | (d) | (e) | (f) |
| Domains in low wellbeing | | -0.44** [0.012] | | -0.30** [0.015] | | | |
| Domains in high wellbeing | | | 0.37** [0.009] | 0.22** [0.011] | | | |
| Cross-domain wellbeing score | | | | | 0.26** [0.006] | | |
| Cross-domain wellbeing group (Comparison category is Medium wellbeing) | Very low | | | | | -1.87** [0.088] | |
| | Low | | | | | -0.96** [0.066] | |
| | High | | | | | 0.60** [0.035] | |
| | Very high | | | | | 0.99** [0.042] | |
| Cross-domain wellbeing broad group (Comparison category is Medium wellbeing) | Very low to low | | | | | | -1.28** [0.053] |
| | High to very high | | | | | | 0.73** [0.030] |
| Controls included? | | Y | Y | Y | Y | Y | Y |
| R-squared | | 0.16 | 0.15 | 0.19 | 0.19 | 0.19 | 0.17 |

Note: ** = significant at the 1% level. * = significant at the 5% level.

Models using the number of domains in low wellbeing and high wellbeing are similarly predictive of life satisfaction overall, with r-squared scores of 0.16 and 0.15 respectively. The coefficient for the number of domains in low wellbeing is -0.44, indicating that every additional domain in low wellbeing is associated with almost half a point drop in reported life satisfaction, while the coefficient of 0.37 for domains in high wellbeing indicates that each domain in high wellbeing is associated with a slightly smaller increase in life satisfaction. When both variables are added, the coefficients each reduce in magnitudes by about a third, while the r-squared increases to 0.19.

Moving to a model based on the cross-domain wellbeing score constructed by netting out these two variables (specification (d)), our results indicate that each additional point on the cross-domain score range from -8 to 8 is associated with an increase in wellbeing of around 0.26. This model has an r-squared of 0.19, down by 0.05 from the 0.24 achieved by the model with all domains entered individually, above (Table 3, specification (i)). This indicates that moving from a multiple domain model to a model with a single cross-domain score does result in some loss of information. This is not surprising given that some domains do not add additional explanatory power in predicting life satisfaction, while others (such as Health) are clearly more strongly predictive.

Specifications (e) and (f) apply the further simplification to a 5-category and 3-category grouping, respectively. The latter change results in a small loss of explanatory power, with an r-squared statistic of 0.17. Someone with very low cross-domain wellbeing is expected to have a life satisfaction score almost 2 points lower than someone with medium cross-domain wellbeing, while having low cross-domain wellbeing is associated with 1 point lower life satisfaction. Having high, or very high wellbeing are associated with slightly smaller gains, with respect to people with medium wellbeing, of 0.6 and 1.0 points respectively.

4 Multidimensional wellbeing across the population

In this section, we examine the wellbeing of the New Zealand population, broken down by selected population characteristics, and using the approaches discussed above. Specifically, we look at multidimensional wellbeing across LSF domains, the relationship between wellbeing on different domains, cross-domain wellbeing, and wellbeing by sub-domain. We present detailed results for the population broken down by sex, ethnicity, and broad age group; and high-level results for domain and cross-domain wellbeing by family type, region, area deprivation, and hours worked by age.

We present breakdowns separately according to each population characteristic, and do not account for, or control for, other differences in the populations. This needs to be kept in mind when interpreting the results. For example, Asian and Pacific people tend to be younger than other ethnic groups, and observed differences could be driven by this, rather than by underlying ethnic differences. Future work will seek to control for these compositional differences.

We focus on differences at either end of the wellbeing distribution, low and high wellbeing, for each domain. We do not explicitly report on differences in medium wellbeing, however these can be inferred from the other results as the combined differences must sum to zero (ie, if the difference in both high and low wellbeing is +10 percentage points, then the difference in medium wellbeing is -20 points).

We describe the variation in the relationship between different domains for different population groups by comparing population group-specific heat maps. For the sake of simplicity, we focus on the low wellbeing end of the spectrum in this paper. These do not necessarily reflect differences between domains of high wellbeing for different population groups. We present the heat maps in Appendix 3.

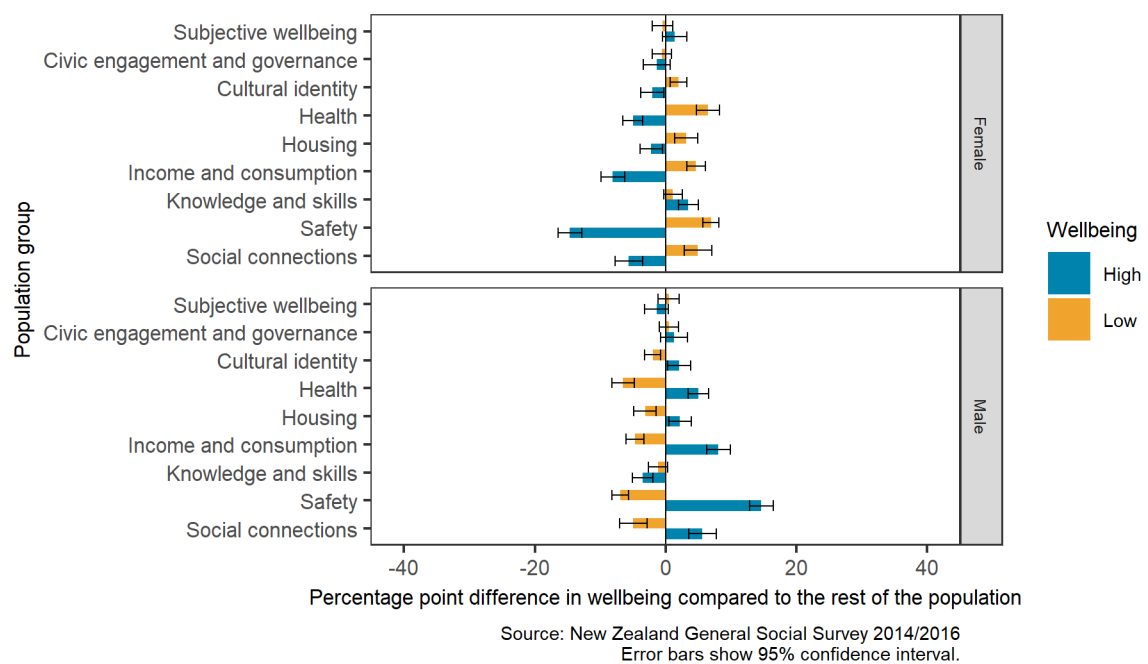
4.1 Multidimensional wellbeing by sex

4.1.1 Differences by domain

Figure 8 looks at the difference in the probability that women and men have low wellbeing and high wellbeing, compared to the rest of the population (men and women, respectively). Women are slightly more likely than men are to have low wellbeing across a number of domains of wellbeing, particularly Health, Housing, and Social connections. The differences are generally small, being less than 5 to 6 percentage points, however they are at both ends of the distribution (both lower likelihood of having high wellbeing, and higher likelihood of having low wellbeing), and are statistically significant. Larger differences are evident with respect to Safety (women being 15 percentage points less likely to have high wellbeing, and 7 percentage points more likely to have low wellbeing), and Income and consumption (women being 8 percentage points less likely to have high wellbeing). Women are more likely to have a University degree (high Knowledge and skills wellbeing) but not to have significantly better wellbeing on any other domain measured in this analysis.¹⁷

¹⁷ Interestingly, women were also more likely to report a high 'sense of purpose' (feeling that life is worthwhile) than men (by 7 percentage points), however that measure is not included in this report.

Figure 8: Differences in LSF domain wellbeing by sex compared to the rest of the population



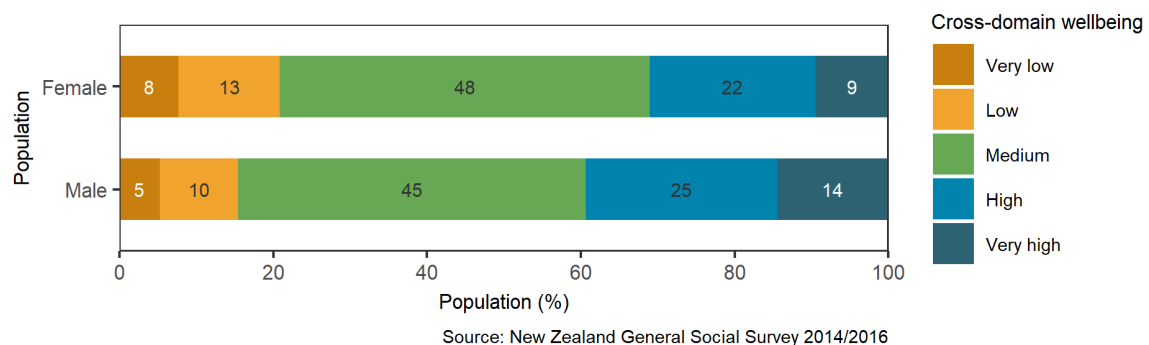
4.1.2 Differences in the relationships between domains

Figure 28 and Figure 29 in Appendix 3 show the strength of the relationship between different domains of low wellbeing for women and men respectively. In general, the differences between the two graphs are small, and unlikely to be statistically significant. This indicates that, generally speaking, low wellbeing on a domain is linked with low wellbeing on other domains in the same way, regardless of sex. There are two main areas where this is not the case. For women, having low Subjective wellbeing or low Civic engagement and governance wellbeing is more strongly associated with low Income and consumption wellbeing than for men.

4.1.3 Differences in cross-domain wellbeing

Given that women are somewhat more likely to experience low wellbeing, and less likely to experience high wellbeing, across a number of domains, it is not surprising to see more women having lower levels of cross-domain wellbeing than men (see Figure 9). This is despite there being no significant difference in the Subjective wellbeing of men and women. Relative differences are particularly strong at either end of the distribution.

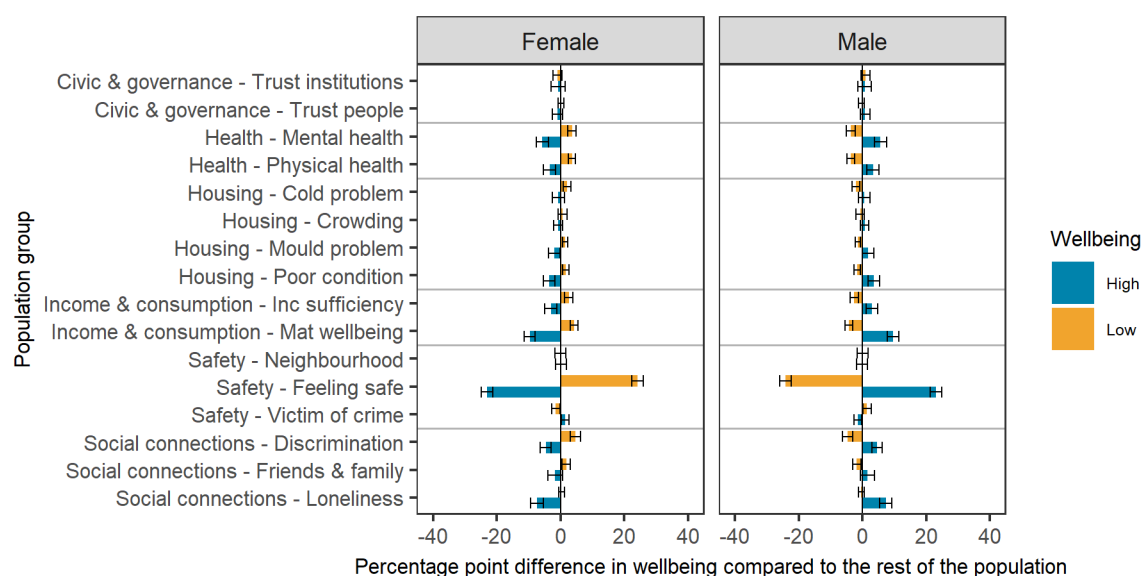
Figure 9: Cross-domain wellbeing groups by sex



4.1.4 Differences by sub-domain

The results in Figure 8 highlight Safety, Income and consumption, and Health, as being areas for which wellbeing of women is particularly low relative to men. Figure 10 shows differences for the sub-domains described in section 2.2.3. While differences in Health and Income and consumption wellbeing are driven by differences in both subdomains, Safety wellbeing differences are particularly the result of women feeling less safe, rather than reporting higher levels of neighbourhood crime or being more likely to be a victim of crime. Differences in Housing and Social connections wellbeing are driven by reasonably small differences across a number of subdomains.

Figure 10: Differences in LSF sub-domain wellbeing by sex compared to the rest of the population



Source: New Zealand General Social Survey 2014/2016
Error bars show 95% confidence interval.

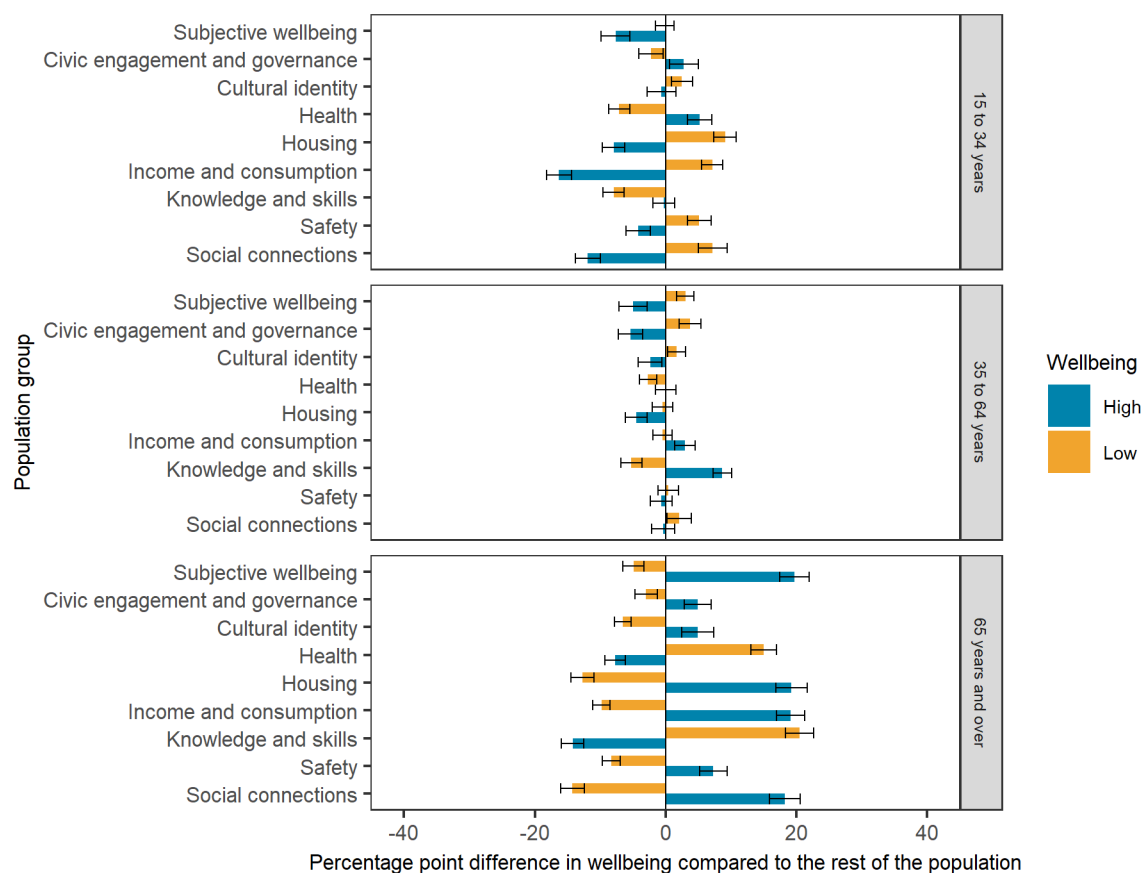
4.2 Multidimensional wellbeing by age

4.2.1 Differences by domain

We present differences in the distribution of wellbeing across domains for different broad age groups in Figure 11. Younger people, aged 15 to 34, have low wellbeing relative to the rest of the adult population across a number of LSF wellbeing domains, particularly Housing, Income and consumption, Safety, and Social connections. These differences are observed at both the low and high ends of the wellbeing distribution, with the largest differences evident in a lower likelihood of having high Income and consumption (-16 ppt) and Social connections (-12 ppt) wellbeing, and higher likelihood of having low Housing wellbeing (+9 ppt). Young people are also no more likely than older people are to report low Subjective wellbeing, but are 8 percentage points less likely to report high Subjective wellbeing.

At the other end of the age distribution, people aged over 65 have relatively high wellbeing on almost every domain. The exceptions to this are Health (with older people generally being less healthy), and Knowledge and skills (with older people generally having fewer qualifications). These differences are likely to represent cohort effects related to qualification attainment, and to the effects of ageing on health.

Figure 11: Differences in LSF domain wellbeing by age group compared to the rest of the population



Source: New Zealand General Social Survey 2014/2016
Error bars show 95% confidence interval.

Further analysis by the author, not included in this report, indicates that at even older ages (for example, 80 years and over), the observed effects become even more pronounced. Apart from Health, and Knowledge and skills, the over-80 population report better wellbeing than the 65 to 79-year-old population on almost every domain.

While these results indicate that older people have better multidimensional wellbeing than the younger population, they should be treated with some caution. Comparisons across different ages can be problematic for subjective aspects of wellbeing. A number of theories could explain the high subjective wellbeing of older people. For example, the older generation may have lower expectations of life (see, for example Walker 2005), or they may focus on things which increase their current wellbeing, without needing to invest heavily in their future wellbeing (Charles and Carstensen 2009).

On the other hand, older people report high wellbeing on a number of more objectively measured domains, such as Housing, and Income and consumption. Differential mortality could provide another explanation for the high wellbeing of older people. If people with low wellbeing are more likely to die at an earlier age, this could cause a 'survivor effect'. The relatively high wellbeing of older people could be a result of the prior death of people with especially low wellbeing, and the associated changes in the composition of the group of older people still alive (see, for example, Segerstrom et al. 2016).

4.2.2 Differences in the relationships between domains

Focussing on the relationship between low wellbeing in different domains, we plot heat maps for each age group (see Appendix 3, Figure 30 to Figure 32). When comparing the heat maps for the 15 to 34-year-old and 35 to 64-year-old populations we can see that:

- Low Civic engagement and governance wellbeing (ie, trust in people and institutions) is more closely connected to low Income and consumption wellbeing for 15 to 34-year-olds than for 35 to 64-year-olds (by 9 percentage points).
- Low Income and consumption wellbeing is less related to low Health, Cultural identity (feeling able to be yourself in NZ), and Subjective wellbeing for 15 to 34-year-olds than for 35 to 64-year-olds (by 7 to 10 percentage points).

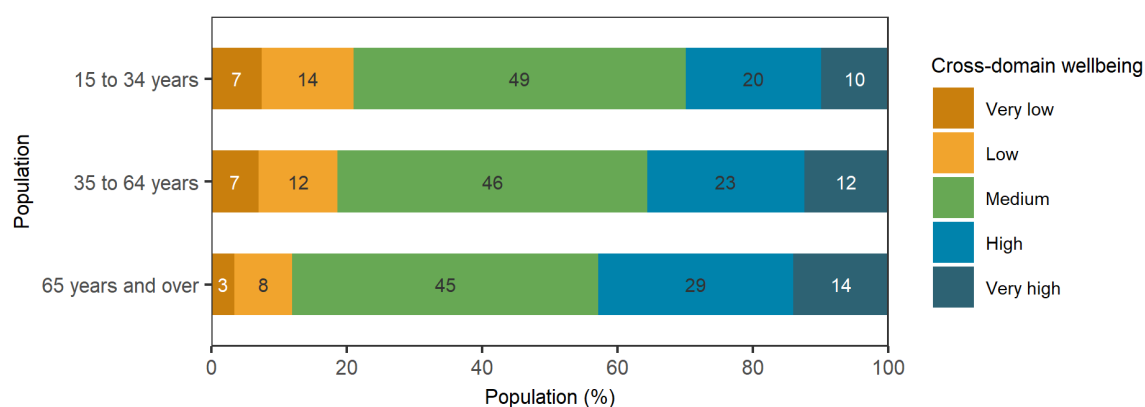
Comparing heat maps for the older population aged 65 and over with the map for the 35 to 64-year-old population we see that a great many of the relationships that hold at the younger ages are much less evident at older ages. In particular:

- There is a weaker relationship between low Health and low wellbeing on every other LSF domain, apart from Knowledge and skills. Differences range from 6 percentage points for Housing up to 17 percentage points for Subjective wellbeing.
- Low Knowledge and skills wellbeing (not having a formal qualification) is less associated with low Housing, Income and consumption, Civic engagement and governance, and Subjective wellbeing (by 7 to 13 percentage points).
- Finally, low Subjective wellbeing is less closely associated with both low Income and consumption, and low Cultural identity wellbeing (by 12 and 9 percentage points, respectively).

4.2.3 Differences in cross-domain wellbeing

Low cross-domain wellbeing appears to be less prevalent in older adults than in younger adults (Figure 12), despite higher levels of low Health and low Knowledge and skills wellbeing (ie, lack of formal qualifications) at older ages. People aged 15 to 34 are more than twice as likely as those aged 65 and over to have very low cross-domain wellbeing, and almost twice as likely to have cross-domain wellbeing in either of the two bottom groups. Older people are not just more likely to report high Subjective wellbeing; they are also less likely to have low wellbeing across multiple areas of their lives.

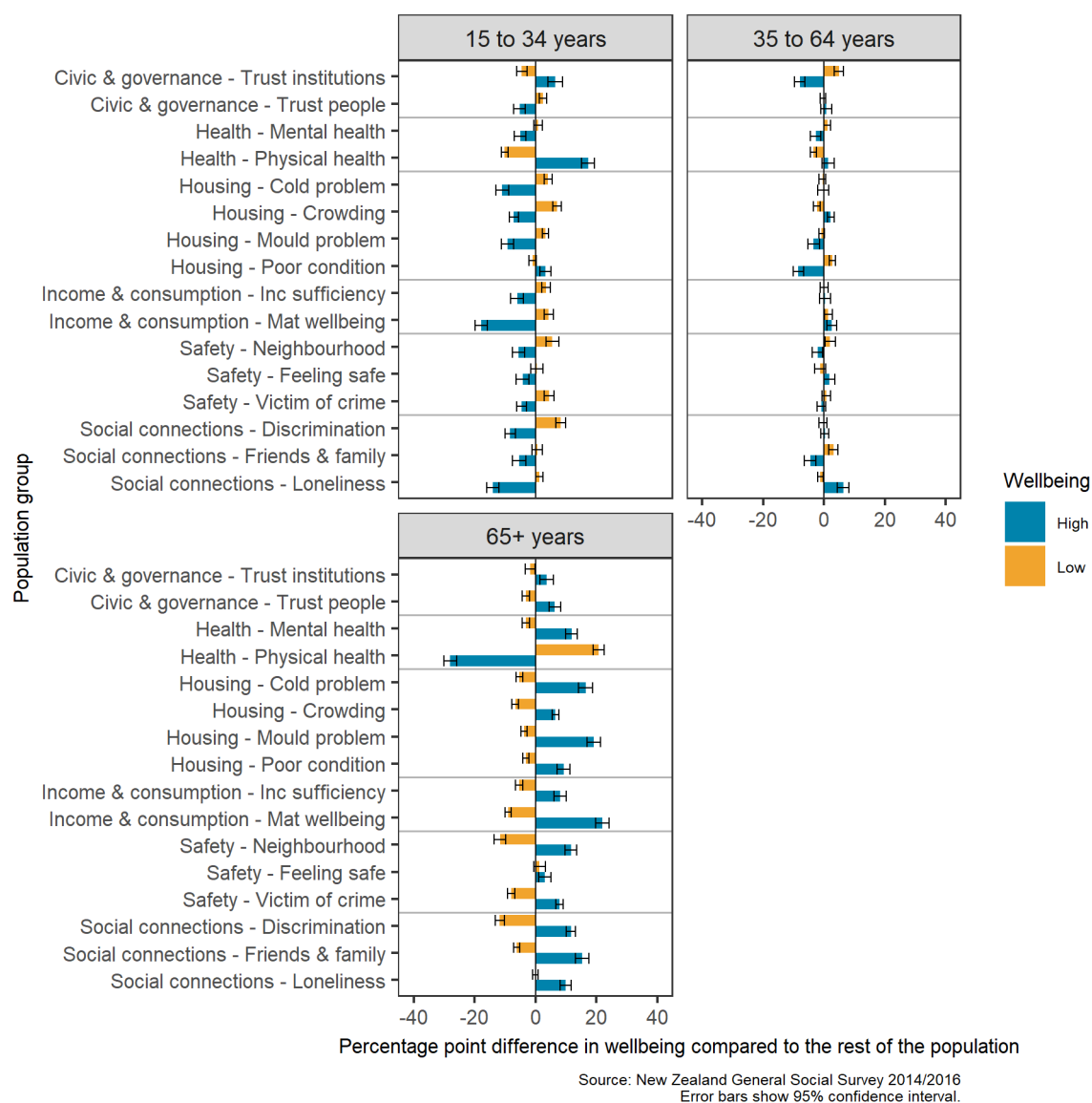
Figure 12: Cross-domain wellbeing groups by age



4.2.4 Differences by subdomain

Figure 13 shows differences in wellbeing across age groups by sub-domain. Differences in Health at older ages are driven by worsening physical health, as might be expected, while younger people are somewhat more likely to report low mental health wellbeing.

Figure 13: Differences in LSF sub-domain wellbeing by age group compared to the rest of the population



People aged 15 to 34 are more likely than the rest of the population to have low wellbeing across most subdomains. Although they are more likely to report higher levels of institutional trust than older people, they are also more likely to report experiences of discrimination, and are less likely to report high generalised trust of others. Younger people are also more likely to have high physical health wellbeing, and less likely to report issues with the condition of their house.

People aged 35 to 64 are less likely than other NZ adults to report high institutional trust, that their house is in good condition, and that they are satisfied with the level of contact they have with family and friends, but are somewhat less likely to be lonely.

4.3 Multidimensional wellbeing by ethnicity

This section looks at differences in wellbeing by ethnic group. People may identify with multiple groups, and as a result be represented in more than one set of results. Each comparison identifies people who identify with that ethnic group, and compares them with all people who do not identify with the group. The main area of overlap is between Māori and Europeans, with over 40 percent of Māori also identifying with European ethnicity.

Different cultural interpretations of wellbeing could have a particularly strong impact on the results in this section, and care should be taken in interpreting the findings. Results could also be affected by the demographic profiles of the different populations, as both Asian and Pacific populations are younger overall than Māori and European populations.

Finally, particular care needs to be exercised in the interpretation of the Cultural identity wellbeing domain. This domain is measured by a single question, relating to the ability to 'be yourself' in New Zealand. This does not measure the strengths of the connection an individual has to their particular cultural or ethnic group. While it reflects an important aspect of wellbeing, it does not reflect the many other dimensions of cultural wellbeing, and should not be interpreted as doing so.

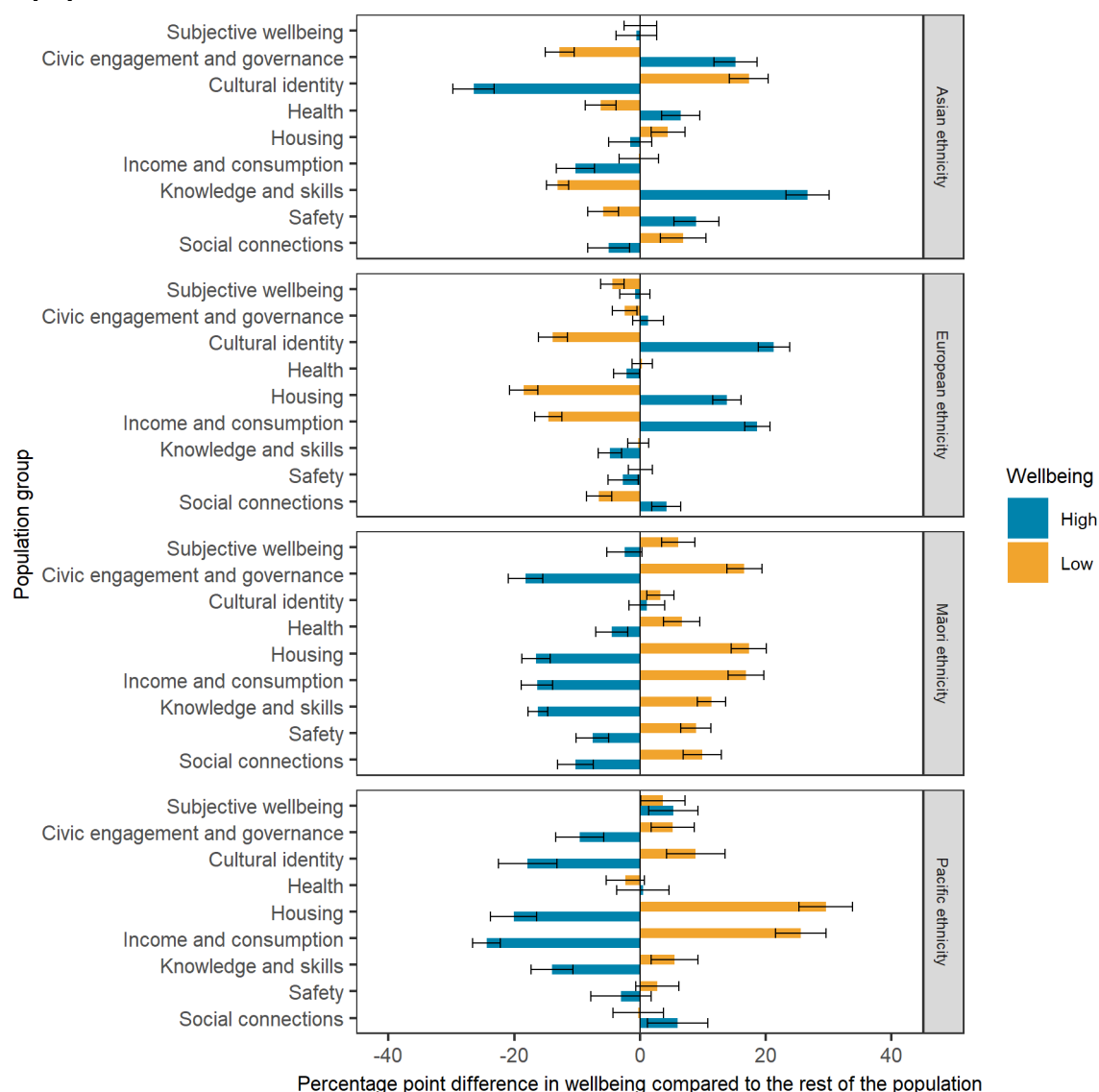
4.3.1 Differences by domain

Differences in LSF domain wellbeing by ethnic group are presented in Figure 14 below. Unlike the differences by sex and age discussed earlier in this section, patterns of wellbeing by ethnicity vary considerably. While Māori were more likely to experience low wellbeing, and less likely to experience high wellbeing, on almost every domain than other New Zealanders, other ethnic groups showed more variation across domains.

Key findings from Figure 14 include that.

- Asians reported particularly high Knowledge and skills, and Health wellbeing, consistent with a young and highly educated population. They also reported relatively high levels of Safety wellbeing, but were more likely to report low Housing wellbeing, and less likely to report high Income and consumption wellbeing. This could at least partially reflect differences associated with a young population.
- Europeans had particularly high levels of Cultural identity (feeling they were able to be themselves in New Zealand), Housing, and Income and consumption wellbeing.
- Although Māori reported low wellbeing across most domains, differences in Cultural identity wellbeing were small.
- Low wellbeing for Pacific people was concentrated in the Housing, Income and consumption, and Cultural identity domains. Pacific people were more likely to report high Social connections wellbeing and high Subjective wellbeing however.

Figure 14: Differences in LSF domain wellbeing by ethnicity compared to the rest of the population



Source: New Zealand General Social Survey 2014/2016
Error bars show 95% confidence interval.

4.3.2 Differences in the relationships between domains

Figure 33 to Figure 36 in Appendix 3 show heat maps of the associations between low wellbeing in different domains for each ethnic group identified above. While there are very few differences between the heat maps for Māori and Europeans¹⁸, there are bigger differences for the other two ethnic groups, particularly for Asians. This could be a result of the specific demographic profile of the Asian population in NZ, could relate to the higher likelihood of Asian people being recent arrivals, or could reflect different cultural dimensions of wellbeing.

The relationship between different domains of low wellbeing is very similar for Māori and Europeans, possibly partially reflecting the overlap between the two populations. The only significant difference between the Māori and European heat maps is a weaker association between low Housing and low Social connections wellbeing (by 10 percentage points).

¹⁸ Note that people can identify with multiple ethnic groups. This means the same person can be identified in more than one heat map. This could potentially affect comparisons, particularly for Māori and Europeans.

For Asian New Zealanders low wellbeing was less closely associated with low wellbeing in other domains than for Europeans. In particular:

- Low Social connections, Cultural identity (being able to be yourself in NZ), Income and consumption, and Subjective wellbeing are all less closely associated with low Civic and governance wellbeing (trust in people or institutions) than for Europeans.
- Low Cultural identity wellbeing is also much less strongly linked to low Health, Safety, Social connections, or Subjective wellbeing.
- Low Income and consumption wellbeing is less closely linked to low Housing and low Safety wellbeing (and vice versa).
- Low Health wellbeing is less closely linked to low Knowledge and skills, and
- Low Housing wellbeing is less closely linked to low Safety wellbeing.

On the other hand, low Knowledge and skills wellbeing is far more closely associated with low Income and consumption wellbeing (by 19 percentage points). This tends to indicate that lack of a qualification translates much more strongly to low material wellbeing for Asians than for other New Zealanders.

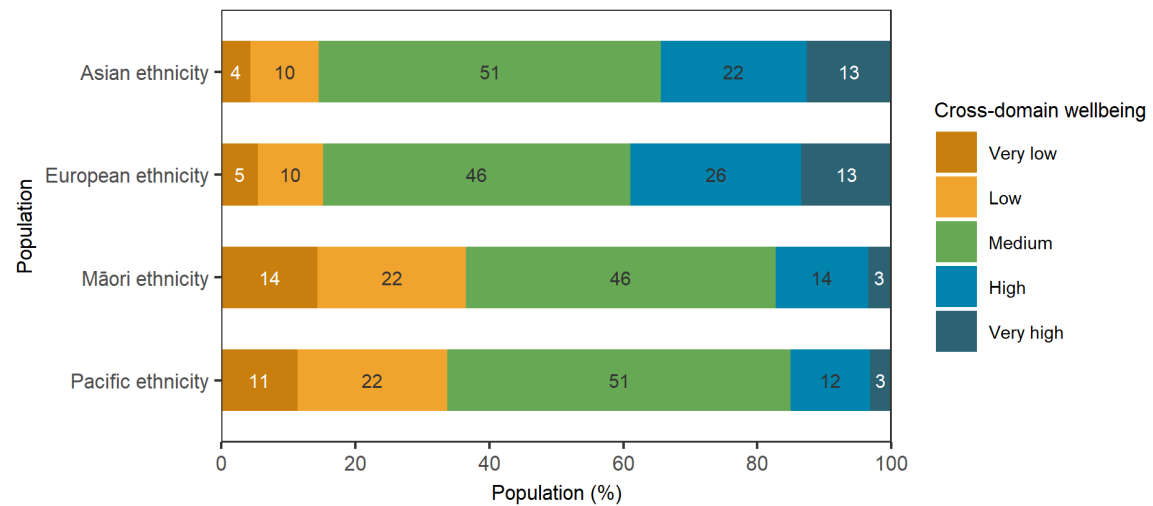
As with the Asian population, people of Pacific ethnicity showed weaker relationships between domains of low wellbeing than Europeans. In particular:

- Low Cultural identity wellbeing (not being able to be yourself in NZ) has a weaker relationship to Health, Civic engagement and governance (distrust of people or institutions), and Subjective wellbeing than it does for Europeans.
- Low Income and consumption has a weaker relationship to Civic engagement and governance, Health, Social connections, and Subjective wellbeing.
- Low Housing wellbeing has a weaker relationship with Civic engagement and governance, and Social connections wellbeing.
- Low Subjective wellbeing is less strongly connected to low Civic engagement and governance wellbeing.

4.3.3 Differences in cross-domain wellbeing

Both Māori and Pacific people are much more likely to have low or very low cross-domain wellbeing than Asians or Europeans are. They are also much less likely to experience high levels of cross-domain wellbeing, with only three percent having very high cross-domain wellbeing, compared to 13 percent of the Asian and European ethnic groups.

Figure 15: Cross-domain wellbeing groups by ethnic group

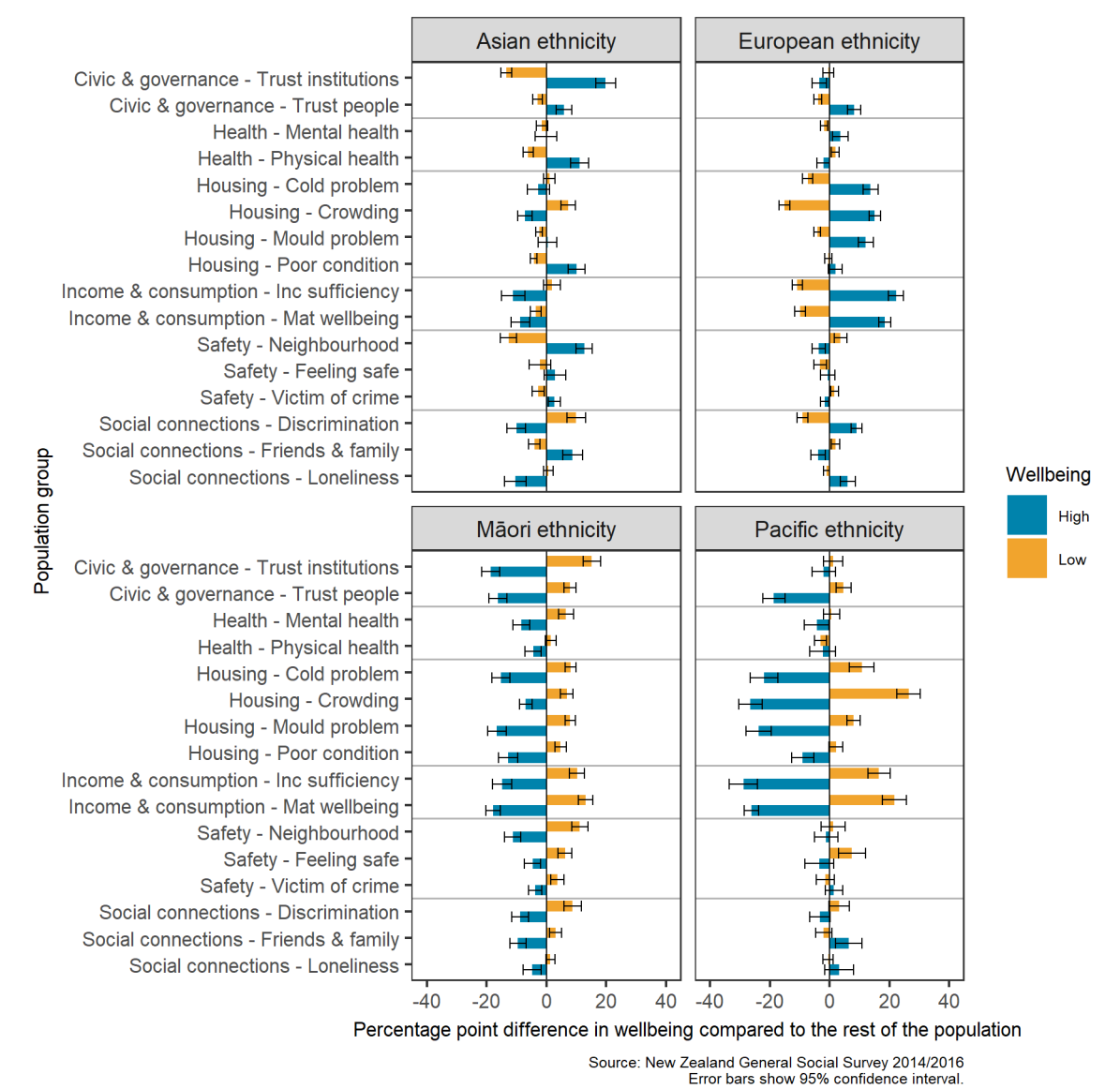


Source: New Zealand General Social Survey 2014/2016

4.3.4 Differences by subdomain

When examined by subdomain (Figure 16) a number of patterns emerge. Māori and Europeans report lower levels of institutional trust than Asian or Pacific peoples, however Pacific peoples are less likely to report high generalised trust of other people. Crowding is a greater concern than other Housing sub-domains for Pacific peoples, and is also high for Asian people, while both groups report being relatively satisfied with their level of contact with family and friends. As with the domain picture, the higher likelihood of low wellbeing for Māori is evident across all subdomains.

Figure 16: Differences in LSF sub-domain wellbeing by ethnicity compared to the rest of the population



4.4 Multidimensional wellbeing by other characteristics

This section presents differences in multidimensional and cross-domain wellbeing by region, area deprivation (NZDEP quintile), family type, and employment status. We discuss results briefly for each of these breakdowns in turn.

4.4.1 Wellbeing differences by region and area deprivation

Figure 17 and Figure 18 show the relative wellbeing of New Zealanders according to the region they live in, and the level of deprivation in their local area (represented by NZDEP quintiles). Quintile 1 represents people living in the least deprived 20 percent of neighbourhoods in New Zealand, while Quintile 5 represents the most deprived 20 percent of neighbourhoods. Area deprivation is much more strongly associated with wellbeing, as we might expect, given that these populations are much more homogeneous than regional populations in terms of socio-economic background. As with other comparisons, differences between regions are likely to reflect the different demographic profiles of their resident populations.

There was no significant difference in Subjective wellbeing across regions; however, some interesting relationships emerge at a broad region level for other LSF domains. People in Auckland were more likely than people in other areas were to report high levels of Knowledge and skills, Health, Safety, Civic and governance, and Social connections wellbeing. They were also more likely to report low Housing and Income and consumption wellbeing however, possibly reflecting higher living costs. People living in Canterbury, by comparison, report relatively high Income and consumption wellbeing compared to people living in other areas.

Outside of the main centres, people in the North Island were more likely to report low Knowledge and skills, Safety, and Civic engagement and governance (trust in people and institutions) wellbeing than those living in other areas. Those living in the broad Northland, Bay of Plenty, and Gisborne region reported better Cultural identity wellbeing than those living elsewhere, but reported the lowest levels of Civic engagement and governance wellbeing. In the South Island, outside of Canterbury, people reported higher levels of Safety wellbeing than people living in other areas did.

In general, area deprivation was associated with wellbeing across every domain; however, the effects were particularly strong for Housing, Income and consumption, Knowledge and skills, Civic engagement and governance, and Safety wellbeing. There were only small differences in Social connections wellbeing across the five NZDEP quintiles.

Figure 19 and Figure 20 show levels of cross-domain wellbeing across regions and deprivation quintiles. Levels are almost identical in the three main urban regions of Auckland, Canterbury and Wellington, as well as in the rest of the South Island. In the rest of the North Island very low to low wellbeing is somewhat more prevalent, and high to very high less prevalent, than elsewhere.

Unsurprisingly, given the patterns of wellbeing by LSF domain, people living in more deprived areas are also more likely to experience low cross-domain wellbeing, particularly as we move from quintile 3 to quintile 5 (the latter representing the 20 percent of most deprived neighbourhoods in New Zealand). Over a third (36 percent) of adults living in quintile 5 were classified as having low or very low cross-domain wellbeing, compared to 17 percent in quintile 3 and 10 percent in quintiles 1 and 2. People living in quintiles 1 and 2 had broadly similar cross-domain wellbeing profiles.

Figure 17: Differences in LSF domain wellbeing by region compared to the rest of the population

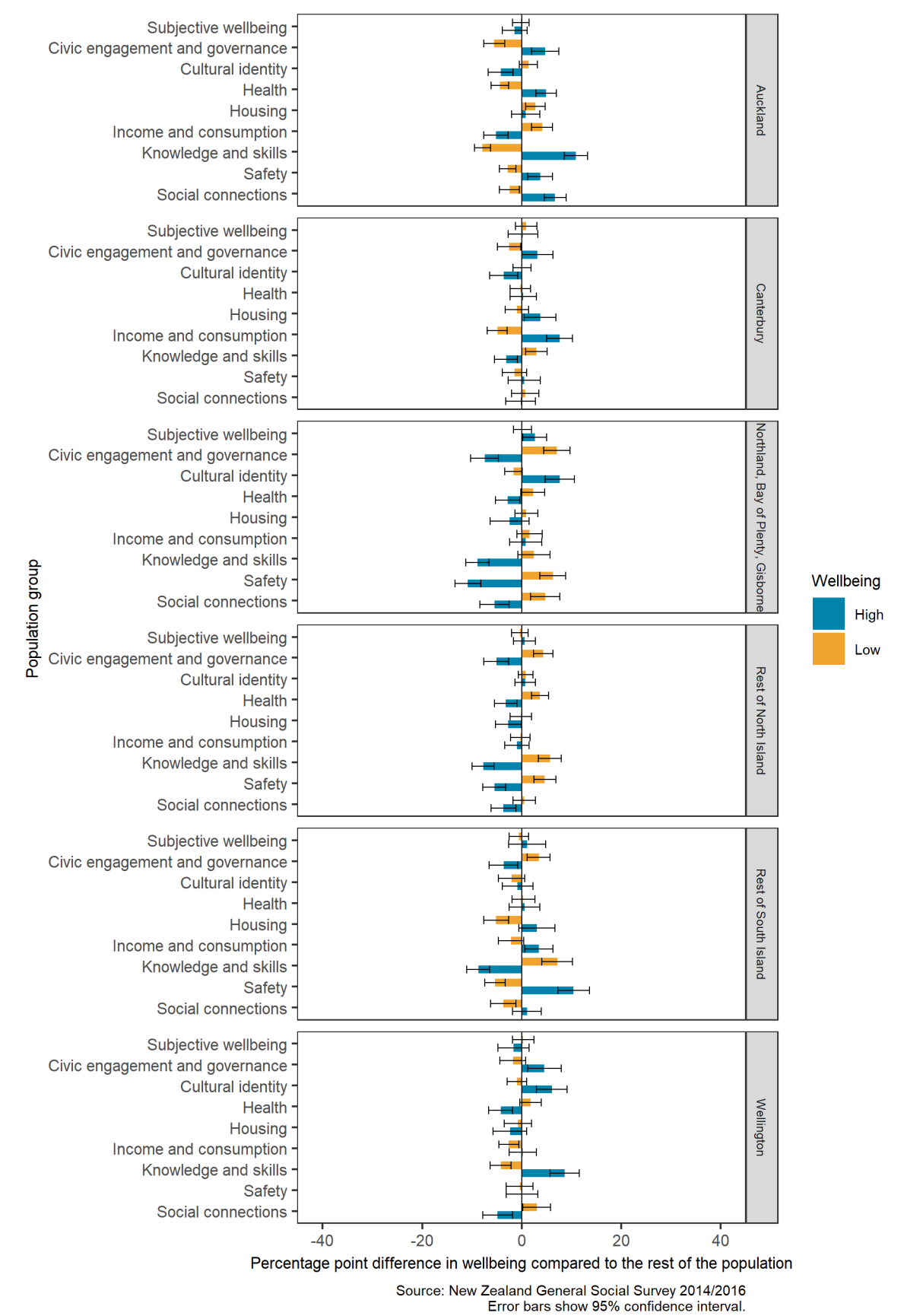
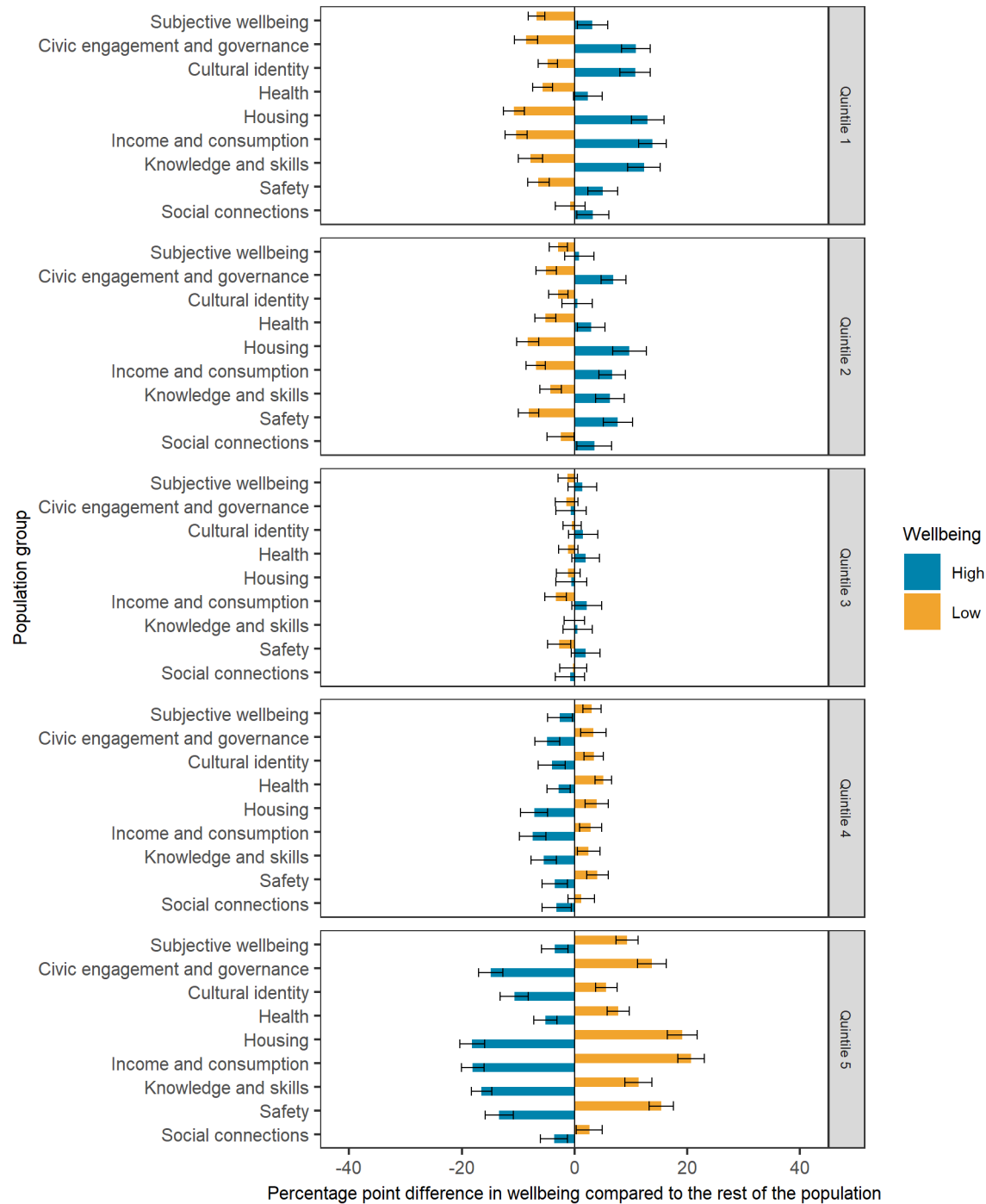


Figure 18: Differences in LSF domain wellbeing by NZDEP quintile compared to the rest of the population



Source: New Zealand General Social Survey 2014/2016
Error bars show 95% confidence interval.

Figure 19: Cross-domain wellbeing groups by region

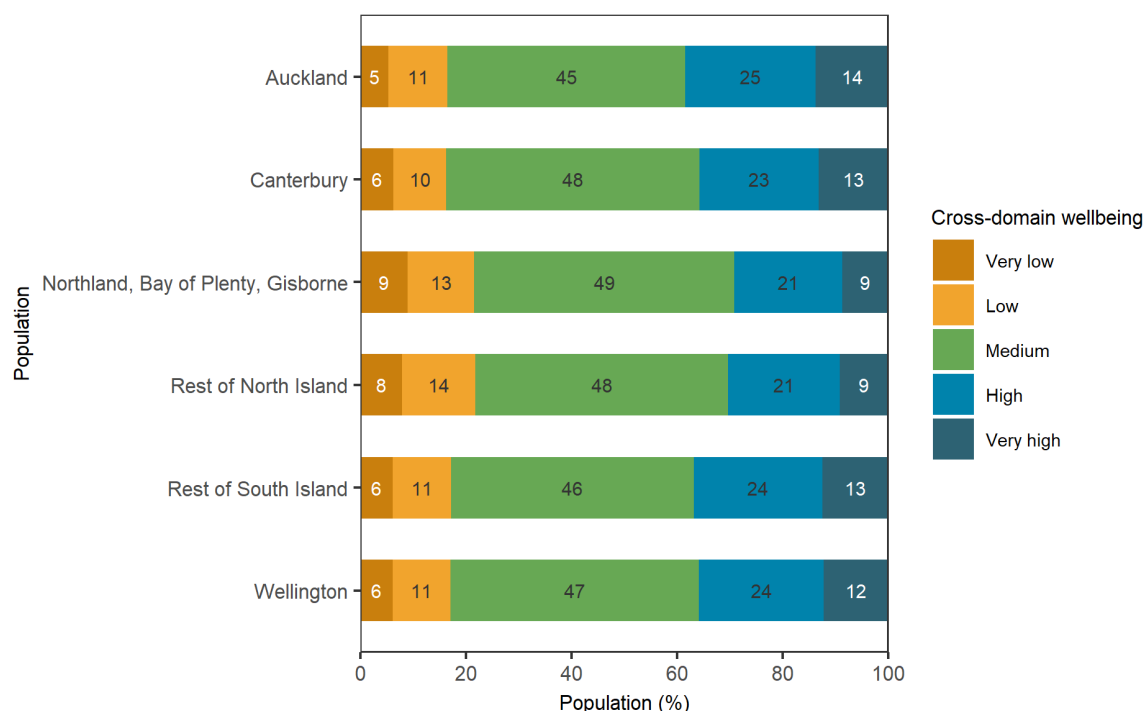
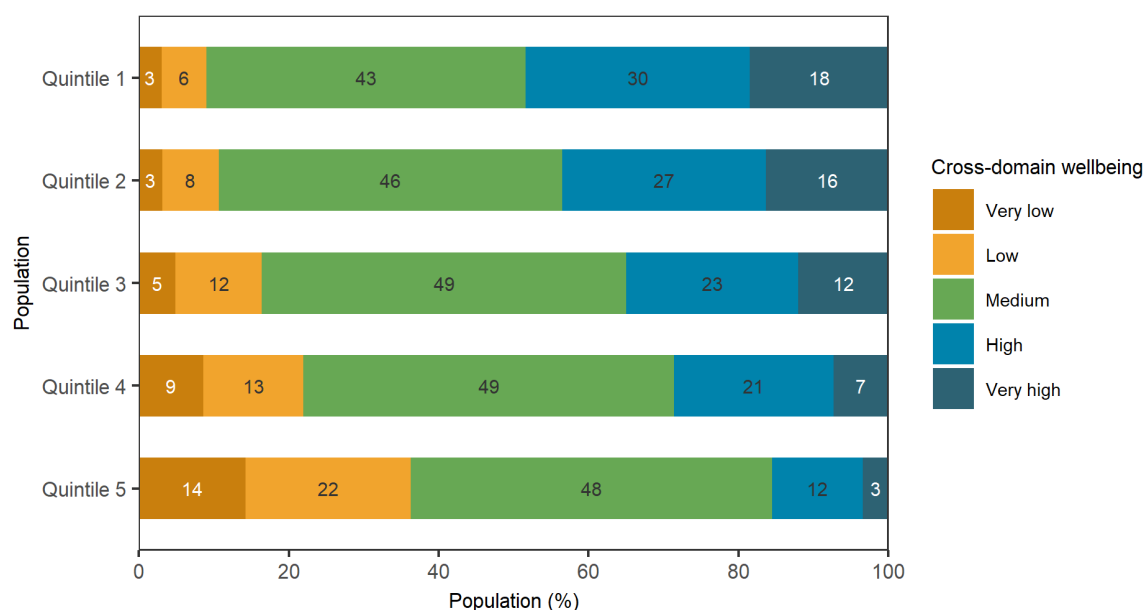


Figure 20: Cross-domain wellbeing groups by NZDEP quintile



4.4.2 Wellbeing differences by family type

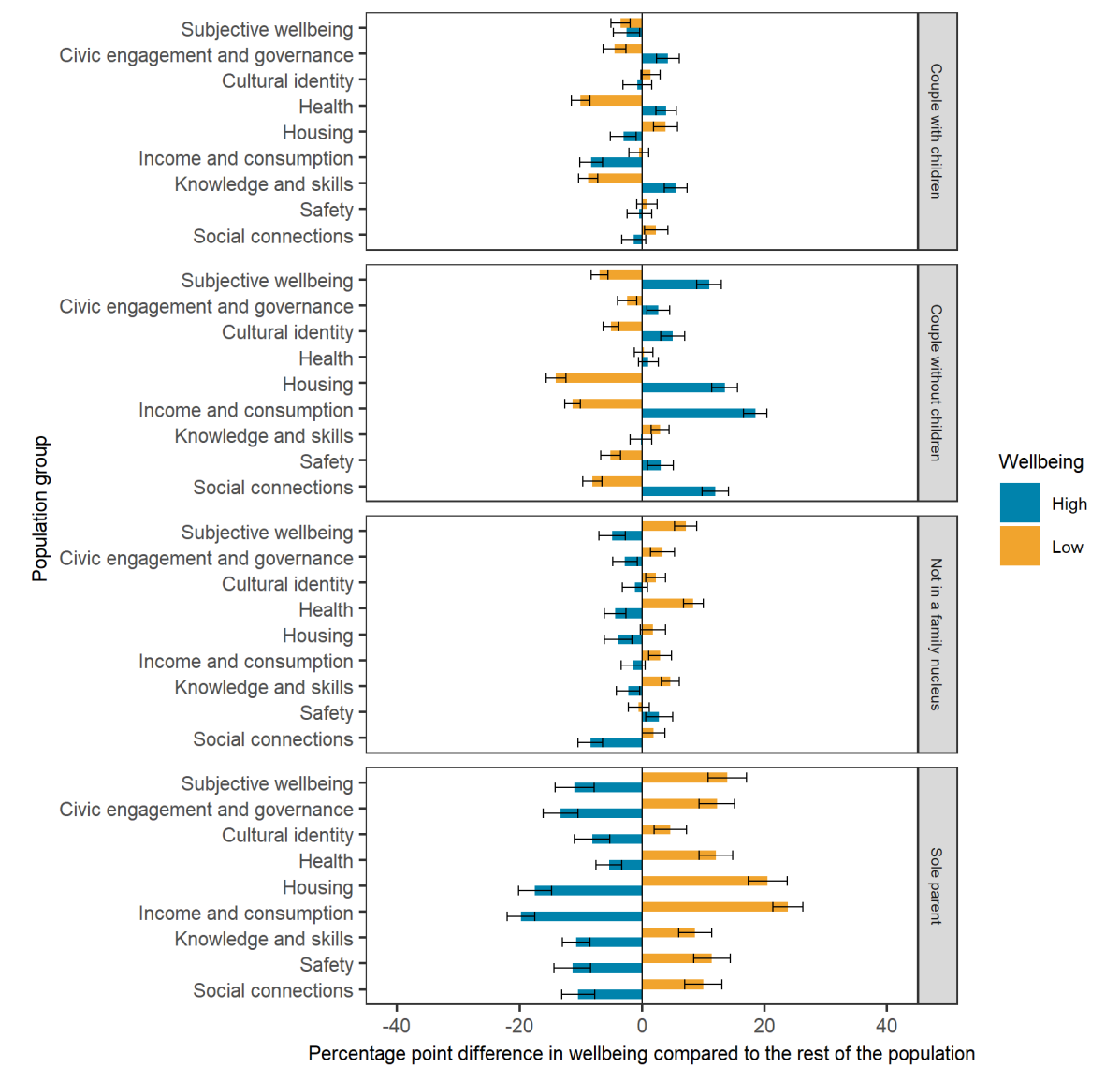
We present differences in wellbeing across LSF domains by family type in Figure 21. The presence of dependent children is closely related to the age of the respondent. Most people over the age of 65 are in a couple without children family, or are not in a family nucleus, and this will influence the results for these family types. Nevertheless, there are some clear differences that are worth noting in the wellbeing of respondents in different types of family.

Sole parents are particularly likely to experience low wellbeing across every domain, especially the material wellbeing domains of Housing, and Income and consumption. Unlike some of the other population groups with low multidimensional wellbeing identified earlier, however, they are also considerably less likely to report high Subjective wellbeing, and more likely to report low Subjective wellbeing.

People not living in a family nucleus are likely to be diverse, and are slightly more likely to report low Health and Subjective wellbeing, and are less likely to report high Social connections wellbeing.

Differences between couples with and without children are likely to be particularly driven by the effects of age. This is reflected in the high Health wellbeing and Knowledge and skills wellbeing of couples with children, and with the high levels of other wellbeing for couples without children.

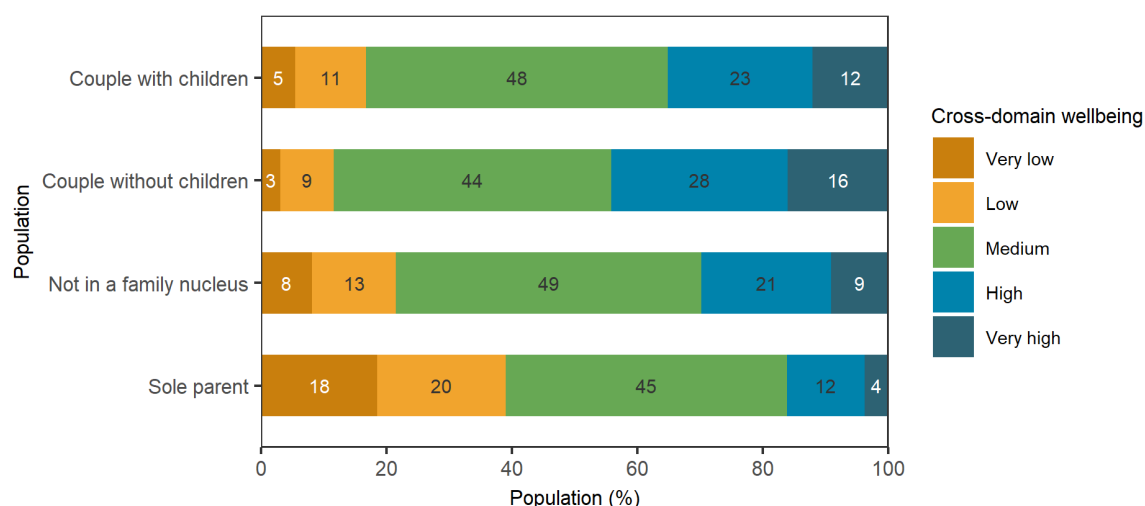
Figure 21: Differences in LSF domain wellbeing by family type compared to the rest of the population



Source: New Zealand General Social Survey 2014/2016
Error bars show 95% confidence interval.

Figure 22 shows the cross-domain wellbeing of the adult population by family type. As might be expected, given the results above, sole parents are particularly likely to have low or very low cross-domain wellbeing. Almost 1 in 5 sole parents have very low wellbeing, indicative of experiencing low wellbeing in at least four of the eight LSF domains (Subjective wellbeing excluded).

Figure 22: Cross-domain wellbeing groups by family type



4.4.3 Wellbeing differences by hours in paid work

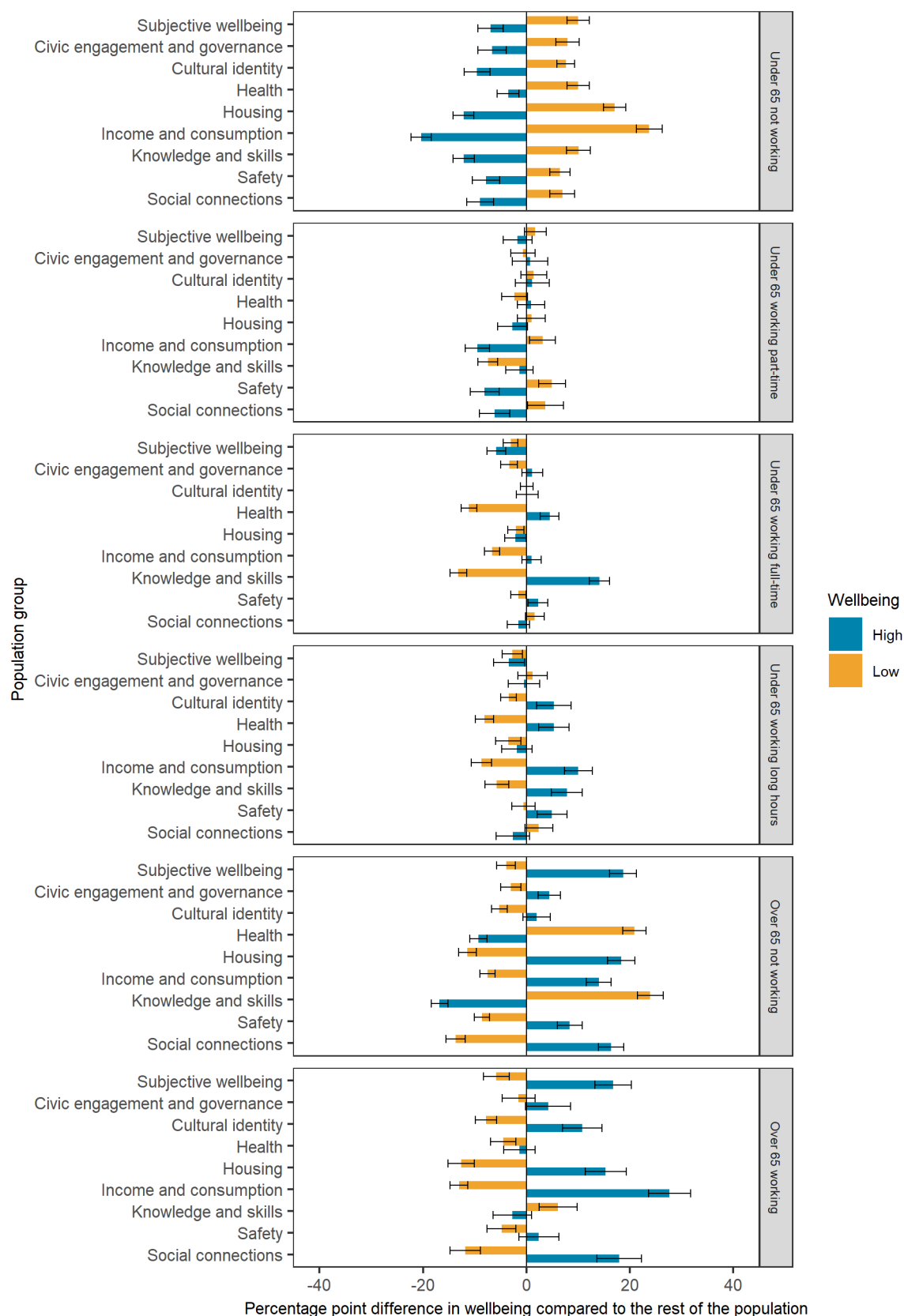
Figure 23 and Figure 24 show differences in domain and cross-domain wellbeing by hours in paid work. Wellbeing by hours worked is likely to be particularly affected by the age profile of different groups. For example, around half of the population that are not working are aged 65 and over, while more than three-quarters of the 65 years and older population are not working. The older not employed population is likely to have very different wellbeing to the younger not employed population due to the different reasons for not working. For this reason we separately identify the older population and classify them as simply working or not working.

When we look at hours in paid work for those under the age of 65, there is a clear relationship with wellbeing on some domains. In particular, full-time or longer work hours were associated with better Knowledge and skills, Income and consumption, and Health wellbeing. People working full-time (30 to 49 hours per week) were the most highly educated, while those working long hours (50 or more hours a week) had the highest Income and consumption wellbeing.

People under the age of 65 who were not working reported low wellbeing across every domain, with the difference most pronounced for the Income and consumption domain. Those working part-time, on the other hand, reported poor Income and consumption, Safety, and Social connections wellbeing, but few differences across other domains.

Those aged over 65 reported generally high levels of wellbeing across most domains, regardless of whether they were working. People in this age group who were working did not report the low levels of Health and Knowledge and skills wellbeing that are evident in those who were not working. This is likely to reflect the younger age profile of the over-65 working population at least in part.

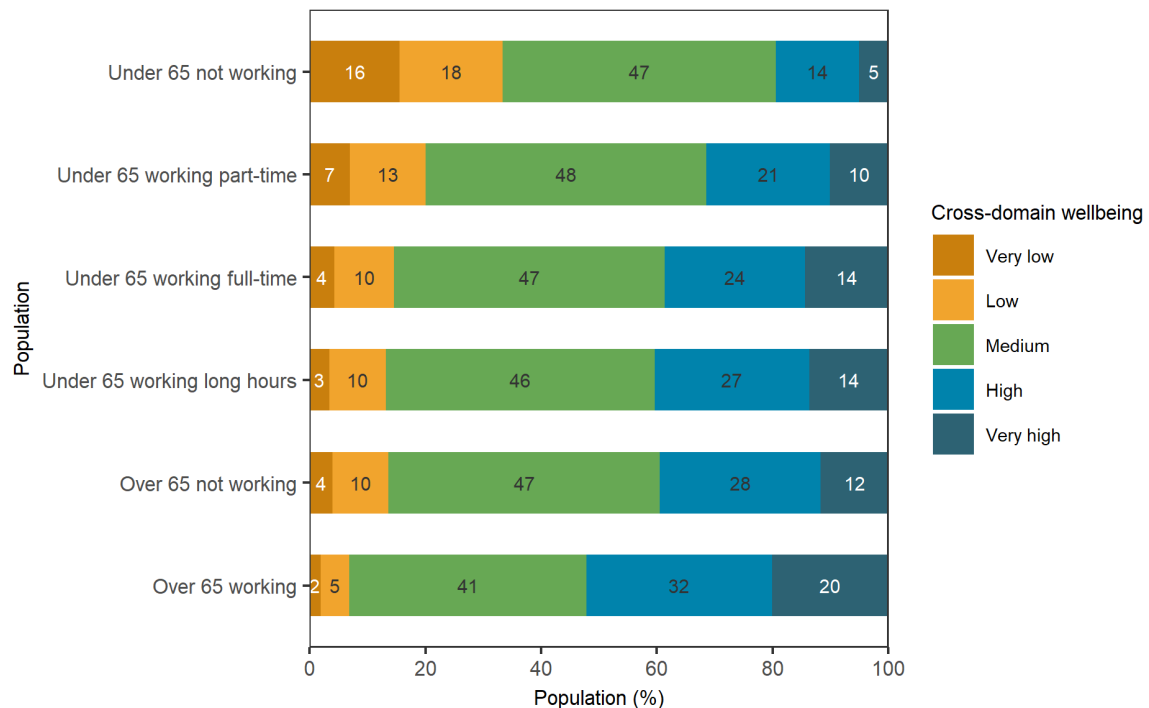
Figure 23: Differences in LSF domain wellbeing by hours worked compared to the rest of the population



Source: New Zealand General Social Survey 2014/2016
 Error bars show 95% confidence interval.

Figure 24 shows differences in cross-domain wellbeing by hours worked. People aged under 65 who were working full-time or long hours were more likely than other under-65 year olds to have high or very high cross-domain wellbeing, and less likely to have low or very low cross-domain wellbeing. Over 65-year-olds, who were not working, had similarly high wellbeing, while working people in this older age group had the highest levels of cross-domain wellbeing of any population group.

Figure 24: Cross-domain wellbeing groups by hours worked



Source: New Zealand General Social Survey 2014/2016

4.5 Multidimensional wellbeing for households with children

As indicated throughout this report, the target population for the NZ General Social Survey is usual residents aged 15 and over. This excludes a large, and potentially vulnerable, portion of the NZ population. It is of great interest to government and society to protect children and promote their wellbeing, however there is a relative vacuum when it comes to understanding the wellbeing of children across the LSF domains. The lack of coverage of children in the GSS at least partly reflects the difficulties in collecting survey data for children, with the OECD (2013) noting that children are only capable of answering subjective wellbeing questions from around age 11.

One approach to filling this vacuum to at least some extent, is to use information we hold about other members of each GSS respondent's household. For each child (aged 14 and under) living in a responding GSS household, we can apply the respondent's wellbeing to the child, and weight up the results to represent the population of New Zealand children. While the wellbeing of the child may be very different to that of the respondent, in many cases the two will align, particularly where the response relates to aspects of the household, such as Housing wellbeing. A cold or mouldy house is cold or mouldy for all household members, regardless of who responds to the survey. In all domains, it would be a reasonable expectation that the wellbeing of the respondent could affect the wellbeing of children living with them to at least some degree. This approach is similar to that undertaken by Stats NZ (2012).

In Figure 25, we present child-weighted wellbeing estimates by LSF domain derived using this approach. This can be compared against the wellbeing of the adult population presented in Figure 1 to understand the extent to which children live with (and directly or indirectly experience) low wellbeing, relative to NZ adults.

Figure 25: Estimated wellbeing of the NZ population aged 15 and over, weighted to represent children aged 0 to 14 living in the adult respondent’s household by LSF domain

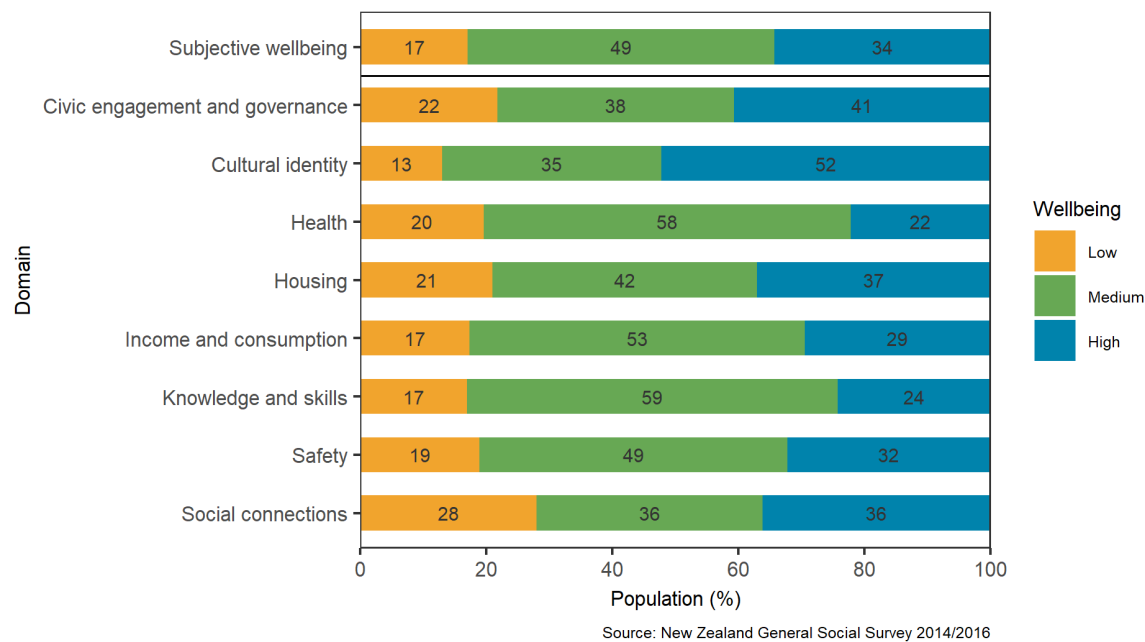
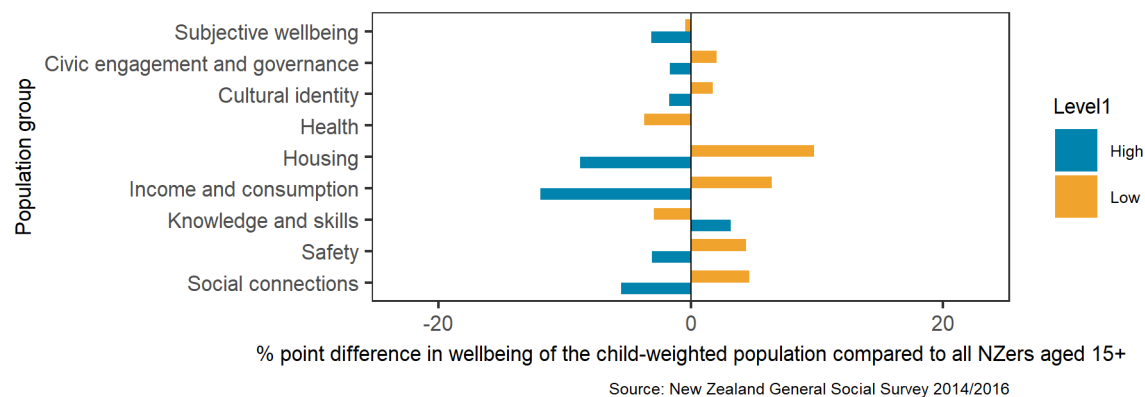


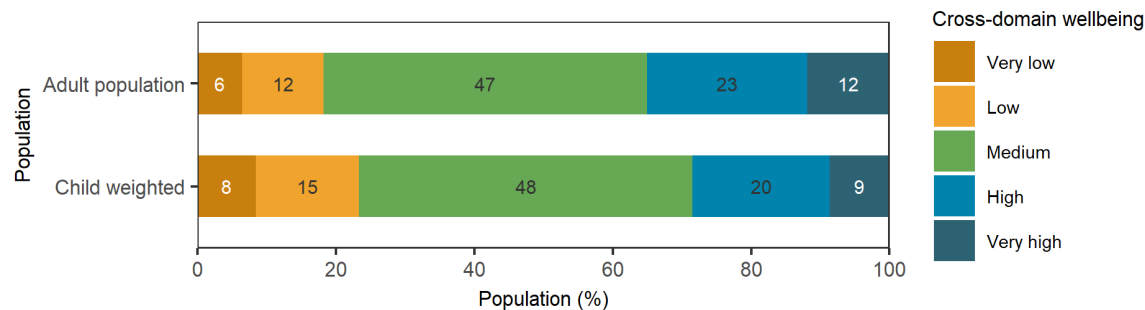
Figure 26 assists in this comparison, by presenting percentage point differences between the two graphs. Children are more likely than adults to live in a household with lower reported levels of Housing and Income and consumption wellbeing (10 and 6 percentage points more likely to have low wellbeing, respectively, and 9 and 12 percentage points less likely to have high wellbeing). Children are also less likely to live in a household with high Subjective wellbeing, or with high levels of Safety and Social connections wellbeing.

Figure 26: Differences in child-weighted respondent wellbeing, compared to the wellbeing of the adult population



When we look at cross-domain wellbeing scores (Figure 27), we can see that overall children are more likely than adults to live in households where the adult has low or very low cross-domain wellbeing, and less likely to live in a household with high or very high cross-domain wellbeing.

Figure 27: Cross-domain wellbeing groups for the adult and child-weighted respondent populations



Source: New Zealand General Social Survey 2014/2016

The results in this section are extremely limited, and should be interpreted with great caution. We derive the wellbeing comparisons reported here from the wellbeing of adult respondents, and these are not an adequate substitute for the collection of wellbeing data about children. The relevance of the results for the wellbeing of children in the respondents' household will vary considerably both across domains, and across households, depending on the specific situations of those households.

5 Next steps

While the analysis reported in this paper provides some useful insights into the distribution of wellbeing across the LSF domains, across the wellbeing spectrum, and within the NZ population, it is very much a first attempt at providing such insights using the LSF. Further work is necessary in a number of areas.

Some domains are measured more robustly and thoroughly than others. Areas of particular weakness include: Knowledge and skills, for which only formal qualifications are measured, and not broader skills and abilities; and Cultural identity, where the only aspect measured is the sense of belonging in New Zealand. Improving the measurement of Cultural identity wellbeing, and improving our understanding of cultural interpretations of wellbeing, would seem to be particularly important in the multicultural context of New Zealand. Te Kupenga, a survey of Māori wellbeing undertaken in 2013, could provide particular insights into cultural dimensions of Māori wellbeing.

Due to difficulties in measurement, and the absence of information in the GSS, other domains were not included at all in our analysis. Wellbeing in the Environment, Jobs and earnings, and Time use domains were not included, and should all be areas of focus for future work, possibly taking advantage of questions asked in earlier GSS survey years, or in the 2018 survey.

While some attempts have been made in this report to look at the wellbeing of children – specifically, through taking each child in a household selected for the GSS and measuring the wellbeing of the adult in that household who responded to the survey – this is by no means a sufficient replacement for directly measuring the wellbeing of children. Longitudinal birth cohort studies, such as Growing up in New Zealand, are one source of valuable insights into the wellbeing of children, while there are also possibilities to develop measures of child wellbeing using administrative data.

The Treasury (Ball et al 2016) and Oranga Tamariki (Deutschle and Brown 2018) have made use of integrated administrative data to classify children according to their likelihood of poor future outcomes. We could explicitly link these administrative measures to the LSF by looking back at the childhood experiences of young GSS respondents in the IDI, and identifying the indicators that are most predictive of wellbeing across LSF domains. This could provide new estimates of the multidimensional wellbeing of children in NZ, and may help identify indicators that are predictive of high as well as low outcomes.

While this study identifies population characteristics that are associated with wellbeing across multiple areas of people's lives, it does not look beyond the characteristics of the individual to any great extent. Future research could pick up the analysis undertaken here, but extend it by modelling the key predictors of wellbeing at the individual, family and whānau, and community levels. More research is also required to develop a better understanding of the reasons for low and high levels of wellbeing in the New Zealand context.

While understanding the wellbeing of New Zealanders is important, the most critical question is what can be done to improve people's wellbeing, and how we can most effectively invest for the wellbeing outcomes we seek to achieve. This requires evaluation evidence about the effectiveness of policies and programmes, not just in terms of their direct outcomes, but also of broader wellbeing outcomes. In order to do this, survey and administrative data will need to be used together in creative ways to provide new insights for New Zealand and New Zealanders.

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Appendix 1 – MWI-9 and SF-12

Material Wellbeing Index (MWI-9) questions

The MWI-9 is based on responses to the following questions:

In the last 12 months, to what extent have you done any of the following things to keep costs down?

- gone without fresh fruit or vegetables?
- postponed or put off visits to the doctor?
- done without, or cut back on trips to the shops or other local places?
- spent less on hobbies or other special interests than you would like?
- put up with feeling cold?
- delayed replacing or repairing broken or damaged appliances?

When buying, or thinking about buying clothes or shoes for yourself, how much do you usually feel limited by the money available?

Imagine that you have come across an item that you would really like to have. This item costs \$300. It is not an essential item - it's an extra. If this happened in the next month, how limited would you feel about buying it?

In the last 12 months have you/you or your partner not paid electricity, gas, rates or water bills on time because of a shortage of money?

SF-12 questions

The SF-12 is based on the following questions (see Stats NZ 2016):

- 1 In general, would you say your health is excellent, very good, good, fair or poor?
- 2 Please tell me if your health now limits you in the following activities: moderate activities such as moving a table, pushing a vacuum cleaner, bowling, or playing golf.
- 3 Please tell me if your health now limits you in the following activity: climbing several flights of stairs.
- 4 During the past four weeks, how much of the time have you accomplished less than you would like as a result of your physical health?
- 5 During the past four weeks, how much of the time were you limited in the kind of work or other regular daily activities you do as a result of your physical health?
- 6 During the past four weeks, how much of the time have you accomplished less than you would like as a result of any emotional problems, such as feeling depressed or anxious?
- 7 During the past four weeks, how much of the time did you do work or other regular daily activities less carefully than usual as a result of any emotional problems, such as feeling depressed or anxious?
- 8 During the past four weeks, how much did pain interfere with your normal work including both work outside the home and housework?
- 9 During the past four weeks, how much of the time have you felt calm and peaceful?

- 10 During the past four weeks, how much of the time did you have a lot of energy?
- 11 During the past four weeks, how much of the time have you felt downhearted and depressed?
- 12 During the past four weeks, how much of the time has your physical health or emotional problems interfered with your social activities, such as visiting friends, relatives etc.?

Appendix 2 – Regression models without controls

Table 5: Regression models of domain wellbeing against life satisfaction score without controls

| Variable | Value | Specification | | | | | | | | |
|---------------------------------|-----------|-------------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|
| | | (a) | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) |
| Civic engagement and governance | Poor | -0.6** [0.052] | | | | | | | | -0.31** [0.046] |
| | Very good | 0.53** [0.032] | | | | | | | | 0.32** [0.03] |
| Cultural identity | Poor | | -0.74** [0.06] | | | | | | | -0.28** [0.062] |
| | Very good | | 0.43** [0.034] | | | | | | | 0.24** [0.031] |
| Health | Poor | | | -1.14** [0.046] | | | | | | -0.82** [0.045] |
| | Very good | | | 0.62** [0.042] | | | | | | 0.4** [0.043] |
| Housing | Poor | | | | -0.45** [0.048] | | | | | -0.09* [0.042] |
| | Very good | | | | 0.49** [0.034] | | | | | 0.22** [0.034] |
| Income and consumption | Poor | | | | | -0.95** [0.044] | | | | -0.53** [0.043] |
| | Very good | | | | | 0.52** [0.03] | | | | 0.23** [0.029] |
| Knowledge and skills | Poor | | | | | | -0.02 [0.05] | | | 0.19** [0] |
| | Very good | | | | | | 0.11** [0.034] | | | -0.05 [0.029] |
| Safety | Poor | | | | | | | -0.41** [0.048] | | -0.06 [0.044] |
| | Very good | | | | | | | 0.24** [0.032] | | -0.03 [0.03] |
| Social connections | Poor | | | | | | | | -0.36** [0.042] | -0.08 [0.039] |
| | Very good | | | | | | | | 0.61** [0.036] | 0.36** [0.038] |
| Controls included? | | N | N | N | N | N | N | N | N | N |
| R-squared | | 0.06 | 0.05 | 0.11 | 0.04 | 0.08 | 0.00 | 0.02 | 0.05 | 0.22 |

Note: ** = significant at the 1% level. * = significant at the 5% level.

Table 6: Regression models of cross-domain wellbeing measures against life satisfaction score without controls

| Variable | Value | Specification | | | | | |
|--|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|------|
| | | (a) | (b) | (c) | (d) | (e) | (f) |
| Domains in poor wellbeing | | -0.42** [0.012] | | -0.28** [0.015] | | | |
| Domains in very good wellbeing | | | 0.36** [0.008] | 0.22** [0.01] | | | |
| Cross-domain wellbeing score | | | | | 0.25** [0.005] | | |
| Cross-domain wellbeing group (Comparison category is Medium wellbeing) | Very low | | | | | -1.82** [0.088] | |
| | Low | | | | | -0.9** [0.066] | |
| | High | | | | | 0.58** [0.036] | |
| | Very high | | | | | 0.92** [0.043] | |
| | | | | | | | |
| Cross-domain wellbeing broad group (Comparison category is Medium wellbeing) | Very low to low | | | | | -1.23** [0.053] | |
| | High to very high | | | | | 0.69** [0.031] | |
| Controls included? | | N | N | N | N | N | N |
| R-squared | | 0.14 | 0.13 | 0.17 | 0.17 | 0.16 | 0.15 |

Note: ** = significant at the 1% level. * = significant at the 5% level.

Appendix 3 – Low wellbeing heat maps

Figure 28: Differences in the probability of having low wellbeing in one domain if a person has low wellbeing in another domain – Women (percentage point difference)

| | | Domain 2 Low wellbeing | | | | | | | | |
|------------------------|---------------------------------|------------------------|---------------------------------|-------------------|--------|---------|------------------------|----------------------|--------|--------------------|
| | | Subjective wellbeing | Civic engagement and governance | Cultural identity | Health | Housing | Income and consumption | Knowledge and skills | Safety | Social connections |
| Domain 1 Low wellbeing | Subjective wellbeing | | 25* | 18* | 34* | 16* | 26* | 7.4* | 11* | 15* |
| | Civic engagement and governance | 21* | | 13* | 19* | 14* | 21* | 7* | 14* | 14* |
| | Cultural identity | 21* | 18* | | 19* | 14* | 17* | 0.35 | 8.8* | 28* |
| | Health | 27* | 18* | 13* | | 11* | 18* | 12* | 11* | 15* |
| | Housing | 13* | 13* | 9.9* | 11* | | 29* | 3.1* | 12* | 13* |
| | Income and consumption | 24* | 23* | 13* | 20* | 32* | | 8.6* | 13* | 13* |
| | Knowledge and skills | 7.2* | 8.2* | 0.29 | 14* | 3.8* | 9.4* | | -1.9 | -8.3* |
| | Safety | 9.1* | 13* | 6.1* | 11* | 12* | 12* | -1.6 | | 18* |
| | Social connections | 10* | 11* | 16* | 12* | 11* | 9.8* | -5.6* | 14* | |

Source: New Zealand General Social Survey 2014/2016
* indicates statistically significant differences from 0 at the 95% level

Figure 29: Differences in the probability of having low wellbeing in one domain if a person has low wellbeing in another domain – Men (percentage point difference)

| | | Domain 2 Low wellbeing | | | | | | | | |
|------------------------|---------------------------------|------------------------|---------------------------------|-------------------|--------|---------|------------------------|----------------------|--------|--------------------|
| | | Subjective wellbeing | Civic engagement and governance | Cultural identity | Health | Housing | Income and consumption | Knowledge and skills | Safety | Social connections |
| Domain 1 Low wellbeing | Subjective wellbeing | | 23* | 15* | 29* | 15* | 20* | 7* | 11* | 17* |
| | Civic engagement and governance | 19* | | 9* | 14* | 12* | 13* | 9.6* | 14* | 14* |
| | Cultural identity | 21* | 15* | | 15* | 14* | 16* | 0.37 | 12* | 22* |
| | Health | 30* | 18* | 12* | | 11* | 15* | 12* | 8.3* | 14* |
| | Housing | 14* | 13* | 9.8* | 9.3* | | 24* | 5.2* | 10* | 10* |
| | Income and consumption | 23* | 17* | 13* | 16* | 29* | | 13* | 12* | 15* |
| | Knowledge and skills | 7.3* | 12* | 0.28 | 12* | 5.9* | 12* | | 3.2* | -4.2* |
| | Safety | 12* | 18* | 9.8* | 8.7* | 12* | 12* | 3.3* | | 18* |
| | Social connections | 13* | 13* | 12* | 10* | 8.4* | 9.8* | -3* | 13* | |

Source: New Zealand General Social Survey 2014/2016
* indicates statistically significant differences from 0 at the 95% level

Figure 30: Differences in the probability of having low wellbeing in one domain if a person has low wellbeing in another domain – Population aged 15 to 34 (percentage point difference)

| | | Domain 2 Low wellbeing | | | | | | | | |
|------------------------|---------------------------------|------------------------|---------------------------------|-------------------|--------|---------|------------------------|----------------------|--------|--------------------|
| | | Subjective wellbeing | Civic engagement and governance | Cultural identity | Health | Housing | Income and consumption | Knowledge and skills | Safety | Social connections |
| Domain 1 Low wellbeing | Subjective wellbeing | | 26* | 15* | 33* | 14* | 22* | 5.8* | 11* | 16* |
| | Civic engagement and governance | 23* | | 14* | 19* | 18* | 24* | 7.7* | 15* | 18* |
| | Cultural identity | 16* | 18* | | 17* | 11* | 13* | 3.9 | 9.8* | 29* |
| | Health | 36* | 25* | 17* | | 17* | 20* | 5.8* | 15* | 26* |
| | Housing | 10* | 14* | 7.3* | 11* | | 25* | 4.5* | 11* | 9.6* |
| | Income and consumption | 18* | 23* | 9.2* | 15* | 29* | | 11* | 14* | 9.5* |
| | Knowledge and skills | 8* | 12* | 4.7 | 7.1* | 8.8* | 19* | | 5.4* | 0.14 |
| | Safety | 8.8* | 14* | 7.1* | 11* | 13* | 14* | 3.2* | | 18* |
| | Social connections | 10* | 13* | 16* | 15* | 8.6* | 7.4* | 0.07 | 14* | |

Source: New Zealand General Social Survey 2014/2016
* indicates statistically significant differences from 0 at the 95% level

Figure 31: Differences in the probability of having low wellbeing in one domain if a person has low wellbeing in another domain – Population aged 35 to 64 (percentage point difference)

| | | Domain 2 Low wellbeing | | | | | | | | |
|------------------------|---------------------------------|------------------------|---------------------------------|-------------------|--------|---------|------------------------|----------------------|--------|--------------------|
| | | Subjective wellbeing | Civic engagement and governance | Cultural identity | Health | Housing | Income and consumption | Knowledge and skills | Safety | Social connections |
| Domain 1 Low wellbeing | Subjective wellbeing | | 22* | 19* | 33* | 16* | 26* | 9.5* | 12* | 16* |
| | Civic engagement and governance | 19* | | 9.9* | 17* | 11* | 15* | 9.7* | 13* | 13* |
| | Cultural identity | 24* | 15* | | 19* | 14* | 19* | 1.2 | 10* | 22* |
| | Health | 33* | 20* | 16* | | 14* | 24* | 9.6* | 14* | 19* |
| | Housing | 15* | 12* | 10* | 13* | | 27* | 9.3* | 11* | 11* |
| | Income and consumption | 28* | 19* | 16* | 25* | 32* | | 15* | 11* | 15* |
| | Knowledge and skills | 12* | 14* | 1.2 | 12* | 12* | 17* | | 2.4 | -5.9* |
| | Safety | 11* | 16* | 7.7* | 14* | 11* | 10* | 1.9 | | 18* |
| | Social connections | 11* | 11* | 13* | 14* | 8.4* | 10* | -3.5* | 13* | |

Source: New Zealand General Social Survey 2014/2016
* indicates statistically significant differences from 0 at the 95% level

Figure 32: Differences in the probability of having low wellbeing in one domain if a person has low wellbeing in another domain – Population aged 65 and over (percentage point difference)

| | | Domain 2 Low wellbeing | | | | | | | | |
|------------------------|---------------------------------|------------------------|---------------------------------|-------------------|--------|---------|------------------------|----------------------|--------|--------------------|
| | | Subjective wellbeing | Civic engagement and governance | Cultural identity | Health | Housing | Income and consumption | Knowledge and skills | Safety | Social connections |
| Domain 1 Low wellbeing | Subjective wellbeing | | 24* | 10* | 31* | 13* | 14* | 9* | 5.3* | 11* |
| | Civic engagement and governance | 17* | | 7.9* | 12* | 8.4* | 8.7* | 7.6* | 11* | 12* |
| | Cultural identity | 16* | 17* | | 24* | 15* | 13* | 1.5 | 9.5* | 19* |
| | Health | 16* | 8.6* | 7.9* | | 8.1* | 10* | 11* | 3.6* | 4.7* |
| | Housing | 16* | 14* | 11* | 19* | | 22* | 3.4 | 6.1* | 10* |
| | Income and consumption | 19* | 16* | 11* | 26* | 24* | | 11* | 9* | 12* |
| | Knowledge and skills | 4.6* | 5.3* | 0.47 | 11* | 1.4 | 4.1* | | 0.83 | -1.8 |
| | Safety | 5.6* | 16* | 6.3* | 7.4* | 5.4* | 7.1* | 1.7 | | 13* |
| | Social connections | 9.2* | 13* | 9.6* | 7.5* | 7.1* | 7.3* | -2.9 | 10* | |

Source: New Zealand General Social Survey 2014/2016
* indicates statistically significant differences from 0 at the 95% level

Figure 33: Differences in the probability of having low wellbeing in one domain if a person has low wellbeing in another domain – Asian ethnicity (percentage point difference)

| | | Domain 2 Low wellbeing | | | | | | | | |
|------------------------|---------------------------------|------------------------|---------------------------------|-------------------|--------|---------|------------------------|----------------------|--------|--------------------|
| | | Subjective wellbeing | Civic engagement and governance | Cultural identity | Health | Housing | Income and consumption | Knowledge and skills | Safety | Social connections |
| Domain 1 Low wellbeing | Subjective wellbeing | | 10* | 20* | 28* | 12* | 19* | 2.5 | 6.5* | 7.9 |
| | Civic engagement and governance | 16* | | 6.7 | 14* | 11* | 13* | 0.07 | 11* | 14* |
| | Cultural identity | 14* | 3.1 | | 9.1* | 12* | 10* | 0.89 | 5.2* | 19* |
| | Health | 33* | 11* | 15* | | 13* | 17* | 4.5 | 17* | 21* |
| | Housing | 8.9* | 5.4* | 12* | 8.6* | | 10* | 1.7 | 4.7* | 7.6* |
| | Income and consumption | 19* | 8.8* | 15* | 15* | 14* | | 9.7* | 2.3 | 8.1 |
| | Knowledge and skills | 6.9 | 0.13 | 3.5 | 10* | 6 | 27* | | 1.4 | -14* |
| | Safety | 7.8* | 8.6* | 8.8* | 17* | 7.4* | 2.7 | 0.6 | | 21* |
| | Social connections | 5 | 5.8* | 17* | 11* | 6.4* | 5.2 | -3.2* | 11* | |

Source: New Zealand General Social Survey 2014/2016
* indicates statistically significant differences from 0 at the 95% level

Figure 34: Differences in the probability of having low wellbeing in one domain if a person has low wellbeing in another domain – European ethnicity (percentage point difference)

| | | Domain 2 Low wellbeing | | | | | | | | |
|------------------------|---------------------------------|------------------------|---------------------------------|-------------------|--------|---------|------------------------|----------------------|--------|--------------------|
| | | Subjective wellbeing | Civic engagement and governance | Cultural identity | Health | Housing | Income and consumption | Knowledge and skills | Safety | Social connections |
| Domain 1 Low wellbeing | Subjective wellbeing | | 26* | 17* | 33* | 15* | 22* | 6.7* | 12* | 18* |
| | Civic engagement and governance | 21* | | 13* | 16* | 11* | 16* | 7.7* | 14* | 15* |
| | Cultural identity | 26* | 26* | | 24* | 14* | 17* | 3.4 | 14* | 29* |
| | Health | 28* | 17* | 13* | | 9.3* | 15* | 11* | 10* | 14* |
| | Housing | 15* | 14* | 8.7* | 11* | | 24* | 3.6* | 13* | 15* |
| | Income and consumption | 25* | 23* | 12* | 20* | 28* | | 8.9* | 16* | 18* |
| | Knowledge and skills | 6.4* | 9.1* | 2 | 13* | 3.5* | 7.4* | | 0.21 | -6* |
| | Safety | 10* | 15* | 8* | 10* | 12* | 12* | 0.19 | | 18* |
| | Social connections | 12* | 13* | 13* | 11* | 11* | 11* | -4.3* | 14* | |

Source: New Zealand General Social Survey 2014/2016
* indicates statistically significant differences from 0 at the 95% level

Figure 35: Differences in the probability of having low wellbeing in one domain if a person has low wellbeing in another domain – Māori ethnicity (percentage point difference)

| | | Domain 2 Low wellbeing | | | | | | | | |
|------------------------|---------------------------------|------------------------|---------------------------------|-------------------|--------|---------|------------------------|----------------------|--------|--------------------|
| | | Subjective wellbeing | Civic engagement and governance | Cultural identity | Health | Housing | Income and consumption | Knowledge and skills | Safety | Social connections |
| Domain 1 Low wellbeing | Subjective wellbeing | | 30* | 20* | 32* | 17* | 28* | 8.2* | 11* | 16* |
| | Civic engagement and governance | 22* | | 13* | 18* | 15* | 20* | 4.9* | 12* | 13* |
| | Cultural identity | 26* | 23* | | 24* | 7.2* | 18* | -5.3 | 13* | 28* |
| | Health | 30* | 21* | 17* | | 15* | 23* | 12* | 6.8* | 17* |
| | Housing | 13* | 15* | 4.2* | 13* | | 31* | 1.2 | 14* | 5.3 |
| | Income and consumption | 22* | 21* | 11* | 20* | 33* | | 9.9* | 12* | 13* |
| | Knowledge and skills | 7.3* | 5.8* | -3.6 | 12* | 1.4 | 11* | | -4.3 | -4.4 |
| | Safety | 9.7* | 14* | 8.9* | 6.6* | 17* | 14* | -4.3 | | 18* |
| | Social connections | 12* | 13* | 16* | 14* | 5.2 | 12* | -3.7 | 15* | |

Source: New Zealand General Social Survey 2014/2016
* indicates statistically significant differences from 0 at the 95% level

Figure 36: Differences in the probability of having low wellbeing in one domain if a person has low wellbeing in another domain – Pacific ethnicity (percentage point difference)

| | | Domain 2 Low wellbeing | | | | | | | | |
|------------------------|---------------------------------|------------------------|---------------------------------|-------------------|--------|---------|------------------------|----------------------|--------|--------------------|
| | | Subjective wellbeing | Civic engagement and governance | Cultural identity | Health | Housing | Income and consumption | Knowledge and skills | Safety | Social connections |
| Domain 1 Low wellbeing | Subjective wellbeing | | 14* | 10 | 30* | 9.4 | 23* | 12* | 8.9* | 12* |
| | Civic engagement and governance | 11* | | 6.9 | 7.8* | 0.73 | 7.6 | -2.4 | 7.6* | 9* |
| | Cultural identity | 9.9* | 8 | | 12* | 8.4 | 7.9 | 2.5 | 11* | 20* |
| | Health | 34* | 11* | 14* | | 12* | 18* | 12* | 12* | 21* |
| | Housing | 6.1 | 0.57 | 5.6 | 6.9* | | 26* | 2.1 | 10* | 1.1 |
| | Income and consumption | 15* | 6.1 | 5.5 | 11* | 27* | | 10* | 13* | 0.35 |
| | Knowledge and skills | 11* | -2.8 | 2.4 | 10* | 3.1 | 14* | | 0.53 | -4.6 |
| | Safety | 8.6* | 8.9* | 11* | 10* | 15* | 19* | 0.54 | | 21* |
| | Social connections | 9.5* | 8.8* | 16* | 15* | 1.4 | 0.42 | -4 | 18* | |

Source: New Zealand General Social Survey 2014/2016
 * indicates statistically significant differences from 0 at the 95% level