Australian Unity Wellbeing Index

Report 19.1
August 2008

Part A: The Report

"The Wellbeing of Australians – Differences between statistical sub-divisions, towns and cities"

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http://www.deakin.edu.au/research/acqol/index_wellbeing/index.htm

Published by Deakin University, Geelong, Victoria 3217, Australia

First published 2008

ISBN 978 1 74156 117 3

This is a joint publication of:

The School of Psychology, Deakin University
The Australian Centre on Quality of Life, Deakin University
Australian Unity

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Acknowledgement
We thank Ann-Marie James for word processing this document. All analyses in this Report were performed by Jacqui Woerner and Lauren Hamilton. The maps were produced by David Williams, Lufanna Lai, and Melissa Weinberg.

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Executive Summary

Introduction

The Australian Unity Wellbeing Index monitors the subjective wellbeing of the Australian population. Our first survey was conducted in April 2001 and our 20th survey in October 2008. While the results from each of these surveys are described in separate reports, available from the web address on the front page, additional reports are produced that use the cumulative data set in some way.

This Report 19.1 uses our data, accumulated to Survey 18, to describe the wellbeing of Australians as represented by the averages of Statistical Sub Divisions, of which there are about 180 across the country. It also explores the relationship of various demographic characteristics, as determined by the Australian Bureau of Statistics, to these wellbeing averages.

The Theory

The theoretical framework for the interpretation of data is the theory of Subjective Wellbeing Homeostasis. This proposes that each person has a 'set-point' for personal wellbeing that is internally maintained and defended. This set-point is genetically determined and, on average, causes personal wellbeing to be held at 75 points on a 0-100 scale. The normal level of individual set-point variation is between about 60-90 percentage points. The provision of personal resources, such as money or relationships, cannot normally increase the set-point on a long term basis due to the genetic ceiling. However, they can strengthen defences against negative experience. Moreover, for someone who is suffering homeostatic defeat, the provision of additional resources may allow them to regain control of the wellbeing. In this case the provision of resources will cause personal wellbeing to rise until the set-point is achieved.

Low levels of personal resources, such as occasioned by low income or absence of a partner, weakens homeostasis. If personal challenges such as stress or pain exceed resources, homeostasis is defeated, and subjective wellbeing decreases below its normal range.

The normative range for group mean scores has also been calculated. This calculation has involved using the whole sample mean scores from each of the surveys as data. The mean and the standard deviation derived from their combination is then used to calculate the normative ranges for group mean scores, which ranges from about 73 to 76 points. Many of the results in this report are referenced to this normative range.

The Analyses

All data have been standardized to a 0-100 range Thus, the magnitude of group differences is referred to in terms of percentage points. Reference is also made to normative ranges. These have been calculated for the Personal Wellbeing Index, as described above, and also been calculated separately for each of the Personal Wellbeing Index domains. They have also been calculated for gender, age groups and work-status groups. These norms are presented at the back of their respective chapters in Report 19.0. All of the reported trends are statistically significant.

Dot point summaries are provided at the end of each Chapter.

The Results

A. State/Territory Comparisons

1. The five SSDs with the highest levels of wellbeing are all characterised by being fairly remote regions of Australia. These are:

   Glenelg (VIC)
   Upper South East (SA)
   Kangaroo Island/Yorke (SA)
   Litchfield Shire (NT)
   Barkly/Lower Top End NT (NT)

2. The five SSDs with the lowest levels of wellbeing are mainly characterised as inner-city. These are:

   Fairfield-Liverpool (NSW)
   South Canberra (ACT)
   Inner Sydney (NSW)
   Greater Dandenong City (VIC)
   Logan City (QLD)

B. Demographic Influences

1. Various demographic variables alone and in combination can explain 25-30% of the variation in wellbeing between SSDs. The strongest of these are wealth (positive), population density (negative), the percentage of homes where only English is spoken (positive) and the percentage of people not born in Australia (negative).

2. The strongest demographic factor in terms of explaining variation between SSDs appears to be the percentage of people not born in Australia. However, the influence is minor where the proportion of New Australians remains below 40% of the total SSD population. The vast majority of SSDs contain less than 40% New Australians. However, the few SSDs that exceed this proportion have low average wellbeing.

3. The domains of wellbeing that appear most sensitive to these influences are relationships and community connection.

4. We cannot determine from our results whether the low wellbeing experienced by people within these SSDs is being experienced by the new Australians, other Australians, or both. However, these results signal to policy makers that these SSDs that are very high in the numbers of new Australians need additional resources.

   These required resources are not necessarily in terms of additional financial resources. The final regression equation (Table A4.9) shows a non-significant contribution to wellbeing from income, age, and population density. The required resources are rather in terms of those aspects of community living that allow people to relate easily to one another. It is possible that there is a critical mass of new Australians in geographic locations that inhibits such relationships. However, our research is far from conclusive on this issue and further investigations are urgently required.

C. Regional Cities and Towns

1. Wellbeing generally falls in cities with more than 40,000 inhabitants.
2. The most important domain driving this is connection to community.
3. It seems intuitive that the reduced sense of safety in large cities is related to the lower community connection.

1. Introduction

The Australian Unity Wellbeing Index is a barometer of Australians' satisfaction with their lives and life in Australia. Unlike most official indicators of quality of life and wellbeing, it is subjective – it measures how Australians feel about life, and incorporates both personal and national perspectives. The Index shows how various aspects of life – both personal and national – affects our sense of wellbeing.

The Index is an alternative measure of population wellbeing to such economic indicators as Gross Domestic Product and other objective indicators such as population health, literacy and crime statistics. The Australian Unity Wellbeing Index measures quality of life as experienced by the average Australian.

The Index yields two major numbers. The Personal Wellbeing Index is the average level of satisfaction across seven aspects of personal life – health, personal relationships, safety, standard of living, achieving, community connectedness, and future security. The National Wellbeing Index is the average satisfaction score across six aspects of national life – the economy, the environment, social conditions, governance, business, and national security. This current Report 19.1 has employed only the Personal Wellbeing Index.

1.1. Background

A considerable body of research has demonstrated that most people are satisfied with their own life. In Western nations, the average value for population samples is about 75 percentage points of satisfaction. That is, on a standardised scale from 0 (completely dissatisfied) to 100 (completely satisfied) the average person rates their level of life satisfaction as 75.

The normal range of values for individuals is not known with certainty but is probably within the range of 60 to 90 points. When group means are calculated, the variation is much less and the normative range in Australia is 73.4 to 76.4 points. We always find the Personal Wellbeing Index for population means to fall within this range.

The first full survey, of 2,000 adults from all parts of Australia, was conducted in April 2001. Since then 19 additional surveys have been conducted, with the most recent survey in October 2008. Copies of these reports can be obtained either from the Australian Unity website (www.australianunity.com.au) or from the Australian Centre on Quality of Life website at Deakin University (http://www.deakin.edu.au/research/acqol/index.htm). This report concerns the cumulative data from Surveys 1-18.

The aim of this report is to profile the wellbeing of Australia according to the ABS geographic areas called Statistical Sub-Divisions.

1.2. Understanding Personal Wellbeing

The major measurement instrument used in our surveys is the Personal Wellbeing Index (PWI). This is designed as the first level deconstruction of 'Life as a Whole'. It comprises seven questions relating to satisfaction with life domains, such as 'health' and 'standard of living'. Each question is answered on a 0-10 scale of satisfaction. The scores are then combined across the seven domains to yield an overall Index score, which is adjusted to have a range of 0-100.

On a population basis the scores that we derive from this PWI are quite remarkably stable. Appendix AI presents these values, each derived from a geographically representative sample of 2,000 randomly selected adults across Australia. As can be seen, these values range from 73.4 to 76.4, a fluctuation of only 3.0 points. How can such stability be achieved?

We hypothesize that personal wellbeing is not simply free to vary over the theoretical 0-100 range. Rather, it is held fairly constant for each individual in a manner analogous to blood pressure or body temperature. This implies an active management system for personal wellbeing that has the task of maintaining wellbeing, on average, at about 75 points. We call this process Subjective Wellbeing Homeostasis (Cummins et al., 2002).

The proper functioning of this homeostatic system is essential to life. At normal levels of wellbeing, which for group average scores lies in the range of 70-80 points, people feel good about themselves, are well motivated to conduct their lives, and have a strong sense of optimism. When this homeostatic system fails, however, these essential qualities are severely compromised, and people are at risk of depression. This can come about through such circumstances as exposure to chronic stress, chronic pain, failed personal relationships, etc.

Fortunately for us, the homeostatic system is remarkably robust. Many people live in difficult personal circumstances which may involve low income or medical problems, and yet manage to maintain normal levels of wellbeing. This is why the Index is so stable when averaged across the population. But as with any human attribute, some homeostatic systems are more robust than others. Or, put around the other way, some people have fragile systems which are prone to failure.

Homeostatic fragility, in these terms, can be caused by two different influences. The first of these is genetic. Some people have a constitutional weakness in their ability to maintain wellbeing within the normal range. The second influence is the experience of life. Here, as has been mentioned, some experiences such as chronic stress can challenge homeostasis. Other influences, such as intimate personal relationships, can strengthen homeostasis.

In summary, personal wellbeing is under active management and most people are able to maintain normal levels of wellbeing even when challenged by negative life experiences. A minority of people, however, have weaker homeostatic systems as a result of either constitutional or experiential influences. These people are vulnerable to their environment and may evidence homeostatic failure. The identification of sub-groups that contain a larger than normal proportion in homeostatic failure of people is an important feature of our survey analyses.

1.3. The Survey Methodology

Each survey comprises a geographically representative national sample of people aged 18 years or over and fluent in English. They are surveyed by telephone. Interviewers asked to speak to the person in the house who had the most recent birthday and was at least 18 years old. The typical response rate is around 26%. This response rate reflects, in part, the methodological constraint that an even geographic and gender split is maintained at all times throughout the survey. All responses are made on a 0 to 10 scale. The satisfaction responses are anchored by 0 (completely dissatisfied) and 10 (completely satisfied). Initial data screening is completed before data analysis.

Unlike gender, the age composition of the sample is not actively managed but yields a break-down similar to that of the national population as determined by the Australian Bureau of Statistics in October 2001 (see Report 5.0).

1.4. Presentation of results and type of analysis

In the presentation of results to follow, the trends that are described in the text are all statistically significant at $p<.05$. More detailed analyses are presented as Appendices. These are arranged in sections that correspond numerically with sections in the main report. All Appendix Tables have the designation ‘A’ in addition to their numerical identifier (e.g. Table A9.2).

All satisfaction values are expressed as the strength of satisfaction on a scale that ranges from 0 to 100 percentage points.

In situations where homogeneity of variance assumptions has been violated, Dunnetts T3 Post-Hoc Test has been used. In the case of t-tests we have used the SPSS option for significance when equality of variance cannot be assumed.

The raw data for this and all previous reports are available from our website: http://www.deakin.edu.au/research/acqol/index_wellbeing/index.htm.

1.5. Internal Report Organisation

Chapter 2 presents the methodology used in the generation of all results.

Chapter 3 presents three different methodologies used to identify particularly high and low SSDs.

Chapter 4 presents an analysis of demographic influences on wellbeing.

Chapter 5 presents a comparative analysis of the 70 largest regional towns.

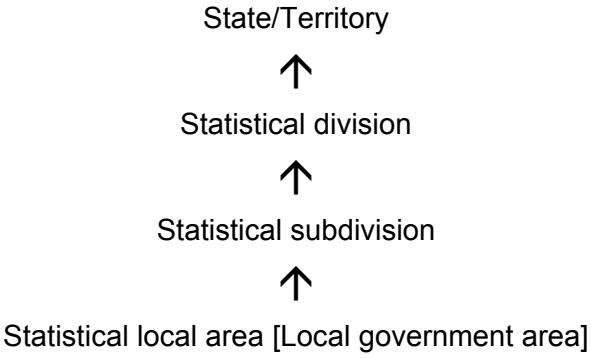
2. Methodology

This report has been constructed using our total database comprising Surveys 1 to 18, or about 33,000 respondents. The geographic unit of analysis is that of Statistical Sub-Division. This is part of the classification system used by the Australian Bureau of Statistics. These regional structures derive from the Australian Standard Geographical Classification (AGSC). The AGSC defines at the very smallest level, the Census Collection District (CCD). These CCD's aggregate to form the Statistical Local Area (SLA), which is the common base unit for each of the larger regional structures. The boundaries of the SLA are designed to be typically coterminous with Local Government Areas.

Statistical Subdivisions (SSDs) consist of one or more Statistical Local Areas (SLAs) and form an intermediate size spatial unit for the presentation of data. SSDs are defined as socially and economically homogeneous regions characterised by identifiable links between inhabitants. One or more SSDs can make up a Statistical Division (SD). The SSD is the geographic unit selected for this report.

Statistical Divisions (SDs) consist of one or more Statistical Subdivisions (SSDs). SDs are defined as socially and economically homogeneous regions characterised by identifiable links between inhabitants, under the unifying influence of one or more major cities or towns.

States and Territories are geographic areas and political entities with fixed boundaries. States and Territories consist of one or more Statistical Divisions.



NOTE: Information derived from ABS website:
http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/1379.0.55.001Glossary

2.1. Participants

This report is based on data derived from 35,057 participants aged 18 to 95 years (M = 48.39, SD = 17.16). Of these, 16,704 respondents are male (47.6%) and 18, 353 are female (52.4%).

Participants were recruited as part of the ongoing bi-annual national survey (Australian Unity Wellbeing Index Surveys 1-18) over a duration of approximately six years (June 2001 - October 2007; http://acqol.deakin.edu.au/index_wellbeing/index.htm).

Participants were surveyed by telephone with interviewers asking to speak to the person in the house who had the most recent birthday and was at least 18 years old. All responses were made on a 0 to 10 scale. The satisfaction responses were anchored by 0 (completely dissatisfied) and 10 (completely satisfied).

2.2. The Allocation of Postcodes to SSDs

The only data we have pertaining to geographic location is postcode. The method of allocating postcodes to SSDs is as follows:

2.3. Procedure

Initially, respondent's postcodes were used to determine their Local Government Area (LGA). The matching of postcodes to current LGA's was conducted using information provided by the Australian Bureau of Statistics (ABS; www.abs.gov.au/AUSSTATS). Once LGA code and LGA name was designated to each postcode, participants were further divided into their representative government Statistical Sub-Division (SSD) and finally, their Statistical Division (SD). Again, these classification codes and related information necessary to transfer LGA data into SD's and SSD's were provided by the ABS (www.abs.gov.au/AUSSTATS).

However, any SSD's which consisted of less than 20 participants were merged with a neighbouring SSD, to ensure that each division had enough participants to conduct the relevant analyses. To determine the geographical location of each SSD (and therefore allow for neighbouring SSD's to be merged where necessary), the national Australian Local Government Area website was utilised (http://www.alga.asn.au/about/).

Finally, all postcodes which could not be reliably assigned to a specified LGA was re-evaluated using the Australia Post website (http://www1.auspost.com.au/postcodes/) to obtain an area name, which was then linked to the correct LGA using the national Australian Local Government Area website (http://www.alga.asn.au/about/).

Initial data screening was also completed before any data analyses commenced. Data which had untraceable, inaccurate or false postcodes (as determined by Australia Post) were removed.

2.4. The Creation of SSD Demographic Data

Using the '2006 Community Profiles' link from the website below, downloaded (using the 'browse' tab), Time Series Profiles for 220 of the 221 SSDs for which we had PWI data were obtained. Time series profiles provide tables of data relating to demographic variables such as age, ancestry, income, housing, employment, education etc. Data are presented from the 1996, 2001, and 2006 Censuses. The community profile for Central Tablelands – NSW was unavailable due to technical problems with the website during the time of data analysis.

http://www.abs.gov.au/websitedbs/D3310114.nsf/Home/Census+Data

An Excel spreadsheet was created into which data were copied and pasted from the 2001 and 2006 data in the community profile. These time points were chosen as they correspond with the timeframe for PWI data collection.

PWI mean, standard deviation and sample size were entered into the spreadsheet.

30 of the SSDs were combined for analysis due to the small number of respondents. In such case, each variable was either added or averaged, depending on its nature.

Variables included in Excel spreadsheet were as follows (note: income, age and population density were then transformed into categorical variables as described below):

- Median Household Income ($) in 2001 and in 2006 were averaged to give Average Median Household Income.

- Median Age (years) in 2001 and 2006 were averaged to give Average Median Age.

- Population Density (p/sq.Km) in 2001 and 2006 was divided by the Area (sq.Km), then these two numbers (i.e. 2001 and 2006 Population Density) were averaged to give the Average Population Density.

- Indigenous (%) – number of persons who responded as Indigenous for 2001 and 2006 were averaged. This was divided by the average total number of persons and presented as a percentage to give the Average Percent of Persons who Identify as Indigenous.

- Born not in Australia (%) – the number of persons who responded being born in Australia was divided by total number of persons (minus overseas visitors and number of persons who did not respond) for 2001 and 2006. These were averaged and presented as a percentage to give the average percent of persons born in Australia. This number was subtracted from 100% to give the Average Percent of Persons Not Born in Australia.

- Married (%) – the number of men and the number of women who responded as married for each of the 2001 and 2006 data sets were added together within each year to give the 2001 and 2006 total number of persons who responded as being currently married. This was divided by the respective total number of persons over the age of 15 and presented as a percentage. The percent of persons who responded as married in 2001 and 2006 were averaged to give the Average Percent of Married Persons.

- One-parent families with dependent children <15 years of age (%) – the number of one-parent families with dependent children under the age of 15 for the 2001 and 2006 census data sets were averaged to give the Average Number of One-parent Families with Dependent Children Under the Age of 15. The number of total families in the 2001 and 2006 data sets was averaged to give the Average Total Number of Families. The Average Number of One-parent Families with Dependent Children Under the Age of 15 was divided by the Average Total Number of Families to give the Average Percent of One-Parent Families with Dependent Children Under the Age of 15.

- Couple-families with dependent children <15 years of age (%) – the number of couple families with dependent children under the age of 15 for the 2001 and 2006 census data sets were averaged to give the Average Number of Couple Families with Dependent Children Under the Age of 15. The number of total families in the 2001 and 2006 data sets was averaged to give the Average Total Number of Families. The Average Number of Couple Families with Dependent Children Under the Age of 15 was divided by the Average Total Number of Families to give the Average Percent of Couple Families with Dependent Children Under the Age of 15.

- Different address 1 year ago (%) – for each 2001 and 2006 data sets, the number of persons living at a different address 1 year ago and the number of persons living in the same address 1 year ago were added together to give the total number of persons (over 1 year of age). The number of persons living in a different address 1 year ago was divided by the total number of persons and was presented as a percentage. The 2001 and 2006 percent of persons living in a different address 1 year ago were averaged to give the Average Percent of Persons Living in a Different Address 1 Year Ago.

- Different address 5 years ago (%) – for each 2001 and 2006 data sets, the number of persons living in a different address 5 years ago and the number of persons living the same address 5 years ago were added together to give the total number of persons (over 5 years of age). The number of persons living in a different address 5 years ago was divided by the total number of persons and was presented as a percentage. The 2001 and 2006 percent of persons living in a different address 5 years ago were averaged to give the average number of persons living in a different address 5 years ago.

2.5. Methodology for the Allocation of People to the Population Density, Age and Income Categories

(a) The process of allocating people to these population density categories has been as follows:

1. Each SSD has been allocated to one of the 10 categorised ranges in Table A3.1 on the basis of its population density.

2. The individuals within each allocated SSD have been grouped within that range.

3. The analysis has involved a 10 category ANOVA based on the individuals' Personal Wellbeing Index values as the dependent variable.

(b) The process of allocating people to these age-categories is the same as for (a) except that 12 categories have been formed.

(c) The process of allocating people to these household income categories is the same as for (a).

2.6. Methodology for the allocation of people to rural cities and towns

The initial ranking of urban centres based on population statistics was derived from the Australian Bureau of Statistics (ABS; www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/735A104E4E83C6E2CA256CF40001D92A/$File/20160_2001.pdf).

Once the highest populated 50 towns (excluding capital cities) were identified, in ranked order, the statistical sub-division(s) (SSD) (http://www.censusdata.abs.gov.au/ABSNavigation/prenav/LocationSearch?ReadForm&prenavtabname=Location%20Search&&&navmapdisplayed=true&textversion=false&collection=Census&period=2001&producttype=&method=&productlabel=&breadcrumb=L&topic) the corresponding SSD name (www.abs.gov.au/AUSSTATS) for each town was established via the ABS.

Once the SSD(s) of the highest populated 50 Australian towns were determined, the data of participants from these SSD(s) were extracted from the Australian Unity Wellbeing Index Surveys 1-19 (http://acqol.deakin.edu.au/index_wellbeing/index.htm) to create a new data set. This data was subsequently used to analyse and compare the Personal Wellbeing and related constructs of individuals in each town.

In addition, the specific population of each town was determined via www.abs.gov.au/AUSSTATS. The population of each SSD was also identified (www.abs.gov.au/AUSSTATS/abs@nsf/DetailsPage/3235.02006), however, for the larger towns which consist of more than one SSD, the population of each SSD was combined to provide an overall town-SSD population indication.

The above procedure was then repeated with regard to the other Australian towns that contained a minimum N=40 sample from the Australian Unity Wellbeing Index Surveys 1-19 (http://acqol.deakin.edu.au/index_wellbeing/index.htm). These towns were also identified via www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/735A104E4E83C6E2CA256CF40001D92A/$File/20160_2001.pdf. Only a further 21 towns were incorporated into this data set.
Finally, the two data sets were merged (representing the 71 highest populated towns) to enable the Personal Wellbeing (and related constructs) of the lowest and highest populated Australia towns to be statistically compared.

2.7. Data Analysis

SPSS was used to calculate correlations between all variables and to conduct ANOVAs for categorical Population Density, Age, and Household Income.

SPSS was used to conduct Hierarchical Regressions with Income, Age and Population Density entered into Step 1 and each of the remaining demographic variables entered into Step 2 (i.e. separate Hierarchical Regressions were conducted for each variable).

3. State/Territory Comparisons

This is the first of the results chapters and seeks to compare the wellbeing levels across the 183 statistical sub-divisions (SSDs) described in Chapter 2.

Three methods of comparison are described.

3.1. Comparison Method #1: Comparisons within States and Territories

The alphabetical listing of the SSDs is found in Table A3.1 and the list ordered from highest to lowest SWB is shown in Table A3.2.

An ANOVA applied across the 183 SSDs is highly significant (p = .000). In order to break these comparisons down into smaller groups, the following analyses compare the SSDs within each State and Territory.

In the analyses that follow, a comparison with the values in Table A3.1 will show that some of the SSDs that are found to be statistically higher or lower than average have mean values that are similar to other SSDs not listed as being statistically different. The reason for this is a grey area of uncertainty caused by the very different numbers of respondents in the analytic cells representing individual SSDs. While the analysis has excluded SSDs with fewer than 20 respondents, it includes SSDs with as few as 25 respondents (Pirie) and as many as 691 respondents (Central Western Sydney). This is important for the determination of statistical differences because such statistical significance is made more likely as the number of respondents in each SSD rises.

There is also the issue of response variation within each SSD. This is measured by the Standard Deviation (SD) which rises with higher score variability within the SSDs. This is important because statistical significance is harder to achieve with high SDs. Further, there tends to be a relationship between the number of respondents (N) and the SD. As the N increases the SD tends to decrease.

In summary, comparisons between SSDs with low numbers of respondents is an uncertain process. It is quite possible that non-significance could become significant if the number of respondents was to increase. However, this is by no means certain and the results involving low Ns are necessarily less reliable than those involving large Ns. All this is a reminder that statistics concerns estimates of probability, never certainty.

In an attempt to provide a balance view of this uncertain territory, more than one comparison technique will be employed. To commence this process, below are the simple statistical analyses that study differences between SSDs within each State/Territory.

3.1.1. Tasmania (N=6)

Table A3.3 shows that Tasmania comprises six SSDs. One SSDs (North Western Rural/Lyell) lies above the average range but the difference from the other SSDs in Tasmania is not significant.

3.1.2. Victoria (N=44)

Table A3.4 presents the 44 Victorian SSDs. Five are significantly higher than others as:

	N	PWI
Glenelg	52	80.74
South Wimmera	87	78.10
North Goulburn	215	77.62
Hume City	138	77.32
Mornington Peninsula	294	76.71

Two are significantly lower than others as:

	N	PWI
Melton-Wyndham	248	73.35
Greater Dandenong City	148	71.53

Statistical analysis (Table A3.4) confirms that all five of the high SSDs are significantly higher than the low SSDs.

3.1.3. New South Wales (N=47)

The 47 SSDs forming New South Wales are shown in Table A3.5. Six of these are significantly higher than others as:

	N	PWI
Lower South Coast	147	77.81
Central Murrumbidgee	92	77.62
Richmond-Tweed	237	77.22
Hastings	189	77.11
Tweed Heads and Coast	142	76.99
Central Northern Sydney	542	76.60

Four are significantly lower than others as:

	N	PWI
Canterbury-Bankstown	325	73.22
Central Western Sydney	691	72.84
Fairfield-Liverpool	347	71.75
Inner Sydney	560	71.57

Statistical analyses (Table A3.5) confirm that the Personal Wellbeing Index of the high SSD is significantly above the low SSDs.

3.1.4. ACT (N=8)

The eight SSDs comprising the ACT are shown in Table A3.6. Even though South Canberra has a low Personal Wellbeing Index (N=57; PWI=71.63) it is not statistically different from the other seven SSDs.

3.1.5. Queensland (N=34)

The 34 SSDs comprising Queensland are shown in Table A3.7. The overall ANOVA is significant ($p = .004$). However, none of the individual comparisons between SSDs are significant.

3.1.6. Northern Territory (N=6)

The six SSDs comprising the Northern Territory are shown in Table A3.8. The overall ANOVA is significant ($p = .018$) but none of the individual SSD comparisons are significant.

3.1.7. South Australia (N=17)

The 17 SSDs comprising South Australia are shown in Table A3.9. The overall ANOVA is significant ($p = .000$).

Three are higher than others as:

	N	PWI
Kangaroo Island-Yorke	52	79.97
Fleurieu	100	78.56
Eastern Adelaide	413	76.63

Two are lower than others as:

	N	PWI
Western Adelaide	578	73.56
North Adelaide	375	73.46

Statistical analysis (Table A3.10) confirms these differences.

3.1.8. Western Australia (N=23)

The 23 SSDs comprising Western Australia are shown in Table A3.10. The overall ANOVA is significant (p = .006).

Two SSDs are higher than another as follows:

	N	PWI
Fitzroy	22	80.39
King	64	78.19

The single SSD that is lower than others is as follows:

	N	PWI
De Grey	25	66.80

Statistical analysis (Table A3.10) confirms these differences.

3.1.9. Summary

The table below summarises the SSDs that are statistically higher or lower than other SSD within their own State or Territory.

Table 3.1: Summary of Intra-State/Territory Comparisons

	High SSDs			Low SSDs		
State/Territory	Name	N	PWI	Name	N	PWI
TAS	-	-	-	-	-	-
VIC	Glenelg	52	80.74	Melton-Wyndham	248	73.35
	South Wimmera	87	78.10	Great Dandenong City	148	71.53
	North Goulburn	215	77.62			
	Hume City	138	77.32			
	Mornington Peninsula	294	76.71			
NSW	Lower South Coast	147	77.81	Canterbury-Bankstown	325	73.22
	Central Murray	92	77.62	Central Western Sydney	691	72.84
	Richmond-Tweed	237	77.22	Fairfield-Liverpool	347	71.75
	Hastings	189	77.11	Inner Sydney	560	71.57
	Tweed Heads	142	76.99			
	Central North Sydney	542	76.60			
ACT	-	-	-	-	-	-
QLD	-	-	-	-	-	-
NT	-	-	-	-	-	-
SA	Kangaroo Island	52	79.97	Western Adelaide	578	73.56
	Fleurieu	100	78.56	Northern Adelaide	375	73.46
	Eastern Adelaide	413	76.73			
WA	Fitzroy	22	80.39	DeGrey	25	66.80
	King	64	78.19			

A major problem with this analysis is that the statistical comparisons are made only between SSDs within each State/Territory. This has the problem that some high SSDs, such as Ipswich City in Queensland (78.21) do not achieve statistical significance because the lowest SSD in Queensland (Logan City = 72.75) is not low enough to make the comparison significant. If, for example, the comparison had been made with the New South Wales SSD of Campbelltown (70.83) the difference would be significant.

In order to take a different approach, Table A3.2 has rank ordered all SSDs from highest to lowest, and the analysis of this ranking will now be presented.

3.2. Comparison Method #2: Proportion of High and Low SSDs by State/Territory Defined by Normal Range

This second method of comparison uses the list presented in Table A3.2, which shows the SSDs rank-ordered from highest to lowest, and two cut-off values that are defined by the normal range of the Personal Wellbeing Index as determined by using survey mean scores as data (see Report 19.0).

There are 55 SSDs numerically above the normal range. However, one of these appears unreliable. Fitzroy (WA) has only 22 respondents and an unusually low standard deviation. The standard deviation should be high since the number of respondents is so low. This SSD will be excluded from further consideration, leaving 54 SSDs above the normal range.

There are 16 SSDs below the normal range. However two of these may be unreliable. Alligator/East Arnhem/Finniss (NT) has only 20 respondents. De Grey (WA) has 25 respondents but the mean score of 66.8 is very substantially lower (by 4 points) than the second lowest SSD. Since none of the other adjacent SSDs differ by more than a fraction of a point, this value may also be unreliable.

Both of these SSDs will be excluded from further consideration, leaving 14 SSDs below the normal range.

The following table provides the number and (percentage) of high (76.5 and above) and low (73.5 below) SSDs within each State and Territory.

Table 3.2: Proportion of High/Low SSDs

State/Territory	Total SSDs	High N	High %	Low N	Low %	High-Low N	High-Low %
South Australia	17	8	(47.1)	2	(11.8)	6	35.3
Western Australia	22	8	(36.4)	1	(4.5)	7	31.9
Victoria	44	15	(34.1)	2	(4.5)	13	29.6
Northern Territory	6	2	(33.3)	1	(16.7)	1	16.6
Queensland	34	10	(29.4)	2	(5.9)	8	23.5
New South Wales	47	12	(25.5)	7	(14.9)	5	10.6
Tasmania	6	1	(16.7)	0		1	16.7
ACT	8	1	(12.5)	1	(12.5)	0	0.0
Total	184	56	(30.4)	16	(8.7)	40	21.7

The States/Territories in Table 3.1 have been ordered according to the percentage of high SSDs within each State Territory. The far-right column gives the net difference between the percentage of high and low SSDs in each State or Territory. The Figure below shows the percentage of high and low SSDs.

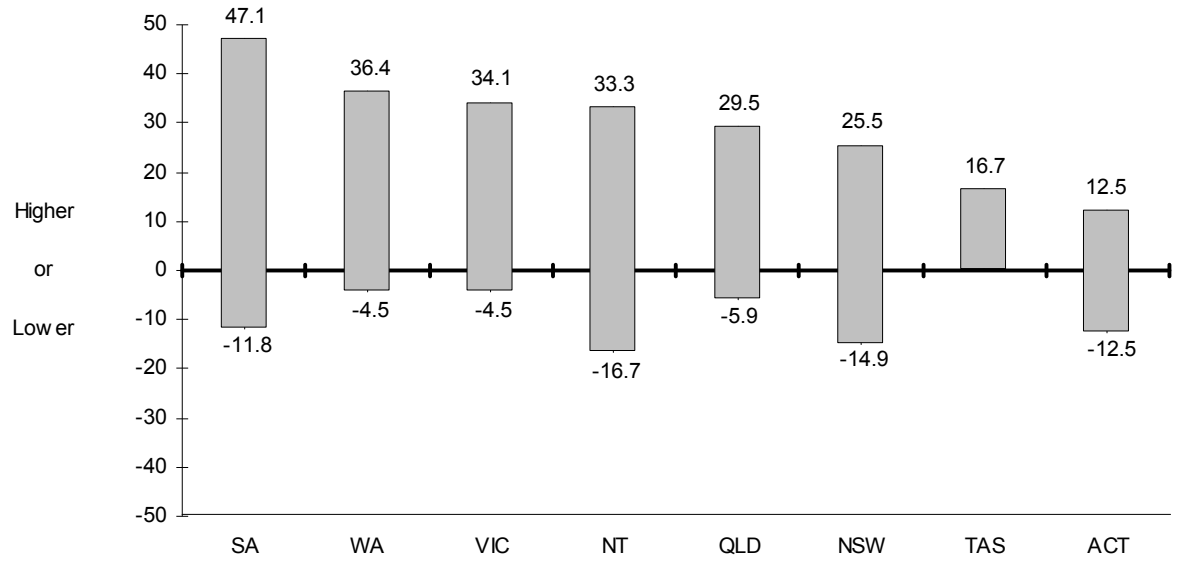


Figure 3.1: Proportion of SSDs that are high and low in each State/Territory relative to the total number of SSDs in each State/Territory

Figure 3.1 shows the proportion of SSDs within each State/Territory that are numerically above or below the normal range. The ordering is in terms of the proportion above the normal range. An important source of error in these percentages is the number of SSDs involved in each State/Territory. The two Territories and Tasmania have so few SSDs (6 to 8) that a single SSD above or below the normal range comprises a substantial proportion of the total. Nevertheless, in terms of the proportion

of SSD lying above the normal range, SA (47.1%) stands out as having the highest. In terms of the proportion lying below the normal range, NT (16.7%) and NSW (14.9%) exceed the others.

In order to obtain some averaged overview of these proportions, Table 3.2 and Figure 3.2 show the net values, when the proportion of SSDs lying below the normative range is subtracted from the proportion above the range within each State/Territory.

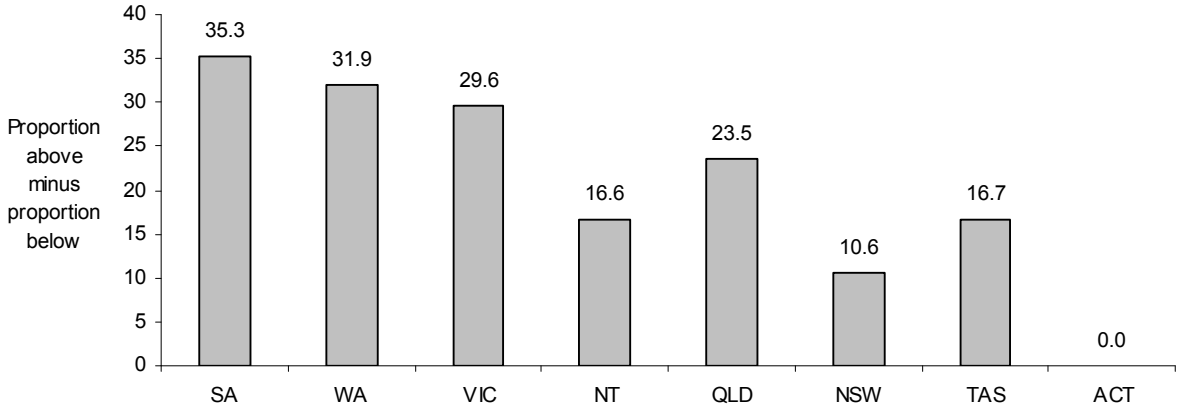


Figure 3.2: Proportion of SSDs above the normative range minus the proportion below

The presented sequence of States/Territories follows Figure 3.1 and the order of the top three remains constant as: SA, WA, VIC. These differ by only 5.7 percentage points, or less than the percentage equivalent of one SSD within SA. Since it is most doubtful that these results are reliable to this level of precision, each of these State values may be considered as equivalent to one another.

The values for NT, TAS and ACT represents a difference of one SSD or less, and so may also be considered to be equivalent and unremarkable.

The outstanding state for low SSDs is NSW which, at 10.6 percentage points positive is the lowest reliable result.

3.2.1. Overview

In terms of the overall positive status of SSDs, the three States that are highest are SA, WA and VIC. The State that is lowest is NSW.

Table 3.3: Summary of Comparisons Against the Normal Personal Wellbeing Index Range Based on Survey Mean Scores

	Above the normal range			Below the normal range		
State/Territory	Name	N	PWI	Name	N	PWI
TAS	North Western Rural/Lyell	46	79.04			
VIC	Glenelg	52	80.74	Melton-Wyndham	248	73.38
	Hopkins	70	78.20	Greater Dandenong City	148	71.53
	South Goulburn	53	78.17			
	East Gippsland Shire	79	78.16			
	South Wimmera	87	78.10			
	North Goulburn	215	77.62			
	West-Ovens Murray	53	77.47			
	Hume City	138	77.32			
	North Wimmera	38	77.14			
	West Gippsland	63	77.10			
	East Barwon	155	76.85			
	South Gippsland	92	76.85			
	East-Ovens Murray	32	76.74			
	Mornington Peninsula Shire	294	76.71			
NSW	Central Murray/Murray	69	78.20	Outer Western Sydney	664	73.47
	Northern Slopes	52	78.10	Canterbury-Bankstown	325	73.22
	Murray-Darling (NSW)	23	77.89	Far West/Upper Darling	70	72.86
	Lower South Coast	147	77.81	Central Western Sydney	691	72.84
	Central Murrumbidgee	92	77.62	Fairfield-Liverpool	347	71.75
	Queanbeyan	22	77.34	Inner Sydney	560	71.57
	Richmond-Tweed	237	77.22			
	Hastings	189	77.11			
	Lachlan	106	77.04			
	Tweed Heads & Tweed Coast	142	76.99			
	Nowra-Bomaderry	117	76.70			
	Central Northern Sydney	542	76.60			
ACT				South Canberra	57	71.63
QLD	Ipswich City	112	78.21	Toowoomba	172	73.10
	Upper West Moreton	24	77.92	Logan City	174	72.75
	Darling Downs	207	77.57			
	Hervey Bay	137	77.12			
	North West	26	77.09			
	Mackay City/Mackay SD	235	76.98			
	Bundaberg	108	76.81			
	Far North	158	76.76			
	Sunshine Coast	474	76.68			
	Wide Bay-Burnett	199	76.60			
NT	Litchfield Shire	33	79.78			
	Barkly/Lower Top End	37	79.42			
SA	Upper South East	41	80.24	Northern Adelaide	375	73.46
	Kangaroo Island/Yorke	52	79.97	Far North/West Coast/Whyalla	36	73.02
	Fleurieu	100	78.56			
	Mt Lofty Ranges	45	78.19			
	Lower North	33	77.84			
	Lower South East	73	77.03			
	Barossa	86	76.94			
	Eastern Adelaide	413	76.63			

	Above the normal range			Below the normal range		
State/Territory	Name	N	PWI	Name	N	PWI
WA	King	64	78.19			
	Pallinup	30	77.38			
	Carnegie/Gascoyne/Greenough River	54	77.33			
	Blackwood/Preston	47	77.14			
	Geraldton	52	76.95			
	Kalgoorlie/Boulder City	44	76.82			
	Hotham/Lakes	33	76.62			

3.2.2. Maps

Appendix 2 contains maps of each State and Territory where the SSDs have been colour-coded according to whether they are above or below the normal range.

3.3. Comparison Method #3: Deviations from the Normal Range

The third method of comparison is to use the mean (75.58) and the standard deviation (1.87) of the 183 SSDs using the mean scores of the SSDs as data.

Two standard deviations describes the normal range using this methodology, which is 71.84 to 79.32. Using this range to describe the most outlying SSDs, the results are as follows:

Table 3.4: Above the Normal SSD Range

	PWI		
Statistical Sub-Division	N	Mean	SD
Glenelg (VIC)	52	80.74	11.19
Upper South East (SA)	41	80.24	10.46
Kangaroo Island/Yorke (SA)	52	79.97	10.80
Litchfield Shire (NT)	33	79.78	12.46
Barkly/Lower Top End NT (NT)	37	79.42	10.56

Table 3.5: Below the Normal SSD Range

	PWI		
Statistical Sub-Division	N	Mean	SD
Fairfield-Liverpool (NSW)	347	71.75	13.51
South Canberra (ACT)	57	71.63	11.89
Inner Sydney (NSW)	560	71.57	12.94
Greater Dandenong City (VIC)	148	71.53	13.94

In order to look more closely at the character of these high and low SSDs, the following two tables list some of the demographic characteristics of each SSD (ABS census, 2006). These listings are indicative only and have two important caveats. The first is that other SSDs could have been chosen to represent the high and low extremes, depending on the method for their calculation, as has been seen. They are, thus, only examples. The second caveat is that there are many other demographic characteristics that could have been chosen so, these are an incomplete set.

Table 3.6: Demographic Characteristics of High SSDs

Characteristic	% for AUST	Glenely (Vic)	South East (SA)	Kangaroo Island (SA)	Litchfield Shire (NT)	Barkley/ Lower Top End (NT)
Population		36,397	18,968	4,260	15,554	16,465
Males %	49.4	49.7	51.3	51.2	54.9	51.1
Indigenous %	2.3	1.3	1.0	0.7	6.0	50.2
Median Age	37y	41y	38y	43y	36.0y	27y
Australian Citizens %	86.1	93.0	90.9	90.4	84.2	87.6
% Born Overseas	22.2	6.7	6.8	11.3	13.9	5.5
English only spoken at home %	78.5	95.0	92.5	92.2	83.2	61.7
No religion %	18.7	19.1	22.8	34.0	29.8	27.0
Married %	49.6	53.9	57.1	55.1	45.6	44.4
Never married %	33.2	27.3	27.0	25.6	38.8	41.2
Employed Full-time %	60.7	57.4	60.0	52.9	69.6	58.4
Unemployed %	5.2	5.3	2.9	4.2	2.8	5.7
Family income per week	1,171	1,062	1,068	1,002	1,470	973
Apartments	14.2	4.6	2.2	3.6	0.8	6.5
Rent per week	190	120	108	120	170	75
Fully owned dwelling %	32.6	43.6	38.3	38.6	29.6	20.5
Single person household %	22.9	27.4	23.9	25.0	13.8	16.5
Boarder on Sea		Yes	Yes	Yes	Yes	Yes
Income/Rent	6.16	8.85	9.89	8.35	8.65	12.97
Same address 5 years ago %		61.6	57.2	54.4	49.5	49.7

Table 3.7: Demographic Characteristics of Low SSDs

Characteristic	% for AUST	Fairfield Liverpool (NSW)	South Canberra (ACT)	Inner Sydney (NSW)	Greater Dandenong City (Vic)	Campbelltown (NSW)
Population		344,497	23,668	313,154	125,520	74,765
Males %	49.4	49.6	49.1	51.1	50.0	49.2
Indigenous %	2.3	1.0	1.3	1.3	0.4	2.4
Median Age	37y	33y	39y	34y	36y	32y
Australian Citizens %	86.1	84.7	87.9	**68.4**	**79.1**	84.9
% Born Overseas	**22.2**	**44.9**	**21.9**	**34.3**	**51.5**	**28.8**
English only spoken at home %	78.5	**36.9**	81.1	**57.3**	**38.5**	67.6
No religion %	18.7	**6.6**	24.9	22.7	**11.7**	**10.1**
Married %	49.6	52.5	**42.0**	**31.5**	49.6	47.8
Never married %	33.2	31.5	40.0	**53.3**	31.3	35.6
Employed Full-time %	60.7	62.3	68.2	67.8	60.3	63.1
Unemployed %	5.2	**8.8**	3.3	4.9	**9.4**	**7.8**
Family income per week	1,171	1,057	2,306	1,671	918	1,146
Apartments	14.2	**12.6**	**33.3**	**55.9**	**20.6**	1.7
Rent per week	190	185	300	300	160	180
Fully owned dwelling %	32.6	27.7	29.7	**16.8**	34.3	22.1
Single person household %	22.9	15.0	**29.7**	**29.5**	22.5	16.8
Boarder on Sea		No	No	Yes	No	No
Income/Rent	6.16	**5.71**	10.20	**5.57**	**5.74**	**6.37**
Same address 5 years ago %		60.7	**45.4**	**36.5**	58.9	61.0

BOLD = Worse than all SSDs in the high group

In order to process these comparisons, some variables in Table 3 have been shaded. These represent values that are 'worse' than any of the five high SSDs, where 'worse' is defined as being in a direction likely to reduce wellbeing. Some of these will now be discussed.

Population: While this tends to be higher in the low SSDs it is not invariably so, with South Canberra the exception.

Indigenous: The percentage of indigenous people is not of itself relevant (see Barkley/Lower Top End).

Culture: Three variables appear as risk factors for low SSDs as a low percentage of Australian citizens and a high percentage of people born overseas and who speak a language other than English at home.

Religion: It is interesting that all of the high SSDs have a higher than normal proportion of people who have no religion. This contrasts with 3/5 of the low SSDs who have a very low population of people with no religion.

Marital Status: A low percentage of married people and a high percentage of never married people appear as risk factors for low SSDs.

Unemployment: Is a risk factor for low SSDs.

Apartments: The percentage of apartments reflects city living and is a risk factor, as is the percentage of single-person households.

Income: A high proportion of household income spent on rent is a risk factor.

Mobility: A high proportion of the people who were not living at their current address five years ago is a risk factor.

In summary, the following general ideas seem to emerge:

1. Most of the variables listed as 'risk factors' are either known well within our reports (e.g. not being married) or are fairly intuitive (e.g. high population mobility).

2. One odd finding is that a high proportion of people with a religious belief is a risk factor. This is likely due to its association with the percentage of people not born in Australia.

3. The most consistent risk factor is the percentage of people born overseas. This percentage is higher in all five low SSDs than in any of the high SSDs. This finding will be confirmed through the use of formal statistics in Chapter 4.

3.4. Summary

Through the use of these different methodologies for identifying the highest and lowest SSDs, the following general findings emerge.

1. The most stringent test has been the third method using the means of the SSDs as data and identifying those that lie beyond two standard deviations of the mean. This method is not influenced by the number of respondents in each SSD, as is method number 1 (Section 3.1) but, of course, the issue of the reliability of SSD means that have low numbers of respondents remains.

   This method identified five very high SSDs (Victoria (1); South Australia (2); Northern Territory (2)) and all of these are characterised by being fairly remote regions.

   The five very low SSDs (NSW (3), ACT(1), Victoria (1)) are all characterised by being inner-city regions.

2. This general characterization, of higher wellbeing in the country than in the city, is a feature of these data no matter which of the three methodologies are employed.

3. On an overall State/Territory comparative basis, where the relative proportion of high and low SSDs are taken into consideration (Figure 3.2), South Australia clearly tops the list and New South Wales is clearly at the bottom.

4. The primary risk factor for low SSD wellbeing appears to be a high proportion of the population not born in Australia.

3.5. Dot Points

1. The five SSDs with the highest levels of wellbeing are all characterised by being fairly remote regions of Australia. These are:

   Glenelg (VIC)
   Upper South East (SA)
   Kangaroo Island/Yorke (SA)
   Litchfield Shire (NT)
   Barkly/Lower Top End NT (NT)

2. The five SSDs with the lowest levels of wellbeing are mainly characterised as inner-city. These are:

   Fairfield-Liverpool (NSW)
   South Canberra (ACT)
   Inner Sydney (NSW)
   Greater Dandenong City (VIC)
   Logan City (QLD)

3. Addendum: Campbelltown

   During the process of calculating the value for the SSD of Outer South Western Sydney, an error was made, and it was described through the post-codes of 2167, 2174, 2558, 2559, 2560, 2563, 2564, 2565 and 2566. These actually describe the more restricted geographic region of Campbelltown, which forms parts of the Outer South Western Sydney SSD. However, our interest was taken by the very low values that were revealed.

   The statistical values for Campbelltwon (N=93, Mean=70.83, SD=13.38) reveal a mean score that is lower by 0.70 points than the lowest SSD. This is significant for the following reasons:

   (a) At this lower end of the SSD distribution, the differences between adjacent areas are in the order of 0.1 points (see Table A4.3). Thus, the sudden drop to Campbelltown is several magnitudes greater than we would expect. This makes the average wellbeing for Campbelltown considerably lower than for any other area we have discovered.

   (b) The sample size for Campbelltown (N=93) means that the result is reliable. In fact this sample size is larger than for many of the SSDs.

   (c) The standard deviation of 13.38 is of the right magnitude to fit with the low mean score and sample size.

   In summary, it is evident that the area of Campbelltown, described through the post-codes above, has a substantially lower wellbeing than any of the other areas we have so far discovered.

4. Demographic Influences

The following analyses consider the influence of various demographic parameters on the average Personal Wellbeing Index of SSDs. In these analyses, each SSD is considered as a single unit that yields a single average demographic value. Thus, for example, each SSD will have a median income. These average demographic values for the SSDs are then compared with the average Personal Wellbeing Index values in ways to be described.

4.1. Major Demographics

The demographics that are known to influence the Personal Wellbeing Index are population density, age, and income. These analyses follow.

4.1.1. Population Density

The measure of population density is the number of people per square kilometre. Table A4.1 shows ten categories of density formed using the criterion that each category contains a minimum of 3,000 respondents. The range of these categories is 0.0-2.7 (coded 0) to 2,550.0-4,049.9 (coded 10) people per sq. Km. The relationship between these categories of population density and the Personal Wellbeing Index is shown below.

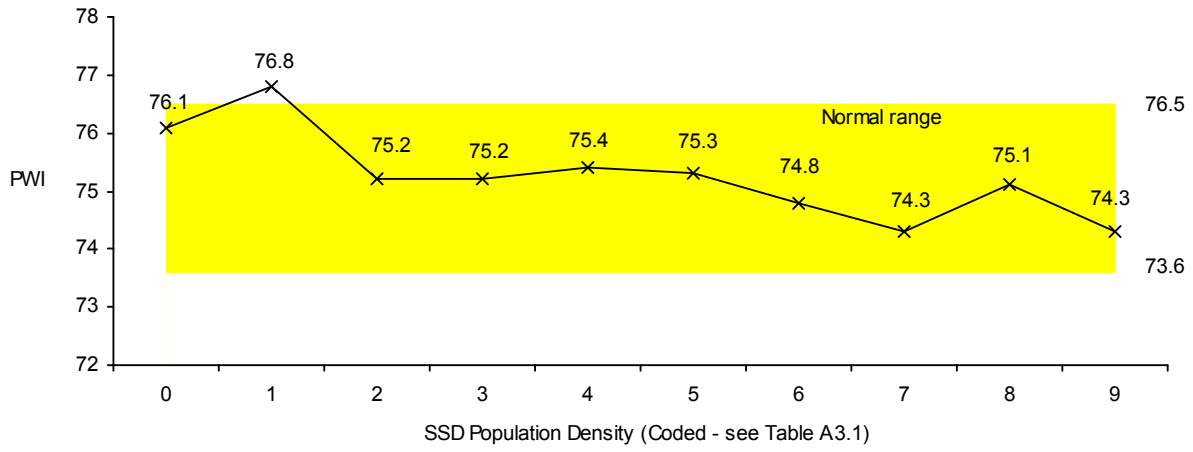


Figure 4.1: Population Density vs. Personal Wellbeing Index

An analysis of variance applied to these groups is significant (Table A4.2: $F(9,177) = 3.976$, $p < .000$).

The following post-hocs (Table A4.3) are significant:

1 > 7, 8, 9

From this it can be concluded that wellbeing falls as population density increases. However, these differences are confined to the extremes. There is no difference between categories 2 to 7 (28.50–114.99 and 470.00–899.99 people per sq. km.)

4.1.2. Age

The 12 median age categories, formed for analysis, are shown in Table A4.1. Twelve categories have been formed, with a minimum of 2,000 respondents in each, ranging from 28-32 years to 41.5-45.5 years. The relationship between SSD age and the Personal Wellbeing Index is shown below.

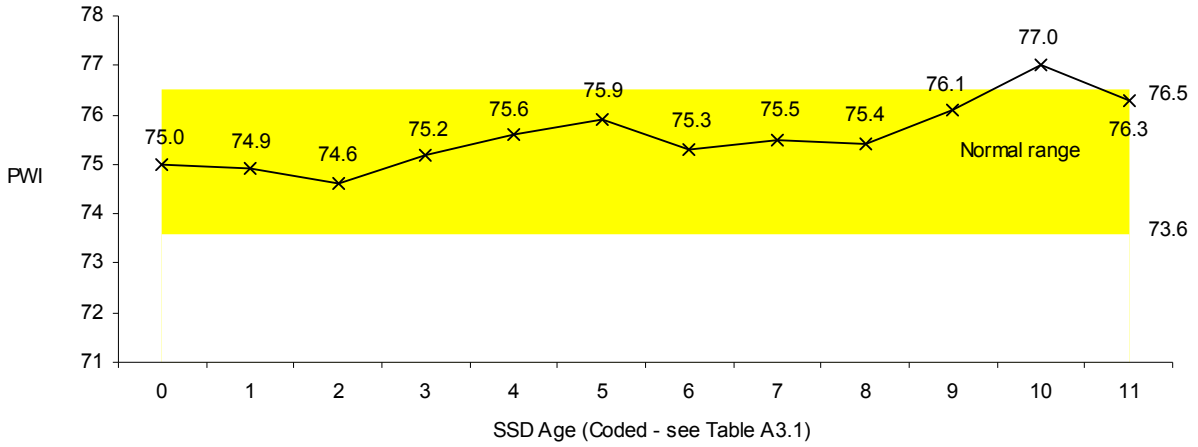


Figure 4.2: Population Age vs. Personal Wellbeing Index

An ANOVA applied to these 12 groups is significant (Table A4.2: F(11,177) = 3.088, p = .001).

The significant post-hocs (Table A4.4) are:

10(39-41y) > 0(28-32y), 2(34-34.5y), 4(35.5y)

While this analysis shows the normal rise in the Personal Wellbeing Index with age, the levels of significance are weak because the average age-range is so small, from 0(28-32), to 11(41.5-45.5y) due to the averaging process.

4.1.3. Household Income

The 10 median income categories, formed for the analysis, are based on ABS estimates for each SSD. They are shown in Table A4.1. The 10 categories, based on a minimum of 3,000 respondents, range from $550-706/week ($28,600-$36,712/year) (coded 0) up to $1,138-$1,594/week ($59,176-$82,888/year) (coded 9). The relationship between SSD median household income and the Personal Wellbeing Index is shown below.

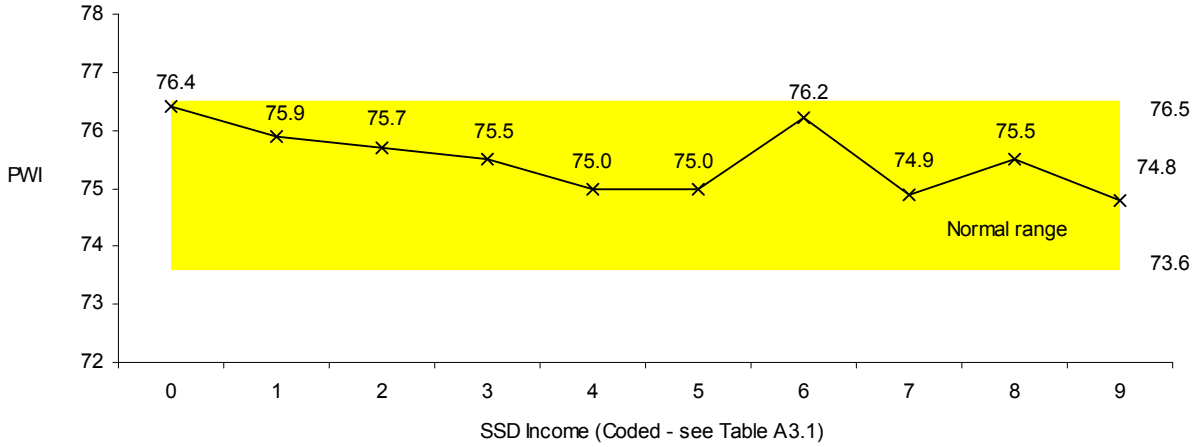


Figure 4.3: Household Income vs. Personal Wellbeing Index

An ANOVA applied to these 10 groups is just significant (Table A4.2: F(9,176) = 1.991, p = 0.43).

None of the post-hocs are significant (Table A4.5).

The reason for this lack of significance is most likely the confounding influence of population density; that income tends to be higher in high density areas (cities) (see Table A4.6) and high population density is associated with reduced wellbeing (Figure 4.1).

4.1.4. Conclusion

All three of these demographic variables are significantly related to wellbeing, but the strongest influences are population density and age.

4.2. Explaining the Wellbeing of SSDs through Income, Age, and Population Density

In order to examine more closely the ability of the Personal Wellbeing Index to predict demographic differences between SSDs, Tables 4.7.1. to 4.7.5 have been prepared. These examine the ability of the Personal Wellbeing Index, through its domains, to predict three forms of income (Individual, Family, and Household), Age, and population density

In terms of income, these show that the best predictor of SSD wellbeing is Household Average Income (30.3% of the variance accounted for) compared with 26.0% for Individual Average Income and 29.5% for Family Average Income.

In terms of the domains that make the strongest contribution for household income, the significant contributors are: Health (5.6% unique variance), Community Connection (4.3%), Relationships (2.8%), and Standard of Living (2.7%).

In terms of predicting Average Population Density, the Personal Wellbeing Index accounts for 24.2% of the variance with, just two domains making a significant contribution as: Community Connection (13.2%) and Relationships (3.2%).

It is interesting that, for both income and density, the two domains that both make a contribution are the two that involve other people (Relationships and Community Connection).

4.2.1. Conclusions

1. In terms of average age, income and population density, the demographics that make the greatest contribution to the wellbeing between SSDs are Household Average Income, which explains 30.3% of the wellbeing variability, and Population Density (24.2%).

2. In terms of the domains that are most influenced by these demographics, the most sensitive are the two that involve other people, as Relationships and Community Connection.

4.3. Correlations Between an Expanded List of Demographic Variables

Table A4.6 provides a full list of the demographic variables extracted from the ABS files. This table also describes how each of the variables have been categorised. The simple correlations between these variables is shown in Table A4.5 and below:

Variable	PWI	1.	2.	3.	4.	5.	6.	7.	8.
1. Household income	-.30***								
2. Age	.32***	-.61***							
3. Population density	-.31***	.37***	-.17*						
4. Indigenous	-.06	.08	-.26***	-.21**					
5. Born not in Australia	-.46***	.49***	-.30***	.71***	-.26***				
6. Married	.31***	-.31***	.42***	-.57***	-.07	-.37***			
7. Family with children <15 years	.19*	-.61***	-.28***	-.41***	.05	-.35***	.16*		
8. Different address 1 year ago	-.19*	.36***	-.38***	.19**	.22**	.12	-.59***	-.31***	
9. Different address 5 years ago	-.21**	.38***	-.37***	.18*	.03	.21**	-.47***	-.32***	.94***

* P < .05 ** p < .01 *** p < .001

Notable features are as follows:

1. The correlation of .94 between the percentage of people with a different address one and five years ago presumably means that the former is included in the latter.

2. Other very high correlations (>.5) are as follows:

   2.1 Household income and % of children <15 years (-.61). This predominantly reflects the higher earning capacity of parents later in their working lives at which time their children are aged over 15 years. It also attests to the poorer financial circumstances of young parents, and the subsequent higher challenge to their wellbeing.

   2.2 Population density and the % not born in Australia (.71). In other words, first-generation migrants are more commonly found in high density areas of cities.

   2.3 Population density and the % married (-.57). The highest density of living, comprising high-rise apartments, tend to house non-married people.

   2.4 Different address one year ago and the % married (-.59). Since % married is also associated with age (.42), married people tend to move their address less often, in part due to their older age.

3. Of all the variables, the one that correlates most strongly with others is Not born in Australia. It is clear that this group is disadvantaged in relation to the general population. The areas these people tend to live in are associated with low wellbeing (-.46). The SSDs with high proportions of these people tend to have high income (.49) because they are high density (.71) and young age (.30). They tend to be areas of high mobility (different address one year ago, .22) and are areas with relatively few indigenous people (-.26).

4. Two of the most interesting patterns are evidenced by Age and Married. While the areas containing more married and older people have higher wellbeing (.31, .32) these areas also tend to have lower household income (-.31, -.61). Clearly, therefore, the relative wealth of the area is not the major criterion for high wellbeing, as has been shown in Figure 4.3.

   So, what other demographics are associated with high densities of older-age and married persons? The following variables are all favourable for these two groups: Low population density (-.57, -.17), fewer people not born in Australia (-.37, -.30), and fewer people with a different address one year ago (-.59, -.38). All of these three are likely conducive to building

social capital and the connection between people. Thus, it appears that, in terms of SSD demographics, community connection is a stronger source of wellbeing than is household income.

4.3.1. Conclusions

1. The measures of community connection are more strongly tied to SSD wellbeing than are measures of income.

2. The SSDs with high wellbeing tend to have more married and older inhabitants.

3. The one SSD variable that correlates most strongly with wellbeing is the % Not born in Australia. This results will now be explored in more detail.

4.4. Hierarchical Regressions Involving Income, Age and Density as Covariates

This section involves a determination of whether certain characteristics reported by ABS in relation to the SSDs are associated with wellbeing beyond the influence of income, age, and density. Thus, the analyses involve hierarchical regressions with these three variables entered at Step 1 and the fourth variable entered in Step 2. The description of the variables is shown in Table A4.5. The individual regressions are shown in Tables A4.8.1 to A4.8.13, and the summary results are shown in Table 4.1.

Table 4.1: Hierarchical Regressions Involving Income, Age and Density as Covariates

% of people in SSD	Correlation with PWI	β	sr^2
Indigenous	-.06	-0.17	0.00
Born not in Australia	-.46	-0.43***	8.24
Married	.31	.077	0.00
One-parent with children <15y old	.14	-.03	0.00
Couple with children <15y old	.13	-.07	0.00
Different address one year age	-.19	-.02	0.00
Different address 5 years ago	-.21	-.06	0.00

New variable	PWI	β	sr^2
English only spoken in household	.29	.18*	3.0
Religious	-.11	-.09	1.0
Female	.07	.08	1.0
Dwelling - fully owned	.40	.38**	4.0
Dwelling - being purchased	-.03	.01	0.0
Dwelling - renting	-.32	-.15	2.0

In Table 4.1, the sr^2 shows the percentage of unique variance explained by each variable. It is clear that the percentage of people not born in Australia is the single most powerful predictor of SSD wellbeing. This holds true after differences between the SSDs have been controlled by removing variance concerning age, household income and population density.

In addition to 'Not Born in Australia', five other variables are able to contribute unique variance to the prediction of SWB after the influence of age, income and density has been removed.

These five demographic variables, together with Not Born in Australia, have been examined together in a final summary regression shown in Table A4.9. This hierarchical regression shows that, in the absence of % Not Born in Australia (Step 1), three variables make a significant contribution as population density, the % of households where only English is spoken in the home, and the % of fully owned dwellings. However when, in Step 2, when % Not Born in Australia is added to the analysis,

only this latter variable makes a significant contribution; explaining 7.0% of the variance in wellbeing between SSDs alone and 27.6% of the variance in combination with the other five variables.

It is uncertain just how much variance it is possible to explain in population wellbeing through the use of demographic variables and geographic regions. Demographic variables have little influence on the wellbeing of individuals due to the dominance of core affect as an individual difference. However, individual differences between people are largely eliminated in the current analysis due to the creation of an average across a large sample for each SSD. Thus, the demographic factors would be expected to have a stronger influence in these analysis, and that is what has been found.

4.5. Summary

1. The first set of analyses (4.1) examine the extent to which three major demographics, known to be related to SWB, can explain differences in average SWB between the SSDs. It is found that all three as; average age within the SSD, average household income within the SSD, and population density, are all able to account for at least some of the variation. The strongest predictors are age and population density.

2. The next section (4.2) examines the relationship between these three demographic variables and the mean SSD wellbeing in more detail. It is shown that, of the three variables, household average income has the strongest explanatory power, explaining 30.3% of the differences in wellbeing between the SSDs.

   The examination of wellbeing at the level of domains shows that the demographics are having most influence on the domains that involve other people. These are the domains of Satisfaction with Relationships and Community Connection.

3. An extended set of nine demographic variables, the original three and six new variables, are then examined through the use of a simple correlation matrix. It is found that 8 of the variables correlate significantly with SWB. The one that does not is the % of indigenous people, thus indicating that this variable is irrelevant to the differences in Wellbeing between the SSDs.

   As an indication of the validity of these analyses, the % of indigenous people in the SSDs did correlate with Age (-.26), Population Density (-.21), Not born in Australia (-.26), and Different address 1 year ago (.22). In other words, the SSDs with a high proportion of indigenous people are characterised by a low average age, low population density, being born in Australia, and high mobility. All of these are as expected.

   The single SSD characteristic that correlates most highly with average SSD wellbeing is the % of people not born in Australia. This is a negative correlation meaning that as the percentage in SSDs goes up, the average wellbeing of the SSDs goes down.

4. The next section (4.4) examines the influence of an expanded list of demographic variables to explain differences in SSD wellbeing, after controlling for the influences of age, population density and household income. This shows that the most powerful single predictor is the % of people Not Born in Australia which correlates negatively with SSD wellbeing. When this is combined with the % of english only spoken at home (positive) and the % of fully owned dwellings (positive) around 27% of the variation in wellbeing between SSDs can be explained.

5. In conclusion, these results overall point to two major influences on the wellbeing differences between SSDs. One is wealth, which is positive, and the other is the proportion of first-generation Australians, which is negative. However, there are important caveats to the interpretation of these findings.

First, these analyses use data from two different sources. The ABS demographic data are certainly representative of the SSDs since they are derived from whole-population sampling. This is not so for the wellbeing data which represent only a small proportion of the people in any SSD. The assumption of validity for the above analysis therefore rests on the wellbeing samples being representative of each SSD. Certainly this is not the case in any absolute sense and, indeed, for the smaller samples may well be quite seriously in error. However, these factors should not affect the validity of the results for the following reason.

All of these analyses concern averages, and the extent to which these averages are inaccurate for the small samples will add two kinds of error to the measurement. The first of these is noise (random error variance) which makes the determination of significance more unlikely. Of itself, this source of error will not invalidate the significant trends that are discovered.

The second source of error is more insidious and does carry the possibility of misinterpretation. This is caused by the wellbeing sample having some characteristic that makes it systematically different from the average population of the SSD. There are many possibilities here, but the most relevant in relation to our major finding from this chapter is the extent to which the wellbeing sample represents first-generation Australians.

Almost certainly our samples are biased towards a disproportionately low number of first-generation Australians. The most obvious reason for this is that we require respondents to be fluent in English. As a consequence of this our samples will be biased in terms of them representing the actual ethnic composition of the SSDs. In areas were the percentage of new Australians is low, the bias to exclude non-English speakers will have little impact. However, in SSDs where the percentage of new Australians is high, the samples will be biased to include a higher proportion of English speakers than should be the case.

In conclusion, the most unrepresentative SSD samples are likely to be those with the highest proportion of people not born in Australia. This is unfortunate because as shown below, it is these SSDs that are maximally different from the others in terms of their wellbeing.

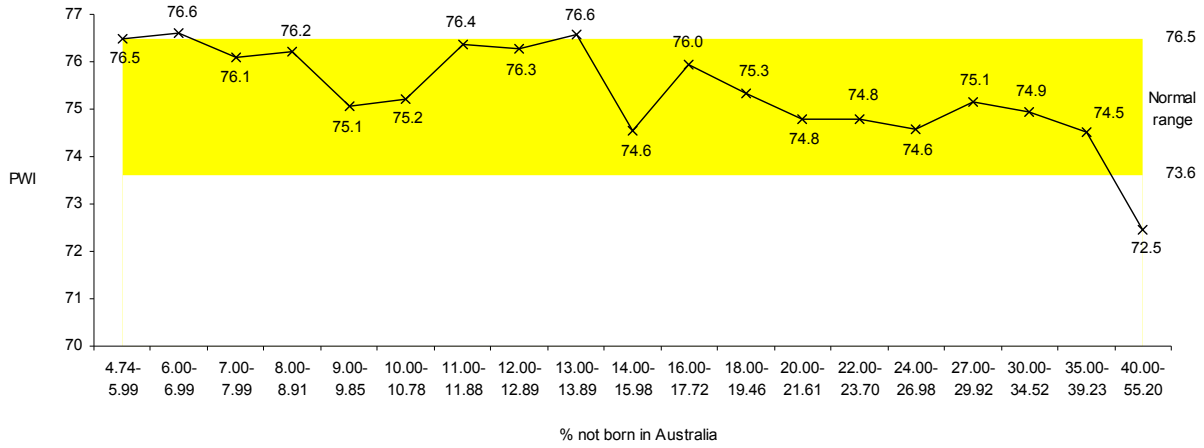


Figure 4.4: Percentage Not Born in Australia and Personal Wellbeing Index

This figure confirms the idea of a threshold. While there appears to be a slight trend of decreasing wellbeing as the % born not in Australia increases, the range is only 2.0 percentage points and is of little consequence since the lowest level falls well inside the normal range. However, at a density of 40% or more, the proportion of new Australians is associated with a fall in wellbeing to a level below the normal range.

The number of people involved in this analysis is substantial. Table A4.15 lists the SSD demographics and the list is ranked on the % not born in Australia. The number of people sampled

from the SSDs in the 40.0-55.2% group (Table A4.10) range from 148 to 691 and the total number of people comprising this 40.0-55.2% category is 2,327 (Table A4.16). Despite the adequacy of these numbers of respondents, we cannot reliably interpret these findings because we do not know the personal characteristics of the respondents. Most importantly, with such a high concentration of New Australians in these SSDs, it seems likely that many of those with fluent English will be represented in our samples. But there are good reasons to expect such people to have a level of wellbeing below the Australian norms. There are two reasons as:

1. Many of these people have experienced life circumstances in their country of origin that have been harsh or even brutal. Moreover, their transition to a new culture, even if they speak good English, will be traumatic for many of them. They will suffer social dislocation, a sense of alienation, experience prejudice, and possibly unemployment or low-grade jobs. These factors will be expected to decrease their wellbeing, and so to lower the average wellbeing of their SSD.

2. People from all cultures have their own peculiar 'cultural response bias' in the way they answer personal questions of happiness or satisfaction. Thus, while a second-generation Australian may be quite at ease responding 10/10 if they feel very satisfied with their life, a first-generation Australian from South-East Asia may respond 8/10 even though they feel the same level of personal satisfaction. There are several reasons for this including modesty, the fear of incurring bad luck by expressing that they are fully satisfied, and even the feeling that they have not yet in their lives experienced their happiness or most fulfilled life. For these reasons they report lower levels of wellbeing than other Australians and so, again, if they are included in the samples, they will reduce the average score for the SSD.

In summary, we cannot make any determination as to whether these SSDs have low wellbeing as a result of including many new Australians into our samples or an effect of societal dysfunction caused by having too many New Australians living in the one area. We can, however, study the Personal Wellbeing Index domains to determine the ones most responsible for the overall low wellbeing.

4.6. Domains

A further insight into the behaviour of the samples shown in Figure 4.4 can be gained from studying the changing patterns of wellbeing at the level of the Personal Wellbeing Index domains. In order to do this four representative samples have been used corresponding to the sub-groups 4.74-5.99; 14.00-15.98; 36.00-39.23; 40.00-55.20 in terms of the percentage of people not born in Australia. The following observations can be made.

1. At the lowest percentage of 'not born in Australia' (Figure 4.5), all domains are above or within their normal ranges. However, the domain of Health is low and in the next highest sample (Figure 4.6: 14.00–15.98%) it falls below the normal range. The reason for this is uncertain because the communities being sampled (Table A4.15) are very mixed. Moreover, at the next level of density (Figure 4.7), Health has returned into the normal range.

2. Within the third sample (Figure 4.7: 36.00-39.23%) the domain of Community falls below its normal range and, at the highest level of density (Figure 4.8: 40.00-55.20%), it shows the largest fall of all the domains.

3. In order to provide an overview of the relative magnitude of these domain changes, Table 4.2 shows the differences between the levels of each domain at the lowest level of density (4.74-5.99%) and the highest (40.00-55.20%).

Table 4.2: Domain Differences from Lowest to Highest Density of New Australians

Domain	Percentage points difference
PWI	-4.03
Standard of Living	-2.56
Health	+0.13
Achieving	-2.12
Relationships	-3.79
Safety	-6.72
Community	-9.73
Future Security	-4.13

From this it is clear that most of the domains show a level of change that is less than, or which approximates, the overall change in the Personal Wellbeing Index (-4.03 points). However, the domains of Community (-9.73 points) and Safety (-6.72 points) show an exaggerated level of change. It seems likely that these two domains are linked; that high satisfaction with community leads to a sense of safety.

These differences are interesting in pointing to the social nature of the differences between SSDs.

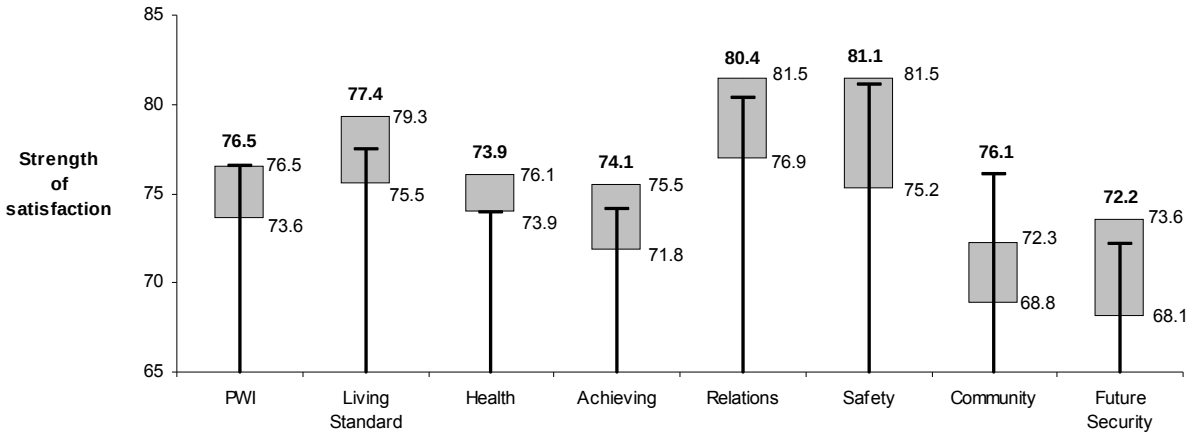


Figure 4.5: 4.74-5.99% Not Born in Australia

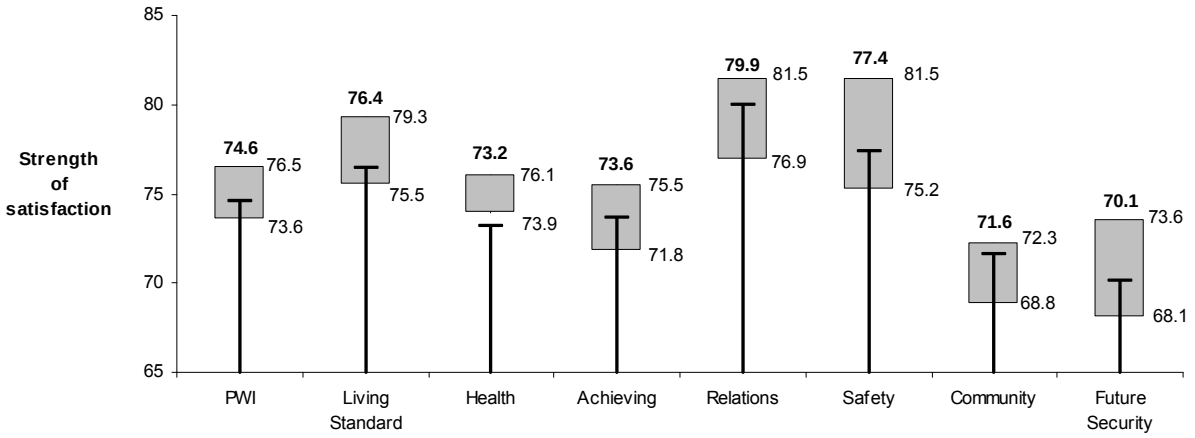


Figure 4.6: 14.00-15.98% Not Born in Australia

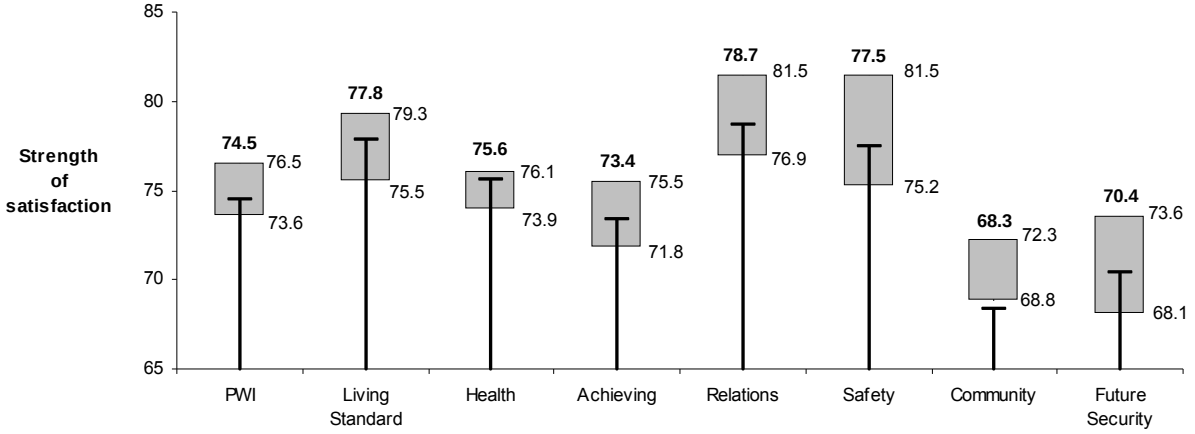


Figure 4.7: 36.00-39.23% Not Born in Australia

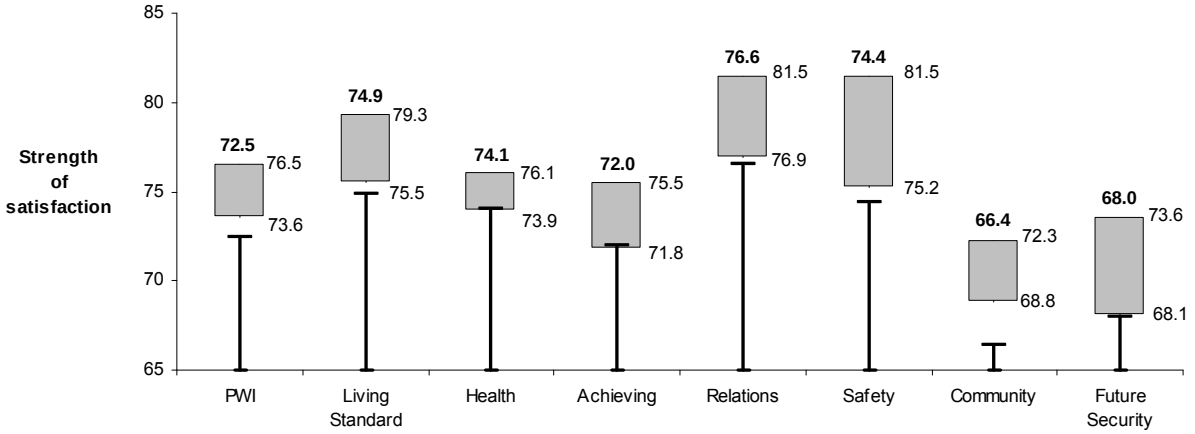


Figure 4.8: 40.00-55.20% Not Born in Australia

In conclusion, the samples from the SSDs with the highest proportions (>40%) of new Australians show low wellbeing. Moreover, the domains that are most affected involve relationships with others, both in terms of family/friends and community connection; and personal safety. These results indicate the importance of further research to understand these deficits in more detail and also the need for more resources to be directed to these areas.

Further interpretation of these results is not possible at this time. Because we do not know the composition of the samples from these SSDs, we cannot yet know whether it is the new Australians themselves who are reporting low wellbeing, whether it is the other Australians who are reporting low wellbeing, or both.

4.7. Dot Points

1. Various demographic variables alone and in combination can explain 25-30% of the variation in wellbeing between SSDs. The strongest of these are wealth (positive), population density (negative), the percentage of homes where only English is spoken (positive) and the percentage of people not born in Australia (negative).

2. The strongest demographic factor in terms of explaining variation between SSDs appears to be the percentage of people not born in Australia. However, the influence is minor where the proportion of New Australians remains below 40% of the total SSD population. The vast

majority of SSDs contain less than 40% New Australians. However, the few SSDs that exceed this proportion have low average wellbeing.

3. The domains of wellbeing that appear most sensitive to these influences are relationships and community connection.

4. We cannot determine from our results whether the low wellbeing experienced by people within these SSDs is being experienced by the new Australians, other Australians, or both. However, these results signal to policy makers that these SSDs that are very high in the numbers of new Australians need additional resources.

   These required resources are not necessarily in terms of additional financial resources. The final regression equation (Table A4.9) shows a non-significant contribution to wellbeing from income, age, and population density. The required resources are rather in terms of those aspects of community living that allow people to relate easily to one another. It is possible that there is a critical mass of new Australians in geographic locations that inhibits such relationships. However, our research is far from conclusive on this issue and further investigations are urgently required.

5. Regional Cities and Towns

5.1. Overview and Caveats

This chapter presents wellbeing results for the largest 70 regional cities and towns. However, there are several factors which act to make these results somewhat unreliable in the extent that they actually represent the towns, rather than the district. These are as follows:

1. Table A2.1 shows the size of each sample representing each town and city. We determined an arbitrary criterion of N=20 as the minimum sample size that we would consider sufficient for the town to be included in this table. However, this minimum may not be sufficient to provide a reliable estimate.

2. Table A2.1 also shows the SSDs that were used to construct the sample for each city and town. The following observations pertain as:

    2.1 The larger cities comprise several SSDs, have large sample sizes, and are likely reliable estimates. However, even the largest have a proportion of our sample who live outside the city itself. These proportions are shown in the right-hand column and they vary considerably even among these large regional cities, from 11.8% living outside the town in Woollongong (population 227,522) to 46.2% in Newcastle (population 278,773).

    2.2 These problems are generally exacerbated as the town size diminishes, with over 80% of the sample living outside the smaller town.

3. As a result of these factors the results in this chapter are more representative of the town and its region, rather than of the town itself.

5.2. Results

Table A5.1 shows the full list of 67 towns, in order of population size, and their values for the Personal Wellbeing Index domains. These results are shown in Figures A5.1 to A5.9 (see Appendix), in which the city/town regions have been ordered according to decreasing size.

While some trends are apparent, the variation between towns is too large to make clear observations of change. To counteract this, the data in Table A5.2 have been combined into 13 groups as shown in the caption of the base of Table A5.1.

Even after these groupings were made, some of the values for individual domains within towns were sufficiently aberrant to cause the disruption of trend-lines. To cope with this, the full set of 67 mean values for the Personal Wellbeing Index and each domain were combined within each variable. Then two standard deviations around the mean was used to produce a ‘normal’ range for each one. These values are shown in Table A5.3.

These new ranges were then matched against the individual means from which they had been constructed. Then, any individual mean that fell outside these ranges was eliminated (See Table A5.4). The calculations that form the basis of Table A5.2 are based on the remaining values.

The following observations can be made:

1. The ANOVA applied across the 10 means in Table A5.2 is significant (p = .02). These results are shown below:

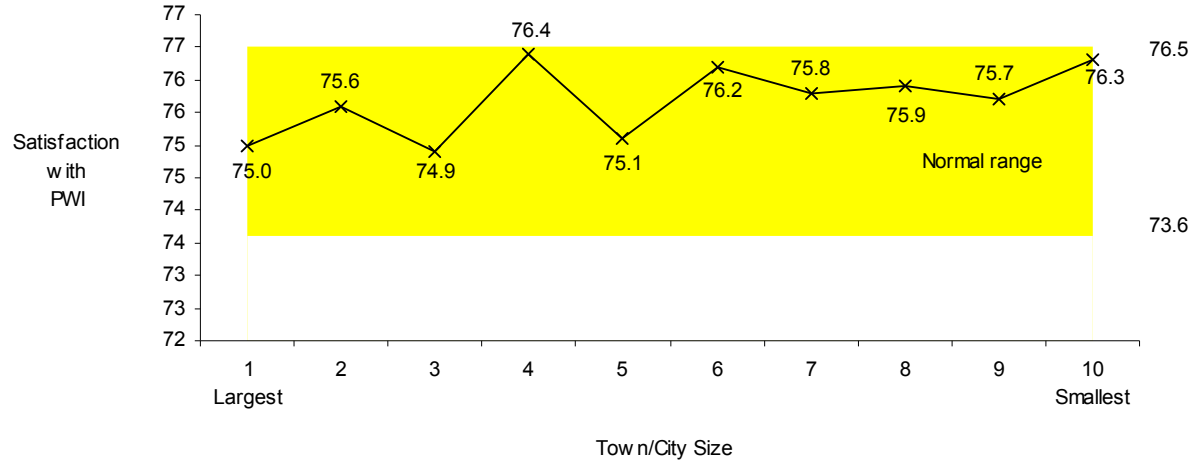


Figure 5.1: Satisfaction with Personal Wellbeing Index x Town/City Size (Groups)

It is apparent that there is an increasing trend of wellbeing as the town size decreases. It is significantly higher only for Group 4, which corresponds to a town size of 30,000-40,000 people. However, Group 4 is not statistically different from the groupings 5-10 that comprise smaller towns.

From this it may be concluded that wellbeing is lower in cities with more than about 40,000 inhabitants.

2. Of the domains, only community and safety show a significant trend. The results for community are shown below:

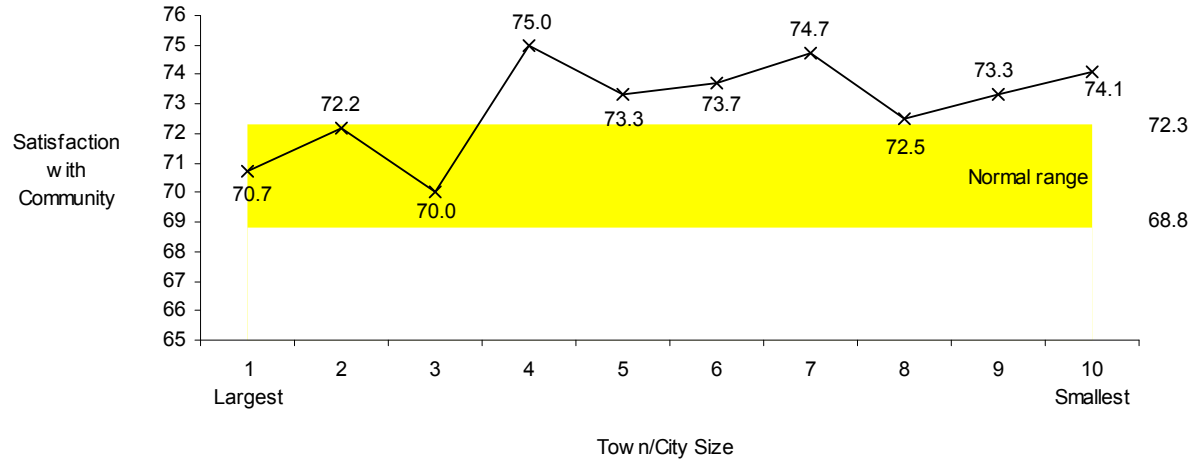


Figure 5.2: Satisfaction with Community Connection x Town/City Size (Groups)

Here the trend is most obvious. Essentially, Group 4 and above are higher than Group 3 and below.

3. The results for safety are shown below:

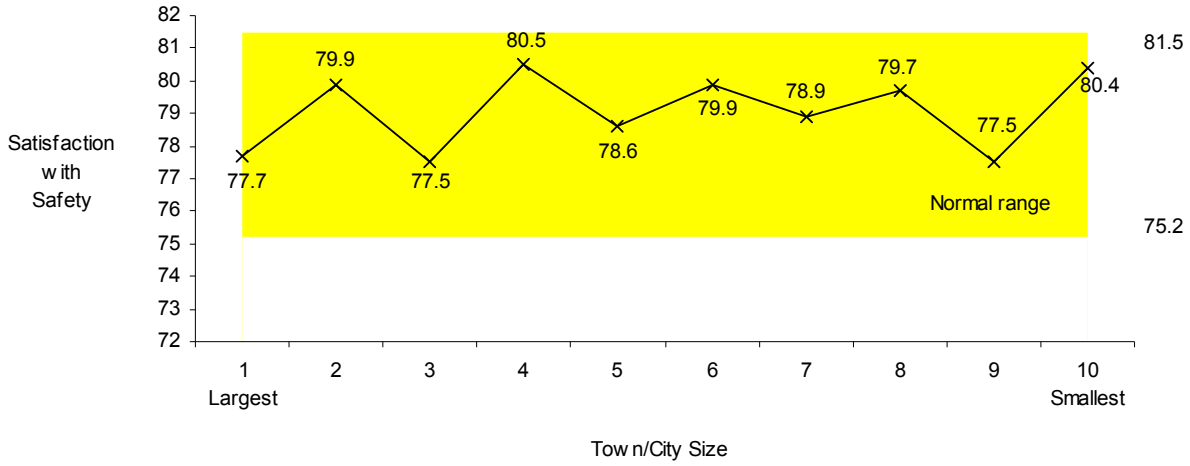


Figure 5.3: Satisfaction with Safety x Town/City Size (Groups)

Here the same trend is evident.

Conclusion:

1. Wellbeing generally falls in cities with more than 40,000 inhabitants.
2. The most important domain driving this is connection to community.
3. It seems intuitive that the reduced sense of safety in large cities is related to the lower community connection.

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The LGA and SSD codes and corresponding Postcodes are found at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2905.0.55.001Aug%202006?