Introduction to the *Handbook on Wellbeing, Happiness and the Environment*

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BACKGROUND

The past decades have seen a massive expansion of the field of wellbeing, happiness and the environment. The pertinent literature has used the term ‘happiness’ in a wider and a narrower sense. In the wider sense, happiness denotes what psychologists refer to as subjective wellbeing (SWB). As suggested by Diener (1984), SWB encompasses an affective and a cognitive component, that is, emotional states and evaluations of life, respectively. While happiness in the narrow sense refers to the affective component, the cognitive (evaluative) component is usually referred to as life satisfaction. However, since measures of affective and cognitive wellbeing are typically highly correlated with each other, it is nevertheless common to neglect the difference between them and to use the terms SWB, happiness and life satisfaction synonymously. We follow this practice unless stated otherwise.

Data on SWB are routinely elicited in large-scale social surveys at both the national and international levels. Important national data sources, among others, include the Keio Household Panel Survey (KHPS), the German Socio-Economic Panel (SOEP) and the UK Household Longitudinal Study (UKHLS). At the international level, SWB data are included, among others, in the Eurobarometer Surveys (covering the member countries of the European Union), the European Social Survey (covering 36 European countries), the World Values Survey (covering more than 80 countries worldwide) and the Gallup World Poll covering (156 countries). In these and similar surveys, people are asked questions about their happiness or life satisfaction. The European Social Survey, for instance, regularly asks representative samples of people. ‘How happy are you?’ (on a scale from 0 = extremely unhappy, to 10 = extremely happy) and ‘All things considered, how satisfied are you with your life as a whole nowadays?’ (from 0 = extremely dissatisfied, to 10 = extremely satisfied). While the samples used in international surveys typically change over time, national surveys like the KHPS, SOEP and UKHLS rely on fixed sets of people over several years, thus allowing longitudinal analyses of SWB and its correlates.

While SWB started to be studied by psychologists in the late 1940s (Diener et al., 1999), Easterlin (1974) was the first to focus explicitly on economic factors. His finding of a stationary level of self-rated happiness in the United States of America (USA), in spite of tremendous income growth, became known as the Easterlin paradox and is probably the best-known result in the economics of happiness. In addition to income, other economic correlates of happiness include unemployment, inflation and inequality. Survey articles on happiness and economics are Frey and Stutzer (2002), Kahneman and Krueger (2006), Di Tella and MacCulloch (2006), Dolan et al. (2008) and Graham (2017); a recent monograph is Frey (2018).

Happiness has received increasing attention not only in the academic but also in the political sphere. The kingdom of Bhutan adopted 'Gross National Happiness' as a policy target as far back as the 1970s. In 2008, French President Nicolas Sarkozy commissioned the development of a 'statistical system which goes beyond commercial activity to measure personal well-being' (Stiglitz et al., 2009). In 2014, the United Kingdom (UK) Office for Statistics launched its happiness and wellbeing statistics titled 'Measures of national well-being'. In 2019, the Treasury of New Zealand published its first Wellbeing Budget. At the international level, the United Nations started to release the annual World Happiness Report in 2011.

The connection between wellbeing, happiness and the environment started to be investigated about 20 years ago (Frijters and van Praag, 1998; Welsch, 2002; Rehdanz and Maddison, 2005; van Praag and Baarsma, 2005), focusing initially on climate, air pollution and noise nuisance. Since then, many more topics have been covered, as documented in this *Handbook*. Often the relevant studies have used happiness data as a novel tool for non-market valuation, in addition to the established stated and revealed preference approaches. Specifically, interpreting happiness or life satisfaction as measures of utility or individual welfare, and modelling utility as a function of income and environmental quality, allows researchers to estimate the amount of income individuals would be willing to trade off for a given change of environmental quality at constant utility levels; an implicit measure of willingness to pay for environmental quality (Welsch and Kühling, 2009).

EVOLUTION OF THE ECONOMIC LITERATURE

To track the evolution of the economic literature, we interrogate the EconLit database. We do this not only in order to illustrate the recent rapid growth of this approach but also to highlight the range of applications, and the geographical distribution of research activities. We also identify which journals have published this research. We further attempt to divine trends in the literature by describing the most recent contributions. By using the EconLit database, our literature survey focuses on the literature in the field of economics, acknowledging that literature published in interdisciplinary journals such as *Climatic Change* or *Global Environmental Change* are excluded. The literature is therefore likely to be larger than described below.

Our survey uses a Boolean search combining (happiness OR subjective wellbeing OR subjective well being OR subjective well-being OR life satisfaction OR life-satisfaction) anywhere in the text in conjunction with various *Journal of Economic Literature* (JEL) subject codes. Note that studies on subjective wellbeing tend to be identified by JEL code I31, but unfortunately this category also includes a large number of other issues: general welfare, basic needs, living standards, quality of life and (finally) happiness. Expanding our research to include publications with JEL subject code I31 would therefore incorporate a vast number of articles having nothing to do with subjective wellbeing.

Our interest lies in JEL subject codes Q relating to agricultural and natural resource economics, environmental and ecological economics. When we combine the aforementioned search string with the JEL code Q, the number of publications returned is 230 as of 14 April 2019. These 230 hits stretch back as far as 1999. While the number of items

published in the ten-year period 1999–2008 was 31, over the following ten-year period of 2009–18 it was 197. Over the most recent five-year period, 2014–18, there were 118 research articles. It is thus possible to see that the number of items is growing very rapidly indeed. All but four of these articles were published in English. It might be helpful here to compare the number of items published in economics generally over the same period, 1999–2019, that contained these same terms: which was 4166. It is therefore apparent that the majority of research on subjective wellbeing, happiness and life satisfaction takes place in JEL subject areas other than the JEL subject category Q. We can also compare the total number of items recorded in EconLit over the same three time periods: 486 191, 606 620 and 286 560. On the basis of these figures it is therefore clear that research into subjective wellbeing and the environment is increasing faster than the number of economic research items recorded in EconLit. What happens if we do not insist on the word ‘subjective’ to precede the word ‘wellbeing’ or variants thereof? The number of hits increases markedly, to 3285, but it is apparent that the vast majority of these studies have nothing to do with the approach that concerns us. We cannot, however, exclude the possibility that some relevant items simply omit the word ‘subjective’ for brevity. What happens if we search for ‘cantril’, as in ‘cantril scale’ or ‘cantril ladder’? Combining with the JEL code Q there are no hits whatsoever and only 19 hits in the entire EconLit database. We believe that the code I31 is outdated and that a new subject code that deals exclusively with approaches based on subjective wellbeing would be more useful.

In terms of where this research is located, 8 refer to Africa, 44 to Asia, 64 to Europe, 5 to Latin America and the Caribbean, 15 to North America and 9 to Oceania. Perhaps interesting is the fact that the number of publications from North America is relatively low, and the number from Asia is relatively high, in comparison to what one might have expected. This might reflect a certain scepticism regarding the approach in North America.

Of those items retrieved, 184 were published in academic journals, with the remainder published as edited volumes, books, dissertations and working papers. Notably, of the journal articles identified, no fewer than 43 were contained in one single journal: *Ecological Economics*. We also find 25 in *Social Indicators Research*, a journal publishing articles on diverse topics (not just the environment). The implication is that if one wishes to find an audience that is sympathetic to analyses of the field of subjective wellbeing and the environment, one should lean towards these two journals. *Environmental and Resource Economics*, *Journal of Economic Psychology*, *Journal of Public Economics* and *Kyklos* contained three articles each, with the remaining articles scattered through diverse journals. The *Journal of Environmental Economics and Management*, which was until recently the journal of the Association of Environmental and Resource Economists, contains two articles. It is notable that, together, the journals of the North American and European Associations of Environmental and Resource Economists included only five out of the 184 journal articles. We suspect that this means that the study of subjective wellbeing is still viewed as somewhat unorthodox.

Because the category Q also contains research on agriculture (which we believe holds little interest for researchers into subjective wellbeing), we also look at Q2 (renewable resources and conservation) and Q3 (non-renewable resources and conservation); these yielded 28 and 10 items, respectively, whereas Q4 (energy) resulted in 18 hits. Note that Q2 includes fisheries, land, water, forestry and the recreational aspects of natural resources.

It is surprising that these have not received greater attention from researchers, although there is a literature outside of economics.

Resulting in a somewhat larger number of hits (48) was Q51 (valuation), whilst Q53 (air pollution, water pollution, noise, hazardous waste, solid waste and recycling) resulted in 49 hits, and Q54 (climate, natural disasters and global warming) in 51. It is often the case that the same publication will have multiple JEL codes, and many items that deal with a particular environmental issue also value changes in environmental quality. The number of items using subjective wellbeing to value the environment is dwarfed by the number of items using, for example, contingent valuation (583) or hedonics (196) for the same purpose. Obviously if these search terms are included without the subject code Q51 these numbers increase to 2499 and 3618, respectively. Interestingly, the most popular subject area is found to be Q54, which includes studies that, for example, attempt to both explain differences in subjective wellbeing as a function of the climate and also attempt to value natural disasters such as earthquakes.

The rather nondescript category Q56 (environment and development, environment and trade, sustainability, environmental accounts and accounting, environmental equity and population growth) generated 34 hits, whilst Q57 (ecological economics, ecosystem services, biodiversity conservation, bio-economics and industrial ecology) resulted in 22 hits. Category Q57 includes those studies that see biodiversity and changes in biodiversity as an explanation for differences in subjective wellbeing.

We also investigate JEL subject codes I1 (health), R (urban, rural and regional economics) and R4 (transportation systems). These resulted in 456, 279 and 39 hits, respectively. There is, of course, a literature considering the impact of health status on the various measures of subjective wellbeing, which is considerably larger than the literature on the impact of the environment on subjective wellbeing. There is also a literature on regional differences in subjective wellbeing, some of which will naturally have their origins in differences in environmental quality. Other studies might focus exclusively on causes of differences in subjective wellbeing experienced by people living in urban areas on account of differences in environmental quality, for example differences in the abundance of green space. Finally, the literature of transportation systems seems to include the impact of commuting on subjective wellbeing rather than the environmental impacts of transportation.

Apart from counting the number of items on EconLit it is also of interest to count the number of items being presented at recent European Association of Environmental and Resource Economists (EAERE) conferences. In 2018 at the Gothenburg conference the number of presentations including the word 'happiness' was zero, whereas the number of presentations including the words 'life satisfaction' or variants thereof was one. The number of presentations including the phrase 'subjective wellbeing' or variants thereof was one. A further four presentations included the phrase 'wellbeing' or variants thereof, and of these, two papers very clearly dealt with subjective wellbeing, making six in total. In 2017 the same exercise was undertaken for Athens and the result was four; similarly for the 2016 conference in Zurich.

The Environmental Valuation Reference Inventory (EVRI) also offers the opportunity to search for studies using the subjective wellbeing approach, although without the Boolean search capabilities of EconLit. This inventory is for use by practitioners interested in project evaluation, and the site is maintained by Statistics Canada. Unlike

EconLit it also contains conference presentations and government reports, and although one may doubt how comprehensive the database is and whether it is up to date, its utility to practitioners is beyond question.

Searching for the term 'happiness' as a keyword generates 13 hits of which 4 were published in the last five years and 8 in the last ten years. Of these 6 were for Europe, 5 for Asia, 4 for North America and 2 for Oceania (some studies cover more than one region). The subject matter of these items (some of which were only conference presentations) was air (7), human (7), land (3), plants (2) and animals (1). The phrase 'life satisfaction' (whether hyphenated or not) generates 29 hits of which 7 were published in the last five years and 23 in the last ten years. The locations of the studies were Europe (16), Asia (10), North America (9) and Oceania (3). The subject matters were air (14), human (13), land (5), plants (4) and water (4). Subjective wellbeing brings up only 2 articles. These studies refer to Asia and to land and plants. The phrase 'subjective well being' (whether hyphenated or not) brings up 15 studies, of which 4 were published in the last five years and 9 in the last ten years: 11 in Europe, 5 in Asia, 5 in North America and 2 each in Africa and Oceania. These dealt with human (10), air (7) land (2), plants (2) and animals (1). These findings confirm that whilst the main geographical area of application is Europe, studies in Asia are more common than those in North America. Because the classification of studies is different it is not possible to compare the results directly with those in EconLit. Nevertheless, air pollution (including local, regional and global) and human health seem to be popular topics.

OVERVIEW OF THE *HANDBOOK'S* CONTENT

Part I of the book, dealing with social sciences, happiness and the environment, provides the basis for the thematic chapters included in Part II. Luigino Bruni (Chapter 1) opens this part of the *Handbook* by providing a historical perspective on economics, wellbeing and happiness. He highlights that the 'happiness transformation problem' – that is, how wealth becomes wellbeing – was a central point in some streams of the economic tradition. In particular, he shows that from Malthus to Pigou this economic tradition paid special attention to non-economic domains important for human happiness and that are affected by market choices.

As our description of the evolution of the literature reveals, social scientists are producing an ever-growing stream of research findings, while comparatively little attention has been paid to bringing available research findings together. In Chapter 2 Ruut Veenhoven describes the World Database of Happiness, a 'findings archive' that provides: (1) techniques for describing research findings in a comparable way; (2) a system for storing such descriptions in an easily accessible archive; and (3) a means to add research findings to this system on a continuous basis. The chapter describes how it works, and illustrates its use with an overview of research findings on two topics: (1) the relation between happiness and air pollution; and (2) the relation between happiness and economic growth.

Like environmental quality, subjective wellbeing varies widely across space. Chapter 3 by Mona Ahmadiani, Finbarr Brereton, Susana Ferreira and Mirko Moro presents evidence of the spatial variation in self-reported life satisfaction measured at the national, regional or local level, using a variety of datasets at different geographical scales. Noting

that such variation is at odds with the notion of spatial equilibrium in hedonic markets, the chapter offers alternative explanations for the observed differences in life satisfaction across locations that remain after controlling for individual sociodemographic characteristics. To what extent regional differences in wellbeing can be explained by geocoded environmental data is identified as an important research question.

This issue is taken up in Chapter 4 by Heinz Welsch, who discusses the role of happiness in environmental economics. He shows that happiness research has established robust relationships between a variety of environmental indicators and subjective wellbeing, and explains how these relationships can be used to estimate the utility trade-off people are willing to make between income and the environment, thus providing a new tool for environmental valuation. He discusses the evidence that the happiness–consumption relationship involves consumption externalities that lead to market failures, in addition to those stemming from environmental externalities, and argues that consumption and environmental externalities combined suggest that optimal environmental regulation should be stricter than is suggested by traditional models of environmental policy.

Jianjun Tang, Honghao Ren and Henk Folmer (Chapter 5) argue that neoclassical economic valuation of environmental quality is subject to rigorous assumptions. They therefore present a framework in which subjective wellbeing is the basic concept in the valuation approach of environmental quality embedded in environmental social sciences. The framework combines economic concepts with psychological and sociological variables to account for the combined economic and socio-psychological roots of environmental behaviour. The notions of valuation, subjective wellbeing and happiness are multidimensional latent variables which can only be indirectly measured via observed indicators.

Part II of the book focuses on the relationship between the environment and happiness or subjective wellbeing by presenting individual case studies. David Maddison and Katrin Rehdanz (Chapter 6) start by addressing the role of the climate in explaining cross-country variations in subjective wellbeing. Their chapter highlights two key findings from the empirical analysis. First, it is important to distinguishing those climates where temperature varies across the annual cycle from those where it does not. Any analysis failing to distinguish between extreme ‘continental’ climates and mild ‘maritime’ ones risks erroneously finding that individuals do not care about the climate. Second, when appropriate representations of the climate are used, climate variables can be extremely important. Next to gross domestic product (GDP) per capita, it appears that climate is the most important variable in explaining cross-country variations in subjective wellbeing.

Michael Berlemann, Judith Regner and Jascha Tutt (Chapter 7) look at the relationship between natural disasters and subjective wellbeing. By combining data from the UK Household Longitudinal Study with precipitation data collected by the UK Centre for Ecology and Hydrology, the chapter studies whether extreme rainfall events have a significant impact on happiness and life satisfaction. While no significant impact of rainfall measures on happiness is found, a significantly negative effect on life satisfaction is detected, even when including numerous control variables which capture the direct impact of disaster events. The study provides evidence in favour of the hypothesis that the mere risk of being confronted with natural disasters decreases life satisfaction.

Chapter 8 by Benjamin A. Jones studies the hypothesis that by diminishing environmental quality, forest-attacking invasive species may affect happiness, and estimates the non-market costs. The study exploits a deforestation quasi-experiment caused by the

invasive emerald ash borer (EAB) in the US to economically value changes in life satisfaction. A difference-in-differences approach is used, taking advantage of EAB detections across 14 US states. Results suggest that the detection of EAB in a county within the past five years is associated with a decline in life satisfaction that is equivalent to a US\$176 loss in annual household income. This corresponds to US\$5.8 billion in annual aggregate EAB-induced damages in those counties where this beetle was detected between 2006 and 2010. The causal interpretation of results is bolstered by finding that the happiness impacts of EAB are increasing over time as more trees die due to infestation.

Arik Levinson (Chapter 9) analyses the existing evidence on happiness and air pollution. He focuses on three questions: Does pollution make people unhappy? How much? And is the effect proportional to pollution's estimated effects on mortality and productivity? Answers to these three questions must overcome three obstacles: unobserved characteristics of locales correlated with both pollution and happiness; selection by pollution-averse individuals into less-polluted areas; and habituation by residents to local circumstances. The chapter discusses how the 30 pertinent studies published since 2010 tackle each of those three problems. In order to compare their findings, despite their different measures of both happiness and pollution, the happiness and income coefficients from each study are combined into a willingness-to-pay measure for a one-day, one-standard-deviation pollution reduction. The results reveal a surprising concordance between those calculated willingness-to-pay measures and new research assessing the effects of pollution on mortality and productivity.

Chapter 10 by Xin Zhang, Xi Chen and Xiaobo Zhang studies the impact of air pollution on subjective wellbeing in China, considering six main air pollutants, and three key dimensions of subjective wellbeing: life satisfaction, hedonic happiness and mental health. A nationally representative survey is matched with local air quality and a rich set of weather conditions according to the exact date and county of each interview. By making use of variations in exposures to air pollution across similar respondents living in the same county, particulate matter with a diameter smaller than 2.5 micrometers (PM_{2.5}) is found to reduce hedonic happiness and to increase the rate of depressive symptoms, but not to affect life satisfaction. The results are taken to show that the benefits of reducing air pollution would be higher if the hidden costs of air pollution on SWB in China are taken into account.

Chapter 11 by Daniel Fujiwara and Ricky N. Lawton explores the state-of-the-art research on noise and subjective wellbeing, assessing the growing body of evidence that general noise pollution from road traffic, railways and airport operations is associated with lower levels of subjective wellbeing. The chapter presents a recent case study exploring the association between aviation noise and subjective wellbeing. Using two large UK datasets that involve different measurements of subjective wellbeing presents an opportunity to assess the association between aviation noise and wellbeing measures covering evaluative (life satisfaction), eudemonic (purpose) and hedonic measures (happiness and relaxation). Exploiting the panel nature of the data provides the strongest causal claims to date of a negative association between aviation noise and subjective wellbeing. In the final analysis, the chapter explores how such data may help to quantify the effects of aviation noise mitigation and compensation policies.

Chapter 12 by Daniel Fujiwara, Iulian Gramatki and Kieran Keohane measures the wellbeing and health impacts of sewage odour. It analyses the association between

geographical proximity to sewage treatment works and subjective wellbeing. Controlling for a range of factors, including the size of the plant, the presence of odour reduction technologies, and relevant individual covariates such as age, employment status, marital status and others, the study finds that living in close proximity to an odour-emitting sewage treatment facility is negatively correlated with life satisfaction, implying that people would be willing to forgo part of their income in exchange for reductions in odour. The results are taken to be an indication of a negative impact of sewage odour on people's subjective wellbeing, although causality is not guaranteed.

Chapter 13 by Teresa Ruckelshauß studies the effect of green areas on life satisfaction using data from the 2012 European Quality of Life Survey and the Land Use and Coverage Area Frame Survey. Results indicate that, controlling for a wide range of individual and macro-level factors, there exists a significant relationship between subjectively perceived green space accessibility and life satisfaction in the 27 member states of the European Union as of 2012. An objective measure of the amount of green space, however, shows no significant relationship with life satisfaction.

George MacKerron and Susana Mourato (Chapter 14) investigate the relationship between momentary happiness and an individual's immediate environment within the UK, building on their earlier work in this area. Using a smartphone app, they collected millions of geolocated self-reports of happiness from tens of thousands of participants. Joining response locations with other spatial datasets, they estimate a fixed-effects model relating land cover types to happiness, using only within-individual variation, and controlling for daylight, weather, companionship, activity, type of location, time, day, and a response trend. Study participants are significantly happier outdoors in any green or natural habitat type than they are in urban environments. Of the natural habitats, coastal environments are ranked top.

Chapter 15 by Peter Howley addresses the relationship between health and wellbeing by focusing on two potentially important issues that have been inadequately explored by the health and wellbeing literature to date: legacy effects and individual heterogeneity. First, in terms of legacy effects, it is suggested that health conditions may have significant consequences for wellbeing, even after an individual feels that they have fully recovered. Second, while health clearly matters for wellbeing, there may be significant heterogeneity in this relationship. Focusing on cancer as a case study, the chapter provides preliminary evidence to suggest that individuals may not revert back to an initial set-point level of wellbeing even after they believe that they have fully recovered from cancer (legacy effects), and that the relationship between cancer and wellbeing differs sharply depending on personality traits (individual heterogeneity).

Chapter 16 by Christian Krekel discusses the use of wellbeing and hedonic price data for the valuation of infrastructure externalities, using the example of renewable energy plants. Focusing on wind turbines, the chapter lays out the data, methodological and conceptual issues surrounding the use of wellbeing data for valuation purposes, and discusses the relationship to results from hedonic pricing studies. The chapter offers practical recommendations and an outlook concerning future developments, including novel opportunities arising from big data and machine learning.

Heinz Welsch discusses, in Chapter 17, the recent wellbeing literature with respect to a set of issues relevant to contemporary energy policy. The chapter starts by discussing the channels through which various energy supply systems may affect wellbeing: air

pollution, greenhouse gases, nuclear risk, visual and acoustic effects, and costs. Against this background, numerous issues are discussed. How do actual or perceived nuclear risks affect wellbeing? What are the wellbeing consequences of living close to energy facilities? How do energy-related natural hazards affect wellbeing? How does the affordability of energy affect wellbeing? What are citizens' preferences for alternative configurations of the energy system in terms of wellbeing?

Kate Laffan (Chapter 18) explores the relationship between pro-environmental behaviours and subjective wellbeing in the UK. Her chapter argues that conceptual clarity as to what wellbeing is can lead to a better understanding of how it relates to behaviour. In order to do so, the relationship between such behaviours and a range of measures of subjective wellbeing is examined. The results indicate that individuals who engage in pro-environmental behaviours have higher levels of life satisfaction and consider their activities to be more worthwhile, while at the same time reporting equivalent levels of happiness and anxiety as those who do not engage in them. Additionally, individuals who engage in relatively more common pro-environmental behaviours report higher wellbeing across all measures, which may relate to the relative social norms or costs associated with these behaviours. Together, the results contribute to both scholarly and policy discussions around how to promote both ecological and personal wellbeing.

Chapter 19 by Heinz Welsch on happiness and green lifestyle discusses the evidence that engaging in pro-environmental behaviours is associated with greater subjective wellbeing. Following a summary of relevant empirical studies, the chapter aims at contributing to a better understanding of how green lifestyle and wellbeing are related. To this end, it discusses possible motives underlying pro-environmental behaviours, and how they fit into explanatory models of the occurrence of such behaviours. The chapter proceeds by interpreting the available evidence in the light of those models, discussing in particular what the evidence implies with respect to the wellbeing benefits and costs of pro-environmental behaviours. In addition to these behaviours, the chapter discusses how green self-image relates to subjective wellbeing.

Tetsuya Tsurumi, Kazuki Kagohashi and Shunsuke Managi explore in Chapter 20 how environmental ethics affect the consumption–wellbeing relationship in Japan. The chapter argues that in order to engender the sustainable consumption advocated in the ongoing discourse on ecological footprints, planetary boundaries and the Sustainable Development Goals, current consumption levels in developed countries need to be re-examined. If there is acknowledgment that an increase in consumption is not related to an increase in the subjective wellbeing, at least by people with high environmental ethics, rampant consumption can be mitigated. Estimation results based on a large-scale survey show that although there is on average no satiation point concerning the consumption–wellbeing relationship for people in Japan, there are satiation points for people who have environmental ethics concerning 'intergenerational equity' or 'irreversibility'. Their results thus imply that environmental ethics is a key to achieving sustainable consumption.

Chapter 21 by Carmen Amelia Coral-Guerrero, Jorge Guardiola and Fernando García-Quero explores how the indigenous lifestyle of *Sumak Kawsay* relates to subjective wellbeing. The Andean indigenous way of life *Sumak Kawsay* ('living well' in Kichwa) is related to reciprocity, solidarity, collective participation, social justice, and harmony with nature and with the community. The chapter uses a representative national sample in Ecuador to assess how certain features of *Sumak Kawsay* relate to subjective wellbeing. It

considers several variables associated with this particular way of life: collective participation activities (*mingas*), enjoying a portion of land (*chakra*), living in a rural area and indigenous identity. The results indicate that most *Sumak Kawsay* features are positively related to life and environmental satisfaction. It is suggested that *Sumak Kawsay* is important for subjective wellbeing in Ecuador, but indigenous people's subjective wellbeing would benefit if their needs are better taken into account in the political arena.

Chapter 22 by Shashi Kant, Ilan Vertinsky and Bin Zheng explores the relationship between traditional lifestyles and wellbeing of two Canadian First Nations communities. Key domains of wellbeing and respective contributing factors and linkages between contributing factors and domains are identified. Subjective wellbeing models and household welfare functions of income, traditional diet and trapping income are estimated. The social, cultural and land use domain is found to be the most important contributor to wellbeing, and factors from this domain contribute to all other domains' satisfactions. Estimates of the household welfare function indicate that as people's income increases, they need more income to be satisfied; however, an improvement of the quality of time spent on creating or strengthening social ties can reduce the amount of income for average income satisfaction. The phenomenon of preference drift is also observed in the household welfare function of traditional diet and trapping income.

In Part III, the final part of the book, Bruno S. Frey in Chapter 23 discusses happiness in retrospect and prospect. Subjective wellbeing research has produced many valuable insights concerning the determinants as well as the consequences of happiness. It is argued in this chapter that the causality issue should be dealt with in a more pragmatic way than is now the case. Various reasons are proposed for why happiness research has only partially been integrated into standard economics. The insights provided by happiness research should be introduced as one element in democratic political discourse. In future, care should be taken not to swamp the main messages of happiness research by ever more refined and detailed analyses. Various fruitful research topics are suggested; most importantly, the institutional and constitutional ones, the sociological determinants of happiness, as well as the impact of violent political conflict. Future research topics should come from issues in the real world rather than from problems mainly of interest within the research community.

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