An alternative measure of social wellbeing: analysing the key conceptual and statistical components of quality of life

Paul Boreham, Jenny Povey and Wojtek Tomaszewski

Abstract

Statisticians, policy makers and social researchers widely accept that there is a need to consider a more nuanced range of measures of quality of life that move beyond the economic domain and that take into account key aspects of an individual's life circumstances. Using data from an Australian household survey, a composite Wellbeing Index was created that covered objective circumstances, with known associations to wellbeing, evaluated from the individual's subjective viewpoint. The robustness of the measure comes from the fact that while covering a broad range of key dimensions, the index only includes the items deemed important components of wellbeing by a majority of respondents. The index was then used to explore the extent to which wellbeing is associated with other dimensions of quality of life that have currency in the contemporary literature. The study contributes to the contemporary debate on social wellbeing and adds new Australian evidence to a body of research that has been mainly based on European and American data.

Keywords: economic deprivation, income, quality of life, social cohesion, social exclusion, social wellbeing

Introduction

Social researchers have long been engaged in a renewed theoretical and conceptual development of studies of social inequality and social wellbeing (Atkinson 1989). This renewed interest has largely grown out of findings from more advanced statistical analyses that have linked inequality with both macro-level factors such as economic production and social cohesion (Wilkinson & Picket 2009) and micro-level effects such as health and social participation (Stiglitz et al. 2009a). The outcomes of these studies have been highly consequential for social policy makers and for academic debates on social wellbeing.

It has now been widely acknowledged that measures of income and economic performance are poor proxies for quality of life. Starting with the pioneering work of Amartya Sen (1987) it has become increasingly clear that the quality of life of individuals and families depends on what the resources they have available that enable them to achieve as well as their capacity to convert such resources into social wellbeing. Resources, of themselves, will not, therefore, constitute a sufficient metric to predict quality of life, and indicators that go beyond income, wealth and consumption expenditure need to be developed and applied. A need to consider more nuanced measures of quality of life, taking into account a wider range of key aspects of an individual's life circumstances, has been widely discussed (Stiglitz et al. 2009a), fueling an increased interest in broader measures of social wellbeing.

A number of studies have responded to these postulates by viewing wellbeing as a multidimensional construct covering: physical, psychological, cognitive, social, and economic factors (Pollard & Lee 2003; Lent 2004); material wellbeing, health, productivity, intimacy, safety, community, and emotional wellbeing (Cummins et al. 2003), or family economic wellbeing, social relationships, health, educational attainments, community connectedness and emotional wellbeing (Land 2010). Cummins and colleagues (2003) developed a national index of subjective wellbeing, the Australian Unity Wellbeing Index, comprising two subscales, Personal and National Wellbeing, and covering such domains as: standard of living; health; achievement in life; personal relationships; how safe you feel; community connectedness; future security (Personal subscale) and economic situation; state of the environment; and social conditions (the National subscale).

While such approaches are undoubtedly fruitful, the selection of the specific components of wellbeing is often problematic and can be somewhat arbitrary. In this paper, we introduce a more transparent way of selecting wellbeing indicators, based on what people consider to be important elements of their life situation. Incorporating only the components that people deem to be important to their wellbeing, we have developed a broad, transcending measure of quality of life which we have designated 'social wellbeing'. This measure aims to capture in a concise way subjective evaluations of more objective circumstances in which people live, The extent to which this measure is associated with other measures

of quality of life provides the focus of the analysis reported in this paper. Before presenting that analysis we turn to a review of the major dimensions of quality of life that have broad currency in the contemporary literature.

Key dimensions of quality of life

Household income

There is increasing evidence that the relationship between life satisfaction and income is generally not very strong (for example, Blanchflower & Oswald 2004). However, as Grusky and Kanbur note, 'economics has seized on income as a major indicator of wellbeing and has accordingly treated income-enhancing policies as the centrepiece of any strategy to reduce poverty and inequality' (2006: 11). Similar things could be said about other disciplines within the social sciences. Indeed, the most common indicator of social disadvantage is the poverty rate, defined by expressing the number of individuals whose incomes fall below a poverty line as a percentage of the population. However, there is now a broad consensus in the literature that income levels are not well correlated with other aspects of social disadvantage (Nussbaum 2006) and that the poverty rate fails to take into consideration the actual living conditions of those identified as poor (Saunders 2005, 2008). On the other hand, income is an important marker of the current resources available to households, which determine their ability to fully participate in society (Townsend 1979). Nevertheless, we hypothesise that income will have only a modest association with social wellbeing because it fails to take into account non market-related aspects of quality of life.

Economic deprivation

Deprivation measures are based on the premise of shared judgements about which items are important to provide a decent living, irrespective of personal preferences or capacity to afford these items. Deprivation is usually the result of income poverty that persists over time or at least repeated spells of it (Whelan et al. 2003). According to Boarini and Mira d'Ercole (2006) deprivation refers to the inability of individuals and households to satisfy four types of needs. First are basic needs such as, food, clothes, and a home that protects from the elements. Second is the capacity to afford basic leisure and social activities such as, outings with friends, inviting friends over for a meal, or going away on a holiday. Third is the availability of essential items in the home, such as, a telephone, a washing machine, and the internet. Fourth are adequate housing conditions, such as the availability of electricity, water supply, or indoor flushing toilet, as well as the environment where the house is located such as noise levels or indoor pollution.

Saunders and his colleagues have operationalised these indicators of deprivation and included measures of items deemed by respondents as essential. That is, they have endeavoured to measure and incorporate the individual's utility function through an assessment of whether purchase of the item was based on its affordability or its desirability to the particular respondent (Saunders 2004). Those who did not possess and could not afford items that are viewed

as essential by the majority of respondents are then identified as economically deprived (Nolan & Whelan 1996; Saunders & Naidoo 2009). Research by Saunders has shown that living conditions captured by these measures are negatively and significantly associated with social wellbeing (Saunders & Zhu 2009). Therefore, economic deprivation is hypothesised to be negatively and significantly associated with social wellbeing because a lack of essential material goods is likely to impact an individual's capability to live a decent life.

Social exclusion – access to services

Most authors tend to stress two attributes associated with the concept of social exclusion: its multidimensionality and its dynamic character (that social exclusion is a process, rather than a state). Social exclusion has been defined as 'the lack or denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to the majority of people in a society, whether in economic, social, cultural or political arenas' (Levitas et al. 2007: 9). One of the significant elements of social exclusion, stimulated by the capabilities approach, concerns how well people are able to function with the goods and services at their disposal (Clark 2005) or, in particular, to what extent is an individual's or family's access (or lack of access) to important public and private services such as health and education likely to exclude them from participating in activities crucial to their quality of life (Jenkins & Micklewright 2007). Economic deprivation does not always imply social exclusion (Levitas 1998; Oppenheim 1998) and these two dimensions of inequality are likely to have different origins and different consequences for social wellbeing. However, exclusion from essential services may hinder people's ability to utilise their resources in an optimal way and further compound the problems of those who suffer from resources deprivation. We hypothesise that inaccessibility to public services reduces the capability to participate in civic life and excludes such individuals from the capacity to convert their resources into social wellbeing.

Social connections

A substantial literature from several disciplines indicates that social connections and attendant norms of confidence and reciprocity are important elements in people's quality of life (Stiglitz et al. 2009b). Conceptual development of these observations often falls under the rubric of 'social capital' or, more explicitly, social networks. Helliwell and Putnam (2004) conclude their review of the social context of wellbeing with the observation that the breadth and depth of social connections constitute one of the most robust predictors of subjective wellbeing. Apart from friends and family (Kapteyn, Smith & Van Soest 2009), some of the most important domains of social connections include engagement with workmates either inside the workplace or outside of it (Helliwell & Huang 2010), engagement with people at places of worship (Lim & Putnam 2010) and connections with people in clubs and social organisations (Ziersch & Baum 2004). Finally, of the various facets of social participation, building and maintaining strong networks of social support has been identified as having the strongest impact on social wellbeing (Helliwell & Putnam 2004). Such close,

'high quality' networks of relationships, typically formed with immediate family members and friends and based on 'strong ties', have been differentiated from networks based on 'weak ties', involving non-intimate contacts with extended groups of acquaintances, although both impact on social wellbeing. We therefore hypothesise that building and maintaining strong networks of social support will be significantly and positively associated with social wellbeing.

Social cohesion

Social connections characterised by strong ties and social trust tend to be associated with the characteristics of communities and have significant spatial dimensions. Physical proximity matters and neighbourhood social cohesion provides a second, important measure of social networks. However, as Sen (2006) notes, a strong sense of group cohesion can heighten feelings of group membership which may be associated with the attribution of negative characteristics to outsiders and generate schisms within localities. Still, social cohesion has been reported to have strong associations with social wellbeing for those who are integrated into community networks (Sampson 2003). We hypothesise that social cohesion, manifested by trust and reciprocation within neighbourhood communities, will be significantly and positively associated with social wellbeing.

Subjective wellbeing

Much of the research on subjective wellbeing was undertaken in the context of the aforementioned debate about the need to break the dominance of indicators of economic performance at the individual and societal level, such as income or GDP, as instruments measuring societal progress and quality of life. Numerous studies have examined the associations between various objective dimensions of quality of life and subjective evaluations of personal wellbeing such as life satisfaction or happiness (for example, Diener & Suh 1994; D'Acci 2011), largely concluding that the two types of measures complement rather than substitute for each other.

Many of those studies have focused on what has been termed 'affective' components of wellbeing (Diener et al. 1999), as opposed to more stable, cognitive evaluations of quality of life. In this paper, we propose a new measure that intends to have a point of difference with some of the psychological wellbeing measures in that it is not aimed at measuring general happiness, a state of mind largely influenced by emotions. Instead, the proposed index aims to capture in a succinct way satisfaction with the social connections that form the most salient dimensions of one's life context, such as work, family, housing and so on.

We have eschewed the more global subjective questions such as 'I am satisfied with my life', focusing instead on specific dimensions described in the literature as the most critical components of quality of life. Guided by theoretical and conceptual considerations, we develop a composite index of *social wellbeing* designed to be a concise but comprehensive measure that evaluates the objective aspects of people's life circumstances. Social wellbeing is defined not by each

person's objective circumstances but by their subjective experience of those objective circumstances. Crucially, the index only incorporates the components that people deem to be important to their quality of life.

The resulting measure of social wellbeing that we have developed provides us with a comprehensive, overarching measurement tool to evaluate social wellbeing which replaces what might be termed the traditional market based measures of household income and consumption or the more subjective cognitive approaches to happiness. We consider that the approach to wellbeing we have adopted, by aggregating the most salient measures of quality of life in a parsimonious way, provides us with a comprehensive measurement tool to evaluate social wellbeing which draws on a thorough analysis of what really matters for individuals and families, and what determines the quality of their lives.

Data and methods

The data used for this paper were obtained from the *Study of Social Wellbeing* which involved a representative survey of Queensland households in Australia (Boreham et al. 2009). In 2009, the State of Queensland had a population of 4.4 million with characteristics that were broadly representative of the other states of Australia.

The study was undertaken over the three year period from 2008 to 2010, using a random probability sampling method stratified by region, age and gender.[1] The final sample was representative of the Queensland population apart from an under-representation of individuals between the ages of 18 and 34 years. This paper is based on the second wave of data (collected between May and October 2009) in which the wellbeing questions were introduced, comprising 2,143 respondents aged 18 to 65 years. We consider the data from this sample generalisable to other similar populations.

The Study of Social Wellbeing includes two questionnaires, the Personal form and the Household form. The Personal form covers: demographics; income; employment status; workplace conditions; social participation; quality of life; and health. The Household form covers: household composition; housing; property and investments; household income and household expenditure and living standards. The items used to create the social wellbeing measure were taken from the Personal form, while the independent and control variables used in the analyses were taken from both the Personal and Household forms.

While there are other Australian datasets such as the Household, Income and Labour Dynamics in Australia (HILDA) survey that could be used to measure wellbeing, the dataset we use has two key advantages. Firstly, it offers a more comprehensive coverage of the facets of wellbeing compared with many other surveys, including HILDA. Secondly, unlike other studies, it incorporates questions about the importance of each wellbeing dimension that were pivotal for the development of our wellbeing measure.

Dependent variable – social wellbeing index

The Study of Social Wellbeing aimed to compile an index that was comprehensive but concise and that would cover the multiple facets of the concept discussed in the wellbeing literature. Eighteen such elements were selected for our survey and included: health (Frey & Stutzer 2002), family relationships (Diener 2000), personal security (Cummins et al. 2003), housing (Pacione 2003), natural environment (Welsch 2006; Brereton et al. 2008), work (Layard 2005), financial assets (Lent 2004), income (Stutzer 2004), access to essential items and services (Saunders 2011), social respect (Powdthavee 2008), resilience to stress (Layard 2005), and leisure opportunities (Han & Patterson 2007).

For each item, respondents were asked to indicate:

(i) the extent to which they were satisfied with those aspects of their lives, and

(ii) how important those aspects were to their overall feeling of wellbeing.

Both the satisfaction and importance ratings were on a Likert scale (ranging from 1–7), where a higher score means that a person is more satisfied with a given aspect of their life, or finds it more important to their overall sense of wellbeing.

We consider the second question crucial to the development of our wellbeing measure. Echoing the approaches used in the literature on material deprivation where only items considered as necessities by a majority of the population are suitable measures of disadvantage (for example, Saunders 2004, Saunders & Naidoo 2009), we postulate that only those items that a large majority of people deem important aspects of their quality of lives should be included in any measure of wellbeing. We share the view of Huppert and colleagues (2009) who caution against the use of satisfaction measures alone, as satisfaction indicates the extent to which one's experiences match one's expectations, so a high level of satisfaction will be reported both by people who have very positive experiences, and by people who have less positive experiences but low expectations. For this reason, we sought to review the items in terms of the importance attributed to them and to avoid contaminating the measure with aspects that people may well be satisfied with but which – according to their own opinions – are not that important to them.

Descriptive statistics were run on the importance of these items, summating the percentage of respondents who rated the items 5, 6 or 7. We determined that a 25 per cent cut-off would be applied and those items where 75 per cent or more of respondents indicated the items were important were retained. Since the selection of such a cut-off point is inevitably somewhat arbitrary and different criteria can lead to different results (for example, Saunders & Naidoo, 2009), the list of selected items was thoroughly screened for conceptual consistency and generalisability to the entire population. Literature findings and conceptual arguments were used to further refine the set of items included in the index. For example, those items which, at a conceptual level, were closely related to some other questions already included in the measure that were more precisely

formulated or were relevant to a wider group of people, were omitted. Twelve items were selected as a result of this process, with the omitted items generally covering more abstract concepts, such as involvement in the community, education, or access to public services (Table1).

Table 1 presents descriptive statistics for each aspect of wellbeing with the responses summated into dissatisfied (1, 2 or 3), neutral (4), and satisfied (5, 6 or 7) categories, as well as their importance score. The aspects of life with which respondents were most satisfied included their family relationships and housing (over 80 per cent satisfied), while the level of stress, income and savings and other financial assets were the most common areas of dissatisfaction (over 25 per cent dissatisfied).

Table 1: Perceived importance and satisfaction percentages for each element of wellbeing (sorted by importance)

		Importance	Dissatisfaction	Neutral	Satisfaction	
Item Description	n	%	%	%	%	Factor loading
Your health	2,069	93.80	24.26	15.22	60.51	0.60
Your family relationships	2,065	92.92	7.46	8.09	84.46	0.56
Your ability to afford essential items	2,065	88.62	15.59	11.86	72.54	0.77
Your housing or accommodation	2,064	88.54	7.66	8.96	83.38	0.64
Your income	2,068	87.66	24.61	14.56	60.83	0.73
Your savings and other financial assets	2,062	86.16	32.74	12.8	54.46	0.75
Your personal security	2,062	85.56	6.89	13.43	79.68	0.71
Your natural environment	2,072	83.13	5.6	15.69	78.72	0.68
Your leisure opportunities	2,072	81.63	16.7	16.99	66.31	0.67
The respect you are accorded by others	2,066	80.81	6.24	18.73	75.02	0.72
Your job or your work	1,973	80.44	17.94	19.31	62.75	0.66
The level of stress that you normally feel	2,062	77.19	28.71	25.17	46.12	0.61

To examine the construct validity, we ran a Principal Component Factor Analysis on the items, which suggested a 2 factor solution. However, the items that loaded on factor 2 also loaded on factor 1, suggesting that while they measure one construct there may be underlying dimensions tapped by these items. The Cronbach's alpha coefficient was 0.89, indicating a high internal consistency of the index and suggested that these items were measuring one construct. These findings and the theoretical grounding that these items measure the wellbeing construct supported the decision to use a single-factor solution and retain all 12 items in the index. Table 1 presents the factor scores; all but one (0.55) of the factor loadings were 0.6 or higher, and considered practically significant. Such composite indices of wellbeing based on multiple items tend to have higher reliability and validity than single-item instruments such as life satisfaction (Diener et al. 2005).

While deciding on the final form of the wellbeing measure, we gave considerable thought to the relationship between satisfaction with a given item and its perceived importance. In principle, it would be possible to create an index where the satisfaction score of an item is weighted by its importance score (in our index, each element is given an implicit weight of 1). However, a body

of research demonstrates that such procedures have little empirical benefit (Wu 2008). Trauer & Mackinnon's (2001) suggest that satisfaction ratings intrinsically incorporate the judgement of importance, thus making weighting untenable. Empirical tests (Wu et al. 2009) have also shown that unweighted satisfaction scores have a stronger predictive effect than importance-weighted satisfaction scores (Wu et al. 2009) and that weighted scores did not perform better than unweighted scores in measuring quality of life (Russell et al. 2006). However, Russell and colleagues (2006) found that the mean satisfaction ratings for important domains correlated stronger with certain outcomes than did the mean satisfaction ratings for unimportant domains. Consequently, they recommend that importance is incorporated more effectively into measures of quality of life. We have therefore used the importance attributed to these wellbeing items in our model by including the average importance score as a control variable in the regression models.

Independent variables – quality of life measures

Our composite measure captures the subjective dimension of wellbeing as a much more general concept than the specific aspects covered by the items on which it is based. As such, it is substantively appropriate and methodologically desirable to investigate its associations with a range of other measures of quality of life. In our analyses, we included a number of indicators that span the key dimensions of the quality of life discussed in the introductory section:

Income: we include household income in our study as a measure of the level of material resources available to an individual or household. Household income was collected in the *Study of Social Wellbeing* as gross (before-tax) terms and in dollar bands. Each response was set to the midpoint of the band and this amount was then modified. The household income was equivalised using the OECD-modified scale, which weights the number of individuals in the household (for example the first adult is weighted at 1.0, every subsequent adult is weighted at 0.5 and children 0.3)[2].

Economic Deprivation: the items used for the Economic Deprivation Index were originally sourced from the work of Peter Saunders who used these items in the *Community Understanding of Poverty and Social Exclusion* (CUPSE) survey. Extensive research has been conducted reviewing these items and whether respondents considered them essential (Saunders 2008; Saunders & Naidoo 2009). In our study, respondents were asked if there had been times in the last 12 months when they or a family member were forced to go without the listed material resources because they could not afford them. The rating scale ranged from never (0) to most of the time (3). A mean index score, was created using the 10 items covering basic necessities: warm clothes and bedding; a substantial meal once a day; medicines prescribed by a doctor; a decent and secure home; heating in at least one room of the house; school books and new school clothes; outings with friends; visits to a doctor; visits to a dentist; and access to child care (Table 2). The index shows high reliability as measured by Cronbach's alpha (0.84).

Table 2: Economic deprivation – percentage of households who were forced to go without these items because they could not afford them

		Never	Rarely	Sometimes	Most of the time
Item Description	n	%	%	%	%
Warm clothes and bedding if it's cold	1,750	96.06	2.69	1.20	0.06
A substantial meal at least once a day	1,772	95.20	2.99	1.69	0.11
Medicines prescribed by a doctor	1,772	91.31	5.08	3.44	0.17
A decent secure home	1,755	97.04	1.77	0.68	0.51
Heating in at least one room of the house	1,661	89.16	4.21	3.49	3.13
Up-to-date school books, new school clothes for school-aged children	1,205	90.95	4.15	4.23	0.66
Outings with friends as you were unable to pay your way	1,783	69.88	11.78	14.69	3.65
Visits to a doctor when you or a family member was sick	1,772	90.07	5.14	4.12	0.68
Visits to a dentist when you or a family member needed to	1,760	78.41	7.44	8.81	5.34
Access to child care if needed	876	92.47	3.88	2.63	1.03

Social Exclusion – access to services: the access to services measure is comprised of two items, namely: access to health services and access to public services. Respondents were asked to rate their satisfaction with these items on a 7 point scale ranging from zero (very dissatisfied) to six (very satisfied) (Table 3). A mean index score was created for these items (alpha=0.76).

Table 3: Social exclusion (access to services) – levels of satisfaction

		Dissatisfaction	Neutral	Satisfaction
Item Description	n	%	%	%
Your access to health services	2,070	10.87	16.04	73.09
Your access to public services	2,060	11.84	30.15	58.01

Table 4: Social connections – frequency of participation per social activity

		Daily	A few times a week	Once a week	Once a month	A few times a year	Never
Item Description	n	%	%	%	%	%	%
Spend time with friends	2,076	5.39	27.22	35.12	20.47	9.83	1.97
Spend time socially with work colleagues	2,014	3.43	3.87	9.38	17.58	33.66	32.08
Spend time with people socially at your place of worship	2,045	0.64	3.13	9.54	3.28	11.88	71.54
Spend time socially with people at sporting activities or clubs	2,058	0.83	11.37	17.64	10.64	19.87	39.65
Spend time socially with people at service organisations	2,039	0.25	1.57	4.41	6.33	14.08	73.37

Social Connections: the Social Connections Index comprised five items, sourced from the World Values Survey (Inglehart & Welzel 2005) namely: spending time with friends; spending time socially with work colleagues; spending time with people socially at a place of worship; spending time socially with people at sporting activities or clubs; and spending time socially with people at service

organisations (Table 4). The responses for each item fell on to a continuum that ranged from zero (never) to five (daily). A mean index score was created for these items (alpha=0.47).

Social Cohesion: the Social Cohesion Index comprised six items (alpha=0.86) and the responses for each item ranged from zero (strongly disagree) to six (strongly agree). The respondents were asked whether the neighbourhood they lived in was close-knit; whether people in the neighbourhood were willing to help each other; whether they could trust their neighbours; and whether they felt safe in their neighbourhood. Two items, "people in this neighbourhood generally do not get along" and "people in this neighbourhood generally do not share the same values", were reverse coded for the mean index score. For the descriptive statistics reported in Table 5, the responses were grouped into three categories: disagree; neutral; and agree.

Table 5: Social cohesion – percentage per rating scale, 18-65 years old

		Disagree	Neutral	Agree
Item Description	n	%	%	%
This is a close-knit neighbourhood	2,070	28.99	34.78	36.23
People around here are willing to help their neighbours	2,074	19.05	21.50	59.45
People in this neighbourhood can be trusted	2,073	14.66	26.77	58.56
People in this neighbourhood generally do not get along	2,061	62.69	27.95	9.36
People in this neighbourhood do not share the same values	2,066	44.77	39.69	15.54
I feel safe in this neighbourhood	2,075	8.72	10.84	80.43
I enjoy living in this neighbourhood	2,078	8.23	10.25	81.52

Control variables – individual and social factors

Our analyses include those characteristics of individuals that have been demonstrated in the literature to strongly influence both objective and subjective aspects of the quality of life.

Employment: paid employment contributes positively to quality of life by providing income to contribute to the economic and social security of employees and their families. Conversely, unemployment is associated with reduced self-confidence, social isolation and poor levels of social wellbeing (Sen 2000; Dockery 2005; Andersen 2009). In our analysis, employment status was defined as: employed in paid work; unemployed looking for work; and not active in the labour market (which includes housewives; volunteers; and those still studying).

Health: health is a critical feature shaping both the length and quality of people's lives and is a fundamental aspect of capabilities (Stiglitz et al. 2009a). Good health has been shown to be strongly associated with individual wellbeing (Hsiao & Heller 2007) and enables other aspects of quality of life such as social connections (Wilkie & Young 2009). We have used a measure of self-reported health for this variable by asking respondents to rate their health on a five point Likert scale ranging from poor to excellent. Such measures have some currency

in national health surveys and, while there is some criticism of their ability to provide an objective measure of morbidity (Miilunpalo et al. 1997), they have been shown to be closely related to a wide range of diseases and conditions in national populations (Idler et al. 1997). Owing to a small number of cases, the responses for the poor and fair health categories were collapsed into one group.

Marital status has been shown to be a strong predictor of social wellbeing (Diener et al. 1999; Evans & Kelley 2004). We categorised respondents into: single, in de facto relationship, married (registered marriage), divorced, separated, and widowed. Research has also indicated that *family structure,* particularly having children in the home, is strongly associated with social wellbeing (Ross et al. 1990). In our analyses, we distinguished between households with children under 18 years of age, households with children 18 years and older only, and those households without children. The relationship between marriage and wellbeing also varies by gender, with marriage being more beneficial for men than women and being single more disadvantageous for men (Evans & Kelley 2004). To account for these effects on social wellbeing, we included gender in our model. *Age* has also been previously found to be predictive of social wellbeing (Keyes & Shapiro 2004) and was therefore included in the model. *Regional differences* in living costs and access to services and jobs may affect the quality of life of households in different locations (Curran et al. 2008). We defined three regional locations, distinguishing between: remote, non-metropolitan and city locations.

Data analysis

Prior to the analysis reported below, data were screened for normality and outliers. While the social wellbeing index was positively skewed, populations tend to report high wellbeing and it can therefore be considered to be naturally skewed (Cummins 1997). Additionally, skewness has little influence on samples with more than 300 participants. No transformation was therefore applied to this index.

The data were also reviewed for missing information. We excluded from the dataset those cases that had data missing on four or more variables across the 15 variables included in our statistical models (three per cent of the sample). Due to the very low proportion of the omitted cases, it is unlikely that any bias related to the omission would change the observed patterns of associations or the conclusions reached in the paper. We conducted imputations on the remaining dataset whereby mean scores were imputed for continuous variables and an additional dummy variable, indicating missing information, was added for each of the categorical variables. These coefficients were not reported in the tables; except for health they were not significant.

Given that our dependent variable is approximately continuous, we used a linear regression model to estimate the associations between the measure of social wellbeing (our dependent variable) and the five other measures of quality of life, while controlling for other relevant characteristics of individuals and households.

The focus of this analysis is to explore the extent to which Household Income, Economic Deprivation, Social Exclusion, Social Connections, Social Cohesion are predictors of social wellbeing. As a preliminary check, we examined the correlations between all measures of quality of life and social wellbeing (Table 6). They ranged between 0.00 and 0.54, suggesting that multicollinearity was unlikely to be a problem. This was confirmed by a relatively low value of the mean Variance Inflation Factor (VIF)[3] of 1.46, with the individual variable's VIFs ranging from 1.01 to 3.20. The three factors exhibiting the highest levels of association with social wellbeing were social exclusion (0.52); health (0.45); and economic deprivation (–0.42). All three correlations were statistically significant.

Table 6: Wellbeing and other quality of life measures – correlations

	1	2	3	4	5	6
(1) Wellbeing	1.00					
(2) Household income	0.23**	1.00				
(3) Social exclusion – access to services	0.54**	0.10**	1.00			
(4) Economic deprivation	-0.42**	-0.34**	-0.29**	1.00		
(5) Social connections	0.22**	0.04	0.17**	-0.11**	1.00	
(6) Social cohesion	0.35**	0.05*	0.25**	-0.17**	0.14**	1.00

Results and discussion

In order to determine the effect that non-monetary quality of life variables have on social wellbeing, we estimate a three step linear regression model, the results of which are depicted in Table 7. The estimates presented in Table 7 are standardised regression estimates. The baseline model includes Household Income, Economic Deprivation, Social Exclusion, Social Connections and Social Cohesion to predict wellbeing. As per our earlier discussion, the model also incorporates the importance that people attributed to the wellbeing items in our model by including the average importance score as a control variable.[4]

The subsequent models extend the baseline analysis by adding the control variables. Two of the individual and social factors that we control for (Employment and Health) can be seen as endogenous to the dependent variable, as our index includes satisfaction with those items, among other things. We do not expect this to be a problem for two reasons. Firstly, the variables on the left hand side capture more objective aspects of employment and health, while the index measures subjective evaluations of wellbeing. Secondly, the wellbeing index is a transcending measure, tapping at an underlying complex construct, and hence goes beyond the sum of its individual components. However, to address any concerns, we proceed with further estimation in two steps: first, in Model 2, we include all the remaining control variables (education; marital status; family structure; gender; age and regional differences) and only as a last step we add in employment and health (Model 3). The results remain stable. As a further robustness check we re-estimated Model 3 on a reduced 10-item version of the index, excluding satisfaction with health and employment/main activity, and the results remained stable as well (detailed results available upon request).

Table 7: Relationship between wellbeing and other quality of life measures

	Model 1 Quality of life measures		Model 2 Model 1 & individual and social factors		Model 3 Model 2 & control variables	
	β	SE β	β	SE β	β	SE β
Household income	0.09***	(0.03)	0.12***	(0.03)	0.09***	(0.03)
Economic deprivation	-0.23***	(0.05)	-0.22***	(0.04)	-0.19***	(0.04)
Social exclusion – access to services	0.38***	(0.02)	0.37***	(0.01)	0.33***	(0.01)
Social connections	0.11***	(0.03)	0.11***	(0.02)	0.08***	(0.02)
Social cohesion	0.17***	(0.02)	0.17***	(0.01)	0.15***	(0.01)
Importance of wellbeing	0.14***	(0.02)	0.13***	(0.02)	0.11***	(0.02)
Employment status						
Employed paid work			-	-	-	-
Unemployed looking for work			-	-	-0.10***	(0.11)
Not active in labour market			-	-	-0.01	(0.04)
Health						
Excellent health			-	-	-	-
Very good health			-	-	-0.08*	(0.05)
Good health			-	-	-0.21***	(0.05)
Poor to fair health			-	-	-0.32***	(0.06)
Education level						
Schooled up to year 12			-	-	-	-
Trade, certificate, diploma			0.01	(0.04)	0.01	(0.04)
Degree			-0.03	(0.04)	-0.05**	(0.04)
Marital status						
Single			-	-	-	-
De facto			0.01	(0.08)	0.01	(0.07)
Married			0.07*	(0.06)	0.06*	(0.06)
Divorced			0.01	(0.08)	0.02	(0.07)
Separated			-0.04*	(0.11)	-0.03	(0.10)
Widow			0.01	(0.13)	0.01	(0.12)
Family structure						
No children			-	-	-	-
Children under 18			0.004	(0.05)	-0.01	(0.04)
Children 18 years up			-0.001	(0.06)	-0.002	(0.05)
Gender						
Male			-0.05**	(0.03)	-0.04*	(0.03)
Female			-	-	-	-
Age			-0.51***	(0.01)	-0.43**	(0.01)
Age2			0.58***	(0.00)	0.52***	(0.00)
Region						
Remote			-0.02	(0.04)	-0.01	(0.06)
Non metropolitan			-0.005	(0.06)	-0.01	(0.04)
City			-	-	-	-
Constant	1.79***	(0.15)	2.52***	(0.28)	2.87***	(0.29)
Adjusted R2	0.43		0.45		0.52	
N	2069		2069		2069	

* p < 0.05, ** p < 0.01, *** p < 0.001
β are standardised regression estimates, significance and SE based on unstandardised estimates (available on request)

First, Table 7 illustrates that the final model fit (adjusted R^2 of 0.52) is quite high and that all of the Quality of Life independent variables are highly statistically significant. This attests to the robustness of our Social Wellbeing measure and our argument that the selected quality of life measures are strong predictors of overall wellbeing. As the other individual and social factors and the control variables were introduced more of the variance was explained and the model remained stable.

Second, the model shows that, as hypothesised, the Economic Deprivation measure is negatively and significantly associated with Social Wellbeing. The high coefficient (–0.19) indicates that being forced to go without essential items clearly impacts strongly on an individual's capacity to live a decent life.

Third, as predicted, the three quality of life variables (Social Exclusion, Social Connections and Social Cohesion) are all significant predictors of Social Wellbeing. In particular, Social Exclusion, or lack of access to important public and private services such as health and education, is shown to exclude individuals from participating in activities crucial to their quality of life and is significantly and negatively associated with Social Wellbeing.

Fourth, Household Income is, as hypothesised, positively associated with Social Wellbeing. However, as predicted, the coefficient of 0.09 is not high and these results caution against using income variables as primary indicators of social disadvantage and quality of life.

Finally, several of the control variables were significantly related to Social Wellbeing.

Being unemployed exhibits a strong (negative) association with wellbeing, underlining the devastating consequences of unemployment which are likely to be compounded by the associated circumstances of those in this position. Health is another factor strongly associated with wellbeing. Age has a significant negative relationship to wellbeing, suggesting that wellbeing decreases with age. However, including a quadratic term for the age effect suggests that the relationship is non-linear and that age 38 constitutes a turning point, whereupon wellbeing starts to increase with age. Being male has a significant negative relationship with Social Wellbeing. Being married has a significant positive relationship with Social Wellbeing. There were no statistically significant effects found for Family Structure or Regional location. Unexpectedly, higher educational qualifications have negative association with Social Wellbeing. This could be perhaps partially explained by the fact that highly educated people tend to have higher expectations and therefore are more difficult to please. Still, this is not a typical finding and should be further investigated in future studies.

Many studies have investigated the mechanisms shaping how people make subjective evaluations and judgments. It has been pointed out that changes in individual or household circumstances are often not followed by long-term changes in subjective wellbeing, largely as a result of adaptation and habituation processes (Clark et al. 2008; Kahneman & Deaton 2010). It is difficult to assert the relevance of these postulates to our wellbeing measure without longitudinal

data. However, it is worth noting that the observed differences in wellbeing across groups of people with different employment or health statuses suggest persistent differences in quality of life between those groups.

Overall, our results demonstrate strong associations between social wellbeing and other dimensions of quality of life. It could be argued that some of those associations are data-driven, for instance, are due to the so-called 'common method bias' or multicollinearity between variables in the model. In particular, the items used to construct the measure of Social Exclusion are asked in a similar fashion to the items that underpin our Wellbeing measure. To test the robustness of the findings, we therefore re-estimated our final models with the measure of Access to Services excluded, and the results for other variables remained remarkably stable (output available upon request).

Conclusion

This paper makes contributions to two key areas of debate in the literature. The first addresses methodological issues concerning the development of statistical measures for assessing a major target of social policy – the quality of life of families and individuals. We develop and assess a metric to enable a more rigorous, survey-based evaluation of social wellbeing that goes beyond traditional measures of income wealth and consumption expenditure. This indicator aims to capture in a reasonably concise way subjective evaluations of the more objective circumstances of people's lives. The validity and reliability of this measure is assessed by testing the extent to which it is associated with other measures of the social circumstances of families that are likely to impact on wellbeing.

The second contribution that this paper makes is to draw attention to the policy relevance of developing formal, non-monetary indicators of wellbeing into a composite indicator based on micro-data at a household level. We believe that these indicators demonstrate that wellbeing depends on a range of social conditions that have value for individuals, families and communities such as health, housing, family relations, personal security, employment and leisure.

Policy makers and social researchers have long been concerned with measuring and comparing the overall wellbeing of societies, communities and individuals. Such key indicators of quality of life provide an evidence base upon which to design social policies that involve facilitating better targeting of government transfers while ensuring long-term economic and social sustainability. However, while the term wellbeing is commonly used, it is inconsistently defined and its utility for social and economic policy has been the subject of considerable reservation.

An approach that accounts for some of the factors influencing social wellbeing is provided by social indicators. Indicators of social conditions covering specific aspects of wellbeing have been used for some time and look to a broader definition of wellbeing based on a composite measure of dimensions of human development. These metrics provide a concise overview of quantitative social

trends such as family characteristics, employment rates, jobless households, crime victimisation, conviction rates, life expectancy, and infant mortality. However, they are often collected at the national level and do not easily lend themselves to analyses of changes within families, communities or regions which are more often the concern of policy makers. Other recent literature in this domain has tended to view wellbeing as a multidimensional set of mainly cognitive elements concerning, for example: physical, psychological, cognitive, social, and economic factors.

The approach we report in this paper is based not on what 'objective' considerations deem to influence wellbeing but on survey research evidence that is based on an individual's assessments of how satisfied they are with various aspects of their lives that they deem to be important contributors to their overall wellbeing. We are conscious of a major criticism of this approach that holds that subjective states are not the only things that matter, and that expanding people's opportunities is important in itself, even if this does not show up in greater subjective wellbeing. However, the results we report suggest a complex network of social capacities that enable people to take advantage of their social and human capital and material resources. This is an important finding for policy makers and it suggests that more attention needs to be paid to the social circumstances of individuals and families, and not just their material circumstances if the quality of their lives is to be addressed.

Acknowledgements

References

Andersen, S.H. (2009) 'Unemployment and subjective well-being. A question of class?', *Work and Occupations*, 36 (1), 3–25.

Atkinson, A.B. (1989) 'How should we measure poverty? Some conceptual issues'. In A.B. Atkinson (ed.) *Poverty and Social Security*, Hemel Hempstead, UK, Harvester.

Blanchflower, D.G. & Oswald, A.J. (2004) 'Well-being over time in Britain and the USA', *Journal of Public Economics*, 88 (7–8), 1359–86.

Boarini, R. & Mira d'Ercole, M. (2006) Measures of material deprivation in OECD countries, *OECD Social, Employment and Migration Working Papers, No. 37*, OECD, Paris.

Boreham, P., Western, M., Dow, G. & Laffan, W. (2009) Australian Research Council, Linkage Project LP0775040 The development and application of a conceptual and statistical framework for the measurement of non-market factors affecting social inequality and social wellbeing. (Social Wellbeing Survey 2009) Institute for Social Science Research, The University of Queensland.

Brereton, F., Clinch, J.P. & Ferreira, S. (2008) 'Happiness, geography and the environment', *Ecological Economics*, 65 (2), 386–96.

Clark, D.A. (2005) 'Sen's capability approach and the many spaces of human well-being', *Journal of Development Studies*, 41 (8), 1339–68.

Clark, A.E., Frijters, P. & Shields, M.A. (2008) 'Relative income, happiness, and utility: an explanation for the easterlin paradox and other puzzles', *Journal of Economic Literature*, 46 (1): 95–144.

Cummins, R.A. (1997) Comprehensive Quality of Life Scale- Adult: Comqol-A5 (5th Ed), Melbourne, School of Psychology, Deakin University.

Cummins, R.A., Eckersley, R., Pallant, J., Van Vugt, J. & Misajon, R. (2003) 'Developing a national index of subjective wellbeing: the Australian unity wellbeing index', *Social Indicators Research*, 64 (2), 159–90.

Curran, L., Wolman, H., Hill, E. & Furdell, K. (2008) Poverty, programs and prices: how adjusting for cost of living would affect federal benefit eligibility. In *Metropolitan Policy Program*, The Brookings Institution, March 2008.

D'Acci, L. (2011) 'Measuring well-being and progress', *Social Indicators Research*, 104 (1), 47–65.

Diener, E. (2000) 'Subjective well-being: The science of happiness and a proposal for a national index', *American Psychologist*, 55 (1), 34–43.

Diener, E., Lucas, R.E. & Oishi, S. (2005) 'Subjective well-being: the science of happiness and life satisfaction'. In C.R. Snyder & S.J. Lopez (eds) *Handbook of Positive Psychology*, New York, Oxford University Press.

Diener, E., Suh, E.M., Lucas, R.E. & Smith, H.L. (1999) 'Subjective wellbeing: three decades of progress', *Psychological Bulletin,* 125, 276–302.

Dockery, A.M. (2005) 'The happiness of young Australians: empirical evidence of the role of labour market experience', *The Economic Record*, 81 (255), 322–35.

Evans, M.D.R. & Kelley, J. (2004) Effect of family structure on life satisfaction: Australian evidence, *Melbourne Institute Working Paper No. 24/04*, Melbourne Institute of Applied Economic and Social Research, The University of Melbourne.

Frey, B.S. & Stutzer, A. (2002) *Happiness and Economics*, Princeton and Oxford, Princeton University Press.

Grusky, D.B. & Kanbur, R. (2006) 'Introduction: The conceptual foundations of poverty and inequality measurement', In D.B.Grusky & R. Kanbur *Poverty and Inequality*, Stanford, Stanford University Press.

Han, J. & Patterson, I. (2007) 'An analysis of the influence that leisure experiences have on a person's mood state, health and wellbeing', *Annals of Leisure Research*, 10 (3&4), 328–51.

Helliwell, J.F. & Huang, H. (2010) 'How's the job? Well-being and social capital in the workplace', *Industrial and Labor Relations Review*, 63 (2), 205–27.

Helliwell, J.F. & Putnam, R.D. (2004) 'The social context of well-being', *Philosophical Transactions of the Royal Society of London Series B Biological Sciences*, 1449, 1435–46.

Hsiao, W. & Heller, P. (2007) What should macroeconomists know about health care policy?, *IMF Working Paper, No Wp/07/13*, Washington DC, International Monetary Fund.

Huppert, F., Marks, N., Clark, A., Siegrist, J., Stutzer, A., Vittersø, J., et al. (2009) 'Measuring well-being across Europe: description of the ESS well-being module and preliminary findings', *Social Indicators Research*, 91 (3), 301–15.

Idler, E.L., & Benyamini, Y. (1997) 'Self-rated health and mortality: a review of twenty-seven community studies', *Journal of Health and Social Behavior*, 38 (1), 21–37.

Inglehart, R. & Welzel, C. (2005) *Modernization, Cultural Change and Democracy*, New York, Cambridge University Press.

Jenkins, S.P. & Micklewright, J. (2007) New directions in the analysis of inequality and poverty, *ISER Working Paper 2007–11*, Colchester, Institute for Social and Economic Research, University of Essex.

Kahneman, D. & Deaton, A. (2010) 'High income improves evaluation of life but not emotional well-being', *Proceedings of the National Academy of Sciences*, 107 (38),16489–93.

Kapteyn, A., Smith, J.P. & Van Soest, A. (2009) Life satisfaction, *Discussion Paper 01/2009 – 008*, Netherlands, Netspar, Tilburg University, RAND & IZA.

Keyes, C.L.M. & Shapiro, A. (2004) 'Social well-being in the United States: a descriptive epidemiology'. In O.G. Brim, C.D. Ryff & R.C. Kessler (eds) *How Healthy Are We?: A National Study of Well-Being a Midlife*, University of Chicago Press.

Layard, R. (2005) *Happiness: Lessons from a New Science*, London, Allen Lane.

Land, K.C. (2010) Child and Youth Well-Being Index (CWI) Annual release. North Carolina, USA, The Foundation for Child Development.

Lent, R.W. (2004) 'Toward a unifying theoretical and practical perspective on well-being and psychosocial adjustment', *Journal of Counseling Psychology*, 51 (4), 482–509.

Levitas, R. (1998) *The Inclusive Society? Social Exclusion and New Labour*, Hampshire, MacMillan Press Ltd.

Levitas, R., Pantazis, C., Fahmy, E, Gordon, D., Lloyd, E. & Patsios, D. (2007) *The Multidimensional Analysis of Social Exclusion*, London, Social Exclusion Task Force.

Lim, C. & Putnam, R.D. (2010) 'Religion, social networks, and life satisfaction', *American Sociological Review*, 75 (6), 914–33.

Miilunpalo, S., Vuori, I., Oja, P., Pasanen, M. & Urponen, H. (1997) 'Self-rated health status as a health measure: the predictive value of self-reported health status on the use of physician services and on mortality in the working-age population', *Journal of Clinical Epidemiology*, 50 (5), 517–28.

Nolan, B. & Whelan, C.T. (1996) *Resources, Deprivation and Poverty*, Oxford, Clarendon Press.

Nussbaum, M. (2006) *Frontiers of Justice*, Cambridge, MA, Harvard University Press.

Oppenheim, C. (1998) 'Poverty and social exclusion: an overview'. In C. Oppenheim (ed.) *An Inclusive Society? Strategies for Tackling Poverty*, London, IPPR.

Pacione, M. (2003) 'Urban environmental quality and human wellbeing – a social geographical perspective', *Landscape and Urban Planning,* 65 (1–2), 19–30.

Pollard, E. & Lee, P. (2003) 'Child well-being: a systematic review of the literature', *Social Indicators Research*, 61 (1), 59–78.

Powdthavee, N. (2008) 'Putting a price tag on friends, relatives and neighbours: using surveys of life satisfaction to value social relationships', *Journal of Socio-Economics*. 37 (4), 1459–80.

Ross, C., Mirowsky, J. & Goldsteen, K. (1990) 'The impact of the family on health: the decade in review', *Journal of Marriage and the Family*, 52 (4), 1059–78.

Russell, L.B., Hubley, A.M., Palepu, A. & Zumbo, B.D. (2006) 'Does weighting capture what's important? Revisiting subjective importance weighting with a quality of life measure', *Social Indicators Research*, 75 (1), 141–67.

Sampson, R.J. (2003) 'The neighborhood context of well-being', *Perspectives in Biology and Medicine*, 46 (3), S53–S64.

Saunders, P. (2004) Towards a credible poverty framework: from income poverty to deprivation, *SPRC Discussion Paper No. 131*, Sydney, Social Policy Research Centre, University of New South Wales.

Saunders, P. (2005) *The Poverty Wars: Reconnecting Research with Reality*, Sydney, UNSW Press.

Saunders, P. (2008) 'Measuring well-being using non-monetary indicators', *Family Matters*, 78, 8–17.

Saunders, P. (2011) *Down and Out: Poverty and Exclusion in Australia*, Bristol, Policy Press.

Saunders, P. & Naidoo, Y. (2009) 'Poverty, deprivation and consistent poverty', *The Economic Record*, 85 (271), 417–32.

Saunders, P. & Zhu, A. (2009) 'Comparing disadvantage and well-being in Australian families', *Australian Journal of Labour Economics*, 12 (1), 21–39.

Sen, A. (1987) *Commodities and Capabilities*, Oxford, Oxford University Press.

Sen, A. (2000) Social exclusion: concept, application, and scrutiny, *Social Development Papers No. 1*. Manila, Office of Environment and Social Development, Asian Development Bank.

Sen, A. (2006) *Identity and Violence: The Illusion of Destiny*, New York, Norton.

Stiglitz, J.E., Sen, A. & Fitoussi, J. (2009a) Report by the Commision on the measurement of economic performance and social progress. Paris, The Commission on the Measurement of Economic Performance and Social Progress (CMEPSP).

Stiglitz, J.E., Sen, A. & Fitoussi, J. (2009b) The measurement of economic performance and social progress revisited. Paris, The Commission on the Measurement of Economic Performance and Social Progress (CMEPSP).

Stutzer, A. (2004) 'The role of income aspirations in individual happiness', *Journal of Economic Behavior & Organization*, 54, 89–109.

Townsend, P. (1979) *Poverty in the United Kingdom*, London, Allen Lane and Penguin Books.

Trauer, T., & Mackinnon, A. (2001) 'Why are we weighting? The role of importance ratings in quality of life measurement', *Quality of Life Research*, 10 (7), 579–85.

Welsch, H. (2006) 'Environment and happiness: valuation of air polution using life satisfaction data', *Ecological Economics*, 58 (4), 801–13.

Whelan, C.T., Layte, R. & Maître, B. (2003) 'Persistent income poverty and deprivation in the European Union: an analysis of the first three waves of the european community household panel', *Journal of Social Policy*, 32 (1),1–32.

Wilkie, J. & Young, A. (2009) 'Why health matters for economic performance', *Economic Round-up*, http://www.apo.org.au/node/1239.

Wilkinson, R.G. & Picket, K. (2009) *The Spirit Level: Why More Equal Societies Almost Always Do Better*, London, Allen Lane.

Wu, C.H. (2008) 'Can we weight satisfaction score with importance ranks across life domains?', *Social Indicators Research*, 86 (3), 469–80.

Wu, C.H., Chen, L.H. & Tsai, Y.M. (2009) 'Investigating importance weighting of satisfaction scores from a formative model with partial least squares analysis', *Social Indicators Research*, 90 (3), 351–63.

Ziersch, A.M. & Baum, F.E. (2004) 'Involvement in civil society groups: is it good for your health?', *Journal of Epidemiology and Community Health*, 58 (6), 493–500.

Endnotes

1   Using Random Digit Dialling, a random sample, stratified by six regions across the state of Queensland was selected. A total of 14,725 calls were made to recruit the 4,147 respondents prepared to undertake the survey over the three year period 2008–2010. The sample comprised 3,959 respondents in Wave 1, which was a 95 per cent participation rate from the recruitment sample. Wave 2 comprised 2,723 respondents, which was a 69 per cent participation rate from the Wave 1 sample and 66 per cent participation rate from the recruitment sample. The questionnaires were mailed to the respondents who could either mail it back or complete the survey online. The preferred mode of completion was hard copy (65 per cent).

2   The equivalised household income was scaled down by $1,000, to aid interpretation of statistical models. Household income was transformed by the logarithm function as this is a widely accepted practice for skewed income data.

3   VIF is a measure of collinearity in multiple regression, with values above 5 (sometimes 10) typically assumed to suggest collinearity problems.

4   The importance attributed to aspects of social wellbeing is positively and significantly related to the wellbeing scores. This finding indicates that people who attributed higher importance to the components of social wellbeing tended to have higher wellbeing levels as captured by our variable.

Information about authors

Suraya Abdul Halim is a research economist at the SA Centre for Economic Studies. At the Centre, her research is centred on applied quantitative analyses, including program evaluations, macroeconomic monitoring and applied econometric modelling analyses on public policy and social issues.

Robert Adams is the Director of the Health Observatory at the University of Adelaide's Queen Elizabeth Hospital Campus. His research centres on population health comparisons of conditions including asthma, diabetes, metabolic syndrome, cardiovascular disease and health literacy.

Paul Boreham is an Emeritus Professor in the Institute for Social Science Research at the University of Queensland. He was formerly Director of the University of Queensland Social Research Centre and Head of the School of Political Science and International Studies. He has published and researched in the fields of employment and labour market analysis, policy studies, and social and economic change.

Jennifer Buckley is a Visiting Research Fellow in the Australian Population and Migration Research Centre, University of Adelaide, with research experience using both quantitative and qualitative methods in the fields of health, sociology and demography. Her research interests include baby boomers, the impact of social change on lifestyle and health, and the relationships between health and workforce participation.

Danielle Every is Director of the People, Place and Migration Unit at the Appleton Institute at CQUniversity in Adelaide. She is a social psychologist specialising in research on immigration, particularly its implications for employment and social cohesion.

Susan Goodwin is Associate Professor in policy studies in the Faculty of Education and Social Work at the University of Sydney. Her research focuses on gender, social policy, community capacity building and NGO social policy knowledge production.

Graeme Hugo is ARC Australian Professorial Fellow, Professor of the Discipline of Geography, Environment and Population and Director of the Australian Population and Migration Research Centre at the University of Adelaide. His research interests are in population issues in Australia and South East Asia, especially migration.

Lisel O'Dwyer is a Senior Research Associate in the Australian Population and Migration Research Centre with 20 years of research experience in both quantitative and qualitative methods. Her research interests include valuing unpaid work, the implications of population ageing for health and urban planning, geographic aspects of health conditions and outcomes and relationships between obesity and pet ownership in baby boomers.

Jenny Povey is a research psychologist at the Institute for Social Science Research of the University of Queensland for academic, commercial, and public sector clients across broad, multidisciplinary activities. She has experience in test construction, survey development, and evaluative research.

Nicholas Procter is Professor and Chair of Mental Health Nursing at the University of South Australia. He has longstanding interests in refugee and asylum seeker vulnerability.

Sophia Rainbird is a Senior Research Fellow at the Appleton Institute at CQUniversity in Adelaide. She is an anthropologist specialising in research on immigration, particularly working with refugee communities.

Bianca Sebben is a research assistant and PhD Candidate at the University of South Australia.

Kirrilly Thompson is a Senior Research Fellow at the Appleton Institute at CQUniversity in Adelaide. She is an anthropologist specialising in qualitative research on relationships in complex environments, risk and risk management.

Wojtek Tomaszewski is a Research Fellow at the Institute for Social Science Research of the University of Queensland. His expertise is in quantitative research methods, statistical analysis of complex data, and in research on poverty, social exclusion, housing, homelessness and ageing.

Graeme Tucker is a research statistician in the Epidemiology Branch of the South Australian Health Department where he provides statistical and consultancy services to the Department of Health and other government agencies. Graeme also provides statistical services in the private sector.

Archana Preeti Voola is a PhD candidate in policy studies in the Faculty of Education and Social Work at the University of Sydney. Her primary research interests are in the area of gender based inequalities, social policy, third sector studies, social innovation and critical comparative research.

Steve Whetton is the Deputy Director of the SA Centre for Economic Studies, where he has worked as a senior economist for nine years. His expertise is in complex economic modelling.

Brooke Wilmsen is a Research Fellow in the School of Social Sciences and Communications at La Trobe University. She is predominantly interested in the issues of displacement and settlement. She is currently undertaking a longitudinal study of those displaced by the Three Gorges Dam in China, funded by an ARC Discovery Early Career Researcher Award.

Gary Wittert is Head of the Discipline of Medicine, University of Adelaide, South Australia, and Mortlock Professor of Medicine. His research interests include endocrinology, men's health, nutritional physiology and obesity.