JCU ePrints

This file is part of the following reference:

Larson, Silva (2010) Can the concept of human wellbeing help identify regional policy priorities? PhD thesis, James Cook University.

Access to this file is available from:

http://eprints.jcu.edu.au/19014



CAN THE CONCEPT OF HUMAN WELLBEING HELP IDENTIFY REGIONAL POLICY PRIORITIES?

Thesis submitted by Silva LARSON, BVSc, CEnv in May 2010

for the degree of Doctor of Philosophy in the School of Business James Cook University

STATEMENT OF ACCESS

I, the undersigned, author of this work, understand that James Cook University will make this thesis available for use within the University Library and, via the Australian Digital Theses network, for use elsewhere.

I understand that, as an unpublished work, a thesis has significant protection under the Copyright Act and;

I do not wish to place any further restriction on access to this work.

Signature

Date

STATEMENT OF SOURCES

DECLARATION

I declare that this thesis is my own work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

Signature

Date

DECLARATION ON ETHICS

The research presented and reported in this thesis was conducted within the guidelines for research ethics outlined in the National Statement on Ethics Conduct in Research Involving Human (1999), the Joint NHMRC/AVCC Statement and Guidelines on Research Practice (1997), the James Cook University Policy on Experimentation Ethics Standard Practices and Guidelines (2001), and the James Cook University Statement and Guidelines on Research Practice (2001). The proposed research methodology received clearance from the James Cook University Experimentation Ethics Review Committee (approval number H2314).

Signature

Date

STATEMENT ON THE CONTRIBUTION OF OTHERS

The biggest acknowledgment goes to my supervisors, Assoc. Prof. Natalie Stoeckl and Dr Riccardo Welters. They have both done an exceptional job supporting me, advising me, and gently pushing me towards the completion of the Thesis.

Several other people have provided intellectual support. Assoc. Prof. Natalie Stoeckl and Assoc. Prof. Richard Monypenny gave encouragements and support in the preparation of the initial proposal. Survey design, validation and expert testing were supported by Drs Samantha Stone-Jovicich, Gail Kelly, Tim Lynam and Alexander Herr. Dr Herr provided particularly valuable assistance with survey coding system. Dr Yvette Everingham was there with the statistical support and encouragements. For everything else - Assoc. Prof. Stoeckl and Dr Welters were always available to provide advice.

Several people played important roles in the data collection process. The biggest thank you goes to Mr Peter Wiegand for his invaluable support with survey mailing and data entry. Mr Peter Wiegand, as well as Mr Ludwig Liagre, Dr Kathleen Broderick and Ms Debora deFreitas assisted with the face-to-face interviews. Ms Debora deFreitas has also kindly provided Figure 11.

This research would not have been possible without hundreds of residents of Cardwell Shire and Whitsunday Shire generously donating their time. In addition, I wish to thank Mr Keith Noble, from the Cardwell Shire Floodplain Program and Mr Bruce Green, Community Development Coordinator for the Whitsunday Shire, for their encouragement and help with development of social networks in the regions.

Staff and students of the JCU School of Business, in particular Mrs Robyn Yesberg and Ms Aurélie Delisle, provided assistance and encouragement throughout my tenure.

Last but not least, I wish to thank CSIRO Water for a Health Country National Flagship (WfHC) and CSIRO Division of Sustainable Ecosystems (CSE) for their financial support with field work and data collection. AquaEnergie LLC has generously provided financial support during the Thesis writing time.

Abstract

The primary aim of this Thesis was to improve our understanding of what people value and find most important to their wellbeing, at the regional scale. To achieve this aim, a series of research questions were proposed and explored:

- What contributes to wellbeing, and by how much?
- What are the current levels of satisfaction with the key contributors?
- Are there commonalities in wellbeing choices and satisfaction levels within and across the regions?
- Are the choices determined by the characteristics of the person?
- Can a better understanding of importance and satisfaction with 'wellbeing contributors' assist policy and decision making processes?

A coastal strip adjacent to the Great Barrier Reef was selected as suitable for investigations, since the region is of economic significance and has exceptional environmental value. Two case studies were set within the study region: Cardwell Shire and Whitsunday Shire. Primary data were collected in focus group discussions and via face-to-face and mail-out questionnaires, resulting in a total of more than 350 valid responses. A comprehensive set of sampling techniques was applied which yielded a representative sample.

The perceived contributions of the following 27 wellbeing factors, grouped into three domains, were explored:

- Society, consisting of: Family relations; Community relations; Safety; Cultural identity; Health; Civil and political rights; Education; Council relations; and Sports, travel, entertainment.
- Natural environment, consisting of: Air quality; Water quality; Soil quality; Access to the natural areas; Biodiversity; Swimming, bushwalking and other outdoor activities; Fishing, hunting, collecting produce; Beauty of the landscape and beaches; and Condition of the landscape and beaches.
- Economy and services domain, consisting of: Work; Income; Housing; Health services; Recreational facilities; Roads condition; Public infrastructure and transport; Training and education services; and Support services.

The wellbeing factors were selected using the following process. Firstly, in the preparation stages, focus groups were run with key informants from the region, coming up with a regionally relevant lists of factors. These lists were then further refined during the pilot stage of the project with the actual residents to arriving at a "final list" of factors employed in mailout survey. Then, during the mailout stage, respondents were asked to indicate which (if any) of those factors were important to them; and then asked to indicate just how important they were. Only then was the satisfaction score for "important' wellbeing factors elicited. This novel approach, although not being entirely "bottom-up" did nonetheless provide an opportunity for the respondents to voice their preferences in a time and cost efficient manner. Such an approach is indeed very different to standard list-based elicitations of satisfaction scores, which simply provide respondents with a list of scientist or expert derived factors and ask them to indicate how satisfied they are with each.

Contributors to wellbeing, both at an individual and at an aggregated level, were analysed first. Respondents were found to have selected different factors, and selected them at different increments (levels). At least one factor from all three domains (economy, society and nature) was identified as important to wellbeing by a large majority of respondents. The same ten factors emerged in the analyses as the most important contributors to wellbeing of the majority of the respondents in both Shires. These were: Family relations; Health; Income; Safety; Health services; Water quality; Roads condition; Air quality; Work; and Condition of landscapes and beaches. Thus, it can be concluded that the contributors to wellbeing are indeed shared not only by the individuals within each Shire, but also across the regions. Social factors scored highest, and the scores were remarkably similar across the two shires. Although the same factors emerged as being in the "top-ten", there were some interesting differences between the two data sets. For example, air quality recorded a higher mean in Whitsunday than in Cardwell Shire; while health services were perceived as being of higher importance in Cardwell than in Whitsunday Shire.

The extent to which respondents were satisfied with their self-nominated "contributors to wellbeing" was explored next. The five factors receiving the highest satisfaction scores in both Shires were family relations, safety, health, education and work. Satisfaction with external factors such as council relations, roads condition and recreational facilities were very low. Variation between the two case studies was also recorded. For example, satisfaction with water quality and housing was significantly lower in the Whitsunday Shire, while health services and training and education services received significantly lower satisfaction scores in Cardwell Shire. This intraregional variation of satisfaction scores potentially indicates that the scores are indeed representative of the "objective conditions" specific to the region. In addition, findings of this study were compared to the findings on the Australian Wellbeing Index, an Australia-wide semi-annual survey of wellbeing satisfaction. Satisfaction with family relations, safety and health was on average higher in this study than satisfaction scores reported nationally.

Those points aside, the levels of satisfaction with several contributors from this study were difficult to compare to the national level study as the questions asked, and thus factors explored, were not the same. This is due to the methodological approach where contributors to wellbeing in this study were self-selected by respondents, and not predetermined by experts. Essential differences emerging from the comparison of two sets of questions (self-selected versus pre-determined) raises interesting questions about the usefulness of pre-determined expert lists for policy making. Furthermore, expert lists record mainly "personal" aspects, which correspond poorly with "objective conditions". The respondents to this PhD study selected more distant and specific factors, such as roads condition or council relations, than did the experts in the national study. And interestingly, these distant and specific factors are ones that can be influenced by decision makers and are thus more relevant if wellbeing is to be used in decision-support.

A total of 19 socioeconomic, demographic and sense-of-place attributes (characteristics of the respondents) were tested as potential determinants of wellbeing choices and stated satisfactions. Although several attributes emerged as determinants of specific wellbeing contributors and satisfaction levels, they were all of a rather weak predictive power. In other words, no clear conclusive typology – a set of factors that determine people's responses - emerged from the analysis. It can therefore be argued that objectively measurable attributes of the respondents, such as socio-economic status, are not good predictors of wellbeing, and thus secondary data available on such attributes is of limited use in this context.

Information on the importance of wellbeing contributors was combined with information on levels of satisfaction into a single metric termed the Index of dissatisfaction (IDS). The IDS was used to create "action lists" of priorities most pertinent to each study region. Factors receiving the highest scores in IDS are those that were of high importance to a large number of respondents and which also received low satisfaction scores. Health services, the condition of roads and the condition of the landscape and beaches topped the priorities list for the Cardwell Shire; while water quality, health services and the condition of roads were the top three action items in Whitsunday Shire. Thus, the IDS method appeared capable of capturing specific differences between the two Shires. The factors identified on the "action list" came from both the domain of economy and services as well as from the natural environment. The important role of nature as a contributor to wellbeing supports other studies suggesting that the natural environment should be incorporated in wellbeing studies on a more equal footing to other domains.

One of the key conditions for 'efficient' investment in regional development requires that one invests resources on items that generate the highest marginal returns. The results of the two case studies presented in this Thesis suggest that the marginal returns on investment in social and environmental factors are at least as high as those associated with investment in economy and services – perhaps higher – and that these factors thus warrant further attention from decision makers in these regions. Whether or not the same holds true in other regions, is a topic worthy of further investigation.

Table of Contents

Abstract

Chapter 1	Introduction1
1.1	Aims of the Thesis
1.2	Overview of the Thesis
Chapter 2	Literature review
2.1	Bi-integrative approaches7
2.1.1	Nature and society7
2.1.2	Nature and economy9
2.1.3	Economy and society
2.2	Integration of society, nature and economy14
2.2.1	At the individual level
2.2.2	At the societal level
2.3	Integrated processes
2.3.1	Strategic environmental assessment
2.3.2	Corporate social responsibility and the triple bottom line
2.3.3	Empirical methods for assessment
2.4	Summary of the literature review
2.5	Emerging research questions
2.6	Proposed contributions
Chapter 3	Methodological approaches to data collection58
3.1	Overview of the study locations
3.1.1	Overview of the Great Barrier Reef region61
3.1.2	Comparison of study areas
3.2	Design of the questionnaire
3.2.1	Conceptualisation of the questionnaire content

3.2.2	Perceptions of wellbeing	70
3.2.3	Characteristics of the respondents	71
3.2.4	Development of the pool of questions, types and styles	73
3.3	Pilot testing	73
3.3.1	Expert testing	74
3.3.2	Sub-sample testing	74
3.3.3	Amendments on the draft questionnaire	75
3.4	Full-survey stage	76
3.4.1	Survey method	76
3.4.2	Potential survey errors and survey validation	77
3.4.3	Mail-out and follow up	80
3.4.4	Validation of wellbeing variables	
3.5	Community involvement	
Chapter 4	Contributors to wellbeing	
Chapter 4 4.1	Contributors to wellbeing Data analyses methods	
		89
4.1	Data analyses methods	
4.1 4.1.1	Data analyses methods	
4.1 4.1.1 4.1.2	Data analyses methods Contributors to wellbeing Determinants of wellbeing choices	
4.1 4.1.1 4.1.2 4.2	Data analyses methods Contributors to wellbeing Determinants of wellbeing choices Contributors to wellbeing	
4.1 4.1.1 4.1.2 4.2 4.2.1	Data analyses methods Contributors to wellbeing Determinants of wellbeing choices Contributors to wellbeing Individual wellbeing	
4.1 4.1.1 4.1.2 4.2 4.2.1 4.2.2	Data analyses methods Contributors to wellbeing Determinants of wellbeing choices Contributors to wellbeing Individual wellbeing Regional wellbeing	
4.1 4.1.1 4.1.2 4.2 4.2 4.2.1 4.2.2 4.3	Data analyses methods Contributors to wellbeing Determinants of wellbeing choices Contributors to wellbeing Individual wellbeing Regional wellbeing Determinants of wellbeing choices	
4.1 4.1.1 4.1.2 4.2 4.2.1 4.2.2 4.3 4.3.1	Data analyses methods Contributors to wellbeing Determinants of wellbeing choices Contributors to wellbeing Individual wellbeing Regional wellbeing Determinants of wellbeing choices Exploratory tests	
4.1 4.1.1 4.1.2 4.2 4.2 4.2.1 4.2.2 4.3 4.3.1 4.3.2	Data analyses methods Contributors to wellbeing Determinants of wellbeing choices Contributors to wellbeing Individual wellbeing Regional wellbeing Determinants of wellbeing choices Exploratory tests Selection of contributors to wellbeing	

Chapter 5	Wellbeing satisfaction121
5.1	Data analysis methods
5.1.1	Wellbeing satisfaction in the regions121
5.1.2	Comparison to the national scores 124
5.1.3	Determinants of satisfaction scores 125
5.2	Wellbeing satisfaction
5.2.1	Satisfaction in the study regions
5.2.2	Comparison of regional and national satisfaction scores
5.3	Determinants of satisfaction scores
5.4	Discussion136
5.4.1	Cultural considerations139
5.5	Conclusions141
Chapter 6	Combining importance with dis-satisfaction143
6.1	Data analysis methods
6.1.1	Lessons from the literature
6.1.2	Combining dis-satisfaction and importance on individual level
6.1.3	Combining dis-satisfaction and importance at a regional level: Development of Index of Dis-Satisfaction (IDS)
6.2	Dis-satisfaction and importance at individual level
6.3	Combining dis-satisfaction and importance at a regional level
6.4	Index of Dis-Satisfaction153
6.4.1	Index of Dis-Satisfaction - Cardwell Shire153
6.4.2	Index of Dis-Satisfaction – Whitsunday Shire156
6.5	Discussion158
6.6	Conclusions163
Chapter 7	Discussion and conclusions165

etric . 175 . 176
letric
. 173
. 168
. 167
. 165
•

List of Tables

Table 1.	Wellbeing domains in the literature: Comparison of models dealing with human-environment interactions	.20
Table 2.	Comparison of GDP and human development index indicators, selected countries	.29
Table 3.	Comparison of key demographic and economic characteristics of the two selected shires, Cardwell and Whitsunday Shire	.63
Table 4.	Estimated age distributions in 2026 and predicted annual population growth rates, both shires	.64
Table 5.	Socio Economic Index for Areas (SEIFA) levels for 2006, both shires	.65
Table 6.	Housing statistics, both shires and comparison to Queensland	.67
Table 7.	List of factors potentially contributing to individual wellbeing, developed during focus groups discussions and interviews with key informers in the regions	.76
Table 8.	Estimates of the sizes of the samples required - based on total population size, both shires	.78
Table 9.	Survey sample and response rates, Cardwell Shire	.82

Table 10.	Survey sample and response rates, Whitsunday Shire83
Table 11.	Testing for the internal consistency of the survey instrument: Factor analysis of wellbeing contributors included in questionnaire86
Table 12.	Composition of factors identified in factor analysis, both Shires
Table 13.	List of attributes of the respondents captured in this study, with percentages for each category
Table 14.	Demographic, sense of place and economic variables (characteristics of the respondents) elicited during the survey and included in the analyses
Table 15.	Wellbeing factors selected by the highest percentage of respondents, with mean weights assigned, Cardwell Shire
Table 16.	Wellbeing factors selected by the highest percentage of respondents, with mean weights assigned, Whitsunday Shire
Table 17.	Ranking of the most important wellbeing contributors, by shire and overall
Table 18.	Interrelationships between ten most important factors, principle components analysis of the combined data set
Table 19.	Socioeconomic, demographic and sense of place determinants of selection and weighing of top-ten ranking wellbeing factors and the three wellbeing domains – non-parametric bivariate analysis104
Table 20.	Relationship among study variables, Kendall's tau-b correlation coefficients
Table 21.	Determinants of contributors to wellbeing, top-ten ranking factors, binary stepwise (multivariate) regression analysis: summary of significant results from Table 22
Table 22.	Socioeconomic, demographic and sense of place determinants of contributors to wellbeing, top-ten ranking wellbeing factors, results of binary regression analyses
Table 23.	Determinants of weights assigned to wellbeing contributors, top- ten ranking wellbeing factors – Stepwise multivariate (regression)

analysis: summary of significant results from Table 24.....112 Table 24. Socioeconomic, demographic and sense of place determinants of weights assigned to wellbeing contributors, top-ten ranking Table 25. Wording of the questions used in both the Australian Wellbeing Index and in this study124 Table 26. Levels of satisfaction with the wellbeing factors, for each shire individually and the combined levels for the entire survey sample.....126 Table 27. Comparison of national (based on Australian Wellbeing Index) and Table 28. Socioeconomic, demographic and sense of place determinants of satisfaction - summary of key findings from stepwise regression Table 29. Socioeconomic, demographic and sense of place determinants of Table 30. Characteristics of the Index of Dis-satisfaction......149 Table 31. Comparison of importance and dis-satisfaction with wellbeing factors selected by respondents, individual examples150 Table 32. Comparison of Index of Dis-Satisfaction (IDS) with the dissatisfaction scores alone, all wellbeing factors, Cardwell Shire......154 Table 33. Comparison of Index of Dis-Satisfaction (IDS) scores with dissatisfaction scores, all wellbeing factors, Whitsunday Shire......157 Table 34. Comparison of top-ten ranking action items, based on: IDS (Cardwell Shire example), sensitivity to change model (Cardwell Shire example), importance, satisfaction, and the national survey......160 Table 35. Action lists based on the IDS, where higher scores indicate higher

List of Figures

Figure 1.	Integrative approaches reviewed in this Thesis: integration of parts of the system (nature and society; nature and economy; and society and economy); and integration of all three spheres, that is society, nature and economy (shaded area)
Figure 2.	Different views of the relationship between the ecosystems and the economy: (a) economy constrained by its external environment and (b) economy with no limitations in growth
Figure 3.	Bi-dimensional model of subjective wellbeing sensitivity to external forces of change
Figure 4.	A relationship between infant mortality rates and GDP per capita, cross-analysis of international studies
Figure 5.	Income and happiness: international comparison
Figure 6.	Income and happiness in the USA, 1946-1996 time series32
Figure 7.	Limits to growth of macro-economy: linkages between economic growth, uneconomic growth, marginal utility and marginal disutility concepts
Figure 8.	The cost of purchasing an additional percentage point of wellbeing in Australia
Figure 9.	Linkages between concepts discussed in his section: Strategic Impact Assessment, Environmental Impact Assessment, Environment, Sustainability, and Corporate Social Responsibility40
Figure 10.	Conceptualisation of the research questions explored in this Thesis54
Figure 11.	Location of study areas, with (A) Cardwell Shire and (B) Whitsunday Shire
Figure 12.	Crime rates per category (offences against person, offences against property, and other offences), both shires and comparison to Queensland rates
Figure 13.	Mail-out survey steps and numbers of replies received during 62

	days survey period, Cardwell Shire81
Figure 14.	Mail-out survey steps and numbers of replies received over 50 days survey period, Whitsunday Shire
Figure 15.	Comparison of weights assigned to each wellbeing domain by two survey respondents
Figure 16.	Ten wellbeing factors receiving the highest weights and sum of weights for the three domains, Cardwell Shire97
Figure 17.	Ten wellbeing factors receiving the highest weights and sum of weights for the three domains, Whitsunday Shire
Figure 18.	Ten wellbeing factors receiving highest weights from the respondents, total survey sample
Figure 19.	Conceptual bi-dimensional model of subjective wellbeing sensitivity to external forces of change
Figure 20.	Bi-dimensional model of subjective wellbeing sensitivity to external forces of change, with observed satisfaction scores
Figure 21.	Graphical representation of importance and dis-satisfaction with wellbeing factors in Whitsunday Shire (A) and Cardwell Shire (B), natural logs
Figure 22.	Bi-dimensional model of subjective wellbeing sensitivity to external forces of change, combination of observed satisfaction scores (in brackets) and IDS scores, Cardwell Shire
Figure 23.	Bi-dimensional model of subjective wellbeing sensitivity to external forces of change, combination of observed satisfaction scores (in brackets) and IDS scores, Whitsunday Shire

List of Appendices

Appendix 1 Human Ethics Committee Approval letter
Appendix 2 Mail-out survey documentation package, including questionnaire
Appendix 3 Outputs of this research