Community Quality-of-Life Indicators 4

M. Joseph Sirgy
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Don Rahtz *Editors*

Community Quality-of-Life Indicators: Best Cases VI

Springer

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Community Quality-of-Life Indicators: Best Cases series

Volume 4

The Community Quality-of-Life Indicators: Best Cases book series is a collection of books, each containing a set of chapters related to best practices of community quality-of-life indicators projects. Many communities (cities, towns, counties, provinces, cantons, regions, etc.), guided by their local planning community councils and local government, and other organizations, develop community indicator projects. These projects are designed to gauge the "social health" and well-being of targeted communities. These projects typically involve data collection from secondary sources capturing quality-of-life indicators (i.e., objective indicators capturing varied dimensions of economic, social, and environmental well-being of the targeted communities). The same projects also capture community well-being using primary data in the form of survey research. The focus is typically subjective indicators of quality of life such as community residents' satisfaction with life overall, satisfaction with various life domains (e.g., life domains related to social, leisure, work, community, family, spiritual, financial, etc.), as well as satisfaction with varied community services (government, nonprofit, and business services serving the targeted communities). The book series is intended to provide community planners and researchers involved in community indicator projects with prototypic examples of how to plan and execute community indicator projects in the best possible ways.

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Preface

As in previous volumes of *Community Quality-of-Life Indicators: Best Practices*, the involvement of citizens and residents – community participation – in identification and use of community indicator systems is of paramount concern. This is supported by the belief that by involving those who stand the most to gain or lose from the impacts of public policy, the indicators developed and hopefully used will be more valid. Some researchers propose that such an approach to community indicator development supports the democratic process. Some argue that locally developed indicators of quality of life provide citizens the opportunity to define quality of life, and this is advantageous over experts, administrators, or politicians making those decisions (Rapley 2003).

This emphasis on community participation has been recognized for quite a while as indicator efforts and projects have evolved and matured. Over a decade ago, Salvaris (2000) described five features of locally developed and community-based indicator projects supporting community participation. These projects include:

1. Attempts to integrate economic, social, and environmental goals around some overall vision of progress or well-being, and a vision for the future
2. Development of goals or benchmarks for monitoring progress; some of these are expressed in conventional policy and statistical categories while others related to social capital are more unconventional
3. Initiation, development, and monitoring of the indicators via a community participation process often involving the entire community and/or through specialist panels with citizen participation
4. A long-term view, usually 5 years or longer as well as an iterative process
5. Relationships to formal processes of governance in their community, varying from government support or even government initiation to *de facto* acceptance as legitimate policy, or, at the least, become a political obstacle that politicians and bureaucrats have to confront (Salvaris 2000)

The recognition of the importance of community participation continues to grow as discussion, research, and awareness of issues around quality of life and well-being become increasingly important. For example, it could be proposed that

community indicator projects with participation rely on or help build social capacities, and this in turn reflects well-being. Haworth and Graham (2007, 128) explain that "many of the capabilities for well-being inhere in social relations and social organization, not in the individual, and still less in individually owned resources…*Well-being is something that we do together, not something that we each possess*." We interpret this to imply that *community* indicator projects can represent ways to influence community well-being. Further, we agree with Rapley (2003, 45) that by "assuming the meaning of quality of life is a local and political matter – rather than an universal, abstract and apolitical or academic one – may enhance the quality of people's lives."

It is interesting to note the variations with which indicator projects approach community participation, whether directly with a community focused effort or more diffuse with targeted participation elicited by larger regional governments. All types recognize the value of citizen/resident involvement and may focus on awareness instead of direct widespread participation. Issues around well-being are a common thread throughout many projects, regardless of whether government initiated or more community inclusive in nature. These varying approaches are seen in this volume of ten chapters along four themes – the first is that of community well-being with two cases, one from a local perspective and one from a larger, country-level focus. Next, three chapters are provided centering on the issue of fostering public awareness in the use and further development of indicator systems, one at a state level and two at the city level. The next three chapters provide exploration of regional-level efforts, and the final two chapters present more technical applications at the country and city levels.

The first chapter is a best practices example illustrating citizen involvement in the process of developing indicators. Heidi Elaine Atwood provides how a participatory action research process can be used for fostering a deeper understanding of local quality of life in "The Influence of Quality-of-Life Research on Quality-of-Life: CLIQ Case Studies from KwaZulu-Natal, South Africa." This chapter is very appropriate for illustrating conceptualizations of community quality of life and the linkages between indicators and goals and means. It concludes that a subjective, participatory approach to both research and projects for community indicators conveys benefits for researchers and participants alike. Further, findings suggest that the participatory action process itself can help spur improvements in participants' quality of life.

Chapter 2, provides a "big picture" look at well-being indicators with Florence Jany-Catrice's "Regional Indicators of Well-Being: The Case of France." As well-being and quality-of-life concerns are increasingly considered, this case presents ways of quantifying social well-being indicators on a regional basis within the country. Spurred by the need to include less conventional indicators as well as being able to account for heterogeneity among regions, the case promotes the use of a variety of indicators beyond economic to reflect these differences.

In the following three chapters, indicator projects are described that strive for increasing public awareness. Motivations for this include the belief that by disseminating valuable information about community and regional conditions, citizens and

residents can encourage positive policy responses. In Chap. 3, Bruce Whyte and Andrew Lyon develop a framework based on a socio-ecological perspective for gauging health and well-being both individually and at a larger community level. In "Understanding Glasgow: Developing a New Set of Health and Well-Being Indicators for Use Within a City," seminars and small group interaction helped spur the development of a "holistic" set of indicators describing health and well-being within the city and allowing for both external and internal comparisons across neighborhoods and overall socio-economic levels.

Chapter 4 by Luis Delfim Santos and Isabel Martins, "The Monitoring System on Quality of Life of the City of Porto," describes a decade-long project designed to foster informed public awareness and political choices. It is founded on a collaborative model of over 30 public and private institutions participating to provide objective data to the city. Given this history, further work has been undertaken to generate quality-of-life conceptualizations, including at the neighborhood level for encouraging dialogue and input about quality of life. The goal of encouraging dialogue among different urban actors has helped encourage a greater collective awareness and led to strategic guidelines for guiding urban development.

Chapter 5, "State Level Applications: Developing a Policy Support and Public Awareness Indicator Project," by Rhonda Phillips, HeeKyung Sung, and Andrea Whitsett provides a case of an indicators system developed as a public awareness mechanism. It uses the case of Arizona Indicators begun in 2007 and used to bring data and issues to the public forefront so that reactions and responses can be addressed in a policy format. It is presented as a support system for policy and public awareness.

The next three chapters coalesce around the theme of regional indicator projects. All illustrate the value of partnerships for striving for collective outcomes. Simon Weffer, James Mullooly, Dari Sylvester, Robin DeLugan, and Marcia Hernandez provide a case of the value of partnerships in Chap. 6, "Partnerships Across Campuses and Throughout Communities: Community Engaged Research in California's Central San Joaquin Valley." The Central Valley of California is noted for its ethnic and economic diversity, and range of community types (both rural and urban with varying levels of development). The Partnership for the Assessment of Community (PAC) serves to model the changes occurring in the Valley and incorporates the use of researchers and students from different universities to conduct community-based work.

Chapter 7, "Measuring Quality of Life in Border Cities: The Border Observatory Project in the U.S.-Mexico Border Region," by Devon McAslan, Mihir Prakash, David Pijawka, Subhrajit Guhathakurta, and Edward Sadalla is a major project aimed at collecting data for gauging quality of life in the challenging context of a bi-national project. Using both subjective and objective measures, four pairs of sister cities along the border are examined. Using a comprehensive approach, this project yields insight into longitudinal changes as well as an index based on economic, social, and environmental indicators. Further, a social well-being measure of happiness is measured for each city.

Chapter 8, "The Fox River Region Leading Indicator for Excellence: The Benefits and Challenges of Regional Collaboration," by Lora Warner and Ashley

Heath presents a partnership effort to develop indicators across three metropolitan areas in northeast Wisconsin. The Leading Indicators for Excellence (LEAD) project uses secondary data, public opinion, and qualitative data to calibrate a dashboard of leading indicators. The project also triangulates data along themes of community strengths and issues or areas of concern to develop insight into quality of life at the regional level. Among the partners are philanthropic organizations interested in spurring quality-of-life outcomes.

The final two chapters in this volume provide examples of researcher and technical approaches to gauging quality of life. One is a city level analysis and the other is a country-wide effort. Chapter 9, "Bridging Environmental Sustainability and Quality of Life in Metropolitan Atlanta's Urban Communities," by Susannah Lee and Subhrajit Guhathakurta explains development of a multi-attribute Quality of Urban Life (QoUL) Index for comparing and tracking place-based amenities and conditions of public welfare in cities throughout the Atlanta metropolitan area. This case also provides insight into relations with sustainability and how an index of urban environmental sustainability contributes to urban quality of life.

Chapter 10, "Building a 'Quality in Work' Index in Spain," by Jordi Lopez-Tamayo, Vicente Royuela, and Jordi Surinach presents a quantitative approach to measuring job quality. It is a country-level project to quantify the quality in work from the period 2001–2009, applying a methodology to estimate a composite index considering European Commission guidelines. Given the issue of types of jobs ("bad" jobs replacing good jobs) with the economic difficulties, this project provides information for macro-level policy considerations.

As seen in this collection of cases, community indicators and quality-of-life considerations are applied in a variety of contexts from the neighborhood to country level. They incorporate aspects important in project development such as community participation, public awareness, partnership and collaboration, and new approaches to methodology. We hope you will find the collection useful in your own efforts.

Blacksburg, VA — M. Joseph Sirgy
Phoenix, AZ — Rhonda Phillips
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Contents

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Heidi Elaine Attwood worked as a researcher and project manager on Community-based Learning, ICT and Quality-of-Life (CLIQ) – an action research project providing ICT training to individuals from poorer communities in KwaZulu-Natal, based at the School of Built Environment and Development Studies (formally the School of Development Studies), at the University of KwaZulu-Natal. She is currently completing her research masters at BEDS, UKZN. Her research and training activities have covered Participatory Poverty Assessments in South Africa, Tanzania and Uganda. She was involved in the early stages of the now "Participation, Power and Social Change Team" at the Institute of Development Studies (University of Sussex) and has also since worked on various aspects of participatory approaches to research.

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Robin M. DeLugan is an Assistant Professor of Anthropology at the University of California, Merced. Her subfield is sociocultural anthropology and her research interests include collective identity, social memory, nation-building and concepts of community and belonging. In addition to her long-standing research on postwar nation-building in El Salvador, since coming to the new University of California, Merced, in July 2006, she has been central to efforts to direct campus research attention to Central Valley issues.

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Subhrajit Guhathakurta joined Georgia Tech in 2011 as the Director of the Center for Geographic Information Systems and Professor in the School of City and Regional Planning. He was previously Associate Director of the School of Geographical Sciences and Urban Planning at Arizona State University (ASU) and among the founding faculty members of ASU's School of Sustainability. Professor Guhathakurta was instrumental in developing the Urban Modeling and Simulation Lab in ASU's College of Design. He also serves as the lead member of several research centers at ASU including the GeoDa Center for Geospatial Analysis and Computation, Decision Center for a Desert City, and the project on Sustainable Urban Systems, Technologies, and Infrastructure (SUSTaIn). He is an author of 5 books and monographs and over 70 scientific papers. He has held visiting appointments at the Center for Urban Spatial Analysis at University College London, the Indian Institute of Information Technology, Bangalore, and at the Center for Sustainable Urban and Regional Futures at the University of Queensland in Brisbane. More recently, he held the German National Science Foundation (DFG) Mercator Guestprofessorship at Technische Universitat Kaiserslautern, Germany.

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Ashley Heath is Research Associate at the Center for Public Affairs at the University of Wisconsin-Green Bay, with a B.A. from UW-Green Bay in Public Administration. With expertise in project management and compilation/visualization of secondary data, Ashley played a central role in managing data collection and reporting for the 2011 LIFE Studies in Brown County, the Fox Cities, Winnebago County, and the Fox River Region.

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Marcia Hernandez, Ph.D., is an Associate Professor of Sociology at the University of the Pacific and the Assistant Dean of the College. Her scholarship interests include Black Greek-Letter organizations, higher education, popular culture and media studies in sociology. She is currently working on projects that focus on the intersection of social class, body politics and images of beauty within African American communities. Other projects include assessing service-learning pedagogy, and community based research examining social cohesion and civic engagement in California's Central Valley. Her research is featured in the *Journal for Civic Commitment*, *Social Indicators Research* and the interdisciplinary anthologies**.**

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Florence Jany-Catrice studied economics in France and Belgium (College of Europe), and urban studies at the Johns Hopkins University (Maryland, USA). She is currently Assistant Professor in economics at the Lille University, and a research fellow of the Clersé (Centre lillois d'études et de recherches économiques et sociologiques) and of the Institut universitaire de France, Paris. She has co-founded and is the current director of the *Revue française de socio-économie* (ed. La Découverte, et Cairn). She is also the director of the Master2 APIESS (Public Action, Institutions, Not-for-profit-organizations). She is the author or co-author of numerous academic articles, book chapters, and books, among which *The New Indicators of Wealth and Development* (Palgrave Mc-Millan 2006).

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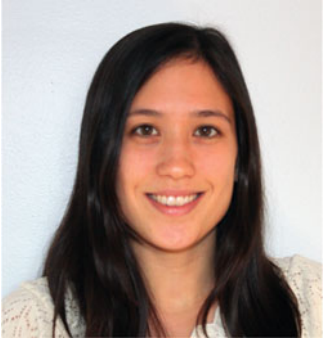

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Jordi López-Tamayo graduated in Economics at the University of Barcelona in 1993, where he gained his Ph.D. degree in Applied Economics in 2000. He works as Associate Professor of Applied Economics for the Department of Econometrics, Statistic and Spanish Economy at the same university. He is a member of the Institute of Applied Economic Research (IREA-UB), member of Regional Quantitative Analysis Group (AQR) and member of Teaching Innovation in Economic Data Analysis Group (GIDAD) at the same university. He has been member of the Spanish Regional Science Association (AECER) and the European Regional Science Association (ERSA). His main fields of research are teaching innovation in economic data analysis, labor markets, social and economic indicators and regional and urban economics.

Andrew Lyon

After five years working in shops and factories, Andrew studied Sociology and Economics at Edinburgh University. After completing his Ph.D., he led a community oriented health programme at Polaroid UK Ltd, before moving to Glasgow to lead the Healthy Cities Programme. He has also worked for the WHO in Bangladesh and Europe. With Forward Scotland, he led on a Scottish approach to Sustainable Development from 1996 to 2001. Now with the International Futures Forum, he leads on programmes designed to restore effectiveness in times of rapid change. Also a volunteer by nature, he currently serves on the boards of several innovative charities. He loves to cycle, is a poor but enthusiastic astronomer. He also says he can play the flute and the uilleann pipes, his children say he can't.

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Devon McAslan has a master's degree in Urban and Environmental Planning from Arizona State University. His thesis, entitled "Urban Indicators: A Study and Evaluation of Urban Indicator Programs for Creating Sustainable Communities," explored how indicators are used at the urban scale and how they become effective tools for policy making.

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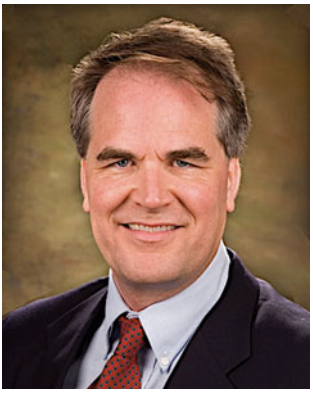
James J. Mullooly is an Associate Professor of Anthropology at California State University, Fresno, and Applied Cultural Anthropologist with a great deal of interest in improving the quality of life in Fresno. He focuses on key issues such as education, commerce and industry. He works in the fields of Ethnography, Applied Anthropology and Ethnomethodology. James holds a B.A. in Anthropology and History from the University of Wisconsin-Milwaukee, two master's degrees, one in Teaching English as a Foreign Language (American University in Cairo) and another in Anthropology and Education (Columbia University) and a Ph.D. in Anthropology and Education (Columbia University). His dissertation, "Work, Play and Consequences: What Counts in a Successful Middle School" (2003) is an ethnography of an alternative middle school for Hispanic immigrants of low socioeconomic status that has fostered great academic success amongst its graduates.



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Rhonda Phillips is Associate Dean, Barrett, The Honors College and Professor, School of Community Resources and Development at Arizona State University. Community investment and well-being comprise the focus of Rhonda's research and outreach activities including community-based education and research initiatives for enhancing quality of life. Her focus is using community indicator and evaluation systems for monitoring progress towards community development and economic development revitalization goals. Rhonda is author or editor of 15 books, including *Community Development Indicators Measuring Systems and Introduction to Community Development*. Rhonda is President-elect of the International Society for Quality-of-Life Studies.

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Chapter 1
The Influence of Quality-of-Life Research on Quality-of-Life: CLIQ Case Studies from KwaZulu-Natal, South Africa

Heidi Elaine Attwood

Abstract Outsider or expert definitions for operational concepts used in quality-of-life projects usually differ from those of local people, and are therefore an inappropriate basis for implementing local projects. This chapter illustrates how multiple methods within an empowering participatory action research process can be used to provide an in-depth understanding of local definitions of quality-of-life. In particular it illustrates how this process created enhanced outputs for both researchers (in terms of better information) and participants (in terms of increased ability to improve their quality-of-life) because it investigated local understandings of quality-of-life; people's goals in terms of improved quality-of-life; and factors that led to changed quality-of-life at different times within a 3 year research project. Analysis of these three approaches to the concept of quality-of-life shows many inter-linkages between different indicators of quality-of-life and shows how quality-of-life goals (or 'ends') can also be the 'means' for improving quality-of-life. It concludes that a participatory (and therefore subjective) approach to research and/or action projects benefits both participants and researchers, and in itself can be one of the reasons for participants' actual improvement in quality-of-life.

The information on which this chapter is based, resulted from many hours of discussion between the research participants and a group of 15 fieldworkers. The project was implemented with guidance from Prof Julian May (currently professor and director at the Institute for Social Development, University of Western Cape) and supported by numerous administrative, management and research assistant staff at the School of Built Environment and Development Studies (formally the School of Development Studies) at the University of KwaZulu-Natal. The author acknowledges Prof. Dianne Scott for comments on a draft of this document.

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Introduction

In support of local definitions of well-being, White and Pettit (2004: 6) propose that "the people living within a situation could plausibly be expected to have a better understanding of the many issues facing them than outside experts." Participatory methods are widely acknowledged as useful ways to establish the priorities, perceptions, plans and definitions of local people, which are more appropriate to use for a local project as they reflect the context within which the project will be undertaken and the reality of local people's lives (Chambers 1997; Rahman 1993; Burkey 1993). Often, these methods show up differences between local and non-local perceptions of quality-of-life, because knowledge reflects the perspective from which it is coming. If this concept is applied within a participatory process, issues related to quality-of-life can also be perceived differently by the same people when they consider it from different angles or in response to different questions.

This chapter draws on particular aspects of a participatory action research project, Community-based Learning, ICTs and Quality-of-life (CLIQ),[1] implemented between 2008 and 2011, that sought to establish the impact of ICT access on poorer people in KwaZulu-Natal, one of the poorest of South Africa's nine provinces. It shows how information on people's perceptions of quality-of-life was confirmed and enhanced by multiple methods. In addition, it shows how the goal-setting activities of the research process motivated participants to pursue a better life.

The following sections present the background of the CLIQ project; the research methodology and a brief summary of the impact findings; followed by an analysis of indicators of quality-of-life; and a final section which reflects on the impact of the participatory process on changes in participants' quality-of-life.

Background to the CLIQ Project

Research has shown that ICTs do contribute to economic growth. In South Africa, the government supports the delivery of ICTs to the public, partly through telecentres. It is not yet clear, however, from international research, if telecentres help improve people's lives, partially because there is no common agreement on what a telecentre is or how telecentre success should be measured (Coward 2008).

[1]Key research partners with BEDS were the Universal Service Access Agency of South Africa – a unit within the National Department of Communications which funds telecentres in under-serviced communities; and the staff of telecentres participating in the study. Financial support from the National Research Foundation and the Norwegian Research Council is also acknowledged.

The research question around which CLIQ was designed was whether needs-based computer training and free computer use could improve the quality-of-life of poorer people as defined by them. Specifically, the CLIQ objectives were:

1. To assist participants to improve their quality-of-life through access to free computer training and use (at their local telecentre), within a supportive environment;
2. To build the capacity of participating telecentres where possible; and
3. To conclude on the impact of computer training and access on the quality-of-life of poorer people, in order to improve policy (and the implementation of policy) regarding universal service access.

Thus CLIQ did not set out specifically to derive local definitions of quality-of-life, but rather the quality-of-life concept was investigated in the action research process to support objectives 1 and 3 above.

One community report and three papers have been produced through the CLIQ project. The community report on CLIQ findings (CLIQ Participants et al. 2011) provides an overview of the research process, findings and recommendations, and was produced primarily for CLIQ participants and participating stakeholders. A paper on the impact of CLIQ (Attwood et al. 2011) explores the incidence and nature of change in participants' quality-of-life and presents a logic model as the emergent theory behind the complex intervention.

Due to unanticipated problems with functionality at telecentres, CLIQ engagement with telecentre management was more extensive than anticipated. This provided a needs-based hands-on opportunity for telecentre-specific capacity building (objective 2 above) and it also resulted in an unexpected set of research findings on telecentre functionality (Attwood et al. 2010). Further analysis of telecentre functionality issues gave rise to a third paper (Braathen et al. 2012), which looks at the issue of power and the empowerment of telecentre managers.

Research Areas and Sample

The four sites chosen for the research in 2008 (with the help of the Universal Service Agency of South Africa) had operational – or soon to be operational – telecentres, each containing at least ten computers connected to the internet. The four research sites included two rural areas, one peri-urban area and one urban area, located at varying distances from Pietermaritzburg, the provincial capital of KwaZulu-Natal. The population sizes of the four areas varied from approximately 2,000 – 32,000 people.

In each area, staff of the participating local telecentre used communication methods appropriate in their context, to inform the local population about the upcoming CLIQ research. Interested people attended an information and questionnaire day. Participants were selected to equally represent (as far as possible) men and women of all ages above 18 years who were either self-employed or community activists, or

who were unemployed youth aged between 18 and 24 years. In areas where there were far more willing participants than the desired sample of 30 people, those who were poorer and with the least experience of computers were selected.

Of the total of 227 people across all four areas who were interested in taking part in CLIQ, 162 were selected to take part (guided by a desired total sample of 120 people). Of these, 130 selected participants attended the initial assessment in 2008, and 113 took part in enough CLIQ activities to allow for impact analysis in 2010. Ninety three of this group participated in computer training. Overall, two thirds of both the selected sample and the impact sample were women, indicating no gender pattern in attrition. The average age of participants was 27 years, with ages ranging from 17 to 64 years.

Research Methodology

> Participatory action research provides a means for them (poor people) to gain knowledge and to use it to improve their lives. (Burkey 1993: 63)

Participatory Action Research (PAR) is included along with a range of other methodologies (such as Participatory Learning and Action, Participatory Rural Appraisal, Participant-led Evaluation and so on) under the umbrella term of Participatory Methodologies (Chambers 2008). Participatory methodologies are well suited to development and research activity concerned with understanding concepts with no clear or common definition in different contexts, such as the concepts of quality-of-life (Costanza et al. 2008) and telecentre impact (Coward 2008). At the core of participatory methodologies is the establishment and use of local definitions to inform the development and/or research process. The use of participatory research methods focussing on well-being (or quality-of-life) is supported by White and Pettit's review, stating that *"Participatory methods have thus contributed to the much wider recognition of contextual, subjective and non-material dimensions of human experience, and the complex dynamics and causalities behind poverty and well-being"* (White and Pettit 2004: 7). PAR is suited to differing research environments and allows accordingly for local changes in the research process (White and Pettit 2004) and so is particularly suited to research the impact of ICTs on quality-of-life.

PAR involves participation and action on the part of participants, researchers and other stakeholders as integral to the research process, analysis, findings and actions. The writings of Rahman (1993) and Burkey (1993) both put forward understandings of PAR where 'participation' is both a means to an end, and an end in itself; where a combination of input is needed both from locals and outside professionals; where local solutions are essential to any local development; and where increased internal knowledge as a result of participation is critical to self-development. "*…(T)he first step in achieving genuine participation is a process in which the rural poor become more aware of their own situation, of the socio-economic reality around them, of their real problems, the causes of these problems, and what measures they themselves*

Stage of Fieldwork Process / *Specific Participatory Method	Initial Assessment (mid 2008)	Phase 1 Computer training	Mid Assessment	Phase 2 Computer training	Final Assessment (mid 2010)
Quality-of-life line (yielding "descriptors")	Discussed in groups				Individually discussed with fieldworker
Goal setting (yielding "goals")	Individually discussed with fieldworker		Individual revision by some participants		
Reasons for changed QoL (yielding "reasons")			Group work on interim QoL changes**		Individual work on final QoL changes
		Free computer usage at local telecentre			
Time:	2008		2009		2010

*Many other methods were used during the three assessments to explore other issues of interest and relevance; however these are not shown here as they are not the subject of this paper.

**As mid-term reasons for quality-of-life change (from the mid assessment), were captured in less depth, than final reasons for QoL change, this paper focuses only on final reasons for change.

Fig. 1.1 The sequencing of research methods related to quality-of-life (QoL)

can take to begin changing their situation" (Burkey 1993: 57). It is this conception of participatory action research that served to inspire and inform the design and implementation of the CLIQ research.[2]

CLIQ fieldwork took place between mid 2008 and mid 2010, with the analysis, write-up and dissemination of findings occurring in 2011. Fieldwork consisted of repeat visits to a selected group of approximately 30 participants per area. In between the three quality-of-life assessments undertaken during these visits, CLIQ provided basic computer training (Phase 1) and needs-based computer training (Phase 2) in partnership with local telecentres. Free use of computers at local telecentres began after the first computer training, as illustrated in Fig. 1.1.

Three particular methods used at different stages in the three quality-of-life assessments produced information regarding participants' perceptions and understanding of low and high quality-of-life. These methods were quality-of-life lines; setting life goals; and reflecting on reasons for quality-of-life change. Describing quality-of-life and setting individual goals at the start of the project helped to focus participants' attention on the concept of quality-of-life (and how they might go about changing theirs), with time in between assessments to reflect on what quality-of-life meant for them. Reasons for quality-of-life change, captured at the end of the project reflected participants' perceptions of their own lived experience in terms of the changing quality of their lives.

[2]The CLIQ action research process is not regarded by the author as true participatory action research as put forward by Burkey (1993) and Rahman (1993), but rather their shared PAR paradigm encompasses concepts, processes and goals that were aspired to, in the face of limiting factors such as funding, funder requirements, and institutional rules and procedures.

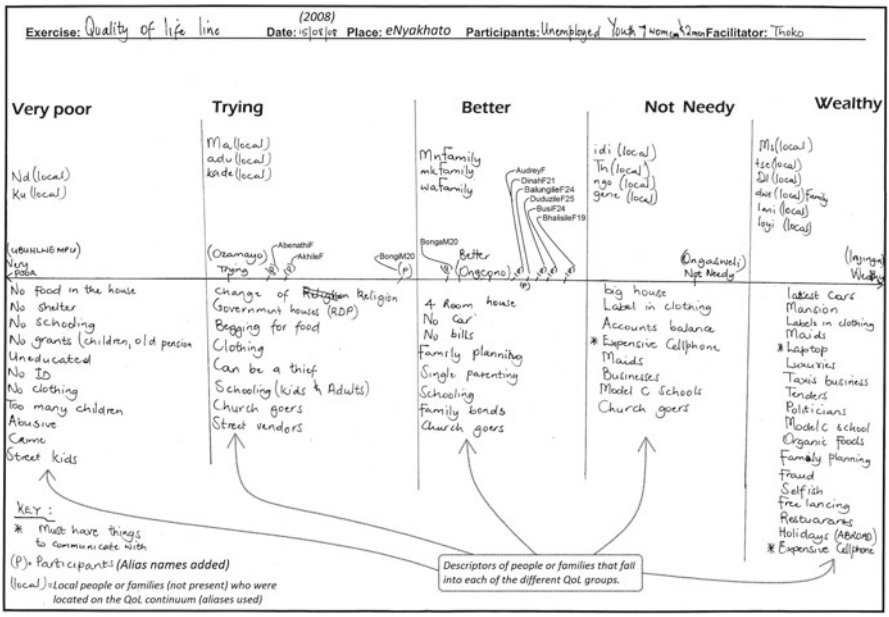

Fig. 1.2 Quality-of-life line for unemployed youth (2008)

Quality-of-Life Lines

Descriptors of different levels of quality-of-life were established for the purposes of assessing change at the end of the fieldwork and for the purpose of orientating participants' thoughts to the concept to enable them to better evaluate their own quality-of-life at the end of the project.

In the initial assessment, after 2 days of participatory enquiry, small groups of participants created quality-of-life lines for their community. Participants considered who in their community had a higher or lower quality-of-life and located these people on a continuum. By discussing what made them locate the different community members (not present) at various points on the line, participants were able to record the characteristics of people at different intervals on the quality-of-life line. After this, participants located themselves on the quality-of-life line. In the example shown in Fig. 1.2, all unemployed youth were in the "trying" or "better" quality-of-life groups. Using the descriptions of higher and lower quality-of-life from 12 such diagrams (three for each of the four areas), a list of descriptors that define quality-of-life was created.

Setting Life Goals

Towards the end of the initial assessment, participants were asked to individually depict their current life in visual form. This was followed by a visualisation of what they

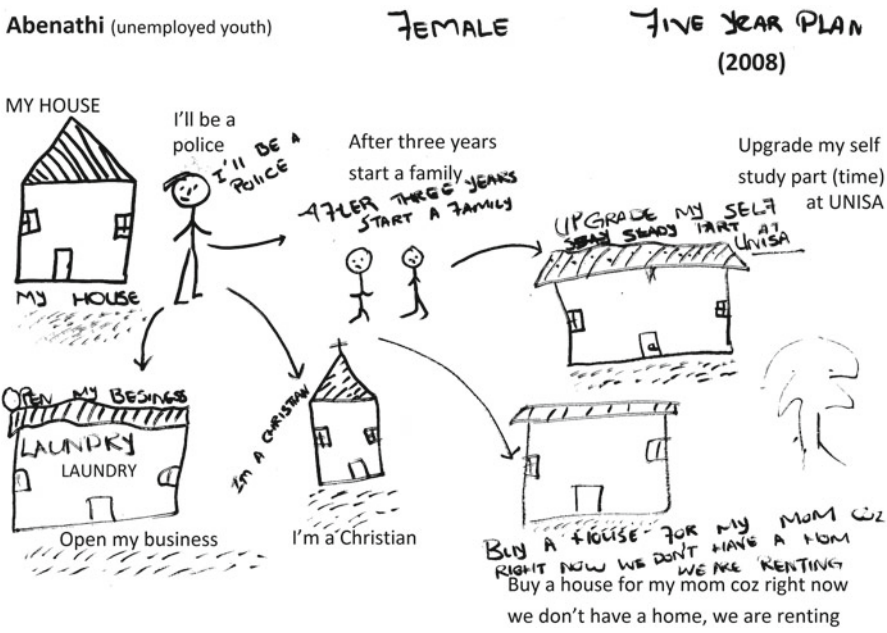

Fig. 1.3 Abenathi's "5 year's time" diagrams from the initial assessment (2008)

would like their life to be like in about 5 year's time. Abenathi's current life visual showed shows that in 2008, she spent her time visiting friends, family, the library and the shop. Figure 1.3 shows that her goals were to become a police officer, buy a house for her mother, register to study at UNISA, start a family and have a laundry business.

Based on their own two diagrams, participants discussed how they might go about reaching the goals depicted in their "5 year's time" diagram, by outlining broad steps that were needed to reach each goal. From these diagrams and discussions, goals that if reached would either create or constitute a better life, were collated.

Reflecting on Quality-of-Life Changes

During the final assessment, fieldworkers conducted in-depth interviews with participants. During the first part of the interview, the participant drew their own quality-of-life line, indicating their own definitions of low and high quality-of-life and locating their relative well-being in 2008, 2009 and 2010.

S'thembile's lifeline in Fig. 1.4 shows a very materialist perception of quality-of-life which she states is determined by having a house, a car, a job, money and a business. Khumbizile's lifeline (Fig. 1.5) shows the opposite – a completely non-materialistic view of quality-of-life, where state-of-mind and state-of-being determine quality-of-life. Usually individual lifelines reflected a more materialistic view. They then discussed the reasons for the changes or lack of change in their quality-of-life with the fieldworker.

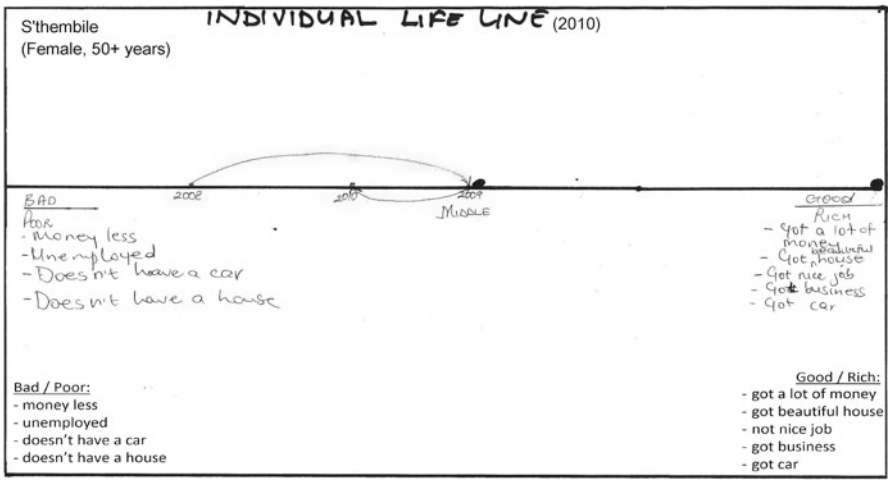

Fig. 1.4 Lifeline for S'thembile

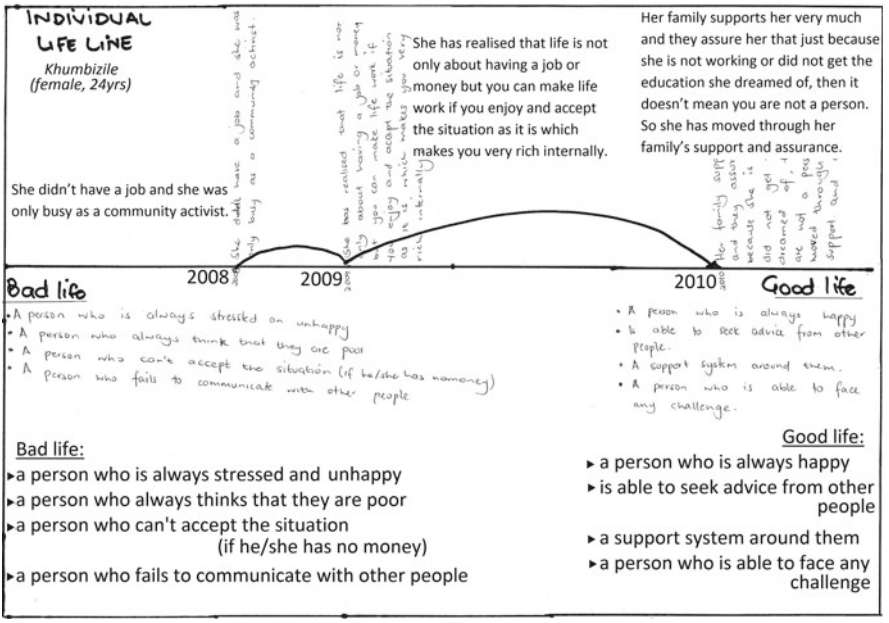

Fig. 1.5 Lifeline for Khumbuzile

Summary of Changes in Quality-of-Life

Overall changes in quality-of-life as perceived by participants, including CLIQ impact, is shown in Fig. 1.6. Two thirds of CLIQ participants noted an improvement in their quality-of-life, while just over a fifth noted no change and 12 % felt that their quality-of-life had decreased over the two year period of

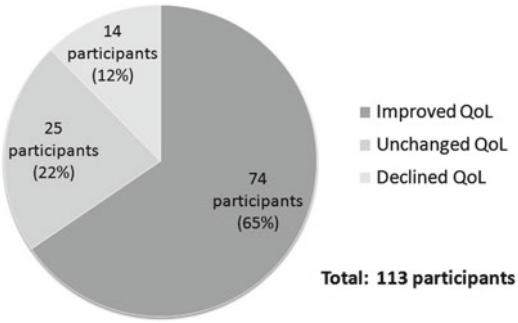

Fig. 1.6 Changes in quality-of-life (2008–2010)

Table 1.1 Reasons for changes in quality-of-life (QoL) between 2008 and 2010*

No. of responses	Reasons for quality-of-life change among 113 participants
Most common (37–57 people)	Got a job/job improved or lost a job Started/improved own business or lost/declined own business
Fairly common (11–28 people)	Changes in access to money (including family member got/lost job; family member's own business improved/declined; and accessed government grant) Attained computer or other skills/attended skills training/started to study or registered for study Built house/moved house
Less common (1–6 people)	Felt empowered, increased self-esteem, hope, direction, happiness and/or confidence Attained or applied for drivers' licence Use of computer skills/use of computers Change in family membership (births, deaths) Illness Social interaction, friends and networks/Interaction with community Bought asset (car, laptop, cows, etc.) Victim of crime Children at university

*Three quarters of participants (77 % of 113) noted that CLIQ impacted on their lives, regardless of quality-of-life change and 4 % indicated no impact from CLIQ, while impact results were unclear for 19 % of participants due to insufficient data. The most common impacts among the 92 participants with impact data were empowerment including increased self-esteem, hope, direction, happiness and/or confidence – 77 %, and more friends, networks and social interaction – 55 %.

fieldwork. Table 1.1 shows the reasons for changes in quality-of-life, as reported by 113 people.

Analysis of Indicators Across Methods

The table below shows the descriptors, goals and reasons mentioned in the three activities described above in relation to each other and creates a name or indicator, which combines all three expressions of quality-of-life indicators (column 1).

Table 1.2 Quality-of-life indicators with examples of descriptors, life goals and reasons for changed QoL

		1. Indicators of QoL	2. Descriptors of high (H) or low (L) QoL *(from 2008 group life lines and 2010 individual life lines)*	3. Individual life goals *(from 2008 individual "picture yourself in 5 years' time"*	4. Reasons for changed QoL *(from 2010 individual in-depth interviews)*
Common QoL Indicators:	1	Housing	L:Sleep on pipes; house falling down H:proper house; mansion house	Build house away from family; extend home; own 4-roomed house	Built house; extended house; moved home
	2	Study/education (for self)	L:Uneducated H:university education	Want to study (usually specifying area of study); want to learn computers*	Attained computer* or other skills; registered/ started study
	3	Jobs	L:without a job H:job with regular income; top positions	Get any job; get a specific job	Got job; got increase; lost job
	4	Small business	H: own business(es); type of business; registered business	Expand or start own business (usually specifying type)	Started, improved, declined or ended small business
	5	Money (access & affordability)	L:not enough money; can't afford; don't even receive grants H:money in bank; sign cheques; buy whatever they want	Save money; loan money; access bursary; access sponsorship	Brother got grant; sister got job; father lost job
	6	Car (Travel)	L:walk on feet H:many or luxury cars; fly	Buy a (specific) car	Bought a car
Less Common QoL Indicators:	7	Friends and networks	H:Associate with overseas people	Spend time with friends	More/ new friends
	8	Attitude, behaviour & state of being	L:can't even think; appreciate life; criminals H:Selfish; happy life	Learn to be a better person; work hard; be a role model	Felt empowered; greater self esteem; more direction; have hope
	9	Community engagement & voluntary activity	L:beggars H:money sponsors; community leaders	Continue with volunteer work (assisting scholars, etc.); start soup kitchen, soccer club etc.	Can now mix with other people; able to interact with community
	10	Basic services	L: use candles H:flush toilets; taps in yard; have electricity	Get legal electricity; get solar power; buy water tank	Installed solar electricity
	11	Family	L: too many children H: two children; are married	Get married; have 2 children	Got support from family; had a baby; got married; lost family member
	12	Education (for family member)	L: children not at school H: private schools	Put child into crèche; send children to good school	Children started at university
	13	Assets	L:don't own anything H: TV; computer* expensive cell*; fridge	Get DSTV; buy computer; buy cows	Bought laptop
Uncommon QoL Indicators:	14	Driver's Licence **(ref. indicator 6)**		Get learner's or driver's licence	Got learner's; registered for driver's
	15	Employ people in own business **(ref. indicator 4)**		Employ people to help with own business	Employed people in own business
	16	Identity document & birth certificates	L: No ID; no birth certificate		Got ID corrected; ID was stolen
	17	Health/Illness	Are sick; are alcoholics		Illness
	18	Office for self **(ref. indicator 4)**		Have office for own business	
	19	Computer usage			Use of computers
	20	Clothes & food **(ref. indicator 5)**	L: have no food; sleep without eating; old clothes H:eat in restaurants; eat good quality food; satisfy needs; labelled clothing		
	21	Greater knowledge/world view			greater knowledge of world; know things never thought would know

* As computer training and use, and cell phone use was a key topic of discussion with participants, it influenced the likelihood of participants mentioning descriptors, goals and reasons related to cell phones and computers.

In columns 2, 3 and 4, selected expressions of the indicators from the various types of exercises are provided. The shaded blocks are the descriptors, goals and reasons that were mentioned most frequently in each of the three exercises. These correspond to indicators 1–6, namely: housing; education; jobs; small businesses; access to money; and having a car. In Table 1.2, indicators 1–3 were mentioned in all three exercises, while indicators 14–17 were mentioned in two exercises and indicators 18–21 in only one of the exercises.

Common Quality-of-Life Indicators

Housing, further education, jobs and having a small business were among the most common factors mentioned across all three exercises that contribute to quality-of-life status. For each of these four indicators, the different ways in which it was expressed during the three exercises is evident from Table 1.2.

Two other common indicators are money and cars. While ownership of a car was a common descriptor of high well-being groups and buying a car was a common

goal, only one person managed to purchase a car during the 2 years of fieldwork. However reasons for change that related to getting a driver's or learner's licence (a key step to getting a car) were fairly common. MichealM28[3] stated that "*One of my goals was to have a car, now I have applied for my learner's licence which is a big step to success for me*."

Access to money has varied linkages across the different factors. During goal setting, saving money and accessing loans, bursaries or sponsorships were always mentioned in the context of accessing another goal, such as building a house, buying a car or starting to study. During reflection on reasons for quality-of-life change, access to more or less money through a family member's changed job or small business status or through changed access to social grants, were commonly mentioned (but not "more money"). In descriptors of levels of quality-of-life, participants did refer to lack of money, no money and lots of money, but this was not among those most commonly mentioned.

However, references to the quantity and quality of food and clothing together, were common descriptors of levels of well-being groups. As it's highly plausible that a change in access to money would influence the level of expenditure on food and clothing, it too can be considered as an indicator of money, or vice versa, particularly as food and clothing were not mentioned as goals or reasons for quality-of-life change.

The common indicators were all primarily financial or material. The expression of some of these indicators was similar across all three exercises (as for example, with jobs). For others, participants expressed an indicator in different ways (as seen by the example regarding money) leading to a richer understanding of the indicator and linkages across indicators.

Less Common Indicators

Less common indicators (mentioned during all three exercises, but not mentioned by as many groups or individuals as the six most common indicators), which included non-material indicators, were:

- Friends and networks;
- Attitude, behaviour and state-of-being
- Community engagement and voluntary activity
- Basic services
- Family
- Education (for family member)
- Assets

An example of the enrichment provided by using three perspectives on indicators of well-being is provided by the young man whose own business concerned the

[3]Participants are referred to through alias names, indicating sex (M = male and F = female). The number after sex is the age of the participant in mid 2008.

provision of illegal electricity connections for others in the area. One of his goals was to have a legal electricity connection – he did have electricity, however his connection was not legal. Therefore when considering access to basic services as an indicator, the nature of access is important.

While attitudes, behaviour, and states-of-being were not in the group of the most common indicators, they were mentioned across all three methods. Expressions of this indicator as a goal included 'work hard' and 'become an independent woman'; as a descriptor of low quality-of-life it included 'can't even think', and 'selfish' for high quality-of-life; and as a reason for change included various expressions of feelings of empowerment, self-confidence, hope and direction.

Linkages Between Indicators

A number of indicators had strong links with other indicators. Indicators of jobs and own business relate directly to increased access to money, which in turn is linked to ability to afford food, clothing, better education, home improvements and so on (notwithstanding other benefits from having a job or small business, such as increased sense of purpose). This is supported by information from participants who used their increased access to cash from jobs or their small business to extend their homes, to start a small business, attend a training course or install solar power (and so on).

There are strong linkages between other indicators (mentioned in all three exercises) as well. For example, many noted that their social network would increase or decrease with the acquisition or loss of a job. This also holds for other social activity such as participation in community meetings or voluntary community work. The CLIQ project itself is a clear example here, where many noted more friends from their interaction with other participants (as a benefit) – and some noted that their quality-of-life increased partly due to gaining more friends.

Having an identify document (ID) and birth certificate were mentioned as descriptors and as reasons, but no participant expressed attaining an ID or birth certificate as a goal. Identity documents are essential when applying for a formal job and for getting or renewing grant cards, which facilitate access to grants. While not expressed as a goal, two participants did actively pursue rectifying problems with their IDs during the period of the fieldwork – one managed to sort his out (assisted by internet access to the government's Department of Home Affairs), while the other did not.[4]

Having a small business with employees or an office are aspects of the creation or expansion of a person's small business (which was a common indicator across the three exercises). They are perhaps not indicators in themselves but rather an expression of the nature of small business ownership that would be regarded as an indicator of good quality-of-life. This is supported by a comment from MbonaM20

[4]This single parent lost a job opportunity and lived without access to monthly grant payments for her four children because she was robbed of her ID and the Department of Home Affairs could not issue a new one timeously because the participant appeared on their database as 'deceased'.

who rejected being considered as self-employed because he cut grass and sold it: "*It does not make enough money for me to be called self-employed*[5]". Thus people consider the nature and size of a small business when referring to it as an indicator of quality-of-life.

Increased knowledge was regarded by some as a reason for their improved quality-of-life, however, it did not appear as a descriptor or goal. While it has links to education and further study, the broad and general nature of the knowledge referred to, suggests it could be kept as a separate indicator. This type of data may be missed when participants only 'reflect' on what good quality-of-life is, whereas when people go through a process of trying to improve quality-of-life and reflecting on reasons for changes, issues emerge such as increased knowledge, that they may not have considered in the more abstract exercises.

Computer use (mentioned only as a reason for improved quality-of-life) is linked to a variety of other indicators, including getting a job; starting or improving small business; expanding friends and networks; increasing knowledge, and accessing tertiary institutions and bursaries. ICT skills and use was also linked to feelings of hope, self-confidence and direction. Part of the commonly mentioned goal of studying or attaining skills, was learning to use computers. Furthermore, and in response to probing during quality-of-life line exercises, ownership of computers or laptops were descriptors of high well-being. However, the mention of these issues was heavily influenced by the theme of the research project. Thus, while computer use is linked to a number of other indicators, there is not enough evidence to suggest that it is an indicator in itself.

Indicators as 'Means' Versus 'Ends'

Costanza et al. (2008) caution against the tendency to solely use factors like economic production as indicators of well-being as they should rather be considered as a means to potentially improve well-being, which is supported by Sen's (1999) capabilities approach to development, where the ultimate goal is the freedom to choose. The list of indicators in Table 1.2 does include such economic 'means' to potentially improve quality-of-life. This partly explains why some indicators appear as goals and reasons for change, but not as a descriptor of well-being – for example, having a driver's licence.

While it can be commonly understood how a job is a means to an end, such as providing better clothing or improved education for children, the delineation between means and ends is still by no means clear. Some participants stated that they want their children to have a good education so they do not have the same life of poverty as they do, rendering the goal of good education for children as a means

[5]This also provides an example of the potential differences between external and internal definitions, as it was CLIQ that initially classified him as self-employed due to his grass cutting activity.

to an end. An interesting example when considering means versus ends with regard to changes in quality-of-life is the young man who stated that his life improved because he was able to pay for his sister's education, rather than possibly the more conventional expectation that education of a sibling would ultimately lead to a better quality-of-life for family members. For him, the knowledge and status of having secured his sister's education increased his quality-of-life.

CLIQ did not engage with the concepts of 'means' versus 'ends' during the fieldwork process. However, when analysing the sequencing of each person's activities over the 2 years, we found examples of many indicators being both means and ends. There were examples where:

- increased income from their small business enabled a participant to pay for and complete new skills training; and another example where new skills training enabled a participant to improve their small business;
- more self-confidence led to increased community interaction; and another example where increased community interaction led to more self-confidence; and where
- new friends led to a job; and another who made new friends from a new job.

Thus, the concept of an indicator being considered as either a means or an end could be viewed as a never-ending spiral.

Increased *Quality-of-Life from the Research Process*

During the design of the CLIQ project, working conceptions of quality-of-life were not limited to material or financial terms. It was recognised that for example, a participant may conclude an improved quality-of-life because they spent all their free computer time playing games (after learning to use a computer through CLIQ) and that despite being poorer financially, they were happier due to playing computer games.

Despite this recognition that the results may reflect unexpected reasons for quality-of-life change, our conception behind providing an empowering space for participants to engage with the field team and with each other was aimed at increasing their confidence and motivation so that they could learn to use computers and make use of computer skills and access to improve their lives. Thus, while empowerment of participants was a clear goal, improvement in quality-of-life due to computer use, was expected. Indeed we did find this, but we also found examples of people whose quality-of-life improved due to the nature of their participation in CLIQ and without ever having used a computer.

People and Process

Among the participants whose life improved due to CLIQ, there were those who did not attend any computer training; those that attended the computer training but never tried to use computers on their own; and those who attended the first computer training session but did not return for further computer training as they felt

disempowered by the trainer's attitude (although they did return for the mid and final assessments). An example of such a person is NelliF37.

In 2008, Nelli did not interact much with the community – *"I only knew that a wife must be at the kitchen"*. Through attending CLIQ activities, Nelli met the people who taught her to make mats, "*CLIQ has helped me because now I can talk with people that I meet and talk about how to sell my grass mats. Even though I have never come for my hours I can say that CLIQ contributed to my well-being because of that*."

NonkuF26 got a temporary job in construction at a local game lodge because she was a CLIQ participant. The Induna, who regulates the distribution of local job opportunities, called for people who had knowledge of computers to attend the community meeting where the available jobs were to be allocated. Thus, while computer skills had nothing to do with the job, the Induna (for reasons unknown to CLIQ)[6] wanted the opportunities to be given to people who were participating in CLIQ.

Even among some participants who did make use of their free hours to use computers, we found examples of those whose quality-of-life improved due to their participation in the process, rather than due to computer use. MakhoM28 learnt to use computers, but his life improved because he got a job through one of the people he met during the CLIQ process.

Empowerment, Motivation and Direction from Goal Setting

The single exercise that contributed the most to participants' empowerment, motivation and direction was goal setting. KhanyaF20 stated that *"To talk about your future plan makes a person not to give up"*. Some participants had clear goals in their minds when doing this exercise, while others said they had never made goals before. "*I feel it was a good thing because it led me to actually see what I have in my mind and gave me an idea to think more about what I want in my life*" (KethaF21). In 2010, most participants felt that the process of considering their life goals was beneficial to them. *"I felt good after discussing my goals….. CLIQ made me to be strong and fight for my goals…if everyone can get a chance to write down their goals that can make a lot of change in the whole area"* (MesseM20).

During the mid assessment (6–10 months after the initial assessment) a few participants took the opportunity to change their goals. The changes showed that participants had reflected on their goals since the previous assessment. *"Yes, I would do it again because I feel maybe I could see or change the goals that seem unrealistic or impossible to achieve"* (KhonzaphiF20). In 2009, SonkeF22 deleted her initial goal of having an office 5 years after 2008, because she said it was too little time bearing in mind the others things she wanted. She also changed other goals, for example, *"I don't think that I will have two kids in four years time because there are lots of things I need to do and I also have to convince my boyfriend to do an HIV/AIDS test*

[6] We could speculate that this was because those participating in CLIQ had shown an interest in improving their life situation and therefore were deserving of a job opportunity.

so that we can start having sex. At the moment we are abstaining until we do a test. This will take some time for the both of us."

The spread of CLIQ activities over a period of time was thus an important contributor to the goal of empowerment, as this allowed time for participant reflection.

Interactions with CLIQ Staff

A number of participants derived motivation and a sense of empowerment from their interaction with CLIQ fieldworkers. *"Yes, they opened my mind and eyes on many things. Now I know that I can be anything I want to be"* (CelenkosiniM27). *"I did not believe that people could come all the way just to give us free lessons on the computer"* (MilliM19). In one area in particular, participants initially viewed the fieldworkers as role models and later friendship bonds developed. *"We communicate with them till this day. CLIQ was very helpful to me because they always asked me how far I was with my applications and other things I was doing in life. What made me continue participating in CLIQ activities was that I will have a bright future with them and after them. I leant a lot of things from them*" (NdodaM20).

Repeat visits by fieldworkers over 2 years involving the follow-up of previous discussions with participants, was motivating. *"(T)hey helped me plan my goals and made me realize that I can try and reach my goals. I also told myself that I want CLIQ to come back and ask me about my goals and be proud to say I have started reaching my goals. Some of the things I do because I want CLIQ to be proud of me"* (SiyaF53). Over the 2 years, she secured contracts for unpaid community health workers; improved her business; and secured a site for her charitable soup kitchen. Siya never used her computer hours.

Thus, the experience of participating in a process that helped people to consider and reflect on their current life and life goals and their understanding of what high and low quality-of-life was, with a group of people from their area and with outsiders, over a period of 2 years, led to an improvement in the quality-of-life of some.

Conclusions

The use of multiple methods to explore the issue of quality-of-life from different angles has the benefit of confirming initial quality-of-life definitions; providing greater insight into and depth of understanding of indicators; and assisting in understanding the linkages between different indicators.

This chapter has shown that when participants were asked to consider quality-of-life in different ways, participants on the whole came up with similar factors that defined quality-of-life – either as something that describes a person in a well-being

group, as something that would improve their own quality-of-life, or as a reason for their improved or declined quality-of-life.

The most common set of indicators related to material wealth, but subjective indicators did also feature in all exercises concerning quality-of-life. Although CLIQ did not specifically set out to 'triangulate' data on local definitions of quality-of-life, this was achieved (together with added depth in understanding) due to the nature and process of participatory research, and thereby helping to address some criticisms of participatory research as producing biased, unreliable and non-transferable information.

Some indicators only became apparent to participants after reflecting on previous quality-of-life changes, indicating that participatory research, after a process whereby participants actively try to improve their quality-of-life, provides for a fuller picture of local definitions of quality-of-life. Although the research did not address the issue of means versus ends, the results do indicate no clear distinction between them, because over time, goals reached become the means with which to achieve new goals.

Goal setting was a key exercise which motivated and assisted participants to improve their quality-of-life and impacted on reasons for quality-of-life change. The 'action' aspect of this research was as much linked to the provision of computer training and use, as it was to the process that motivated and empowered participants to improve their quality-of-life.

Reflecting on the Future . . .

The ultimate aim of research on quality-of-life has to be to improve the quality-of-life of those who are worse off and worst off. The conventional model is to do 'objective' research and then feed the findings into policy and strategies that work for those with low quality-of-life. Sometimes this is successful and sometimes the reports remain on the shelf.

This chapter has shown that through using participatory action research (a 'subjective' research methodology), researchers benefit from the analysis of actual change (with respect to better findings) and participants benefit from the analysis of information (with respect to a more insightful approach to improving their quality-of-life). In other words, researchers benefit from what is of primary importance to participants (changes in quality-of-life) and participants benefit from what is of primary importance to researchers (analysis of information).

True objective developmental research is extremely difficult to achieve. At a conceptual level then, researchers should recognise that by researching a situation, they inevitably impact on the situation and people or impose their value systems (Rahman 1993). Action research can both enable local people to improve their quality-of-life and in itself lead to an improvement in quality-of-life (in terms of empowerment) indicating that participation is a means to an end and an end in itself with respect to

quality-of-life (Burkey 1993). When local people understand and engage actively in the research, it has benefits both at the local level (empowerment and improved quality-of-life) and at the national or international policy level where lessons and insights are shared through research findings.

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Chapter 2
Regional Indicators of Well-Being: The Case of France

Florence Jany-Catrice and Grégory Marlier

Abstract The Commission on the Measurement of Performance and Social Progress (Stiglitz et al. 2009) has usefully validated and, above all, given legitimacy to the various criticisms that have been made for several decades now of GDP and economic growth. What is a good society or a good territory? How is its quality of life or its well-being to be assessed? It once seemed that an economic approach to these questions, which are almost philosophical in nature, was broadly sufficient as a means of evaluating the dynamism of territories and, with even greater certainty, their quality. This consensus is being increasingly called into question as a result of a twofold pressure. There is a pressure exerted first by growing awareness of environmental issues, and, second, by increasingly heterogeneous populations. This heterogeneity leads to difficulties in adequately capturing living standards or well-being by 'average' measures (of income, consumption, wealth etc.), which have consequently lost some of their meaning (Stiglitz et al. 2009). They are increasingly being debated in international institutions (UNDP 2009; Giovannini et al. 2009), nations, territorial authorities (Jany-Catrice et al. 2009), and even municipalities (see eg. Bardet and Helluin 2010).

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What Indicators of Well-Being for Territories? The Case of France

Introduction

The Commission on the Measurement of Performance and Social Progress (Stiglitz et al. 2009) has usefully validated and, above all, given legitimacy to the various criticisms that have been made for several decades now of GDP and economic growth. What is a good society or a good territory? How is its quality of life or its well-being to be assessed? It once seemed that an economic approach to these questions, which are almost philosophical in nature,[1] was broadly sufficient as a means of evaluating the dynamism of territories and, with even greater certainty, their quality. This consensus is being increasingly called into question as a result of a twofold pressure. There is a pressure exerted first by growing awareness of environmental issues, and, second, by increasingly heterogeneous populations. This heterogeneity leads to difficulties in adequately capturing living standards or well-being by 'average' measures (of income, consumption, wealth etc.), which have consequently lost some of their meaning (Stiglitz et al. 2009). They are increasingly being debated in international institutions (UNDP 2009; Giovannini et al. 2009), nations, territorial authorities (Jany-Catrice et al. 2009), and even municipalities (see eg. Bardet and Helluin 2010).

Over the past 15 years, many initiatives have been launched with the aim of satisfying these needs for less conventional indicators. Nevertheless, most of these initiatives have taken the form of territorial diagnoses, whether of a general nature or focused on a particular sector or set of problems (poverty, inequalities, housing, etc.). Throughout the world, as part of an uncoordinated and disorderly trend towards the development of 'community indicators'[2] (Cobb and Rixford 2004), territories[3] (Jacksonville Community Council 2009) have embarked upon the process of developing dashboards of indicators of sustainable development, quality of life or, in some cases, of well-being (European Council 2005). In many cases, however, they have excluded synthetic or composite indicators from their projects.

The aim of this chapter is to present some innovative approaches that aim to put in place composite indicators of well-being or social health at various territorial levels.

Our hypothesis is based on the following premise. The purpose of most of these indicators is to supplement or replace GDP, not only as a collective measure of a territory's wealth or well-being but also as an 'instrument of government' (Lascoumes and Le Galès 2004). Therefore, it is necessary to analyse the results produced together with the institutional and/or socio-political conditions under which these composite indicators emerge and are socially validated. This is because our analytical framework is resolutely based on the 'economics of conventions'

[1] As is that of the *meaning* of life in society.

[2] See, for example, the Community Indicator Consortium (CIC), in the USA.

[3] 'Regions', 'departments', communities or 'municipalities'.

tradition developed in France by authors such as O. Favereau, A. Orléan and F. Eymard-Duvernay (Eymard-Duvernay 2006).

This framework is well-suited to report analyses whose purpose is to 'quantify' the social. It is the result of estimable pioneering work by Desrosières (1993) and has been further developed by Salais (2010). This quantification is the product of a twofold process. Its first stage is to agree on what one is seeking to measure, and the second is to carry out the measurement. It is because these two stages (reaching agreement and measuring) are *inextricably* linked that this chapter focuses on these two aspects of conceptualisation and measurement. Let us clarify. These indicators of wealth and well-being, which have developed over time, constitute socio-political agreements (or 'conventions') founded on three pillars. The first is a 'cognitive' pillar, namely the current state of knowledge. This state is itself retroactively influenced by the production of data, the performative nature of which has been widely documented in the social sciences (Messu 2003), more specifically in economics (Lebaron 2009). The second is a 'power' pillar. It takes account of the fact that political priorities are embodied in the data and are determined by power relations, by the legitimacy of the elite categories and by alliances and networks. The third and final pillar is technical in nature. It takes account of the choices made in the data gathering process (Turk 2009, p. 80), as well as of the methods of harmonisation, the production of nomenclatures and classifications, etc.

The chapter begins with an outline of the necessary conditions for the emergence of indicators that might be used in the regions to supplement or replace GDP. These social conditions make it necessary to analyse the processes whereby these new indicators might be legitimised. In developing the new indicators, after all, a balance has to be struck between two dynamics. On the one hand, there is a quest for legitimacy that is facilitated by a universal indicator.[4] On the other hand, there is a need for the kind of legitimacy attained when the indicator is embedded in local specificities. This excludes any claim to universalism. This tension between universalism and localism – or singularity – is highlighted here for two paradoxical reasons. The first is that this tension is a way of expressing the power relations and power struggles (between expert disciplines, international organisations, countries etc.) that are implicitly contained in the indicators. This is particularly clear when the dominant actor, through the intermediary of the indicators, produces a *universal norm*. The second is that specific characteristics can also, when the necessary conditions are met, be translated into 'radical politics with global ambitions' (Smith 2000, p. 1152; Harvey 1996).

The new regional indicators also raise the question of the legitimacy of the process by which these indicators of well-being and wealth are constructed. Can or should that legitimacy be derived from academic expertise and science? From individuals? From citizens? This is the question that will be the main focus of the first part.

In the second part, we describe a French experiment which led to the construction of an indicator of social health for the French regions. We outline the

[4]See the widespread fame of the United Nations Development Program (UNDP)'s index of human development (IDH), despite its relative lack of sophistication.

approach – the conceptual presuppositions – as well as the results, with each of the indicator's dimensions being analysed. The indicator's sensitivity to various choices made is also tested; particularly its sensitivity to weightings, whose arbitrariness frequently attracts criticism.

In the final section, we question the possible uses of these "new technologies of government" (Lascoumes and Le Galès 2004). We will have analyzed that these new governance techniques, based on social or environmental values, have the ability to influence public opinion in different ways. They also have the ability to change modes of territorial governance, since they derive their legitimacy from a process of construction based on democratic decisions. These new indicators also give rise to alternative forms of benchmarking. These results upset the implicit hierarchy produced by the conventional economic indicators. We also explore the idea that this indicator, once extended by the addition of an economic dimension, like the UNDP's IDH, could be of benefit to public action at regional level. It is particularly the case if it was to be used as one of the criteria for allocating regional aid within the European Union.

Conditions for the Emergence of New Indicators on a Sustainable Basis

What Is Wealth[5]

What points of reference are to be used in describing a territory's wealth? "What entity, what objects, what segments of the real world should be considered in order to assess whether a society is progressing or declining, to judge whether or not it is wealthy and whether or not this wealth has increased?" (Méda and Jany-Catrice 2013). As D. Méda has clearly shown in her work on '*What is wealth?*' (1999), Malthus published the *Principles of Political Economy* in 1820, the first chapter of which is given over to an attempt to define wealth. We cannot, he argues, 'apply discussions respecting the relative increase in the wealth of different nations without having some means, however, rough, for estimating the amount of such increase'. This definition of wealth is absolutely the result of a value judgement that forms the basis for this definition (Fourquet 1981; Méda 1999). Méda also insists on the following fact. The ultimate objective was to enable nations to display their power and the first attempts at calculating national income in the seventeenth century were initially intended to measure the extent of that wealth in order to establish the tax base and give an idea of power. Nevertheless, what counted in the definition of wealth was certainly the possibility of displaying increases (Méda 1999). Thus only those elements that were *quantifiable a*nd whose *increase* could be easily tracked

[5]Méda (1999).

were going to be included in the definition of wealth. Furthermore – the aim was also to strengthen the emerging discipline of economics and to legitimise its ability to be the *science of measurement*. This way of conceptualising wealth and power provided the basis for the framework on which national accounting and its reference indicator, GDP, have developed. And territories have not been immune to this dominant representation of wealth and well-being.

New Initiatives for Measuring Wealth

As early as the 1940s, however, Simon Kuznetz had issued warnings about the misuses of this synthetic indicator if it was used as a proxy for well-being. With its *Limits to Growth,* The Club of Rome activated the debate in the early 1970s[6] and a recent re-activation has started from the mid-1990s onwards (Gadrey and Jany-Catrice 2006). By confirming the limitations of the growth paradigm, the Stiglitz Commission provided further support for the experiments seeking to develop other indicators. This scientific support provided the needed legitimacy for, for example, elected representatives in local and regional authorities to tackle these subjects more easily. However that may be, a variety of new indicators has emerged over the past two decades, with the aim of assessing economic well-being (Osberg and Sharpe 2002), human development (UNDP 1990) or social health (Miringoff and Miringoff 1999). Local and regional authorities were actually among the first to launch new initiatives that sought to renew public action through the use of new indicators. This movement has sometimes been regarded as a revival of the movement that led to the first attempts to construct social indicators in the English-speaking countries in the 1920s (Cobb and Rixford 2004). The launch of Local Agendas 21[7] in the wake of the 1992 Rio Summit probably also played a part in encouraging this movement.

These initiatives have to be viewed with a certain degree of circumspection. To what extent does the infatuation with indicators have its roots in a fashion for quantification, a form of 'quantophrenia'? With notions as fuzzy as 'sustainable development', 'quality of life' or 'well-being', the indicators themselves eventually come to embody the concept. This is not a recent phenomenon. Historically, the discipline of economics has conceptualised and defined wealth and progress in a particular way, and in conjunction with establishing the instruments of measurement. This approach has tended to develop in societies in which quantified arguments and, more specifically, 'numbers' frequently take on all the trappings of an incontestable argument. This specific argument becomes both resources and constraints for public action and citizens alike (Desrosières 1993).

[6] See also Nordhaus and Tobin (1971).

[7] Agenda 21 denotes a strategy for sustainable development first put forward at the 1992 Rio Summit.

What Political Conditions Must Be Fulfilled if These New Indicators Are to Have Legitimacy?

It took several decades for GDP to achieve a high level of domination and legitimacy in collective representations and judgements of what wealth is. In the current context, it might seem ambitious or unfeasible to construct new tools to supplement or even replace this indicator. By what means might new regional or national indicators conceivably acquire legitimacy and circulate before being gradually disseminated and appropriated by the actors? In studies that have addressed these questions, three modes of legitimation, which are not mutually exclusive, can be identified.

– Some are based on indicators that have been constructed by armchair experts and scientists. These experts are equipped with both their theoretical frame of reference and their value system, both of which play their part in providing 'scientific' legitimation for the choices made. Thus the report produced by the Stiglitz Commission (2009) is interesting on a twofold aspect. Firstly, in terms of the process of its production, as it is truly the fruit of work done in the comfort of its members' own studies; secondly in terms of its results, as the Stiglitz-Sen's Report can be interpreted as a series of proposals emanating from different schools of thought: Sen's capabilities theory, the economics of well-being, theories of happiness. There main protagonists were members of the Commission: D. Kanheman, A. Sen, T. Atkinson to mention only a few (Jany-Catrice and Méda 2010). In the same vein, the index of well-being recently divulgated by OECD (2011) proceeds from the same technocrat and scientific legitimacy. Yet, the results are not neutral, and result from specific sociopolitic conventions.
– Others rely on the individual point of view, taking as a starting point the notion that the concepts to be measured are essentially too subjective to be objectified. Underpinned by a concept connected with individual preferences, these approaches base their measurements on subjective data gathered from individuals by questionnaire. Various methods are used, ranging from simple questions about individuals' levels of 'happiness' to the construction of indexes of satisfaction with life. There variations are compared with changes in other objective variables in order to ascertain whether or not correlations can be observed (Easterlin 1974; Kahneman and Krueger 2006). Based on the premise that well-being is primarily a subjective concept, an approach of this kind is able to capture a statistically representative sample, the latter being the basis of its legitimacy. Thus surveys of this kind will produce datasets make up of individual perceptions of well-being. However, in promoting these approaches, it is seldom pointed out that they are essentially utilitarian and based on the individualism of 'agents'. The notion of the common good is abandoned in favour of individual well-being, which agents are assumed to be keen to maximise. Relying solely on this type of subjectivist exploration may cause collective freedoms and social responsibilities to be overlooked (Sen 2004), despite the fact that they are part of the collective well-being. Similarly, there is a danger that the question of the preservation of common goods may be ignored in these approaches.

Table 2.1 The new indicators, their forms of legitimation and the corresponding worlds

	World of the expert	World of the individual	World of deliberative democracy
Principal medium of legitimation	A 'theoretical framework' (depending on the experts called on)	The utilitarian theoretical framework	Deliberative democracy
Actors in legitimation/values	Experts and technocrats /hierarchy of 'those in the know'	Individuals/methodological individualism	Citizens/democracy and communicational ethic
Processes used in choosing dimensions, variables, weightings etc.	'Armchair' work and deliberation among experts	Surveying and aggregation of individual preferences, both pre-existing and 'expressed'	Hybrid forums, cooperation on establishing priorities to guide the process of establishing common goods
Basis of processus	Objectification of expertise	Sublimated individual subjectivity	Political reality prioritised and policy objectives drawn up

Author's own table

– The third approach, whose work serves as a basis for what follows, takes as its starting point a notion of collective well-being that cannot be reduced to the sum of individual well-beings (Méda 2008). It also recognize that there is a common natural and social heritage that is handed on to each generation and which has to be assessed and its evolution monitored (Méda 2008; Viveret 2008; Gadrey and Jany-Catrice 2006). The significance of the works promoted by these authors is that they do not separate internalist and conceptual questions from those that are more externalist in nature. In this approach, the favoured form for making collective decisions and social choices is the "forum" (Callon et al. 2003). In other words, open spaces for debate and discussion in which experts rub shoulders with civil society and great care is taken with the deliberative processes (Habermas 1992). These actors work together to take soundly based decisions following discussions on what constitutes 'the territory's wealth' and 'well-being for all'. Such approaches also seek to foster renewed forms of participatory democracy, such as those that have reached a high level of development through the work of the European Council (2005), for example.

The previous table summarises these various forms of legitimacy. Rooted in different 'worlds', their organising principles are a combination of process and outcome (Table 2.1).

Without wholly dismissing the other two approaches (work by experts and scientists, and the use of subjective indicators) as being of no value, the rest of this chapter will be concerned with the construction of indicators by hybrid forums. This is because our starting point is the notion that composite indicators embody shared values that progressive deliberations can help to formulate and quantify.[8] We present a composite indicator of social health developed for the French regions according to these modalities.

A French Indicator of Social Health

The Genesis of the ISH for the French Regions

A 'barometer of inequalities and poverty', known as the Bip40, was constructed in 2002 by a network of campaigning researchers and trade unionists from across France. The composite indicator is made up of six major dimensions (housing, health, education, justice, work and employment and incomes), and 60 variables. In doing so, the indicator's advocates were seeking to demonstrate that inequalities and poverty are not limited to monetary inequalities, as conventionnaly measured

[8] We are not concerned here with factor analyses. Although we believe that these geometrical analyses can be valuable in certain cases, the aim of our project is not to 'make the data speak' but rather to combine this composite indicator with an assumed vision of society (see Sect. 2.1).

through the economic poverty rate. The combination of 60 variables in a composite indicator can be regarded as the expression in condensed form of contemporary France's major social problems. This barometer shows that the major social problems in France today have got significantly worse over the last three decades, despite a small respite in the mid-1990s (Jany-Catrice 2008; Concialdi 2009).

A French region (Nord-Pas de Calais, 6 % of the French population) attempted to compile a variant of this barometer using the available data at a regional scale. The main value of this variant lays in the dynamic of its construction. The Regional Council and the researchers supporting it were concerned to have this approach validated by organised civil society. This led them to put together heterogeneous working groups whose members included experts, gatherers of social data at the various levels of the region, representatives of the regional authorities (the Region's technicians) and of voluntary associations. Many voluntary associations agreed to take part in the project, particularly because it gave them an opportunity to give expression to the complex realities they were observing, in some cases at a micro level in society.[9] The project was not intended to start from a 'blank sheet', but rather progressed by iterative innovations:

Step A. Starting point: an object having acquired legitimacy and embodying certain values (UNDP's IHD at international level, the BiP40 at national level). In this experiment, the dimensions of the barometer of inequalities and poverty provided the basis for the initial debates and the preliminary positioning.[10]

Step B. Adaptation to the subjectivity of the working parties and their collective reflexivity (Turk 2009), within an atmosphere shaped by communicative ethics, in which all types of expertise can co-exist (Habermas 1992; Callon et al. 2003). This was the phase during which the hybrid forum deliberated on the region's 'social wealth' and its common social goods. These groups,[11] which worked together for the best part of a year,[12] interpreted the results obtained for each dimension of the barometer, debated the weightings and put forward proposals. In other words, this project's legitimacy was primarily procedural and based on the notion of citizenship. Nevertheless, one can reasonably take the view that the 'vision' conveyed by this indicator of social health is based on the concept of wealth put forward by A. Sen. For him, prosperity is a combination of (i) wealthiness (that is, the volume of goods and services that individuals can access), (ii) utility (that is, the use of those goods and services) and (iii) capabilities reflecting individuals' capacities for action.

Step C. Increasing collective awareness leading to the establishment of one or more common, limited priority objectives.

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[9]The associations were involved in projects related to poverty ("Restau du Coeur", "Secours Populaire"), to housing inequalities ("Droit au Logement"),to gender inequalities ("CORIF"), etc.

[10]Therefore, the main reason for the coexistence of these dimensions is the genesis of the indicator and has not been thought as being to be justified by a factor analysis. See below.

[11]More than 50 local actors took part in one or other of the debates.

[12]September 2007–June 2008.

What Vision of Society?

This approach was based on a form of communicative ethics and the debates sought to ensure the legitimacy of the process of constructing the new indicator. It led to the production of another indicator. This indicator is easier to handle because it is based on a limited battery of variables. It is also more readily diffusible because it constitutes a form of social benchmarking in which the French regions are compared with each other. It is known as the indicator of social health (ISH) and is based on an 'assumed vision' of society.[13] This vision is similar to that produced by a broadly-based analysis of human needs, that is a vision in which human needs – 'sentient creatures' (Smith 2000, p. 1153) – include matters related to education, health, the preservation of social cohesion and social equality.

The process of constructing the indicator was not entirely free of the constraint imposed by data (non-) availability, with some of those involved having implicitly taken into account the sometimes severe lack of social data. Nevertheless, the determinants of the region's social health were established at the end of the debates. They are as follows. As regards income: access to income for inhabitants that is not based on unsustainable inequalities, together with reasonable and equitable access to household consumption; as regards education, health and housing: access to housing for all, as well as access to healthcare and education; as regards work and employment, fair access to the labour market, in which jobs are of good quality; ability to defend workers' collective interests.

Whereas the preceding dimensions were already sketched out, two new dimensions were added by project participants, namely safety and social ties. Thus contained within the ISH is the notion that social health must go hand in hand with an improvement in physical safety and consolidation of the interpersonal and social ties between citizens.

The Components of the Indicator of Social Health

The composite indicator that combines all these dimensions has two virtues. Firstly, it is relatively simple. Sixteen variables are used in its construction, which makes it less crude than the UNDP indicators but simpler than others. It also provides a basis for making comparisons between the French regions.[14] Nevertheless, it does have some disadvantages. In particular, it is very dependent on data derived from

[13] In the sense that the quantitative data still embody political visions and may subsequently serve as collective points of reference.

[14] In its initial form, the national barometer of inequalities and poverty was difficult to regionalise and required the use of variables that do not all exist at this level of observation. In Nord-Pas de Calais, the coverage rate for social data is about 75 %. Cf. Jany-Catrice et al. 2009.

Table 2.2 The dimensions, sub-dimensions and variables of the indicator of social health

Dimension	Sub-dimension	Variables adopted	
Income	Consumption	Insolvency rate	
	Inequality and poverty	Wealth tax rate	Average liability per taxable household
	Poverty	Income poverty rate among under 17-year olds	
	Wages	Ratio of 9th to 1st decile of the standard of living by unity of consumption	
Work and employment	Unemployment	Unemployment rate	Difference between male and female unemployment rates
	Working conditions	Incidence of workplace accidents with working days lost	
	Precariousness/insecurity	Share of precarious/insecure employment	Part-time rate
	Industrial relations	Industrial dispute rate[a]	
Education		Share of economically active population without formal qualifications	Baccalaureate access rate
Health		Life expectancy at birth	
Housing		DALO rate	
Physical safety		Number of crimes against people and property per 100,000 inhabitants	
Bonds/ties	Social ties	Rate of membership of at least one association[b]	
	Interpersonal ties	Share of individuals who see friends and neighbours at least once a week	

[a]This variable has not been updated for 2008

[b]This variable as well as the " interpersonal lies" have not been updated by lack of data. The year 2004 has been chosen as the last year where data were available

administrative sources, since at this level of territorial division they are often the only available sources.[15] Furthermore, some of the household surveys that were used need to be consolidated, because the regional sample is small (Table 2.2).

How can these variables be taken into account and their meaning interpreted in an indicator of social health? Let us look more closely at each variable by outlining, firstly, the reasons why they were selected and then presenting the results for the various French regions in 2008.

[15]Eg. The level of household over-indebtedness is taken from Bank of France data, the part-time rate is derived from firms' annual returns of social data, and so on.

The Income Dimension

The income dimension is made up of four sub-dimensions: consumption, inequalities, poverty and wages.

The idea of social justice conveyed by the indicator of social health reflects the territory's social cohesion and hence its ability to limit inequalities and poverty. The interdecile ratio of living standards, that is households' disposable income adjusted by the number of units of consumption,[16] makes it possible to observe inequalities in household available income.[17] This ratio shows that, in 2008, inequalities in living standards were greatest in the Ile de France (D9/D1 = 3.4) and smallest in Pays de la Loire and Brittany (respectively 2.8 and 2.9). After several decades of gradual reduction, however, the interdecile ratio of living standards has risen in the average France between 2004 and 2008, due in part to the greater concentration of income from personal assets.

With regard to consumption, a dimension that reflects capabilities, the variable adopted is the rate of insolvency. It serves as a proxy for budgetary constraints or even restrictions on consumption. A high rate of insolvency is one of the signs of great economic precarity in a territory, with the capacity to consume being in part illusory and fragile. The hitherto unpublished data made available to us by the Bank of France show that the number of cases treated for insolvency[18] is three times greater in the most over-indebted region,[19] than in the least over-indebted region (Corsica).

The rate of wealth tax,[20] on the other hand, is a measure of the very large fortunes in a territory. However, the highest rates of taxation do not necessarily equate to the highest sums paid by taxpayers, particularly because of the existence of threshold effects. Consequently, it was decided to use the rate of wealth tax combined with the average amount paid per household (see Table 2.3).

These economic inequalities calculated on the basis of the rate of wealth tax are supplemented by a poverty rate. Many researchers have shown that wealth is not the diametric opposite of poverty (Reddy and Pogge 2005). As regards poverty, the work groups favoured the poverty rate among children under 17 years of age[21] as the

[16] Oxford scale.

[17] Here, a household's disposable income comprises earnings from employment, retirement pensions and unemployment benefit, income from personal assets, transfers from other households and social security benefits. Four direct taxes are taken into account: income tax, local tax, the so-called 'general social security contribution' (a supplementary social security contribution in aid of the underprivileged) and the contribution to the reduction of the social security debt.

[18] Number of applications filed per household. Data for 2004.

[19] Nord-Pas de Calais (555 cases for 100,000 inhabitants), followed by Upper Normandy and Picardy.

[20] This is a progressive tax on the wealth of French households. It is paid by natural persons and couples whose net fortunes, in 2008, exceeded 770,000 Euros.

[21] The national poverty threshold, set up at 60 % of the median revenue, was at 950 Euros per month in 2008.

Table 2.3 Share of households liable to pay wealth tax and the level of tax paid, 2008

	Share of households paying wealth : ratio between the number of taxeable cases and the number of households (in %)	Amount of tax paid By household in Euros
Alsace	1.36	90.1
Aquitaine	1.78	108.9
Auvergne	1.19	69.3
Lower Normandy	1.36	77.4
Burgundy	1.34	71.5
Brittany	1.56	84.6
Centre	1.56	88.4
Champagne-Ardenne	1.45	79.3
Corsica	0.95	70.5
Franche-Comté	0.89	45.7
Upper Normandy	1.36	71.8
Ile de France	4.32	430.2
Languedoc	1.40	72.8
Limousin	1.11	70.2
Lorraine	0.90	59.2
Midi-Pyrénées	1.39	79.5
Nord-Pas de Calais	1.36	87.7
Pays de la Loire	1.60	93.8
Picardy	1.46	91.2
Poitou-Charentes	1.50	79.4
PACA	2.64	161.6
Rhône-Alpes	2.14	126.2
Metropolitan France	2.11	156.8

variable to be adopted. The data indicate that the child poverty rate in France is 17.4 %. The situation is deteriorating rapidly, since this represents an increase of 1 percentage point in only 4 years. There are also very considerable variations around this national average, from 12.5 % in Brittany to 25.1 % in Nord-Pas de Calais (Fig. 2.1).

The Work and Employment Dimension

The work and employment dimension also directly reflects capabilities. In order to take account of the variety of working and employment conditions in the territories, the unemployment rate is adjusted for differences in the rate between men and women. In 2008, this 'adjusted' unemployment rate, which averages 8.5 % for France as a whole, varies from 6.6 % in Limousin to 12.3 % in Languedoc-Roussillon. Working conditions, for their part, are summarised by the incidence of workplace accidents with working days lost. This composite indicator varies considerably from region to region. In 2006, the rate for the Ile de France region was 21.2 for 1,000 wage-earners,

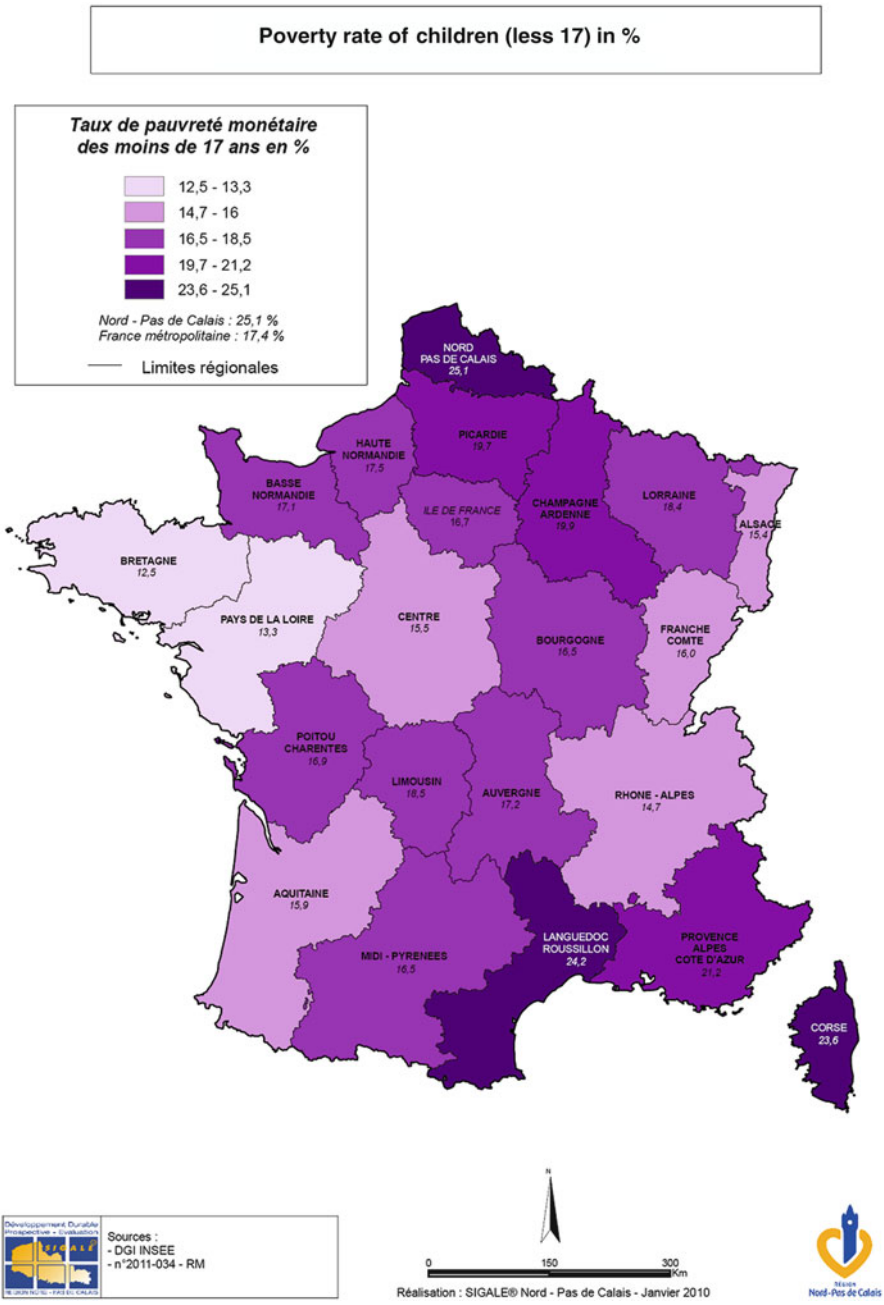

Fig. 2.1 Share of children living in a household whose standard of living is below the poverty threshold (2007 in %)

but as high as 36.9 % for Picardie. Job insecurity is expressed by an indicator of 'precarity' that combines the rate of temporary agency work with the share of fixed-term employment contracts. According to these figures, job insecurity is lowest in Corsica and the Ile de France (a bit lower than 12 % according to our national statistics, in 2008). It is highest in Languedoc-Roussillon, Nord-Pas de Calais, and Haute-Normandie, where it is higher than 14 %. This indicator is supplemented by the part-time rate, as a measure of the precariousness of women's employment.

Industrial relations, finally, are evaluated by taking as a yardstick the rate of industrial disputes. Interpretation of the variation observed is based on the work of A-O Hirschmann (1970): labour disputes are an indication that workers have the possibility both of safeguarding part of their economic security and of forming work groups and establishing an occupational identity.

Education, Health and Housing

Education is another dimension of capabilities. The ideal here would have been to have access to data on the number of young people leaving the education system without qualifications. This is, after all, the variable which, in the debates, was unanimously acknowledged as the most appropriate for shedding light on the state of a territory's human capital. Unfortunately, the regional educational authorities are very reluctant to make the figures available except on a very restricted basis. They are obviously highly sensitive, since they somehow reflect the performance of the state education system, whether good or bad. We opted for a combination of two rates: the share of the population without formal qualifications (stock variable) and the rate of access to the *baccalauréat* (flow variable) (Table 2.4).

Educational levels in France vary considerably from region to region. Almost 15 percentage points separate Brittany from Picardy in terms of access to the *baccalauréat* and hence to university. Similarly, there is a gap of almost 10 percentage points between these same two regions in terms of those without qualifications. More than a third of the population of Picardy have no formal qualifications (36.5 %), compared with less than 28 % of the population in Brittany.

Life expectancy is the indicator adopted for health.[22] In 2008, there was a gap of almost 4 years between the highest life expectancy (81.9 years in the Ile de France and the Rhône Alpes region) and the lowest (78.2 years in Nord-Pas de Calais). Among the regions with the lowest life expectancies are, notably, all the regions of Northern France (east and west).

In the case of housing, the eviction rate was selected as the indicator, since it reflects the very greatest poverty: the lower this rate falls, the better social health becomes. In 2004, the last year for which data are available, the eviction rate was highest in the Ile de France (12.9 per 10,000 inhabitants) as well as, more

[22] This variable had also been chosen for the UNDP's Index of Human Development.

Table 2.4 Rate of access to baccalaureate and share of population without formal qualifications, 2008 (in %)

	Rate of access to baccalaureate per age cohort (2008)	Share of population without formal qualifications (2008)
	(%)	(%)
Alsace	28.8	61.9
Aquitaine	28.7	64.2
Auvergne	31.5	64.4
Lower Normandy	35.7	64.0
Burgundy	33.8	64.6
Brittany	27.8	71.8
Centre	33.0	63.4
Champagne-Ardenne	36.4	60.9
Corsica	33.0	62.3
Franche-Comté	32.9	65.3
Upper Normandy	34.7	63.7
Ile de France	25.2	65.9
Languedoc	30.7	59.9
Limousin	32.7	65.8
Lorraine	32.8	63.4
Midi-Pyrénées	28.2	62.3
Nord-Pas de Calais	34.3	58.6
Pays de la Loire	30.5	67.8
Picardy	36.5	58.5
Poitou-Charentes	33.4	64.8
PACA	29.9	62.1
Rhône-Alpes	28.6	64.7
France Metropolitan	30.2	63.8

surprisingly, Centre and Picardy (4.34 and 4.22 respectively). Among the regions with the lowest eviction rates were Limousin, Nord-Pas de Calais and Brittany (0.58, 0.64 and 0.96 per 10,000 inhabitants respectively). In the absence of these data for the 2008 ISH, we have chosen the rate of DALO,[23] that is to say the number of individuals that try to get enforceable housing rights, as implemented by a recent French housing policy. Unsurprisingly, it is in the Ile de France region that these cases are the most frequent. They represent one third of the cases presented to French Courts.

Physical Safety and Social Relations

A territory's social health requires a certain degree of peacefulness for its habitants. This is the reason for the inclusion of the physical safety dimension, which is

[23] « Droit au logement opposable », ie. enforceable housing rights.

summarised here by the number of 'crimes and misdemeanours' against people and property. The figure varies by a factor of three between the safest and least safe regions. Unsurprisingly, it is the highly urbanised regions, such as PACA and the Ile de France, that are the worst affected. Limousin and Auvergne are the best-performing regions in this regard, with very low crime rates of the order of 3,500 per 100,000 inhabitants, compared with 8,200 in PACA.

In order to take account of each region's social ties, which constitute one of the forms of social 'wealth' in a territory, the share of individuals belonging to at least one association was chosen as a proxy. The results indicate that, between 2002 and 2004, it was regions such as the Auvergne, Rhône Alpes, Pays de la Loire and Alsace that had the highest rates of membership (approximately half of their populations). This social tie is supplemented by a tie summarised here by the share of "individuals who see their friends and neighbours at least once a week". By this criterion, Corsica is the leading region (85 %), followed by Languedoc Roussillon (79.6 %). Three regions bring up the rear on 63 %: Upper Normandy, Alsace and the Île de France.

A Composite Indicator

We could have stopped there, as often happens in multi-dimensional approaches. On the contrary, however, we proceeded to enhance this multidimensional vision by aggregating the variables to form a composite indicator. This required a final stage of construction, in which weightings, and hence value judgments (OECD 2008[24]), were allocated to each of the indicator's dimensions. We are dwelling on this question at this point since it is very often seen as a controversial issue in the field (OECD 2001; Marcus et alii. 2008; Stiglitz et al. 2009; etc.).

Empirical Standardisation

Since the variables are in disparate units, a comparative standardisation procedure of the type used in the construction of the indicator of human development (UNDP 2009) was carried out. It seemed to us that the least arbitrary standardisation scale was empirical standardisation. In order to aggregate all the variables, it was decided to apply a simple average. The multidimensional composite indicator thus obtained ranges between 0 and 100 and is easy to interpret: the higher it is, the better a territory's social health is in (implicit) comparison with the performance of the other regions. It is this composite indicator that is presented below. It is compared with the regions' economic performance, represented here by gross disposable income (GDI) (Table 2.5).

[24] "Regardless of which method is used, weights are essentially value judgments", OECD, p. 33.

Table 2.5 Comparison of ISH and GDI per capita, 2008

Region	GDI per capita 2008	rang RDB	ISS 2008	Rang ISS
Île-de-France	24,139	1	48,2	17
Rhône-Alpes	20,312	2	61,8	7
Burgundy	20,142	3	57,7	13
Auvergne	20,118	4	65,9	4
Limousin	19,988	5	71,3	1
Centre	19,986	6	59,1	11
Alsace	19,740	7	65,6	5
Aquitaine	19,711	8	60,9	8
Provence-Alpes-Côte d'Azur	19,506	9	43,9	19
Midi-Pyrénées	19,296	10	62,1	6
Poitou-Charentes	19,246	11	59,5	10
Champagne-Ardenne	19,146	12	51,1	16
Lower-Normandie	19,142	13	58,0	12
Franche-Comté	19,130	14	60,5	9
Upper-Normandie	19,117	15	46,6	18
Pays de la Loire	19,078	16	66,3	3
Brittany	19,067	17	67,6	2
Lorraine	19,009	18	53,7	15
Picardy	18,760	19	38,4	21
Languedoc-Roussillon	18,216	20	42,5	20
Corsica	17,903	21	54,8	14
Nord - Pas-de-Calais	17,259	22	33,3	22
France métropolitaine	20,182		53,8	

This table shows that there are very few correlations in the spatial distribution of social health when it is compared with that of GDI per capita. The economically wealthy regions tend to be located in the centre, East and South-East, while the socially healthy regions tend to be in the *Grand-Ouest* of France (Brittany and the Pays de la Loire). In other words, the geographical distribution of economic wealth does not overlap precisely with the distribution of social health. Secondly, the Nord-Pas-de-Calais, Languedoc-Roussillon, Picardy and Provence-Alpes-Côte d'Azur (PACA) regions (which account for 21.6 % of the French population) have the lowest levels of social health compared with the other regions. The region that has by far the highest level of social health is Limousin.

Furthermore, it can be seen that the Ile de France, although an excellent performer in economic terms,[25] drops 16 places when classified in terms of social health and lies in the last quarter of the classification, between Champagne-Ardenne and Upper Normandy. The PACA region follows a similar trajectory, dropping 13 places depending on the classification criterion in use. In 9th place in terms of GDI, it slumps to 19th position in terms of social health. At the opposite extreme,

[25] Its GDI per capital is 19 % greater than that of Rhône-Alpes, the region in second place.

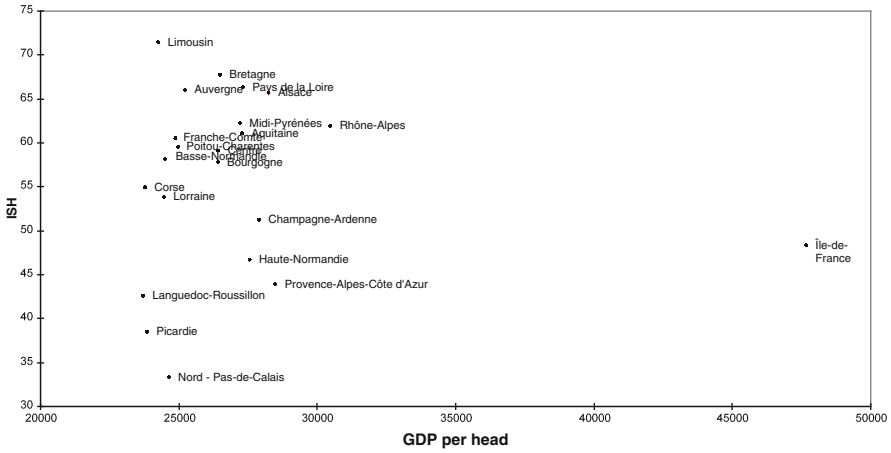

Fig. 2.2 The absence of a link between GDI per capita and ISH 2004

Brittany and the Pays de la Loire and, to a lesser extent, Franche Comté and Midi-Pyrénées perform significantly better in terms of the ISH than in terms of GDI per capita, gaining 15, 13, 5 and 4 places respectively. Limousin is in an exceptional situation, since according to the ISH it is by far the most 'socially healthy' of the French regions.

Languedoc-Roussillon and Nord-Pas de Calais are both at the bottom of this ranking. At the bottom of the classification in economic terms, neither of these regions manages to offset its lack of economic wealth with better social health, and remain both at the bottom of the ISH classification as well.

Absence of Link Between Economic Wealth and Social Wealth

There is no correlation between GDP per capita and the ISH[26] (see Fig. 2.2). In the French regions, in other words, a higher GDP (or GDI) per capita does not go hand in hand with a higher level of social health. This is in line with many studies that have shown that, beyond a certain threshold level of GDP/inhabitant (between 15,000 and 18,000 Euros per inhabitant), the correlations with variables of well-being (such as life expectancy) become blurred or even disappear altogether Alternatives Economiques (2011).

If we focus solely on the regions outside of the Ile de France, the correlations between GDP or GDI per capita and the ISH remain weakly or not at all significant.

[26] $R^2 = 0.000$. The relationship remains non-significant if the Ile de France is removed from the calculation ($R^2 = 0.054$).

This is either because collective social health is less directly correlated with individual well-being or because the dimensions selected[27] are different from those selected by the subjectivists.

The ISH's Insensitivity to the Choice of Weightings

The choice of the weightings to be allocated to the composite indicator is a sensitive one, since they may have significant effects on the results obtained. This issue is frequently ignored by researchers and academics on the pretext that the choices are purely arbitrary. Three arguments can be advanced to counter this recurrent criticism, which most of the time leads to abandonment of this type of method, or in some cases to non-transparent behaviours.[28]

Firstly, at each stage of the process there are choices to be made with regard to both dimensions and variables. These choices are just as important as that of weightings to be allocated to the composite indicator, if not more so. Secondly, the arbitrariness can be partially eliminated if the choices made are the result of *shared conventions*. These conventions may emerge from debates, citizens' conferences etc. In short, there are possible political approaches to resolving the problem of arbitrariness. The third argument is more technical and follows the guidance provided by Saltelli et al. (2007). These authors state, in a preparatory study for the 2007 'Beyond GDP' conference organised by the European Unions, that 'it is desirable (…) to test how robust results are with respect to different aggregation procedures, (which) makes sensitivity analysis a fundamental step during the development of any composite indicator'.[29]

The indicator of social health thus obtained and applied to the French regions shows that there is no correlation between levels of social health and levels of economic wealth as measured by GDP per inhabitant or by income. The wealthiest territories in economic terms, such as the Ile de France, are also classed among the 'poorest' when the ISH is the criterion. Conversely, some regions that are only average in terms of economic wealth have a high level of social health. This is the case with Western regions such as Brittany, Pays de la Loire and Limousin. This correlation, which is inversely proportional in some cases, is not observed everywhere. Thus certain economically poor regions also fare badly in terms of social health: this applies to Nord-Pas de Calais and Picardy.

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[27] Which in our construction, it will have been noted, are more objectified in nature.

[28] Consideration of the uncertainty inherent in the development of a composite indicator is mentioned in very few studies (OECD 2008, p. 34).

[29] We tested, quite openly, the effect of the change in weightings on the indicator of social health for the 22 French regions (ISH 2004). The ISH was calculated on the basis of equal weightings ($p=1$) for all 14 dimensions. The ISH indicator has been recalculated on the basis of 106 weightings fixed according to different cases. In the appendix, Fig. 2.3 (see Appendix) shows the variation in value of the ISH depending on the weighting allocated to the variables. The rectangles represent the dispersion around the mean for the various ISH values calculated for a given region. The vertical black lines indicate the minimum and maximum values reached by the ISH for each region.

This result also provides quantitative validation for the fact that the dominant economic indicators, which nevertheless seem still to be our sole defence even in times of crisis, are in fact contributing greatly to the erosion of social capital. We undoubtedly do not have the appropriate tools for estimating the extent of this erosion. This indicator of social health constitutes an advance in this direction, similar to what the Fordham Institute did for the USA in the 1990s (Miringoff and Miringoff 1999).

As a result, these indicators become multi-purpose tools. They serve, firstly, to raise individual and collective awareness of the social unsustainability of models of development based on growth alone. Secondly, they inevitably give rise to public debate. Once dissected and critiqued, they generate other shared conventions around what constitutes a territory's wealth and which aspects of that wealth we should value.

The ISHS[e] an Index Combining Social Health and Economic Wealth: A Possible Tool for Allocating EU Regional Aid?

From the ISH to the ISH[e]

The ISH has already acquired a certain degree of legitimacy in the French debate. It has been taken up by various mass-circulation newspapers, has been used by experts and researchers and is one of the indicators used in the Nord-Pas de Calais regional development plan. Furthermore, the Association *des régions de France*[30] has held this ISH as one of its three key indicators of context,[31] complementary to the GDP.

To be used as a criterion for allocating funds (European funds, for example) necessitate combining it with an indicator of economic resources. After all, a low ISH combined with a high level of economic resources (as in the Ile de France) is not the same as a low ISH combined with a low level of economic resources (as in Nord-Pas de Calais, or Picardy). In the first case, the territory may well have difficulties in exploiting the economic resources at its disposal in a socially effective and efficient way. In the second case, it might plausibly be suggested that the territory does not have the resources to implement a policy for developing its multi-dimensional assets.

Consequently, drawing on the structure of the IDH (UNDP 1990), we have constructed an indicator based on the following data and known as the ISH[e].

$$\mathrm{ISH}[\mathrm{e}] = \alpha\ \mathrm{ISH} + (1-\alpha)\ \mathrm{I}ln\mathrm{GDI}$$

α is the weighting coefficient used for the combination of the two dimensions, social and economic. GDI is gross disposable income per inhabitant. This is favoured over GDP per capita since it takes account of inflows and outflows of resources produced at the regional level but is not necessarily confined to those

[30] In which all the French regions are involved, in the institutional and public sense.

[31] Together with the Ecological Footprint, and the UNDP IHD.

Table 2.6 Comparison of the ISH and the ISH[e]

	ISH ranking	ISS[e] ranking
Alsace	5	3
Aquitaine	8	8
Auvergne	4	2
Lower Normandy	12	14
Burgundy	13	11
Brittany	2	4
Centre	11	10
Champagne-Ardenne	16	16
Corsica	14	17
Franche-Comté	9	12
Upper Normandy	18	18
Île-de-France	17	7
Languedoc-Roussillon	20	20
Limousin	1	1
Lorraine	15	15
Midi-Pyrénées	6	9
Nord-Pas-de-Calais	22	22
Pays de la Loire	3	6
Picardy	21	21
Poitou-Charentes	10	13
PACA	19	19
Rhône-Alpes	7	5

Data for 2008. Authors' calculations

resources. In the equation above, we have used the index of the log of that income.[32] This was calculated using the empirical standardisation method.

Results

We applied this formula to the 2008 data and decided to use a weighting more favourable to the ISH, namely $\alpha = 80\ \%$.

The results for the ISH are shown below and are compared to the ISS[e] calculated by the method described above (Table 2.6).

Under these conditions, the criteria for allocating European structural funds could for instance be modified by taking account of the ISS[e] indicator. Nevertheless, the legitimacy of this combination still has to be verified, which has not been our purpose here. Our intention has been merely to show that the exercise was conceivable and to open the debates on the possibility to use these types of indicators in the allocation of economic aids.

[32]The use of a function log means that the same increase of the household gross disposable income of the will weigh all the less on the value of the ISH that it leaves a high level of this variable.

Conclusion

In making our plea for the indicators to be taken up again in the public debate, we are not adopting a normative position. We are rather concerned with the legitimacy of the process whereby such tools are constructed relative to the direction taken by public policy. Our starting point is the observation made by sociologists of quantification as well as by political scientists that indicators are never neutral. They are the result of the choices, experimentation and debates that preceded and ran alongside their implementation. Indicators also embody a certain world view and the choices a society makes. This position is just as relevant in the case of territorial indicators. They are socio-political conventions that reveal a territory's capacity to maintain its prosperity as defined by A. Sen, a definition that includes access to goods and services, their use and capabilities.

Our work, which is experimental in nature, has sought to demonstrate that, when an objectified indicator is constructed on the basis of the soundly argued opinions of a panel of experts and citizens, there is no longer necessarily any correlation between the hegemonic indicators and the new constructions. This result may appear to be counter-intuitive if compared to those obtained by Pittau et al. (2010) and Beugeldijk and Van Schaik (2005) for the European regions. This suggests that research should be continued into the best ways of constructing indicators and into the need to link together two elements. On the one hand, a substantive definition of a territory's wealth, social justice and the progress for which they are a vehicle (Livingstone 2006); on the other, a definition of the measure to be used in assessing them. Should we rely on individual subjectivity and preferences, on the coherence of theoretical models or on the ethics of the debate on how common assets should be defined (Ostrom 1990)?.

In paying particular attention to the democratic process whereby the indicators of wealth, well-being and progress were constructed, our aim has been to rehabilitate a notion of well-being or endogenous progress. We suggest by this term that progress should be the product of a shared and negotiated vision, to the detriment of an exogenous vision of tools of wealth and progress over which human factors no longer have any influence.

Under certain democratic conditions, this convention-based mode of construction may be come both a 'regulative ideal', and an 'epistemological possibility' (Livingstone 2006).[33] It constitutes a 'regulative ideal' in the sense that the indicators set a goal, whether it is achieved or not. It is an epistemological possibility in the sense that the 'new indicators' open up spaces for debate as well as offering some respite from the dominant representations and assessments of wealth and progress. 'It means that, however, circumstanced and parsimonious our use of the term (progress), the ideal of situated progress remains fundamental to making the sort of judgments that mark us out as knowing and ethical beings' (Livingston 2006, p. 577). This takes us a long way, a very long way from automatic control by dominant indicators.

[33] Livingston also mentions the ideas of an 'ethical aspiration' and of a 'local ambition'.

Appendix

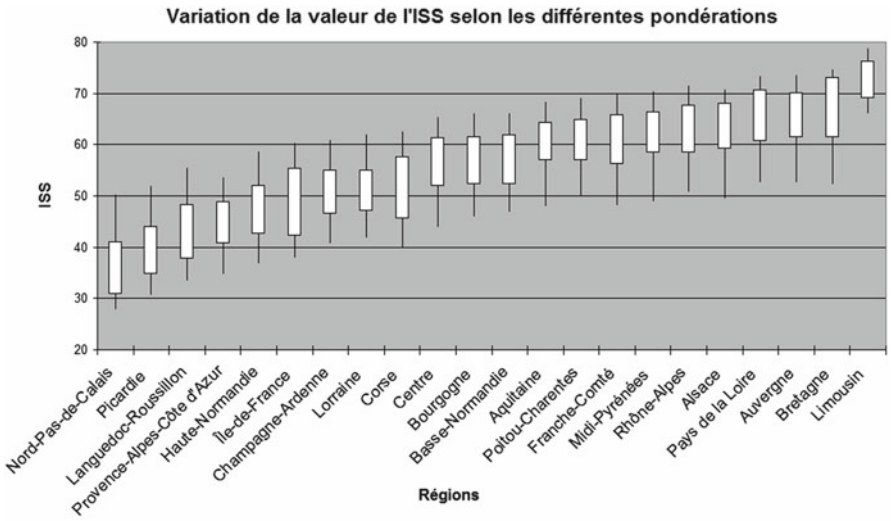

Fig. 2.3 Variation in value of the ISH depending on the weighting allocated to the variables (Source: Zotti 2010)

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Chapter 3
Understanding Glasgow: Developing a New Set of Health and Wellbeing Indicators for Use Within a City

Bruce Whyte and Andrew Lyon

Abstract Glasgow, a post-industrial city situated in the west of Scotland, faces a range of challenges in relation to the health and social circumstances of its population. This chapter describes how a new set of health and wellbeing indicators have been created for Glasgow and the potential benefits that this provides for planners across the city. The Glasgow Indicators project was initiated because, while Glasgow is known to have a range of health and social problems, the inter-relationships of these issues are often not fully understood and in turn not reflected in city strategy.

The model framework adopted for developing the Glasgow indicators was informed by a socio-ecological perspective on health that acknowledges a range of domains and inter-linked environments that affect our lives and combine to determine health, both individually and at a population level. A holistic set of indicators across 12 domains was created (and presented via a web site) that illustrate city trends and allow comparisons both with other places and across different neighbourhoods and socio-economic levels within the city. The collaborative process of creating the indicators, involving many of the key stake-holders across the city, has facilitated their adoption and use. The indicators gathered go beyond measures of economic growth and give a context for the City's wider social, environmental and cultural aims, and thus provide a resource for cross-sectoral engagement and for better planning.

The project aims were to create a resource that provided a broad holistic description of Glasgow's health and well-being that is accessible and easily understood and, secondly, to encourage the use of this resource as a facilitator for strategic discussions and thinking about different possible futures for the city. The development and use of the Glasgow Indicators is in its infancy and its full benefits will be seen over a longer term. However, even at this stage, there are lessons that other communities can take from this work.

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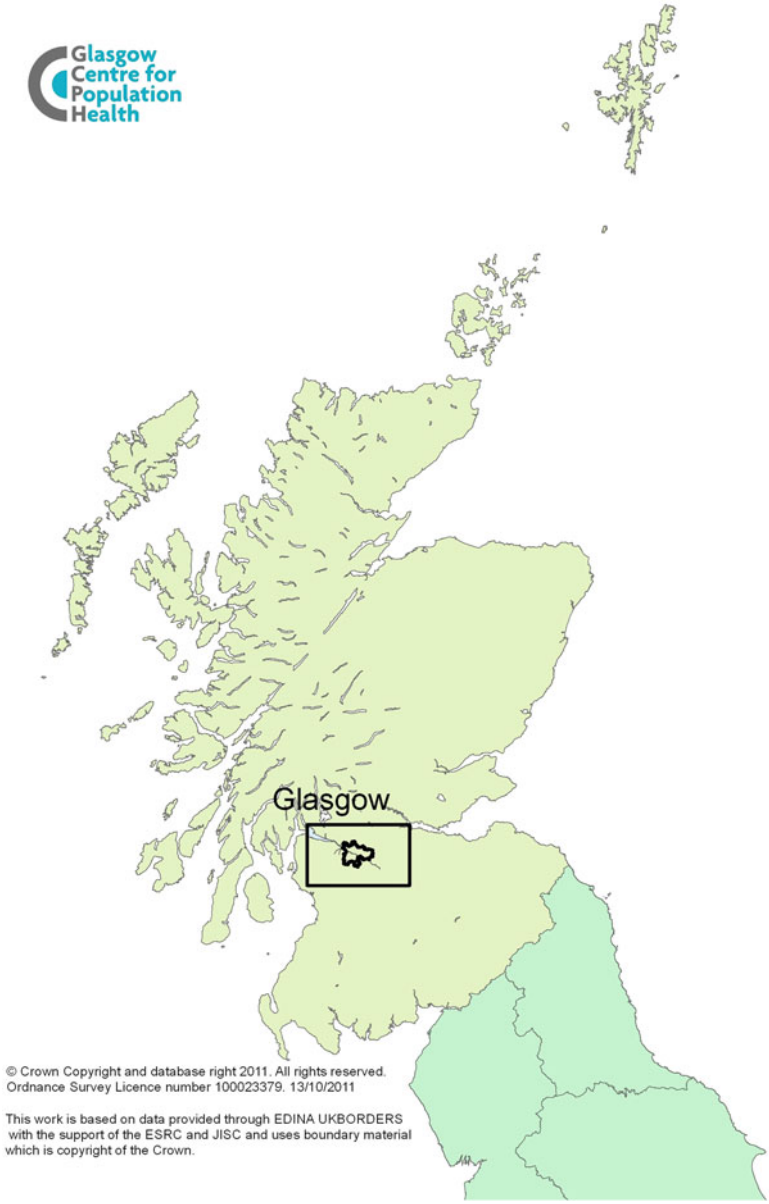
Introduction

Understanding Glasgow, which has an interactive website at its heart (www.understandingglasgow.com), is part of a broader programme of work to develop a set of inter-related indicators for Glasgow.



This work was initiated in part in reaction to an economically-dominated city strategy and as part of the process of monitoring and informing the recommendations of the city's Health Commission. The framework for the health and well-being indicators was provided by various socio-ecological models of heath (Evans and Stoddart 1994; Dahlgren and Whitehead 1991; Hodgson 2012 – IFF world model) that have identified a range of domains and inter-linked environments that combine to determine health, both individually and at a population level. These models acknowledge a complex interaction of many factors that influence health over our lives. In essence, these models identify a 'system' – everyday life – that can create and destroy health. In order to intervene effectively, government machinery and policy has to comprehend this system as a whole and not just deal with its constituent parts.

Given this context and theoretical underpinning, the intention with the Glasgow Indicators project has been to create a holistic set of indicators that describe health and well being within a city, illustrate trends and allow comparisons both externally with other places and internally across different neighbourhoods and socio-economic levels within the city. Health and inequality are a particular focus in the city because of Glasgow's well-documented poor health profile that has become sharply defined in the last 40 years of its post-industrial history.

This initiative has been aided by government initiatives to make small area administrative data more accessible and has been part of a progressive process in Scotland – and in Glasgow in particular – that has moved from research into relevant indicators, to their collation and to their use within health profiles and other comparative studies. The indicators gathered go beyond simple measures of economic growth and provide the context for the City's wider social, environmental and cultural aims. Thus, the information gathered is of direct relevance to the city's plans and strategies and the mechanisms for achieving these, such as community planning. The collaborative process of creating the indicators, involving many of the key stake-holders across the city, has facilitated their adoption and their use.

In summary, the two mains aims of this work have been, firstly, to create a resource that provides a broad holistic description of Glasgow's health and well-being that is accessible and easily understood and, secondly, to encourage the use of these indicators across the city as a facilitator for strategic discussions and thinking about different possible futures for the city. The development and use of this resource is in its infancy. However, it is the intention that this will be a long-term, sustained initiative.

This chapter describes the Understanding Glasgow project. It begins with a short description of the City and its context. The chapter then describes the rationale for the project, the principles which underpin it. The main part of the chapter describes developments leading up to the inception of the project and the process of developing the project itself before concluding with some reflections on progress so far, next steps and lessons that other communities might take from the work.

Context

The City

Standing on the River Clyde, Glasgow is the largest city in Scotland – in 2009 its population was estimated to be 588,470.

Glasgow has undergone a profound transformation in recent times. It is true that all cities have altered in the last 40 years, but Glasgow not only typifies these changes, it has experienced the most rapid change in Scotland and has been at the forefront (in terms of the scale of its transformation) in the UK. Economic depression in the 1970s destroyed much of the manufacturing and industrial employment in the city and it has taken time for the Glasgow's economy to recover. The social class and employment profile of the City's population has changed significantly since then. Economic regeneration has been accompanied by a physical regeneration, at least for many parts of the city. Glasgow is now a predominantly 'middle class' city with a strong emphasis on service industries and consumerism.

The City has a long and varied history. While the history of settlement stretches back to earliest times, it is generally agreed that that the City developed its modern name with the arrival of the Christian missionary St Kentigern in the sixth century. Due to its location on a large river by the Atlantic seaboard, Glasgow was well placed to develop shipping and ship based trade and by the eighteenth century Glasgow and its merchants had become wealthy on the importation of sugar, rum and tobacco.

However, life was very different for the City's poor. The rapid growth in trade and industry during the nineteenth century drew many people to Glasgow in search of work. By the mid nineteenth century much of the housing stock in the city was badly overcrowded with substantial proportions of the City population living in diminished and insanitary circumstances. Infant mortality in the poorest parts of the City was among the highest in Europe.

During this period, the City become an enormously successful "workshop" of Empire exporting locomotives throughout the world and building a significant proportion of the world's shipping. In 1952 one third of shipping launched globally in that year were built on the Clyde. As late as 1971, 34 % of employment was in manufacturing but by 2006 this had fallen to just 6 %. Employment patterns in Glasgow, like so many cities which were successful in the first wave of the industrial revolution, have changed significantly in recent years as the City tries to reinvent itself for the twenty-first century. These days, about 80 % of employment in the City is in service industries with the remaining 20 % or so in transport and communications, construction and manufacture.

In addition to the obvious physical improvements in Glasgow, there has been a significant amount of social transition. Since the 1980s, the following social, demographic and housing trends have been influential (Hanlon et al. 2006):

- Population decline since the 1950s – driven particularly by Glasgow's reducing birth rate.
- Localised population loss due to out-migration has been particularly evident in the peripheral estates and in the most deprived parts of the city.
- An increase in the number and proportion of residents aged between 25 and 44, even with overall population levels in decline.
- Increasing numbers of households overall and, within this, a growth in single adult households and lone parent households.
- Doubling of jobs in occupations considered as middle class employment, reflecting the growth in the service sector – comprising finance, business, the public sector, retail and hospitality.
- Increasing involvement of women in employment and the growth of part-time work.
- Increased general levels of prosperity and a generalised reduction in indices of overall deprivation – as measured, for instance, by increased car ownership and reduced levels overcrowding.
- Rising income levels for those in employment; significant falls in unemployment rates.
- Transformations to the quality and condition of housing in the city, and doubling of owner-occupation, with growth both in the city centre and in the peripheral estates.

Demographic trends in births and deaths have altered dramatically in the last 150 years.

Like other places, birth rates in the city have declined since the 1860s when they were over 40 per 1,000. The birth rate has now stabilised at around 11 per 1,000. Over the last 150 years, ignoring short-term fluctuations relating to war and epidemics, Glasgow's death rate has fallen steadily. In the 1870s the crude death rate was about 30 per 1,000, but by 2009 the crude death rate sat at 11 per 1,000. However, this overall improvement conceals the fact that, in relation to many aspects of health, Glasgow's position is very poor in comparison to other UK cities.

Glasgow's Poor Health Status

In recent decades, much of Glasgow has become a more affluent 'white collar' city with a profile that is currently similar to most UK cities. Yet, Glasgow's overall health status does not fully reflect the changes described above. There is a 'Glasgow effect' (Walsh et al. 2010)[1] that is, an excess of mortality beyond that which can be explained

[1]The supplied reference relates to the existence of a 'Scottish effect'. However, that research has shown that the areas most affected are in Glasgow and the West of Scotland.

by current indexes of deprivation. The result is that Glasgow's health status remains worse than that of comparable English cities like Liverpool and Manchester.

Recent research comparing mortality trends over the last 20–25 years among a range of European regions has shown that mortality in Scotland, and especially the West of Scotland, is particularly high and rates of improvement are relatively slow compared to other areas in the UK and Europe that have also experienced industrial decline (Walsh et al. 2008).

In summary, in relation to health, the old pathologies, arising from socio-economic inequalities of an industrial age, are now overlaid with a new set of problems that reflect the stresses, speed and levels of consumption of our modern society – obesity, alcohol related harm, mental health problems, traffic congestion and so on. So, despite rising prosperity, economic gains remain unequally distributed and, while new 'epidemics' associated with consumption affect the whole population, those who live in the least advantaged areas are suffering most.

Poverty remains an important contributory factor. There is both affluence and poverty in Glasgow. Affluent Glaswegian men can expect to live 13–14 years longer than their poorest counterparts. For women the equivalent gap is 8–9 years.

The Glasgow Centre for Population Health

It was this background of stubborn poor health and abiding inequalities in health over a long period, which led to the establishment of the Glasgow Centre for Population Health (GCPH) in 2004. (www.gcph.co.uk)

Funded from the public purse, GCPH operates as a resource to generate insights and evidence, to create new solutions and provide leadership for action to improve health and tackle inequality. The Centre works across the boundaries of research, policy, implementation and community life. It focuses on bringing people with different perspectives together to commit to fresh thinking and approaches to improve Glasgow's health through its work programmes. It is neither an academic institution nor a public service delivery organisation but seeks to be influential locally, nationally and internationally through its research findings and activities.

Understanding of health in Glasgow and the West of Scotland is well-developed, partly through the work of GCPH, but also from research conducted by a wide range of academic departments and by government. There is widespread awareness and understanding of the health and social problems of the city and citizens are as well-informed and eloquent on these issues as policy makers. The Views of Health in Glasgow film (http://www.understandingglasgow.com/resources/492_views_of_health_in_glasgow_-_video) provides insights into the health concerns and beliefs of Glaswegians themselves.

This remit of looking at old challenges anew made GCPH an ideal place from which to begin the process of developing a new approach to indicators of wellbeing in the City. This work by necessity is informed by an awareness of the global challenges we have face as a species and these are expanded upon in the next section.

Global Context – The Times We Live In

> *"Every few hundred years in Western history there occurs a sharp transformation. Within a few short decades, society rearranges itself – its worldview; its basic values; its social and political structure; its arts; its key institutions. Fifty years later, there is a new world. …..We are currently living through just such a transformation."*
>
> Peter Drucker (1993).

As our species begins to bump up against a range of planetary limitations, there is a growing realisation that the major frameworks by which we conduct ourselves are no longer sufficient to handle the complexities which are emerging from their use. A number of factors are presenting obstinate and connected challenges – population growth and or decline, climate change, growing poverty, shifts in the balance of global economic activity to name but a few. Their combination indicates that we are living through a change of age rather than simply living in an age of change.

These challenges have their local dimensions. How is a City to act appropriately in a world of rapid change, complexity and increasing uncertainty which is difficult to understand? What is appropriate local and global action at a city level? How might it be possible to develop a strategic conversation which is sufficiently commensurate with the complexity faced in order to co-create policy and action which can handle such complexity and restore a sense of coherent action in turbulent times?

Coherence is of course a necessary component of flourishing. In relatively stable times the degree of fit between events and perspectives in the external world and the interior psychological world is strong and the sense of coherence therefore tends to be strong. Our current context is anything but relatively stable. It is turbulent and so coherence is in short supply. The International Futures Forum (IFF) was established in 2001 to address these issues.

In such turbulent times one can identify three main types of response according to IFF fellow psychologist, Maureen O'Hara (2005).

Firstly there is a kind of denial response in which the extent and depth of the need for new perspective is ignored. Policy responses tend to strengthen current ways of doing things. Boundaries between different types of activity are held or strengthened and more tightly controlled and there is room only for one main narrative – all the others must be wrong. Since there is nothing fundamentally amiss in the current approach, policy and action tends to proceed with redoubling of effort and the refining of targets.

A second type of response can be described as just the opposite of the first. In this nihilistic response, there is no coherent narrative and no real point in trying anything new since we are proceeding to our inevitable doom.

A third type of response might be called transformational. It begins by looking for connections. So rather than arguing that my analysis/perspective/story is better/more useful/more powerful than yours it is more helpful to begin with what is the connection between different perspectives.

One way in which the IFF has addressed this practically is through the development of an interactive model which explores the connections between 12 interacting domains

of life as a way of addressing complexity in a coherent rather than simplistic way (http://www.internationalfuturesforum.com/world-model).

In this context new ways of gauging direction and guiding decision making, commensurate with context are necessary. Understanding Glasgow is an attempt to adopt this approach at a City level.

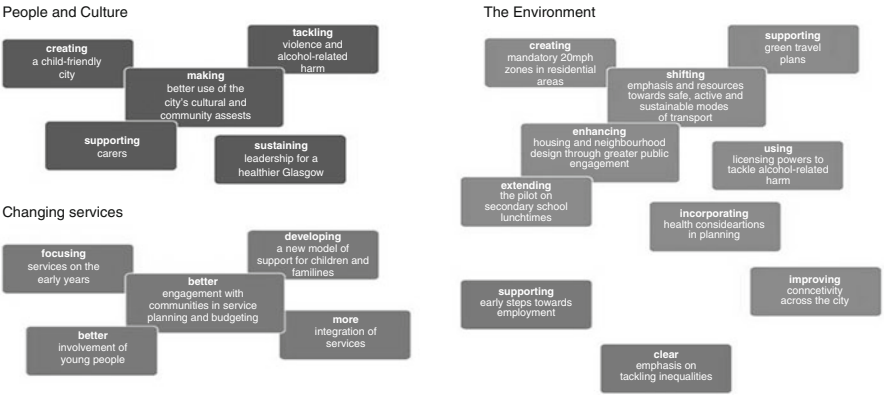
Initial Impetus

The idea of creating a set of health and wellbeing indicators (or indicators of progress) for Glasgow – the Glasgow Indicators Project – was given impetus by two recent city reports.

Firstly, Glasgow's City Strategy Action Plan (Glasgow Economic Forum 2007) included a commitment to "*research into wellbeing and quality of life in Glasgow against a range of indicators*". In a formal response to the plan, GCPH supported this work noting that health and a healthy, well population should be seen as an asset rather than a cost.

Subsequently, after discussion among officers from health policy and economic development in Glasgow City Council and GCPH, it was agreed that GCPH would begin work on a draft set of indicators. A first iteration of indicators was put forward in April 2008, organised in a range of domains (e.g. poverty, economic participation, education, health and wellbeing, behaviours, social capital, community safety, environment/sustainability).

The project is also a response to the findings of the Glasgow Health Commission, established to 'take a fresh look at the city's health challenges and to come up with proposals on how to tackle them'. The Health Commission's report, Growing a Healthier Glasgow (GHC 2009), made 20 recommendations for what needed to change for the city to have a healthier future – see following diagram. The creation of a set of health and wellbeing indicators is seen as providing a way to monitor the effectiveness of many (but not all) of the Health Commission's recommendations for improving health and life circumstances in the city.



The work also builds on previous work by the Glasgow Centre for Population Health described in Let Glasgow Flourish (Hanlon et al. 2006), in the Community Health and Wellbeing Profiles (GCPH 2008b) and in Miniature Glasgow (2009). The creation of these health profiling resources and accompanying developments in data access in Scotland are outlined in the next section.

Related Indicator Developments

In order to provide historic context to the Glasgow Indicators Project it is important to reflect on developments in data accessibility that have taken place in the UK that have transformed access to small area administrative data in the UK and have greatly enabled the Glasgow project. Of equal importance is our experience in developing health profiling in Scotland over the last 10 years, which has helped shape our approach to the Glasgow Indicators Project.

Neighbourhood Statistics and Small Area Geographies

UK and Scottish government policies and actions over recent decades have been of fundamental importance in opening up access to a wide range of administrative data. The 1997 Labour Government brought the term 'social exclusion' to prominence in discussions of social policy in the UK. In its simplest definition, the term is used to denote a broad notion of disadvantage (or poverty) covering a wider range of factors than 'just' low income. To support its aim of reducing social exclusion, the UK government set up a Social Exclusion Task Force and a Social Exclusion Unit, the latter highlighted a critical need for better information about local areas, a need for more information about a wider range of topics and for information pertaining to small geographic areas (The Social Exclusion Unit 1998). Their report also noted the following issues for particular attention:

- users seeking small area data often had to go to a number of sources
- users found that when an appropriate data source had been identified, they were unable to gain access to it
- there was a lack of clarity on the subject of sharing data while maintaining confidentiality
- users frequently had to pay for the information they wanted

As a result, in 2000, the Neighbourhood Statistics Programme was established to "*address significant gaps in the information required for evidence-based policy making and to contribute to the Government's National Strategy for Neighbourhood Renewal*" (ONS 2006). Its initiative was mirrored in Scotland by the Scottish Neighbourhood Statistics (SNS) programme set up by the then Scottish Executive – the devolved Scottish government, more recently re-badged as the Scottish Government. This ongoing programme aims to improve the availability, consistency and accessibility of small

area statistics in Scotland. SNS provides information to support a number of the Scottish Government's targets and aims to improve the government's and its partners' ability to monitor and develop policy at a local level. The SNS website – www.sns.gov.uk – is seen as the main way in which the Scottish Government can disseminate a range of small area statistics including information on health, education, poverty, unemployment, housing, population, crime and social/community issues.

As part of the SNS programme, a common stable and consistent small area geography has been developed across Scotland for making available small area statistics – the data zone (Scottish Executive 2004b). Data zones are groups of 2001 Census output areas and have populations of between 500 and 1,000 household residents. There are nearly 7,000 data zones covering the whole of Scotland, which nest within local authority boundaries.

One of the benefits of the datazones is that they cover small geographic areas and can be aggregated and best-fitted to larger geographies, such as local authorities, health board areas and Scottish Parliamentary constituencies.

In tandem with the development of better neighbourhood statistics and consistent small area geographies, work was initiated in 2003 to develop a new index of multiple deprivation for Scotland (Bailey et al. 2003). As a result, the first version of the Scottish Index of Multiple Deprivation was published in 2004 (Scottish Executive 2004a). The current Scottish Index of Multiple Deprivation combines 38 indicators across 7 domains, namely: income, employment, health, education, skills and training, housing, geographic access and crime. The index is made available at a datazone level.[2]

The impact of these initiatives should not be understated. A significant range of social, economic, demographic, health, crime and other Scottish data are now readily accessible on-line in one place for analysis. The data from SNS are a resource for research and policy analysis but are still in a relatively raw format. Further work is always needed to translate the raw data from SNS and similar websites into meaningful indicators that can be interpreted.

Health Profiling in Scotland

The development of Understanding Glasgow has benefited greatly from a significant amount of profiling work which had taken place in Scotland during the previous 10 years. Community Health Profiles were successfully piloted first of all in Paisley (a town of 70,000 people 7 miles to the west of Glasgow). Building on this success, a set of 66 community health profiles were created for communities across Scotland covering a wide range of key factors (NHS Health Scotland 2004).

These profiles were ground-breaking, in the range of data brought together and in the concise, but accessible, presentation style. Data from the profiles were used extensively in Let Glasgow Flourish (GCPH 2006), a comprehensive report describing health and the determinants in Glasgow and the West of Scotland.

[2] http://www.scotland.gov.uk/Topics/Statistics/SIMD/DataSourcesSuit.

Further profiles have been produced in Scotland including health and wellbeing profiles for ten Community Health (& Care) Partnerships within NHS Greater Glasgow and Clyde (GCPH 2008b). This work was led by GCPH and differed from previous national profiles by making use of a considerable body of local data, not readily available nationally, but relevant to Glasgow. Specifically, these profiles were intended to:

- provide up-to-date public health intelligence for communities
- highlight health and social inequalities
- show trends in key indicators
- provide local level information for targeting resources and priority-setting
- develop knowledge of the complexity of health as a system

This work and previous profiles have confirmed that it is possible to create meaningful population health profiles that describe many aspects of health (Hanlon et al. 2005): health outcomes, such as mortality and hospitalisation, as well factors that are strongly related to population health, such as employment, deprivation, violence, the social and physical environment and lifestyle factors. By design, the profiles have provided very clear evidence of inequalities across a range of health and health-related factors and have highlighted where trends in key indicators are heading.

Evaluation of the 2008 Community Health and Wellbeing Profiles (published by GCPH) confirmed that they are a valued resource, particularly as a source of health intelligence for local areas, where such sources are rare, and also as a way of drawing notice to local neighbourhood priorities. They have been widely used as evidence in planning reports, for targeting resource and for highlighting priorities. Their format has been endorsed as being accessible and easily understood. They have become a highly valued resource used by a wide variety of health professionals and colleagues from related organisations, and in many areas are influencing planning processes and priorities, particularly in relation to health improvement and efforts to reduce inequalities (GCPH 2008a).

This preceding profiling work has been relevant to the Understanding Glasgow project in a number of ways. A substantial resource of relevant data and indicators are now available in Scotland from national to neighbourhood level. The concept of health and wellbeing profiling is well established now as a way of providing health intelligence for communities, highlighting inequalities, showing trends and providing an intelligence focus for targeting resources and priority-setting.

The Understanding Glasgow project extends this profiling approach but in a distinctive and different way. Finally in this section it is also worth mentioning one other related project, Miniature Glasgow, which has used a different approach to making health and wellbeing information available within the city.

Miniature Glasgow (www.Miniatureglasgow.com)

Miniature Glasgow, is a short (8 min) film that describes aspects of Glasgow's population from a public health perspective, emphasising specific issues such as inequality and sustainability.

The film idea grew out of 'civic conversations' that GCPH and the IFF hosted in which Glaswegians have been discussing Glasgow as it is now and as it could be. The approach taken in the film is inspired by Miniature Earth – http://www.miniature-earth.com – an animated film which imagined the world's population as a community of 100 people as an engaging way to present global population information relating to diversity, health, poverty and inequality. Miniature Glasgow uses the same concept to present information about Glasgow in a simple and accessible way. The film emphasises different (and often contrasting) elements of the city, including: demographics, multi-cultural aspects, health challenges, education, deprivation, health and social inequalities, types of employment and facets of Glasgow's social and physical environment.

"I also saw the Miniuature Glasgow animation at a meeting yesterday and thought it very powerful" Director, The Glasgow School of Art

"It is very clear and thought provoking ….. It should serve as an excellent backdrop to many interesting group discussions across the city and beyond." Senior NHS Board Director

"this is a first class tool in explaining the mix of Glasgow's population in an easily understood manner to a disparate audience." Executive Director, Glasgow City Council

"We recently showed the film to our internal Equality Group, who found it extremely useful in providing a snapshot of the city and its population – even for those of us who like to think we have a good understanding of some of the issues in the city, it threw up a few surprises." Policy and Research Manager, Culture and Sport Glasgow

"this is an impressive bit of work, very relevant to our current focus on inequalities and the crisis" Director, DG Sanco, European Union.

The data used within the film come from the same sources as were used in health profiles and in Let Glasgow Flourish. The difference with the Miniature Glasgow film is that there are no graphs or overt statistics, and only one percentage is quoted. The simplicity of this approach and the film's descriptive rather than prescriptive tone have been commented on favourably. The film has been described as *"challenging and thought provoking"'* and has been presented at many different fora across Glasgow. It has also been used as an educational resource in schools and universities.

The miniature cities concept is a complementary approach to health profiling and is one that we aim to develop further, in parallel with the Glasgow Indicators work.

Currently, we are developing a miniature city approach to comparing cities in collaboration with colleagues in Gothenburg, Sweden. A version of this comparison can be viewed at www.europeinminiature.com

Rationales

Understanding Health

The Glasgow Indicators are not purely a set of public health indicators, but their development has been influenced by a socio-ecological public health perspective that has underpinned the health indicator work developed in Scotland over the last 10 years. Public health has, since the Victorian era, understood that health is created and destroyed though factors like housing, nutrition, poverty and much else. As such, public health has always employed a socio-ecological perspective. Developments since the 1960s have embedded the philosophy of the wider determinants of health in the health policy of Scotland (Scottish Office 1998).

Our work in developing the Glasgow Indicators, and previously in developing health profiles in Scotland, has been informed and framed by various socio-ecological models of health (Evans and Stoddart 1994; Dahlgren and Whitehead 1991; Hodgson 2012 – IFF world model) that identify a range of domains and interlinked environments that combine to determine health, both individually and at a population level.

In these models, health is recognised as multidimensional and we can recognise physical, mental, social and perhaps even spiritual dimensions to health. One way of thinking about the factors that determine health in a population is the phrase *"it all matters"*. What this means is that health in populations emerges from a complex interplay between the physical environment, social environment, individual response and behaviour, genetic endowment and the provision of services interacting with economic and other influences from which the health status of a city emerges.

These factors interact and combine over the human life-span to create or destroy health and these influences also give rise to patterns of inequality. From what we already know about Glasgow's health profile and inequalities in health and life circumstances across the city, any description or assessment of Glasgow that attempts to make sense of the City's profile needs to reflect the rich complexity of health and other inter-related life determinants across Glasgow.

This also leads logically to the conclusion that to not only understand the city – and how it works to create (or destroy) health, wealth and jobs – but to be able to start to address its complex and inter-related issues, an integrated picture of the city needs to be constructed. This picture or model needs to reflect complexity but also to make the links across domains, such as between health and the environment or between education and employment or between sustainable transport and economic development. Crucially, though, this integrated complex model needs to be adopted, shaped and debated by organisations across and beyond the city.

Developing the Purpose of Indicators – Learning from Others

Similar 'baskets' of indicators to those proposed for Glasgow have been recommended and used in other parts of the UK. A relevant example is the Audit Commission's *"Local quality of life indicators"* (Audit Commission 2005), which were aimed at supporting local communities to become sustainable and measuring the quality of life in individual localities and the effectiveness of local sustainable community strategies. In their report, the quality of life indicator sets were seen to provide *"an overarching 'snapshot' of the key issues that local authorities and their partners need to consider"* and the following potential uses of such data were identified:

- Paint a picture of quality of life issues locally
- Facilitate comparisons of performance between different areas
- Stimulate debate and raise public awareness
- Inform local sustainable community strategies and local area agreements
- Review, justify and set local objectives and priorities
- Monitor change and assess and evaluate progress over time, and
- Enhance partnership working, shared ownership and joint action

The work to develop Understanding Glasgow project has been informed by this and many other related examples of indicator work – locally, nationally and internationally.

The development of the domains has also been influenced by the following important principles:

An Asset Based Approach

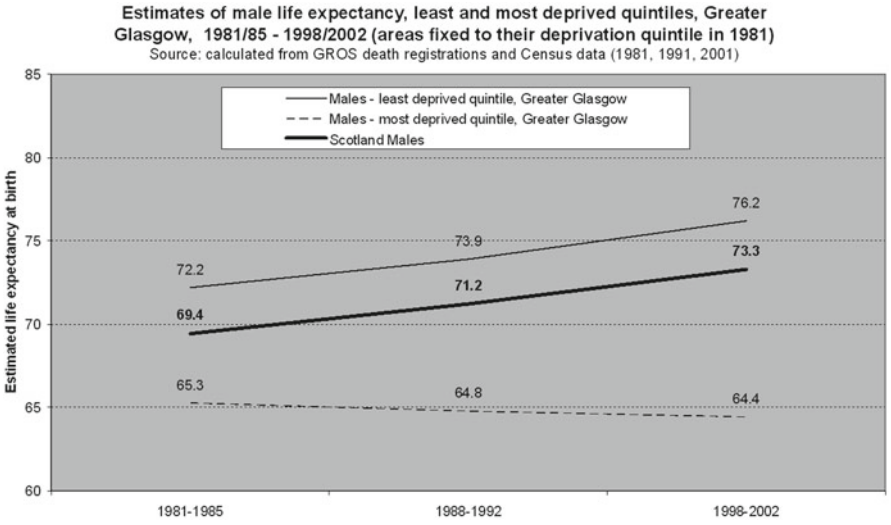
In recent years, increasing notice has been given in policy circles to notion that communities, and individuals within them, have the capacity, skills, knowledge, connections, enthusiasm and potential to maintain and support health and wellbeing. It is recognised that communities are not built on their deficiencies but depend on making the most of the capacity and assets of people and place (Kretzmann and McKnight 1993). The shortcomings of adopting a 'deficits' or 'treatment' approach to the delivery of public services, coupled with the impending cuts to public service provision have given a renewed impetus to finding better ways of working (GCPH 2011b).

The asset approach has been described as a set of values and principles and a way of thinking about the world that sees citizens and communities as the co-producers of health and wellbeing rather than the recipients of services. Asset based approaches are concerned with identifying the protective factors and health-enhancing assets that create health and wellbeing (Foot and Hopkins 2010). They offer the potential to enhance both the quality and longevity of life through focusing on the resources that promote the self-esteem and coping abilities of individuals and communities. Asset approaches could also provide new ways of challenging inequality and valuing resilience. The Glasgow Indicators Project has been influenced by an assets approach in the inclusive and iterative way it has been taken forward, in which the collective knowledge of a broad body of opinion has been used to shape development.

Content development of the domains and indicators – particularly in relation to mindset and social capital – capture to some extent the assets of communities but much more work needs to be done to fully reflect community assets.

Addressing Inequalities in Health

Inequality in family circumstances, living environments, access to resources, education, employment opportunity, health behaviours and health outcomes are present across all societies. In the UK and in Scotland, such inequalities are all too real and measurable. Glasgow is, by any standards, a divided city whether we think in terms of wealth and poverty, health and ill-health, quality of jobs, educational attainment or quality of living environment. Indeed it may be this very inequality that in part contributes to Glasgow's poor health profile. We also know that health inequalities and in particular the gap between richer and poorer populations in the city region have been widening, as shown in the graph below (from Let Glasgow Flourish – Hanlon et al. 2006) which illustrates the diverging trends in male life expectancy by deprivation.



Wilkinson and colleagues put forward a psychosocial model that suggests socio-economic inequality increases an individual's sense of deprived status, resulting in stress and frustration and which in turn leads to adverse health outcomes (Wilkinson and Pickett 2006). However this theory is not undisputed and others have put forward the 'pull-up or pull-down' hypothesis, whereby positive or negative social and environmental resources in a local area can influence people's health in a similar direction to their neighbouring areas (Boyle et al. 1999).

What is clear is that if we are to understand the absolute and relative status of Glasgow's citizens in terms of health, income and socio-economic position, an understanding of the patterning and trends in key indicators within the City is required.

Practical Benefits for the City

Additional to the aforementioned rationales, by developing Understanding Glasgow it was expected that a number of very practical benefits would accrue for the City.

Firstly, the initiative would develop a resource around which interested parties could gather and focus their energy to develop a more rounded set of indicators, commensurate with the range of aspirations which the City has. The co-creation of the indicator set would provide a shared sense of ownership and endeavour to power subsequent participation.

Secondly, the Understanding Glasgow resource would provide a way for the co-operative identification of key issues and action which could be taken to pursue these.

The resource would also help to integrate the range of indicators and their effects. Understanding Glasgow would not simply be a list of separate and unrelated indicators. The intention was to bring baskets of indicators from different dimensions of City life into relationship with each other. In doing so we wanted to create the possibility that the impact of activity, for example economic participation, in one area of city life could be considered in another area of city life e.g. health. Additionally we had previously noted that a range of indicators which addressed wellbeing could be used to monitor changes in the city and benchmark against other UK/European cities.[3]

We also wanted Understanding Glasgow to become an enabler of strategic conversation, out of which a diverse range of people and organisations could together begin to make sense of aspects of life in the City and policy direction and action could therefore be developed and progress towards them gauged.

To summarise, it was our aim that:

- Understanding Glasgow would be an accessible resource providing relevant intelligence about the wellbeing of Glasgow's population which would inform and be informed by a wide range of people and organisations across a range of domains
- It would be a useful source of information but also inform debate and encourage civic engagement on a range of interconnected issues which the City faces
- The indicators could be used to monitor progress across a range of key domains, to illustrate trends and to enable comparisons to be made both within the city and without.

Development Stages – The Key Ingredients

During 2010, GCPH led a process to first create a consensus behind having a set of health and wellbeing indicators for Glasgow and to then undertake the creation of a set of indicators. It is worth noting that, while this development was initiated by GCPH, it has crucially had the support of a range of key partners, including Glasgow City Council, Glasgow's Community Planning Team, Community Safety Glasgow, Glasgow Life, NHS Greater Glasgow and Clyde and the International Futures Forum.

[3] Response from Glasgow Centre for Population Health to the City Strategy Action Plan (Jan 2008).

The next sections of this chapter set out the guiding principles and model behind the Glasgow indicators and summarises the process through which the work was developed via a series of multi-agency seminars and by a project group involving key city partners.

Guiding Principles and Model

The principles we have used in developing Understanding Glasgow have been developed through discussion and debate and are informed by our previous work, particularly that describing health and wellbeing. Out of this experience the following principles have evolved that have helped guide our work:

- A ***basket of indicators***, rather than one index, representing a dynamic interlinked view of the city capable of handling complexity, uncertainty and change
- Developed ***in partnership*** with others
- Focusing on ***themes*** that are clear priorities for the city
- Providing a ***strategic*** overview
- ***Trends*** to be monitored over time
- ***Inequality***, or difference, within the city to be monitored
- ***Comparisons*** to be made to other comparator ***UK cities*** and to ***European cities*** where possible

Using these guiding principles as a basis, we have developed a 12 domain model underpinned by a socio-ecological understanding of health and wellbeing. From this perspective it is clear that a broad range of factors interact and contribute to our health and wellbeing: educational opportunity, employment, income, housing, safe and cohesive communities, sustainable living environments and support to children (and their parents) in early years all have parts to play in the creating and sustaining healthy communities. Thus, in setting out to understand the health and wellbeing of a city, and indeed its economic health, we needed to have a broad set of domains and indicators in mind.

The model we have developed is an adaptation of the world model developed by the International Futures Forum (IFF),[4] which represented a serious attempt to understand key trends and perspectives in an integrated manner at a global level. In our Understanding Glasgow work we have used this model to test whether it is possible to develop a similar perspective at a city level. The Glasgow model though is crucially different in its domains. These have been agreed upon through discussion and debate, and are domains that are specifically relevant to Glasgow's situation. In another city, with differing issues and challenges, a different set of domains might be more relevant

[4] http://www.internationalfuturesforum.com/iff_world_model.php

The following table highlights the 12 domains of the Glasgow model and summarises the key indicators within each domain.

Twelve Domains of the Glasgow Indicators

Population	**Poverty**	**Economic Participation**
Births	Access to a bank account	Economic inactivity
Deaths	Child poverty	Employment
Population estimates	Coping financially	Unemployment
Population projections	Deprivation	Vacancies
Households	Low income households	
Health	**Lifestyle**	**Community Safety**
Disability	Smoking	Overall crime
Healthy life expectancy	Alcohol	Anti-social behaviour
Life expectancy	Drugs	Violence
	Diet	Unintentional injury
	Physical activity	Acquisitive crime
	Obesity	
Education	**Environment**	**Transport**
Destination of school leavers	Greenspace	Traffic volume
Highest educational qualification	Proximity to derelict sites	Travel to work
Qualifications of work age adults	Housing	Travel to school
School attendance	Air quality	Road casualties
Teenagers not in education, employment or training	Fuel poverty	Cycling
	Recycling	
Social Capital	**Mindset**	**Cultural Vitality**
Social Participation	Religion	Attendance at cultural events
Social networks and support	Politics	Sports participation
Reciprocity and trust	Newspaper readership	Presence
Civic participation	Satisfaction and happiness	Support
View of local area	Suicide	
	Community involvement	
	Trust	
	National identity	

A number of considerations were taken into account in selecting the indicators within each domain. Firstly, it was our aim to provide a strategic overview so we have tried to restrict the number of indicators within each domain. For example, there are only three main *health* indicators although far more could have been included. Those chosen were to some extent chosen as proxies for different aspects of overall health. Practically, the indicators presented are limited to what data are available currently. Better indicators may be added or substituted in as and when data become available. Preference was given to indicators for which trends could be

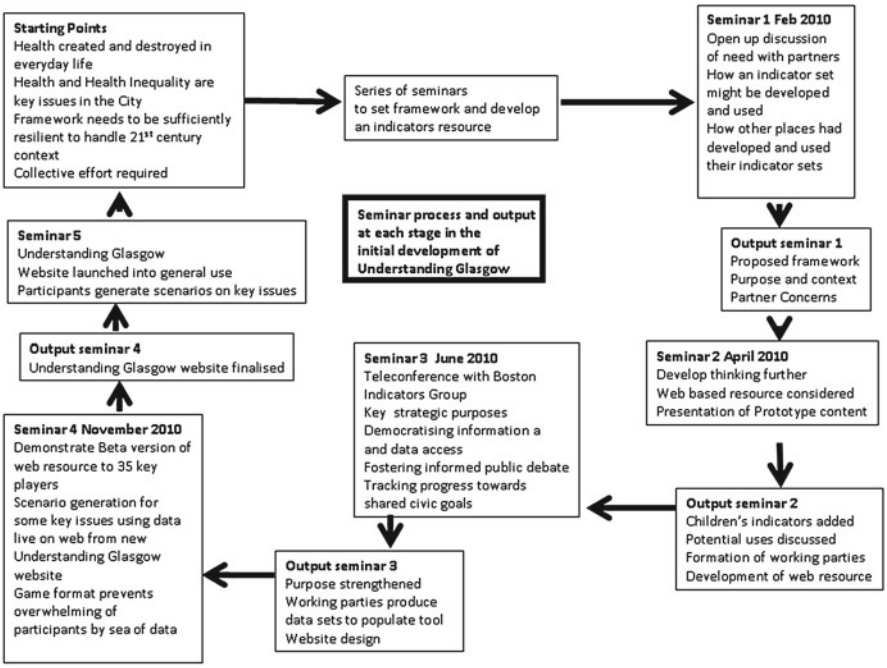
shown and that could be compared within the city (by neighbourhood or deprivation) as well as to other Scottish and UK cities. In reality, there are relatively few indicators for which all these criteria are met. Finally, this is a first set of indicators which will be reviewed and developed over time in response to feedback, the availability of new data sources and emerging issues.

It is our belief that the Glasgow model can provide a sophisticated and dynamic perspective on health and wellbeing in Glasgow, and will allow us to compare ourselves outwardly (to other cities) and inwardly (within Glasgow).

Process of Development

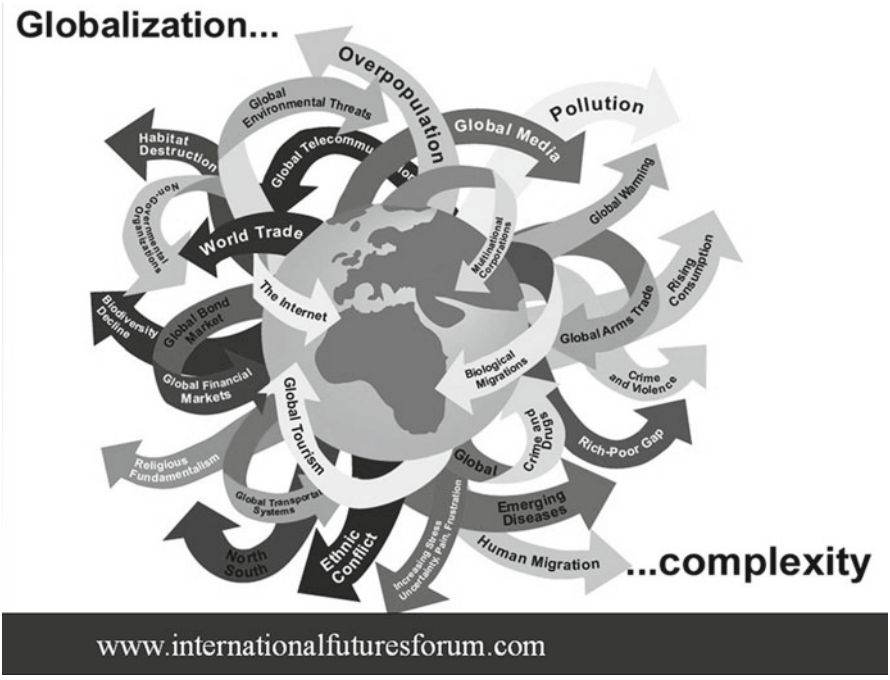
The practical process by which Understanding Glasgow was developed over 2010 is described in the following paragraphs

In developing Understanding Glasgow, we felt it was of crucial importance that the tool was capable of handling key aspects of twenty-first century context. A crucial part of the development process was therefore to gather a group of partners together and allow the indicators to emerge from their collective intelligence and multiple perspectives. The 12 baskets of indicators developed therefore adequately reflected the experience, aspirations, and concerns of partners. We therefore developed the tool through a series of interactive seminars. The process is outlined in the flowchart below which is followed by a more detailed description.



The development of the project has been shaped by a series of seminars and workshops held over the course of 2010 and 2011.

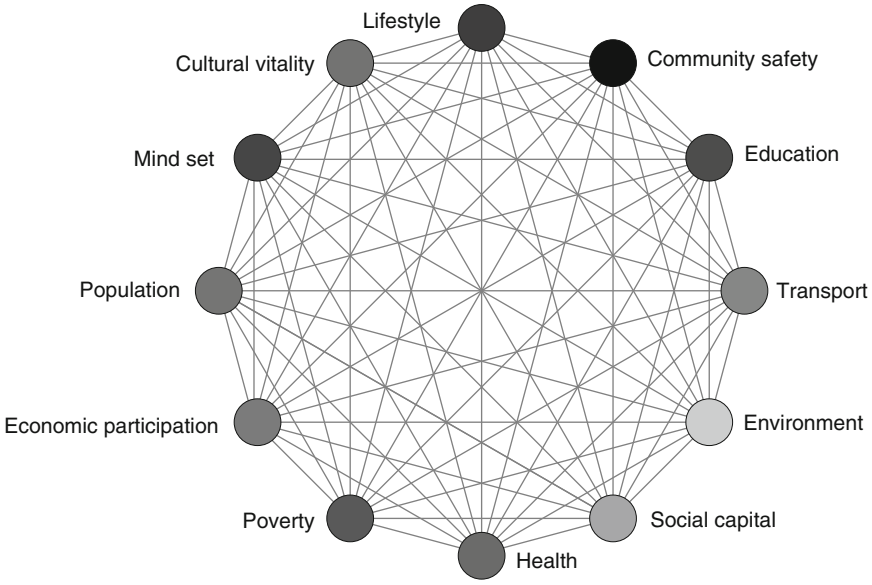
Seminar 1 (February 2010) was designed to open up a discussion about how to develop a set of health and wellbeing (HWB) indicators and to encourage support for this initiative. Around 40 participants from the public and voluntary sectors took part. These were mostly people who had some responsibility for charting the progress of the City in key areas – such as education, economic development or health. The seminar, chaired by the Chief Executive of Glasgow City Council, who championed the whole idea, focussed on three main issues:



1. *The need for the initiative as part of the City's response to an increasingly complex, rapidly changing and uncertain context*. In this part of the workshop, Andrew Lyon suggested that in order to effectively operate in conditions of complexity, it would be helpful to develop the collective capacity to make coherence. Understanding Glasgow, he suggested was an opportunity to do this. It would help to improve the City's resilience in turbulent times. He also introduced the idea of using the framework of the IFF world model at a city level. The model essentially takes 12 key issues, setting them in a dodecahedron, rather than simply listing them (see the following figure representing the Glasgow model).
2. *The experience of others in trying to develop a similar initiative*. To help us with this, colleagues from the London Health Commission came and made presentations to the group about their experience. They very helpfully described the process

which was adopted to develop indicators and the governance mechanisms through which their output was both developed and used.

3. Bruce Whyte of the GCPH suggested a draft set of indicators with which to begin working. These were a combination of indicators with which participants were already working and for which data were readily available or could be easily found, through to 'baskets of indicators' for which new ground would need to be broken – for example, mindset.



Following these inputs, workshop sessions focused on two broad issues: (1) the proposed framework/model, domains and possible indicators; and (2) the purpose and context of the framework and any concerns which participants might have at this stage.

Seminar 2 (April 2010) developed the thinking on the model, indicators and the possibility of a web development. In the interim, small groups had been working on prototype content and it was possible to illustrate for participants what the indicators might look like and how they might be used.

The seminar responded to issues brought up during the first meeting and noted the impact of the London Health Commission indicators and similar indices, such as the Boston Indicators Project. There were presentations on children's health and wellbeing indicators from the Director of Public Health of NHS Greater Glasgow and Clyde. This led to the idea that there ought to be a discrete set of indicators for children's wellbeing and a group began to work on these. There was also an input from Glasgow Life, the city's cultural organisation, which illustrated how the

indicator set could be used to make the link between cultural life in the Glasgow and wellbeing.

'World café' style conversations focused on the purpose and potential of the indicators project, what a practical resource would look like, what to do next and began the process of forming working parties which took responsibility for the population of each of the 12 domains in the model.

Follow up discussions led to the creation of a website resource. A project group was formed with multi-agency representation from the city. This group had its first meeting in June 2010 and began working towards the creation of a shared set of indicators and a web resource. It has met regularly since.

Seminar 3 (June 2010) was conducted as a tele/video-conference with Charlotte Kahn and Jessica Martin of the Boston Indicators Project. Charlotte identified the three overarching aims of the Boston Indicators Project, as:

- Democratising access to data and information
- Fostering informed public discourse
- Tracking progress on shared civic goals

The project has a twin track approach of the data strand and informing the civic agenda. This seminar consolidated the idea that an indicator set was indeed a useful resource which could make significant contributions to important areas of City life. It highlighted the ways in which public discourse around agreed priorities could be fostered, for example Boston has published a series of themed reports based on their data set.

Seminar 4 (November 2010) was run as a workshop session for an invited audience of 35 to demonstrate a beta test version of the Understanding Glasgow website. This workshop represented a key stage in the development process. New users were introduced to the idea of the indicators set for the first time and used it to produce strategic statements on what they identified, based on their reading of the data to be key issues for the City. This type of use began to show us how the indicators website might be used by others in their effort to understand and tackle the City's challenges.

The interactive website was populated with a set of key indicators and further resources for each of the 12 domains in the model. Members of the project group introduced the website, explaining the structure and content. Delegates were then encouraged to use the site through a set of scenario generation exercises coordinated and led by the International Futures Forum. The format was designed to feel like a game, which allows for greater creativity and guards against the possibility of being overwhelmed by the volume of data which delegates would inevitably generate. The game has three main stages.

Stage 1: choosing 1 of the 12 issues and identifying key trends, disruptions and concerns;

Stage 2: working together in small group to describe what the city would be like if key concerns materialise simultaneously across issues;

Stage 3: describing key actions to prevent concerns materialising or tackling them quickly if they do.

In stage one, delegates first of all chose which of the 12 domains to work on in small groups. They were then asked to identify the key trend in their issue, what a disruption to that trend might bring and what, therefore, their key concern was for that issue. This rapidly generated three pieces of information for each domain. For example in the lifestyle domain

A trend: Increasing obesity
A disruption: decreasing life expectancy
A concern: where to focus effort to reverse this

Each group then quickly produced feedback based on these. This feedback was added on hexagons to a large wall chart of the original framework of 12 domains (see the following photo), resulting in 36 new pieces of information.

In stage two groups joined together to share their information in more depth. On this occasion we formed four groups of three issues each e.g. bringing together, for instance, the groups discussing, population, poverty and environment into one group and so on. Each group was asked to first of all imagine what Glasgow would be like if all of their concerns came to pass simultaneously. Then they described what newspaper headlines might be and what policy papers they might expect to see from government and what they themselves might be writing for consideration by the City authorities. Finally groups were asked to describe a far sighted action which would retrieve the situation rapidly or prevent it from occurring in the first place. These topics then formed the basis of feedback at the end of the session.

Output from the session has informed the form and content of the final web resource and hints at how the site may be used to address Glasgow's key challenges.

Seminar 5 (January 2011) The Understanding Glasgow website (www.understandingglasgow.com) was launched on the afternoon of Tuesday 18 January 2011 by the Chief Executive of Glasgow City Council.

Reflections

Key Elements of the Process

The success of the Glasgow indicators project and Understanding Glasgow to date has been as a result of collective effort across a range of organisations in Glasgow. GCPH has led the development, but with strong support from key partner organisations within the city.

The impetus for the work has come from different directions: a commitment to developing health and wellbeing indicators for the city within the Glasgow's City Strategy Action plan (Glasgow Economic Forum 2007); a need to monitor the recommendations of Glasgow's Health Commission report (2009); and also from the focus of GCPH's work and the body of relevant resources and research that has been developed by the Centre and its partners. Crucially also, we have had the support of the Chief Executive of Glasgow City Council from the beginning of the project and his enthusiasm has ensured the commitment of others.

Our approach to developing the project has been incremental and has aimed to be inclusive. The seminars held over 2010 and their output took the development and our thinking forward. Each meeting was attended by 20 to 30 individuals from a range of backgrounds and organisations attended each meeting. In effect, over 60 people formed an informal steering group for the project with their focussed engagement over several hours at each meeting providing a valuable intellectual resource

and 'sounding board' for the work. A separate smaller project group formed from the main partners carried out the practical work of developing indicators for each domain and creating web content.

Learning from the indicator work undertaken by the London Health Commission and by the Boston Indicators project was valuable. The latter, which has been running for over 13 years, has been a useful benchmark for what we might achieve in Glasgow over time.

Impact

Reactions to the Understanding Glasgow site have been very positive in the main.

Comments from around the world

- *"A major achievement to have brought all this together, and more to the point, to have brought all the people together around this shared enterprise."*
- *"Congratulations on accomplishing such an accessible, informed, and inviting portal into the universe of Glasgow life. Even a few minutes of banging around in it brought forth empathy, concern with where things seem to stand and a creative juice or two."*
- *"What a fantastic tool for anyone interested in Glasgow and cities anywhere."*
- *"This is a nice piece of work, even if somewhat depressing. I wonder if there is an index of remedial actions and a progress measurement tool?"*
- *"Very interesting and very original! I can see from the population figures that you give why shrinking a city without necessarily framing the process as a decline becomes an interesting challenge in urban management."*

Local views

- *"Very elegantly presented, and a holistic picture of Glasgow's realities urgently needed."*
- *"a one stop shop for information from across the main partners of the city"*
- *a research resource for "papers, presentations, evaluations and funding applications"*
- *"demonstration to students as to how quickly they can drill down to finite data and expand to contextual info and policies."*

There has been local media interest in the Understanding Glasgow site with one of Glasgow's main local papers, the Evening Times. Over 4 days, different aspects of Glasgow were described and debated by local politicians with reference to material

from the website. The focus of these articles included, health, the economy and transport in the city.[5]

Web Statistics

The web statistics for the site are relatively modest, which is partly a reflection of the relative newness of the site which has been live for less than a year. In the period January 18, 2011–August 22, 2011, there were 9,433 visits by 6,321 unique visitors and 52,419 page views, equating to an average of 5.56 pages per visit. The average length of visit is relatively long – 4 min 6 s – which in combination with the average pages viewed suggests that visitors are staying on the website for more than just a cursory view. The 6,000-odd visitors have come from 84 countries in total – the majority from the UK, but also notable numbers from the US and Germany.

Dissemination

Talks to raise awareness of the Glasgow indicators have been given to a range of relevant local organisations and groupings, including to Glasgow City Council's Health and Social Care Policy Development Committee (a group of elected councillors), to heads of service across the council, to Glasgow City Council and NHS Greater Glasgow and Clyde Joint Officers Group and to the City Council's Corporate Policy team.

Presentations on the project from conception to its current stage of development have been given to the UK Health Cities Network and at the WHO European Healthy Cities Conference in Liege, in June 2011. Further dissemination activities are undoubtedly required to raise awareness of the Glasgow Indicators Project and the Understanding Glasgow website locally, nationally and internationally.

Further Development

The current indicators on the website need to be kept up to date – a not insignificant task – and within every domain refinements to indicators and some new indicators are required. Two significant additions to the site have been made since its launch. A project group has worked to produce a set of children and young people's health

[5] http://www.eveningtimes.co.uk/news/editor-s-picks/glasgow-faces-big-challenges-1.1110382 , http://www.eveningtimes.co.uk/news/editor-s-picks/is-glasgow-on-the-right-road-1.1110579?42068

and wellbeing indicators and, separately, a range of comparisons to European cities have been added. The children's indicators provide a benchmark for describing the living conditions, educational achievement, health, lifestyle, ethnicity and family circumstances of children living in Glasgow. Glasgow's Health Commission report voiced the aspiration of creating a 'child friendly city' and these indicators, while not bringing this concept into being, provide a detailed picture of the lifestyles and life circumstances of children and young people in the city.

There are many aspects of the Understanding Glasgow web resource that we would like to develop. The website functionality is basic at present and we are investigating providing more interactive graphing and mapping on the site. Capturing Glasgow voices through film has been discussed as a way of illuminating the opinions and outlook of citizens and also as a balance to the quantitative data presented on the website.

The extension of the miniature city concept to make comparisons between two or more cities is important and, if our pilot is successful, is another potential area for further development with other cities. Just as the Miniature Glasgow film has been used as a teaching and research resource, the Understanding Glasgow site has potential uses within schools, university departments and across a range of Glasgow organisations. Further thought needs to be given as to how best to make the most of the site's educational potential.

Uses of the Glasgow Indicators

We have always planned that this set of Glasgow indicators will be a resource for engagement and debate within the city. We are at an early stage in realising this ambition. However, the potential of the Glasgow indicators to stimulate these types of discussion has been shown in scenario planning sessions we have run in the seminars leading up to the launch of the site and also in events since.

The Glasgow indicators featured in the content of the 11th Glasgow's Healthier Future Forum which was held on Thursday 31 March 2011 at Glasgow Science Centre. Taking the focus of *'A resilient Glasgow'*, this event presented indicators of progress and drew upon newly developed conceptual models to improve understanding about Glasgow's health (GCPH 2011a). Delegates were encouraged to think about Glasgow's past, its present and its future and what might be the key components of a more resilient city.

In part of the seminar, an abbreviated version of the IFF's world game was played. Delegates were asked to work within their tables on 1 of the 12 domains of the Glasgow indicators from the website. There were three tasks:

(i) to identify key **trends**
(ii) to suggest what might be **shocks** for Glasgow e.g. global recession, severe and changing weather, escalating fuel prices, famine, trade disruption, etc.
(iii) to outline what would be of **concern** if a shock occurred

A selection of responses is given below to illustrate the richness of discussion and ideas that were generated:

sustainable development was commented on – *"you've got consumerism on the one hand and you've got concerns about the environment on the other – if we're going to pull back on consumerism, where we're basically going to create more unemployment, lets be creative about it."*

there was a tension (or disconnect) between different ways of doing things – *"… a disconnect between the paternalistic system and the way the establishment works, decades of municipal work, that kind of thing …and a desire for more creative stuff, more social enterprise, more re-localisation, more things happening in communities."*

The mindset group identified that *"a major difficulty in Glasgow is a sense of learned helplessness, there's a real fatalism, some of us have problems with mental health"* and were concerned with *"a decrease in community mindedness [and increase in] individualism"*

The discussion on transport *"ended up in an argument – car versus public transport, and the car won"*

People identified a range of potential and real shocks to the system. These were diverse and are not summarised here. However, the impact of the recession was a common theme and although it was generally seen as bad, it was also a *"chance to re-think the whole system"*.

In a separate development, the Glasgow Indicators have been used to inform Glasgow's City Visioning process. The **Future Glasgow** city vision process is intended to be overarching, incorporating all policy areas, and aims to think about – and shape – the sort of city Glasgow wants to be. The vision is being informed through meetings of expert groups that have discussed specific topics of key importance to the

city – e.g. the economy, education, health, etc. – and through a wide-ranging public consultation process. It involves looking forward to what the city might be like in 2061. Material from Understanding Glasgow has been used to provide an overview of key trends and issues for those taking part in the visioning process.[6]

So Far So Good

This work has been described as an initiative for 'democratising information' and has been complemented as being 'a one-stop shop' for information about Glasgow. The successes to date have been achieved through the sustained support of a wide range of partners across the city. The indicators have been used at a number of events and are contributing to thinking about a more sustainable and resilient Glasgow.

Nevertheless, the Glasgow Indicators project is still at an early stage. The notion of a set of health and wellbeing or progress indicators has been promulgated on the premise that providing better intelligence describing trends, interconnections and complexity in a city should be a 'good thing' and could act as a catalyst for better thinking, planning and decisions for Glasgow. In 5, 10 or 20 years from now we will be able to look back and assess whether, and to what extent, these ambitions have been fulfilled.

Key Factors in Achieving Success

There are a number of factors that have particularly aided the development of the Glasgow indicators to date that may provide pointers to others contemplating similar work.

It was important that there was an issue that people were concerned with. In the case of Glasgow this was the city's persistent poor health and social outcomes that need to be better understood and acknowledged in order to be addressed. Having a clear overarching model of health and wellbeing, one that acknowledges how a range of interacting factors can create and destroy health, helped provide a framework of understanding for the project. These issues and the framework were embedded in discussions from the very start of the project.

Strategies, reports and key comparative statistics have been harnessed to make the case for this work. The organisational environment assisted too. Many organisations in the city have come together in this work and the existence of a community planning partnership has supported and validated their collective involvement. The Glasgow Indicators, while led by one organisation, are 'owned' by a wider collective of city organisations.

[6] http://glasgowcityvision.com/

Leadership is needed to drive and direct this type of project, but a 'light-touch' and inclusive approach was consciously adopted. The series of seminars we held have helped to share viewpoints, create understanding and have led to joint-ownership and commitment to the indicators project across organisations. The development has happened relatively quickly, but also at a pace that has allowed the project to grow incrementally and to adapt to new perspectives.

The quality of content, of both the indicators, in terms of their provenance and accuracy, and the other elements of the Understanding Glasgow website has been crucial. This has contributed to the indicators and site being considered as a reliable, credible source of city intelligence.

Relevance and utility of this initiative has been important. People have seen the benefits of bringing this type of city intelligence together in one place – harnessing internet technology – and can see the long term potential uses of the information in city planning, for strategy and developing new thinking.

In summary, a number of factors in combination have contributed to the success of this initiative and there are elements of our approach that could be adopted by other places wishing to develop a similar resource.

Conclusions

Glasgow has a new information resource. This type of approach to making health and wellbeing data accessible and understandable is perhaps an endeavour that other cities may wish to emulate and build on. Within Scotland, initial discussions on a similar set of indicators for Edinburgh have begun.

There are lessons to be learnt from our approach. The Glasgow Indicators project was given impetus and purpose by a local economic strategy and a Health Commission report. The fact that Glasgow has a range of health, social and inequality related issues that need to be addressed provided focus.

The development was enabled by having a local organisation specifically concerned with the health and wellbeing of the population (GCPH) and with experience of gathering and presenting health intelligence. Governmental policy, supporting greater accessibility to administrative data has helped, as has the 'perceived' independent role of GCPH (among many partners) in leading the work.

Designing a set of indicators that are informed by a socio-ecological understanding of health and reflecting a wide range of interacting themes has been at the heart of this initiative. Within this framework, the approach has been clear: to make comparisons both internally and externally, to show trends, to highlight inequalities and to provide local neighbourhood level intelligence. The approach taken has explicitly not been about creating one index but about emphasising the inter-linked nature of the indicators and underlying themes.

The process and approach taken has also been important. The leadership and support for the initiative provide by the Chief Executive of the Council was crucial in the

initial stages and since. Development of the project has been inclusive, reflective and incremental. In this regard the series of planning seminars we have held have been crucial for guiding development and injecting impetus to the Glasgow Indicators work. Through this an understanding of the parameters and aims of the project have been agreed collectively. As a result the project has gained progressive support and recognition across the city and individual organisations have felt able to commit resources to assist development.

The quality and provenance of the indicators – with sources clearly acknowledged – has given users confidence that this is an objective source of good quality intelligence. In addition, it is clear that users in Glasgow value having this range of related information about the city available from one web resource and that the presentation, navigation and language used make the information accessible and understandable.

The indicators and website are being used increasingly in strategic ways within the city, for instance, in informing Future Glasgow – a process that aims to create a new vision for the city in the next 50 years – and as a foundation for thinking about how Glasgow could become a child friendly city. Understanding Glasgow is a resource – some have called it a 'boundary object' – around which people can gather to understand and debate the city as it is now and as it could be.

The challenge now is to develop this resource and to embed use of the Glasgow Indicators as a focus for debate and engagement about the future of the city in the twenty-first century.

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Chapter 4
The Monitoring System on Quality of Life of the City of Porto

Luis Delfim Santos and Isabel Martins

Abstract Since 2001, an observatory on urban quality of life has been operating in the city of Porto based on objective statistical data but also on data concerning citizens' perceptions and satisfaction levels about their personal and collective well-being. This project was conceived and designed by the municipality with the support of the University of Porto to foster informed public awareness and political choices. A group of about 30 public and private institutions form a collaborative network that supports this project through the regular supply of quantitative information.

In 10 years of continuous work it has been possible to develop a learning process concerning QOL conceptualization and assessment at the local level. Keeping its original objective of contributing to improve the way city progress is measured, the project is presently assuming new challenges. One of these challenges is to define and evaluate QOL disparities at the neighbourhood scale, a vital and complementary input towards an open dialogue and research about community QOL issues.

Introduction

Specifically created for the purpose of ensuring a rigorous and systematic monitoring of trends related to issues that directly or indirectly affect citizens' daily living conditions, the Porto *Monitoring System on Urban Quality of Life* (hereinafter referred to as

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MSUQL) was taken first and foremost as a tool to support the municipality's decisions and policies. Behind this option was the recognition that the ability to design innovative and appropriate responses in terms of public intervention for current challenges requires a broader understanding of people's living conditions and daily experiences. In other words, greater efficiency in defining priorities for action and in the selection of alternative options, as well as in the allocation of financial resources, necessarily place new demands on the quality of the elements underlying decision-making processes. Within this context, MSUQL was developed as a new tool, designed to provide an integrated view of the city's problems and challenges, to be transversally used by the different municipal services, supporting the daily activities of political actors and officers.

Given its nature, this tool represents an equally useful platform to provide more information to the public and to foster dialogue among different urban actors engaged in urban development policies. In fact, many of the quality of life dimensions whose evolution is monitored by this system are not associated with fields of action that are directly linked or at least exclusive to local authority. Within this context, by providing a comprehensive framework on the current situation and ongoing dynamics, the monitoring system also plays an important role in fostering a greater collective awareness of the problems facing the community and in the establishment of strategic guidelines and coordinated solutions involving several social, economic and institutional agents.

Porto is the second largest city of Portugal, with a population of more than 1,5 million in the metropolitan area and 238,000 in the administrative territory of the municipality. The city is located in the north of the country, on the right bank of the Douro River, as it reaches the Atlantic Ocean. Being the largest city in the relatively highly industrial northern part of Portugal, Porto is the main economic, cultural and academic hub of the entire region. Its historic centre has been classified as a UNESCO World Heritage Site. Looking at its service-based and diversified economic structure, three clusters of activities are gaining importance in the last years: the life sciences sector (biotechnology, biomedicine and biomedical engineering), information technology and tourism. Last census data showed that Porto still finds itself in a stage of demographic decline, particularly its central area. Between 2001 and 2011 the municipality of Porto has lost more than 9 % of its population. Nevertheless, the city still concentrates a large share of employment in metropolitan urban agglomeration (30 % of jobs) and attracts a large number of young people from all over the country and from abroad, to study in the five universities located inside its borders. Students in higher education are above 50,000.

This description of Porto's project begins by systematizing and justifying some of the concrete options made, to meet the basic requirements of setting up this type of tools, such as the establishment of a conceptual framework and a methodological approach for the evaluation of quality of life. Reference is also made to some of the pillars that support the information infrastructure currently in use. After this initial presentation, some constraints that have arisen over the 10 years of this project are addressed and discussed, as well as how they are being overcome. The final part of this text is dedicated to a reflection on the project's future. Some new challenges are considered and strategies to improve its performance and usability in the coming years are highlighted.

Despite the strong international movement linked to the development of indicators systems to measure well-being and local progress, there are very few examples of cities in Portugal using this type of instruments, and a support network does not exist to encourage their emergence and promote the discussion and dissemination of good practices. Since it was impossible to establish domestic cooperation within the scope of the MSUQL project, an effort was made to review the experiences of cities in other countries, many of which European but also some from North America and New Zealand and Australia. Although often associated with quite distinct realities – whether in terms of information availability, or evaluation and monitoring culture and practices – many of these international initiatives would come to constitute important references in the learning process associated with the establishment of this observatory.

The Origins of the MSUQL Project

In 1998, the municipality of Porto took part with 57 other urban centres in the Urban Audit project – Assessing the Quality of Life of Europe's Cities –, which was promoted by the European Commission. It was a pilot initiative whose central goals were a first evaluation of the individual situation of each city in terms of conditions of life and well-being and the development of a comparable database that allowed the urban centres that took part in this project to position themselves in relation to the reference values and thus self-analyse their own realities.

Being a first effort to systematically collect and process statistical information on the situation of European cities, and seen as essential to support the development of strategies and new intervention policies, this project was also an important incentive for local authorities to implement their own systems to collect, process and analyse urban indicators.

In the specific case of the municipality of Porto, the participation in the Urban Audit (a fourth phase of the project has already took place), allowed a first evaluation of some quality of life issues in the city but, above all, was decisive for the recognition of the need to move forward in this direction. It showed clearly the importance to reflect more fully upon the quality of life framework itself and upon the most adequate indicators to assess it in the Porto's particular urban context. It has also made clear the importance of setting up a permanent information infrastructure to identify and monitor evolutionary trends and of undertaking a study of the citizens perceptions and opinions, which are both very useful to conceive intervention strategies and actions and to support political decision-making.

Therefore, the municipality of Porto has decided to create a new tool to measure quality of life in a regular and consistent basis. The project was developed under the coordination of the Studies and Planning Unit with support from CEMPRE, a research centre of the University of Porto. This chapter describes the development and application of this tool for the city of Porto, focusing on both the conceptual and methodological options adopted by the project team.

Conceptual and Methodological Approach of the MSUQL Project

A key step in implementing Porto's monitoring system was the development of the quality of life conceptual framework. There's no universal accepted definition of quality of life. Indeed, it is a notion that is subject to very wide-ranging usage, with very different meanings and applications. Thus, there is widely-recognized need to formulate operational definitions that, according to specific circumstances and goals, make the adopted quality of life assessment framework clear and ensure a stable reference for the urban monitoring exercises over time.

The conceptual model underlying MSUQL was built following a discussion between the members of the project coordination team, based on a thorough review of the theoretical literature on the matter and an analysis of projects developed in other cities, but also on the local context and its specificities and challenges. In addition, it was evaluated the available informational framework, namely from the entities which were to provide the majority of the statistical information for the various topics to be covered.

The analytical model established four major domains: environmental conditions, collective material conditions, economic conditions, and society (Fig. 4.1).

Each of these major areas was broken down into priority themes and likely to cover the main dimensions which have an impact on the quality of life associated with each domain. For each of these themes, monitoring indicators were subsequently determined, whose number varied not only according to the complexity of the dynamics in question but also the availability of basic information.

The first domain, called "environmental conditions", is divided into seven themes related to the physical aspects of the city, as well as the environment in general.

The second domain, labelled "collective material conditions", includes indicators linked to facilities and infrastructures related to collective conditions of life. The aim is to analyze the situation in Porto with regard to the existence of infrastructure at the level of culture, sports, education and health care, as well as social welfare. Note that these indicators aim to assess the reality of the city in terms of the supply of facilities and infrastructure and not their use. This domain also includes indicators related to the situation in terms of built environment and mobility, as well as the existence of shops and local services.

Environmental Conditions	Collective Material Conditions	Economic Conditions	Society
Green Spaces	Cultural Facilities	Income and Consumption	Population
Climate	Sports Facilities	Labour Market	Education
Noise	Educational Facilities	Housing Market	Cultural Dynamism
Air Quality	Social and Health Facilities	Economic Dynamism	Civic Participation
Water	Built Environment		Health
Energy	Mobility		Safety
Waste Management	Retailing and Services		Information Society

Fig. 4.1 MSUQL conceptual framework

The third domain, "economic conditions", aims to portray the city as the centre of economic activity. It includes indicators related to individual conditions of life in terms of income and consumption, as well as the conditions offered at the individual level, such as jobs and housing. Another topic included in this domain concerns the economic dynamism of the city.

The fourth domain, generally referred to as "society", includes the social dimension of the urban territory and the relationship between people. It includes topics related to population growth, the socioeconomic characteristics of the population and aspects related to the relationship and participation of citizens in society.

It should be added that the conceptual model presented here is in fact a revised version of the initially defined model. In effect, while it is true that monitoring systems require some stability at the level of the conceptual frameworks and indicators used, it is also undeniable that they only remain valid and operational if they can adapt to changes, whether related to the emergence of new concerns or the availability of and access to information. This is therefore a difficult balance to maintain but it has to be managed continuously.

Once this conceptual definition was set, several possible methods were considered in to assess local quality of life.

Traditionally, the applied research on quality of life focuses on one of two major approaches: objective and subjective.

The first is based on collecting and analyzing statistical data, referenced to certain spatial units (cities, regions, countries) with the aim of characterizing – and sometimes monitoring – local living conditions (material and immaterial, individual and collective), but also assets and opportunities offered to the citizens who choose these areas as their place of work or residence. In the case of studies that adopt a subjective nature, they are based on direct population surveys, seeking to assess the opinion of respondents with regard to their life in general, or in relation to different realities in the social, economic and environmental context in which they live. This kind of research generally supports the analysis of value systems and preferences of individuals. In recent years, the importance of a more subjective analysis has emerged, associated with the more widely recognized importance of the participation of citizens in political decision-making. The appraisal of the perception that people have of local policies, living conditions and the attractiveness of cities has led to a growing focus on this approach. Several methods have been proposed to assess these issues (cf., for example, Sirgy et al. 2000, 2006). Examples applied to the supranational level include the surveys implemented by the EU agency Eurofound in 2003 and 2007 and by the European Commission in the context of the project *Urban Audit* in 2004 and 2006. At city level, some recent examples include the cities of Bristol, Dover and Liverpool, all of which in 2008, and Dallas in 2009.

Although the majority of studies reviewed have opt for one of the two approaches, either objective or subjective, they are not contradictory. On the contrary, the complementary nature of these approaches has become increasingly more evident (Cummins 2000a, b; Santos and Martins 2007; Stiglitz et al. 2009).

The monitoring system on urban quality of life developed by the city of Porto does in fact combine these two approaches, objective and subjective:

- the objective approach is based on a panel of about 80 statistical indicators which aim to portray the various dimensions of urban quality of life that have been mentioned.
- the subjective approach is based on survey data concerning the opinions and expectations of citizens on their individual quality of life and their everyday experience of living in Porto.

Objective Approach

The approximately 80 statistical indicators selected, which aim to portray the various dimensions of urban quality of life presented before, were chosen based on a broad debate involving the working group directly in charge of MSUQL project coordination, the local authority officers from other departments and, academic experts. The indicators were essentially selected based on the following criteria:

- Relevance: does the indicator effectively reflect the quality of life aspect that you wish to portray? From among all similar indicators, is it the most appropriate one?
- Clarity: an indicator is required that can provide an unambiguous, clear-cut reading of the quality of life. The indicator should be simple enough to enable a clear reading of the situation by the public and avoid situations in which several interpretations can be made, making the indication being transmitted unclear.
- Data availability: are the statistical data available or easily obtainable? Or is it a clear and relevant indicator, but for which it is not possible to collect information?
- Comparability: the selected indicators should provide a comparison over time and with other projects. Since the system implemented is a monitoring system, it is crucial to monitor the indicators over time, thus indicators whose definition has been changed are to be avoided. It is also desirable that these indicators enable, as far as possible, comparisons with other studies intended to quantify the quality of life in other geographical areas, making it possible to compare the situation experienced in Porto with other cities.

In Appendix A the selected indicators are presented and grouped into the four areas considered.

With regard to the nature of the indicators themselves, despite a concern with characterizing the situation not only based on the available resources and conditions (input indicators), but also the fact that they are accessible to and used by the population (outcome indicators), it was not always possible to ensure that all topics were handled under both types of measures, a fact which is explained primarily by constraints related to the availability of basic information.

Another methodological issue of particular importance in this project relates to the reference population used to calculate capitation rates. Whenever it was necessary to use relative values instead of absolute values, for example, in the case of

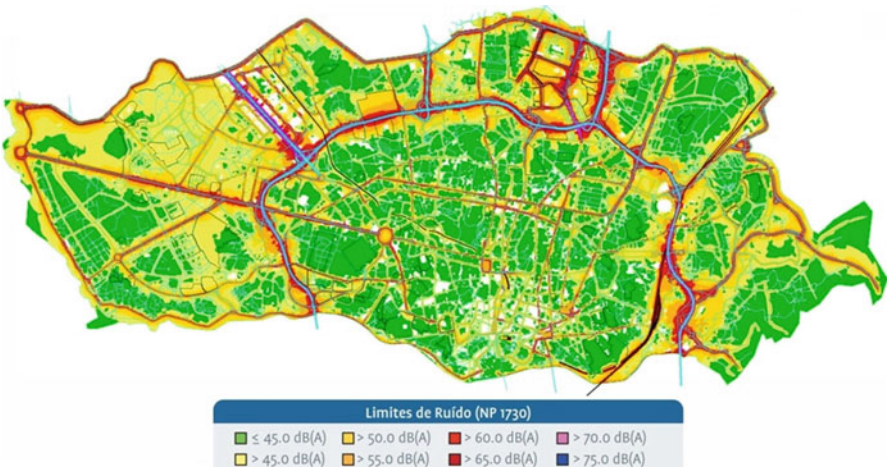

Fig. 4.2 Porto Area Noise Map – night time (Source: CMP-DMASU-GA)

allocation of facilities, we used the resident population in the city, even though undoubtedly the population which does in fact use the facilities extends far beyond the city, due for the most part to Porto's highly attractive profile as a service centre. This naturally requires that the interpretation of results take account of this fact.

The monitoring exercise is performed through the analysis of data series for Porto covering the temporal dimension and, whenever possible, using spatial benchmarking exercises, which confront the city's figures with those from the metropolitan surroundings (NUT III), the national reality and, in the case of a small number of indicators, the European context (for example, cities integrated in the European *Urban Audit* project).

Next, two examples are presented of information collected and processed in the case of two indicators from the "environmental conditions" domain. The first indicator, "Population overexposed to night noise levels", indicates the percentage of the population exposed to night noise levels higher than or equal to 55 dB(A). Based on the data contained in the "Porto Area Noise Map 2009" (Fig. 4.2) it was possible to obtain a value of 25.6 % for this indicator.

The second example refers to the "recoverable municipal solid waste" indicator and is defined as the percentage of waste collected and disposed of, as separated by the population (paper, glass, packages, wood, green waste and other waste), with the purpose of being recovered (set of operations aiming to reuse waste, including recycling, reuse or recovery) (Fig. 4.3).

The production of recoverable solid waste in 2010 reached about 17 % of the total municipal solid waste produced in the municipality, which represented a rise of approximately 56 % compared to 2006 figures. For this indicator, it was possible to obtain a consistent series for the last 5 years, which enabled an evolutionary reading of the situation in the city. A comparison was also performed with the current situation at national level, which is not described here.

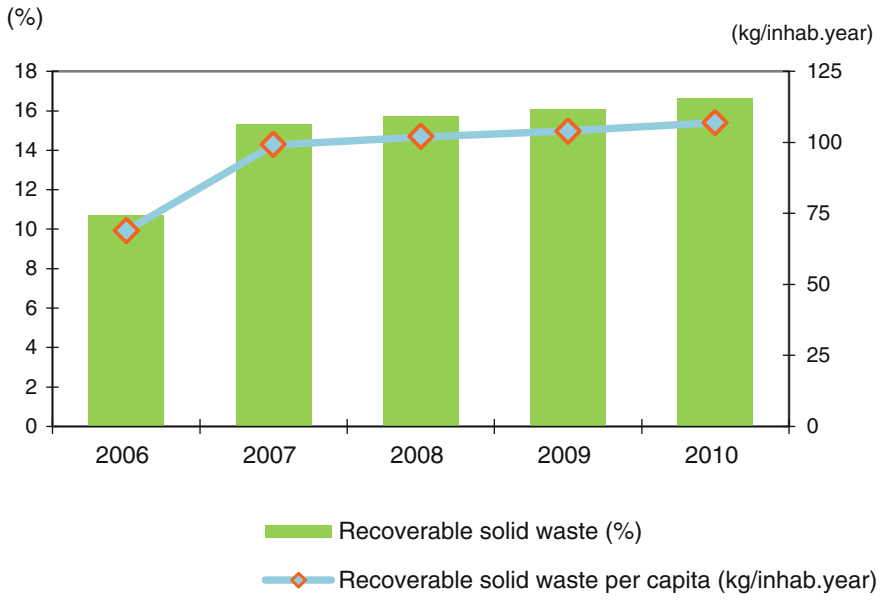

Fig. 4.3 Recoverable municipal solid waste in Porto (Source: CMP-DMASU-DMLUT)

To present the results of the quality of life objective assessment, a summary table is usually prepared for all the indicators with information on the last value obtained and, in cases with a chronological series for a minimum of 4 years, the observed trend is analysed with an indication of whether it was a favourable, unfavourable or stable evolution in terms of quality of life in Porto. This assessment is made on the basis of quantitative rules to guarantee a consistent approach across indicators and to avoid ad hoc value judgements. A change is considered to be significant (favourable or unfavourable) if the average annual growth is greater than 1,5 % in absolute terms. It is reasoned that no significant change has occurred if the annual growth rate is between −1,5 and 1,5 %. Table 4.1 presents an example of one summary tables, in this case concerning the environmental conditions domain.

A project of this nature is obviously very demanding in terms of the required statistical information. The selected indicators are based on about 200 basic variables that have to be collected annually. A first source of information is the municipality of Porto itself. Indeed, since the project beginning, efforts were made jointly with different departments to set the rules to collect relevant information for this project, which in many cases the services already compile on a regular basis, but in some cases required specific proceedings.

In addition, there is a network of institutions that support the project. Since the city's information system doesn't cover all the project data needs, it was necessary to establish contacts and agreements with about 30 public and private institutions. These institutions provide approximately 70 % of the basic variables. Among such entities, the National Agency of Statistics and the Ministry of Employment and Social Security are particularly relevant.

Table 4.1 Environmental domain – summary table

Indicator	Unit	Latest value		Evolution	
		Value	Year	Trend signal	Period
Green spaces					
Public green spaces	m^2/inhab	11.3	2007	n.a.	–
Extension of streets with trees	km	107	2007	n.a.	–
Climate					
Days with rainfall	%	32.1	2007	+	2003–2007
Average hours of sunshine per day	no.	7.7	2006	+	2002–2006
Average temperature of the coldest month	° C	10.0	2007	°	2003–2007
Average temperature of the hottest month	° C	21.6	2007	°	2003–2007
Noise					
Population overexposed to noise levels at night (≥ 55 dB(A))	%	25.6	2009	n.a.	
Complaints lodged at City Council due to noise	no.	392	2010	⇳	2006–2010
Air quality					
Days with good or very good air quality indexes	%	74.0	2009	+	2005–2009
Days with exceedances of PM10	no.	27	2009	+	2005–2009
Water					
Records of good bathing water	%	88.3	2009	+	2005–2009
Domestic water consumption	m^3/inhab	46.5	2009	°	2005–2009
Treated wastewater	%	84.4	2006	+	2003–2006
Energy					
Domestic electric power consumption	thousands of kWh/inhab	2.2	2009	°	2005–2009
Buses using alternative energy	%	52.0	2010	°	2006–2010
Solid waste					
Recoverable municipal solid waste	%	16.7	2010	+	2006–2010

+ Favourable evolution
– Unfavourable evolution
° Stability
⇳ No trend defined

It should be noted that, for both the city services and external providers, it was necessary to establish the methods and routines to ensure data quality and consistency over time.

Given the large amount of information collected and updated regularly, a specific computer application was developed, which provides the ability to store and statistically analyze this information, as well as to organize all the metadata associated with it.

Subjective Approach

The second approach adopted to assess quality of life, uses data on the perception of citizens regarding quality of life in Porto. The collection of this kind of data is accomplished through surveys, which seek to assess the level of satisfaction of individuals – globally and regarding different dimensions –, but also information on the importance respondents attach to the different dimensions of individual and collective life. This approach enables, in a subsequent step, a comparison between the results obtained from the quality of life assessment based on objective data and interpretations based on opinions of the very people who live and use the city.

A number of researchers have emphasised the limitations of the use of subjective measures (see, for example, Veenhoven (2002). Those measures are often considered unstable, difficult to compare and sometimes based on unintelligible criteria. Additionally, the perceptions of individuals are not necessarily directly related to the objective situation upon which they base their perception (for instance, when someone is asked about personal income, the level of satisfaction concerning their financial condition may not have a direct relationship to their actual income, but may rather be determined by aspirations and the course of life).

Notwithstanding the validity of this type of reasoning, the idea that has been gaining ground is that the combination of both approaches is the most promising perspective for a more complete evaluation of urban quality of life. The acquisition of information about the importance that citizens give to the different fields concerning quality of life represents an important support for policy definition and for the establishment of long-term goals shared by the community. Another added value of the complementary subjective approach is that it can offer to the decision makers an integrated evaluation of the quality of life in the city, something that is very difficult to summarize in a single objective indicator.

A first survey was conducted in 2003 exclusively on residents in Porto aged over 15 years. The questionnaire was applied to 2.400 individuals, at the interviewees' homes, equally distributed in four predefined areas of the city. A summary of the main results is available in the report on quality of life in Porto published in 2003 (Martins and Santos 2003). An example of the data processed is presented in Fig. 4.4, which shows the respondents' answers regarding the evolution of quality of life in Porto overall and also in the respondent's area of residence. The differences reported among the city's different areas are significant.

Besides presenting the data collected in the survey, it was also possible to proceed with more detailed and thorough analyses of the different results. For example, using multivariate analysis techniques, based on the data regarding the evaluation that respondents made of the city's evolution in terms of quality of life in 21 predefined thematic areas, it was possible to group the respondents into large homogeneous groups and proceed with their socioeconomic characterization (Santos et al. 2007).

A second survey is currently in progress, for which a questionnaire has been prepared, as well as a corresponding pre-test as been conducted. It is intended that this new survey be applied regularly, possibly every 2 years and, in addition to some

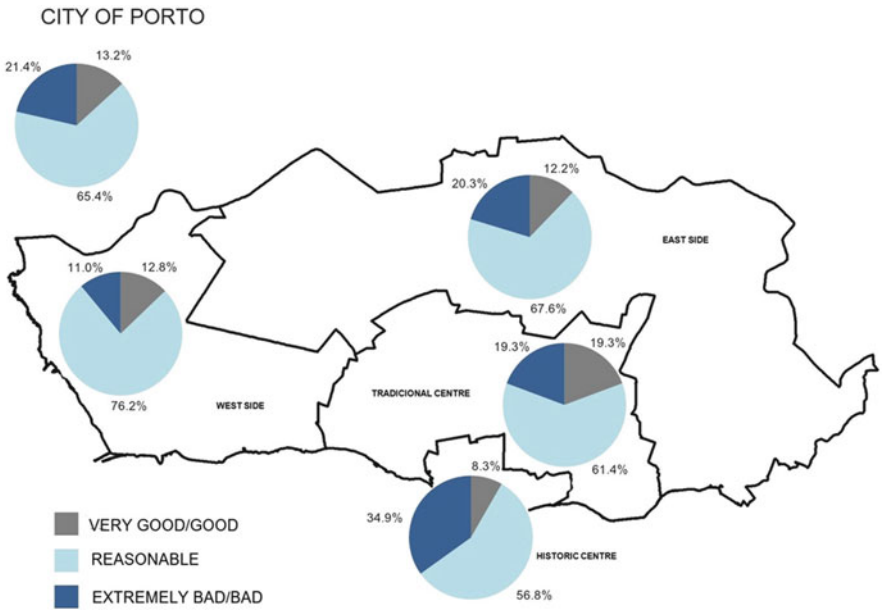

Fig. 4.4 General evaluation of the quality of life in Porto

basic questions related to perceptions of quality of life in the city and in individual terms, the survey may serve as a means to collect quantitative data in areas for which there is no statistical information.

The new survey was structured into five major sections, from which the first four should be repeated in all the surveys so as to ensure a basis for evolutionary analysis, and a final, more variable section, intended to collect unavailable statistical data.

The following sections were defined:

- Overall quality of life
  The aim is, in general terms, to examine the respondents' concept of quality of life, and to identify, from a list of about 20 aspects, the most relevant aspects for a city to offer good quality life.
- Quality of life in Porto
  Now with reference to the case of Porto, the aim is to characterize the quality of life in the city, both at present and in terms of evolution over the last 2 years, as well as identify the most positive and negative aspects of urban quality of life.
- Quality of life in the place of residence
  The quality of life examined in the area of residence of the individual. Regardless of the characterization of the city as a whole, the objective here is that the respondents assess the quality of life at their place of residence: ease of access to a range of local services and goods; social, environmental, urban and safety issues encountered in the area of residence; availability or willingness to change place of residence to improve their quality of life.

- Individual quality of life
  Quality of life but only in individual terms: satisfaction with personal quality of life at present and evolution in the last 2 years; importance of various aspects of personal life; potential social networking in solving possible personal life issues, commuting from home-work.
- Variable section – Leisure time (current survey).
  In the current survey, the variable section aims to examine the respondents' leisure time: physical activity, occupation of time in various activities, leisure activities. In future surveys, it is intended that this section serve to collect other quantitative information that in not currently available on official statistical producers or other institutional sources.

The survey concludes with some questions regarding the respondents' socioeconomic characteristics

The results obtained in Porto's first survey suggest that it can be very useful to complement objective knowledge with the citizen's opinion in certain domains in order to achieve a deeper understanding of the local conditions. In the case of Porto, a first conclusion, when the results of these two approaches are independently compared is that they are highly correlated. In fact, for 14 thematic areas it was possible to make a direct confrontation between the statistical indicators and the qualitative results of the survey. In ten of these areas, the situations revealed by the statistical indicators are in accordance with the levels of satisfaction of the residents. However, there are some particular cases where there was no coincidence between the objective and the subjective approaches. The most evident thematic area where the situation was characterized differently by the objective indicators and by the resident's opinion were "crime and urban insecurity": the objective indicator of the crime rate (Society domain) indicates a very low value reported for "crimes per 1,000 inhabitants," showing that the city of Porto is quite safe when compared to a great majority of European cities. Nevertheless, in the survey of the resident population of Porto "urban insecurity and crime" was indicated in first place as the most negative aspect of the quality of life in Porto. This perception of insecurity showed by the interviewees is fundamental in defining urban policies and must be considered in spite of its apparent contradiction with the information given by the statistical indicator.

Finally, it is important to highlight the relevance of using subjective measures in the cases where the objective indicators are limited in their ability to capture the realities intended for evaluation. An interesting example is the global measure of housing quality, which can be rendered more easily by the degree of satisfaction expressed by the actual residents than by means of one or even several numerical parameters.

Reporting Results

The first QOL report was released in 2003 and is a first integrated assessment of the living conditions and subjective well-being in the city of Porto. The report is structured around three sections. The first section introduces the MSUQL project,

drawing attention to the underlying conceptual and methodological framework. The second section concerns the quantitative assessment, presents the statistical data and analyzes the present situation and the evolutionary trends. This section also presents the contributions of experts in the four domains in order to promote reflection and integrated approaches to the different dimensions of quality of life in the city. The third section of the report focuses on the main findings and conclusions that result from the data survey analysis.

A second report was released in 2005. It is, essentially, an update of the statistical data, but also provides an analysis of trends in the four major areas defined in the analytical model.

The third report, to be presented in 2012, highlights the update of the panel of statistical indicators and presents the data for those indicators. It contains a comprehensive analysis of the present situation of the city and the progress registered in the last 5 years.

The reports are available as printed documents but can also be found in digital format at the city's web site.

In addition to those QOL reports, the indicators system has also provided data to various research projects of the Studies and Planning Unit and to multiple thematic reports of other departments of the municipality.

With a view towards sharing knowledge and operational solutions, the MSUQL project has also been presented at several conferences (see Appendix B), and some of its results have been discussed in scientific articles and other publications (Santos and Martins 2007; Santos et al. 2007).

The Evolution of the MSUQL Project: Some Lessons Learned

The implementation of a monitoring system on urban quality of life based on a panel of about 80 statistical indicators and on qualitative information concerning the citizens' perception has made this project a pioneering initiative at national level. The results obtained over these 10 years underscore the viability of the options made in terms of concepts, methodologies and work routines, and allow us to state that, despite necessarily having to improve certain issues, the general aims defined were achieved overall.

Looking back on the work developed, it becomes clear that factors such as the team's stability and enthusiasm, the project's strong identity and continued local funding for project activities, all contributed towards such results. These factors were, indeed, crucial to the ability to find answers to the difficulties that emerged over time. We will describe two specific examples of the constraints the project faced, both quite distinct in nature. The first constraint is of a technical nature, related to issues and difficulties in terms of information, mostly stemming from the principles followed when deciding whether to apply more deductive or inductive approaches to the structuring of the indicator systems. This is a recurring constraint in this type of urban monitoring projects, widely reported in international literature. The second constraint relates to problems faced which, although also described in

other projects, are imbued with national specificities, given the prevalence of a political and administrative culture that is not very open to cross-sectoral cooperation, in addition to the lack of a participative civic culture, particularly in areas of this type. In both cases, we will describe the strategies – some clearly more tried and tested than others – that have been employed locally to overcome or at least mitigate their practical effects.

Limitations on the Use of Institutional Sources

Although it was imposed as a "natural" solution, the choice to develop the monitoring system in its objective approach based essentially on pre-existing information (collected from official statistical data producers and other institutional sources) has raised a number of difficulties over the years.

First, it should be noted that this option – which in comparison with the alternative of collecting primary information presents obvious advantages in terms of time and cost – has proved a restrictive factor on the choice of several indicators used to measure the local quality of life. A system of indicators is always a simplified model resulting from a selection exercise but in this case, and in various thematic areas, some of the indicators used do not in fact reflect initial preferences, but rather secondary options in the absence of "ideal" descriptors.

Although there is a widespread notion that available statistical information has grown robustly in recent years, the truth is that in the specific case of Porto, several gaps identified in the initial phase of building the database still persist after 10 years, apart from the fact that many of the indicators used are still "second" choices. For instance, despite the concern with systematically assessing the city's situation not only in terms of conditions and available resources, but also in terms of their access and use by the population, it was not always possible to ensure that all the themes were covered by both types of measures.

This fact goes to show, at the outset, that many of the indicators that can now be easily obtained to characterize the reality of countries and regions – and which create the idea of statistical abundance – have not yet been disaggregated to the urban setting. Thus, this spatial scale still remains deficient when it comes to quantitative information, especially with regard to new key areas of well-being. Topics for which this lack of information is obvious include, for example, social capital, time use, or technological literacy. In such circumstances, the answer to this difficulty has been to test and use progressively more satisfactory proxies, although some dimensions of quality of life have yet to be monitored. To overcome such limitations, as mentioned above, a new possibility is being considered to include questions to collect this type of data in new project surveys, adopting a structure of fixed questions modules and rotational modules. In so doing, some of the most serious gaps may be filled.

A second difficulty associated with this dependency on available databases concerns the effort to maintain the consistency and integrity of the information system. Over the years, the way in which the different local and national organizations comprising the network of MSUQL providers collect, structure and disseminate information has undergone significant changes, which poses major obstacles to the construction of long-run and consistent time series for several indicators of urban quality of life. There are many reasons to explain this change – first and foremost, situations related to administrative decisions and legal changes. In the event that information providers do not share the same status as producers of official statistics, a lower sensitivity to the strategic importance of being able to track trends over time, coupled with a lack of standardization in terms of the collection process, also helps to explain, in many cases, permanent changes of concepts and methodologies between successive collection times. Given that under MSUQL the aim of annually updating the panel of statistical indicators was set from the start, the general problem of the consistency and integrity of the information series is a constant concern. As a result of this "pressure", a project culture was developed based on the idea that the database is under permanent construction, without hesitating to recalculate the whole series of temporal data, whenever necessary and possible, in order to adapt the stored data to new concepts, methodologies and classifications.

Finally, a third limitation imposed by exclusive reliance on institutional sources relates to the fact that uniformity cannot be ensured as to the chronology of basic information for the several different indicators. With the increasing sophistication of collection, processing and dissemination technologies, many providers began to offer more updated information. Unfortunately, this reality is not yet widespread which requires working with unmatched time series when analyzing the evolutionary trends of the various and most recent dimensions of urban quality of life (the last 5 years of available data is usually adopted as the timeframe). The awareness that this situation reduces the possibility of developing interrelated interpretive readings of different indicators, critical to developing a truly holistic view of quality urban of life, led to the collection and organization of basic statistical data on an ongoing basis so as to minimize differences in terms of updating.

Vertical Logic of the Project

Although the potential of MSUQL to act as a platform for dialogue and consultations concerning the development of the city and the priorities of intervention – by the municipality, the different urban stakeholders and the general population – has long been recognized, it has yet to be applied as an effective tool of urban governance. The fruitful collaboration established with a large number of local institutions to share statistical data has not been as successful when it comes to broadening discussion on the city's situation and, even less so, in relation to the definition of concerted efforts aimed at implementing specific intervention programmes and measures.

Its expert-oriented origin has not helped in encouraging broad public debate on the relevance of measuring urban quality of life and the best means to do so. Indeed, the choice of indicators only involved the project's technical team, officers from various departments and organic units of the municipality, and also a team of academic experts who were asked for a critical appraisal of a first internally-designed base proposal. The dominant institutional culture, which is not conducive to discussion and inter-sectoral cooperation, in addition to the recognized lack of participative attitudes of the Portuguese society in such matters, have also contributed in this regard. Thus, the reactions of different stakeholders to the results of the project may be viewed having had little consequent. The results were presented in numerous public presentations (the start-up was an open seminar in which 120 people participated), disseminated through written documents and made available on the city website. Within academic circles, the project's impact has been more significant, with a number of dissemination sessions held for university students over the years, both in the Porto area and in other universities throughout the country.

Even within the municipality itself, in which participation in the development of the monitoring system was more active, the prevalence of a highly hierarchical and sectoral rationale of organization and activities, supported by relatively traditional work practices in some cases, has revealed to be a barrier to the appropriation of the indicator system by various services. They continue to show some resistance in accepting the integrated quality of life referential, adopting instead strictly sectoral objectives and goals in terms of action planning and evaluation. Although it is understandable that the various municipal departments may be interested in organizing and maintaining independent databases related to their sectors of activity, it is nevertheless important to ensure that the monitoring system on the quality of life is shared in corporative terms. There is an overriding concern in ensuring that all departments can access project data and directly explore and analyze certain specific indicators by means of an intranet application, precisely to facilitate its regular use for planning and management purposes by all the potential beneficiaries of such a tool.

Challenges for the Near Future

Following a reflection conducted in 2010, where some adjustments were introduced to the thematic structure of the initial analysis model and some of the indicators were replaced, additional elements were identified to improve the monitoring system on quality of life in Porto. The aim consisted in increasing its effectiveness in supporting urban diagnosis and civic engagement, as well as the ability to influence decision-making by different stakeholders. Therefore, at the same time as a new urban quality of life report was structured to be publicly presented in early 2012, and all the routines for updating the information system were maintained, two main challenges have been identified.

Measuring Disparities

The objective evaluation of the city's average conditions in the various dimensions of quality of life should be complemented by quantitative measures that can account for inequalities and spatial contrasts. This has been a growing concern in view of current economic, social and environmental changes, which tend to accentuate the differences between places and social groups within cities – producing phenomena of serious spatial fragmentation – and raise the need to find new answers to problems. Identifying and understanding the patterns of intra-urban disparities on quality of life should be a new MSUQL concern since this type of knowledge appears as a major input for the design of new, more innovative and integrated urban policies, designed according to specific combinations of problems, potentialities, resources and actors.

A recently begun study is aimed at identifying and characterizing intra-urban variation of quality of life. A key component of this exercise concerns the development at sub-level-scale (413 spatial units) of what can be called a neighbourhood quality of life conceptual framework. The pilot version, which shall subsequently be submitted to broader discussion, includes 11 thematic areas structured into two main blocks: spatial conditions and individual conditions. Several quantitative measures – which shall constitute the headline indicators in each of the quality of life dimensions considered – are currently being selected. Despite the scarce statistical data officially available on this scale, it was possible to basically calculate a number of indicators through digital mapping, lists of data associated with postal addresses or other forms of geographic location, performing a set of operations and analyses using GIS (Geographical Information Systems) technology.

Based on this new analytical model, we aim to develop a spatial typology that reflects neighbourhood quality of life profiles. These should describe the common distribution of conditions with regard to different quality of life dimensions within the urban space and should not result in any synthetic indicator. From here, analyses on the mechanisms of interaction can more easily be developed and the effects on people's everyday lives better understood. The basic assumption of this project is that monitoring at the scale of neighbourhood units can provide a richer and more accurate basis for problem diagnosis and the design of innovative solutions. Additionally, being more in touch with people's daily lives, this approach may also promote greater participation and the shared responsibility of communities and individual citizens in urban development processes, thus helping to establish new and more collaborative planning and intervention practices.

Strengthening Community Involvement

The strategic management of cities in the mid/long term necessarily implies defining, as clearly as possible, what is understood by quality of life. Hence, rather than

involving the whole community in the, at times, very technical discussion on which are the best indicators to use, it is more important that participation be oriented first and foremost to more successfully clarifying the priorities and direction to be followed in terms of individual and societal well-being. Given the reduction of public resources, society's options should be redefined. In this context, it is crucial to acquire a greater understanding of the values and aspirations of citizens and that a consensus be reached on a vision of the future, based on determining which exercises to assess the progress observed could be more consequential. In this context, a particular important area of investment in the MSUQL project concerns the channels to communicate the results of monitoring urban quality of life, such that they can be used by the whole community and well understood by all. To this end, and in addition to the analysis reports that have been produced, new ways are being designed to present and disseminate the results in a more interactive and friendly manner, exploring innovative graphic concepts and a new language to be used in the context of information and communication technologies.

Conclusion

There is currently a broad consensus on the need for cities to strengthen their capacity for collective reflection and inter-institutional dialogue with a view to achieving greater convergence and coordination of actions by different urban agents.

Although traditional quality of life indicator systems are very useful tools in this context – offering an integrated view of urban challenges and problems, as well as contributing to raising public awareness –, to endow them with new components may be critical to mobilize the different stakeholders. This is, however, an exercise that has to be assumed by every city and will have to take into account the specificities of each project and the local cultural and institutional context. In the case of Porto, the elected options have to do with the diversification of targets in the analysis itself – which, in the future, shall also focus on identifying intra-urban disparities and monitoring different quality of life dimensions from a relational viewpoint –, and an attempt to innovate the manner in which results are reported, complementing the more traditional technical reports with the development of contents accessible via web interface.

Appendices

Appendix A – MSUQL Quantitative Indicators

Domain	Theme	Indicator
Environment	Green spaces	Public green areas
		Extension of streets with trees
	Climate	Days with rainfall
		Average hours of sunshine per day
		Average temperature of the coldest month
		Average temperature of the hottest month
	Noise	Population exposed to noise levels over 55 dB(A) at night
		Complaints lodged at the PCC due to noise
	Air quality	Days with good or very good air quality index
		Days with exceedance of PM10
	Water	Records of good bathing water quality
		Domestic water consumption
		Treated wastewater
	Energy	Domestic electric power consumption
		Buses using alternative energy
	Waste management	Recoverable municipal solid waste
Collective material conditions	Cultural facilities	Public libraries
		Art galleries and other exhibition spaces
		Museums
	Sports facilities	Multisport centres
		Swimming pools
		Other sports facilities
		Extension of bike lanes
	Educational facilities	Primary and secondary education schools
		Pre-school education institutions
	Social and health facilities	Capacity of nurseries
		Capacity of residential homes, day centres and home care services
		Hospital beds
		Primary care centres and units
		Doctors
		Primary care centre patients without a family doctor
	Built environment	Buildings licensed for rebuilding
		Revitalized public space

(continued)

(continued)

Domain	Theme	Indicator
	Mobility	Average speed of individual transport
		Average speed of public transport
		Passengers of public transport
		Parking lot places
	Retailing and services	Commercial retail establishments
		Support services for the population
		Hotels and restaurants
Economic conditions	Income and consumption	Average monthly income
		Ratio between the 90th and the 10th percentile of average monthly income
		Disability and survivor pensioners
		Beneficiaries of Social Integration Income
		Purchases via automated teller machines (ATM)
		Passenger vehicles
		Pay TV subscribers
	Labour market	Private employment
		Employees with higher education
		Tertiary employment in knowledge-intensive services
		Unemployed enrolled in Employment Centres
	Housing market	Average cost of purchase
		Average cost of rent
	Economic dynamism	Variation of business establishments
		Variation of turnover of companies located in the municipality
		Variation of fuel sales
		Variation of total municipal expenditure
		Variation of nights in hotels
		Variation of passengers on commercial flights
Society	Population	Live births
		Population aging
		Foreign population who have applied for resident status
	Education	Higher education students (1st and 2nd cycles)
		Postgraduate students
		Retention and dropout rates in secondary education
	Cultural dynamics	Cultural events
		Temporary exhibitions
		Museum visitors
	Civic participation	Voters who have exercised their right to vote in the last four elections
		Women elected to municipal bodies
		Regular volunteers
		Cultural, recreational and sports associations

(continued)

(continued)

Domain	Theme	Indicator
	Heath	Early mortality
		Mortality from circulatory diseases
		Incidence of notifiable diseases
		Live births to teenage mothers
		Suicides
	Safety	Criminality
		Road accidents with dead or seriously injured persons
	Information Society	Families with computer
		Families with internet access

Appendix B – Invited Presentations of the MSUQL Project

Year	Invited presentations	Location
2003	Policy Working Group on Urban Research Meeting	Brussels
2003	X Conference of the Portuguese Association for Regional Development (APDR)	Évora
2003	Policy Working Group on Urban Research Meeting	Porto
2003	Eurocities – Annual General Meeting	Porto
2004	Seminar at the Master in Public Health, University of Porto	Porto
2004	Strategic Reflexion Meeting – Porto City and Region	Porto
2004	Working Group – Cities of Porto and Lyon	Lyon
2005	Intensive Seminars – Portuguese Catholic University	Braga
2005	Globalcity conference	Cannes
2006	Eurocities – Social Affairs Forum	Porto
2007	Seminar at the ISCTE – University Institute of Lisbon	Lisboa
2008	Seminar at the University of Aveiro	Aveiro
2010	Seminar at the Institute of Public Health, University of Porto	Porto
2011	City of Helsinki Urban Facts' Centenary Conference	Helsinki

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Chapter 5
State Level Applications: Developing a Policy Support and Public Awareness Indicator Project

Rhonda Phillips, HeeKyung Sung, and Andrea Whitsett

Abstract Indicator projects have numerous goals and one of the most pressing is providing information to support policy decision-making. Whether it is to encourage policy changes or monitor existing policy, indicators can often be the focus point for starting dialogue around issues and potential solutions. Further, indicator projects can provide a public awareness mechanism, bringing data to the forefront so that reactions and responses by those most impacted can be addressed. This chapter begins with an exploration of the policy support and public awareness dimensions of indicator projects. While there are numerous local, regional and even national indicator projects, there are less at the state level. However, at this level, indicators can often serve as discussion points for addressing policy issues while at the same time broadening awareness of key concerns. An overview of state level projects is provided, including by types and approaches. Begun in 2007, Arizona Indicators has been selected for the case study, examining the process of creating a support system for policy and public awareness.

Introduction

Indicators are essentially bits of information combined to provide insight into an area's status, whether progressing, static, or regressing. Because indicator projects incorporate more than a few indicators typically ranging across the area's concerns (economic, equity, environmental) or even a specific component of an issue (child well-being, for example), they can provide a holistic view of what is happening.

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It is this strength of indicators that attracts many to explore how to design, implement, and use indicator projects. There is often an underlying foundation on which indicator projects are built – to influence or monitor policy so that the area's status can be directed, stabilized, or improved. Data are a powerful initiator of discussion and attraction, and the more residents and other stakeholders know about their area, the more likely they can influence policy approaches and outcomes. Public awareness is the other side of the foundation, by increasing access to and knowledge of indicators representing key issues, those most impacted by policy can respond in better and more informed ways.

Globally, there are numerous indicator projects at all levels. In the US, there are many local and regional efforts, but less at the state level. Given the links to supporting policy and increasing public awareness, state level indicator projects are worthy of exploration. State policy decision making and outcomes contexts can be difficult terrain to traverse and having reliable data in the form of widely utilized indicator projects can help with navigation.

Arizona Indicators is the case study for this chapter. Given the context of an oftentimes contentious policy arena in the state, the indicator project provides an excellent venue for exploring links between indicators, policy, and public awareness.

Policy Support and Public Awareness

Well-developed indicator systems can pull together various social phenomena and show comprehensive pictures about communities, regions, states or provinces, and even countries. Since Kuznets and colleagues developed the U.S national account and presented initial estimates of national income in a 1934 report, policymakers recognized the need for comprehensive economic data in order to develop policies (Fox 2011). In 1942, gross national product (GNP) was developed; it resulted in understanding more broad aspects of economies. Since then, as an indicator, it has enabled people to understand and measure their economic market valuation. However, there were obvious limitations to measuring nonmarket activities such as quality of life and social well-being (Hagerty et al. 2001; Land 1983). In the 1960s, social scientists were interested in social indicators to reflect social well-being and conditions of society in an objective way. This eventually led to development of various types of indicator projects such as healthy communities, quality of life (Hagerty et al. 2001), sustainability (Holden 2006; Holman 2009), benchmarking, and performance evaluation (Dluhy and Swartz 2006; Phillips 2003).

Currently, numerous local communities and countries are already using indicators to measure their economic, social, and environmental situations. The gross domestic product (GDP), teen pregnancy rate, mortality rate, water and air quality indexes, and unemployment rate are common examples. Many studies have explored the indicator approach in order to track patterns, give a prognosis of all areas of life, and measure the progress toward shared visions and goals (Besleme and Mullin 1997; Custance 2002; Dluhy and Swartz 2006; Gudmundsson 2003; Hezri and

Dovers 2006; Vogel 1997). An indicator may be defined as a simple statistical marker, yet it typically includes crucial information that needs to be considered in order to understand the environment encountered. Hammond et al. (1995) stated that indicators are, "something that provide a clue to a matter of larger significance or makes perceptible a trend or phenomenon that is not immediately detectable (p. 1)." Also, some definitions are integrated with policy and planning (Gudmundsson 2003). They can be defined as "variable" or "parameter" indicating operational aspect of projects (Gallopin 1997) or showing degrees of development (or degrees of regression) in situations as compared to related goals. On the other hand, the Organization for Economic Co-operation and Development (OECD) provides a more general definition as parameters that give information on some phenomenon focusing on these functions of indications: simplification, measurability in quantitative term, and reflection of society's effort (OECD 1993). Gudmundsson (2003) formed his definition as, "variables constructed and selected to say something important about a particular social concern in a significant way" (p. 200). In summary, indicator projects provide something important – information and a comprehensive picture that create a framework for strategic planning, performance enhancement and evaluation (Walker 2005). Also, to be widely accepted, indicator projects must simplify complex issues and present them in forms easily understood by broad audiences (i.e., graphs and charts). In graphical or listing form, data can become a useful information tool that is easily understood by the public (Revenga 2005).

Indicator Functions

Indicator systems need to be as complete as possible, ensuring important issues in the region are represented. With development of indicator projects, the issue of utility is often considered. Hezri and Dovers (2006) offered conceptual typology of indicator projects: instrumental, conceptual, tactical, symbolic, and political use. The majority of studies, however, indicate the functional utilization of indicator projects. Regardless of the type of indicator project, common characteristics of function can be displayed under six key concepts: finding, measuring, monitoring, setting, changing and reflecting (see Table 5.1).

As society changes, indicators have become a critical component of policy making and for increasing public awareness of key issues. Although no longer in operation, Oregon Benchmarks served for several years as a good example of how indicator projects relate to and inform policy making considerations (Dluhy and Swartz 2006). Further, the system increased public awareness, giving an overall sense of the direction the state was moving (Schlossberg and Zimmerman 2003). It is this ability of a well-designed and calibrated indicator project or system to inform policy decision making that conveys benefits to all involved. The underlying idea is that residents and other stakeholders will respond to data trends, especially in areas that are of concern. A now well-known example is that of Seattle, Washington when residents realized that salmon populations were drastically declining and developed

Table 5.1 Functions of indicators

Key concept	Functions
Finding	Revealing core concerns
	Identifying information gaps
	Clarifying opportunities
	Information about past to present
Measuring	Tracking progress toward achieving result
	Evaluating performance
Monitoring	Monitoring collaboration between citizens, experts and decision-makers
	Producing a feedback system for decision maker
	Identifying emerging threats to community
	Early warning system
Setting	Setting community's priorities
	Predicting quantifiable thresholds
	Suggesting feasible goals
	Implementing choices underlain by clear goals
Changing	Shifting attention to particular area
	Keeping track the progress in new dimensions of human responsibility and concern
	The ability to changes in process and policy
Reflecting	Providing a broader perspective
	Sharing of decision-making power via better information, communication and dialogue
	Increasing public accountability

Source: Compiled from information by Gahin and Paterson (2001), Holden (2006), Kline (2001), Land (1983), Maclaren (1996), Michalos (1997), Walker (2005)

indicators to monitor the situation. Pressure was placed on policymakers to respond and the indicators provided a useful mechanism to clearly monitor progress towards common goals (Holden 2006). The resulting project, Sustainable Seattle, (www.sustainableseattle.org) is widely cited and recognized.

Indicator Projects for Policy Support

A number of research studies emphasize the linkage between indicators, policies, and decision-making. First, indicators promote policy change. Revenga (2005) provides a model to explain the steps in achieving policy change (see Fig. 5.1). Even though some indicators have indirect relationships with policy aims, objectives, and outcomes, they still play an important role of providing feedback to policymakers. Over time, indicators can educate policymakers about their current conditions, help policymakers better understand whether their approaches are working well or not, encourage policy intervention to progress toward goals, and monitor and warn about threatening conditions (Gunmundsson 2003; Custance 2002; Dluhy and Swartz 2006; Hezri and Dovers 2006; Walker 2005). In this manner, indicator projects can

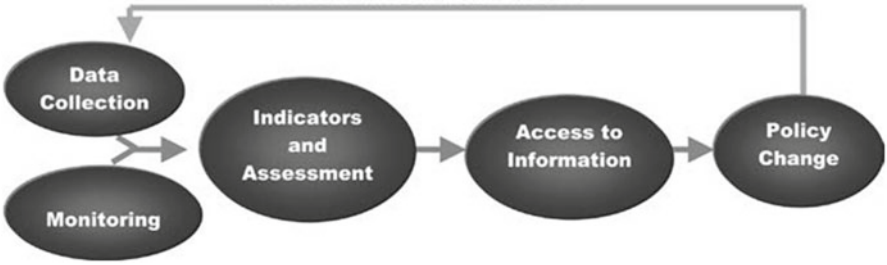

Fig. 5.1 Key steps in achieving policy change (Revenga 2005)

be a crucial part of political decision making – due to providing on-going mechanisms to assess overall well-being of an area (Moore 2003; Phillips 2005). Further, indicator projects provide a way to monitor what is happening in an area, whether considering implementation monitoring (did implementation go according to expectations?), impact monitoring (including for unintended outcomes) or strategic monitoring (to help with policy responses) (Hoernig and Seasons 2005).

Indicator Projects for Enhancing Public Awareness

Because indicators can be so closely connected to policy, they can also serve as an effective tool to increase public awareness. Early on, Land in his 1983 article stated that public enlightenment is an important role of indicators. Indicators are often designed to reflect the public's short and long-term concerns (Custance 2002); thus, indicator projects provide opportunity for the public to see changes taking place in the communities and regions where they live. In addition, through indicators, the public can not only become aware of their current conditions, but also develop shared visions and long-term planning processes with governing organizations. Further, the public can monitor how well their community and society are doing (Holden 2006; Land 1983; Walker 2005). In other words, indicator projects help raise public awareness, induce the public to have an interest in current conditions, enable the public to monitor the progress, and finally, give them a broad view of what has been accomplished and what challenges persist. More recent research studies show that successful indicator projects focus on community engagement. Many researchers argue that successful indicator projects are developed largely by public-driven efforts, rather than dominated by governing bodies or technical experts (Dluhy and Swartz 2006; Gahin 2003; Gahin and Paterson 2001). Indicator projects that lack public awareness and participation components are diminished to a collection of data that may or may not benefit the residents of the area studied. A major benefit of well-designed indicator projects that include public awareness and participation is that the public shares in their understanding, discusses what is desired and needed, and encourages policy responses.

A Review of State Level Projects

> *Indicators don't guarantee results. But results are impossible without proper indicators. And proper indicators, in themselves, can produce results*.
>
> —Donella Meadows (1998, 76)

Indicator projects at the state level are not as pervasive as those at the municipal or metropolitan area levels. Those that do exist tend to center on children and youth, the environment, or provide comprehensive reviews. Others are better categorized as specialty projects that focus on a "status" indicator set, such as projects commissioned by the Center for the Future of Arizona, providing a foundation for community action and policy change at the state level. The Center for the Future of Arizona commissioned *The Gallup Arizona Poll* (2009) to capture a comprehensive picture of citizen perspectives and viewpoints, leading to a citizen agenda, *The Arizona We Want*, the first report of its kind in the US (Center for the Future of Arizona 2011). Described as, "a realistic and contemporary picture of what citizens think about life in Arizona communities, what they want for the future, and how we can work together to achieve a common set of goals," this report provides a launching point for policy changes and initiatives (Center for the Future of Arizona 2009, p. 3). It is a major project for encouraging positive policy changes. Next, beginning in 2010 with yearly updates, *The Arizona Civic Health Index* looks closely at citizen engagement in Arizona. The most recent report, released in 2011, can be found at http://www.thearizonawewant.org/reports/chi2011.php. These reports are produced in partnership with the National Conference on Citizenship, which is chartered by the US Congress, and uses comparisons with 16 other states and large urban regions. The Index is a set of indicators to gauge civic health (Center for the Future of Arizona 2010).

Another major status report using indicators was conducted in 2009 for both Mississippi and Louisiana, via the American Human Development Index. The Human Development Index framework first commissioned by the United Nations and used by over 160 countries, looks at a comprehensive range of well-being: a long and healthy life, access to knowledge, and a decent material standard of living (Burds-Sharps et al. 2011). The framework was adjusted and applied in the context of these two US states for insight into their status on these important measures of well-being. It is a unique application of the Human Development Index at the state level, with both case studies in areas that have experienced persistent poverty.

Other state level specialty reports include those such as the Kids Count, a national and state level project of the Annie E. Casey Foundation that gauges the status of children in the US. There are projects in all 50 states, the District of Columbia, Puerto Rico, and the US Virgin Islands "to raise public awareness and accountability for the condition of kids and families by: (1) measuring and reporting on the status of children, and (2) using that information creatively to inform public debate and strengthen public action on behalf of children and families within the state"

Table 5.2 State Level Indicator Projects in the US as of 2011

State	Name of indicator project or system
Arizona	Arizona Indicators
Georgia	Georgia Community Indicators
Hawaii	Quality of Life in Hawaii
Idaho	Statewide Community Action Partnership
Maine	Maine Measures of Growth
	State of Working Maine
Maryland	Genuine Progress Indicator
Minnesota	Results Minnesota
	Minnesota Compass
	Minnesota Mapping
	Minnesota Milestones
Montana	Statewide Community Action Partnership
New Hampshire	New Hampshire's Changing Landscape
New Jersey	Governing with the Future in Mind
New York	New York Touchstones
Oregon	Oregon Rural Community Information System
	Statewide Community Action Partnership
South Carolina	South Carolina Indicators Project
Virginia	Virginia Performs
Washington	Statewide Community Action Partnership

(Annie E. Casey Foundation 2011, p. 1). Since 1990, the Foundation and their state partners have released an annual *Kids Count Data Book* to measure educational, social, economic, and physical well-being of children in each state. In some states county level data are gathered to convey a more detailed picture of the condition of children. The purpose of the project is to provide both residents and policymakers information to prompt data supported advocacy for children's well-being. Public awareness of the condition of children has increased as well as policy changes resulting from this project. Changes include new legislation in some states to better support children as well as changes in existing operational policies and management of programs to enhance child well-being.

In terms of general indicator projects that cut across a broad swath of measurements and domains, there are currently estimated to be 20 state level projects in the US. Using the Community Indicators Consortium database (2011) and other sources, the following states listed in Table 5.2 were identified as having a state level system or project currently in place.

All total, 15 states have a statewide project or system in place currently. One of the newest is Maryland's efforts to apply the Genuine Progress Indicator (GPI) at the state level. Other states that have calculated GPIs are Vermont, Minnesota, Ohio, and Utah. The GPI is designed to increase recognition that measuring economic activity alone, as with the Gross Domestic Product indicator, does not provide a full spectrum of considerations. Maryland's developers describe their application as,

> The Genuine Progress Indicator (GPI) provides citizens and policymakers fruitful insight recognizing economic activity that diminishes both natural and social capital. Further, the GPI is designed to measure sustainable economic welfare rather than economic activity alone…. 26 indicators (are identified) and then populated with verifiable data. As one example, the pure economic activity stemming from the explosive growth of urban sprawl contributes greatly to the GSP. Yet, along with sprawl come increased commuting time, increased traffic congestion, land use conversion, and automobile impacts. In short, just because we are exchanging money within an economy does not necessarily mean that we are sustainable or prosperous (Maryland's Genuine Progress Indicator 2011).

As seen in these examples, environmental and sustainability concerns often drive state level efforts. One project is Minnesota Milestones, begun in 1991, in which citizens helped to develop 79 indicators for measuring fulfillment of 20 short- and long-term goals (Phillips 2003). Some of these goals have been integrated into overall state policy and planning activities. The indicators are used to gauge progress toward goals in four categories: environment, people, community and democracy, and economy (Minnesota 2003). Vermont has adopted an outcomes approach to measuring progress towards such goals as preservation of the state's natural and historic built resources, with several indicators developed for each goal, placing emphasis on achieving desired outcomes (Murphy 1999). The outcomes can be very specific or more general, such as preserving a particular area of the state or developing supporting policies for preservation statewide, with indicators providing data to measure the success of these policies (Phillips 2003).

Quality-of-life considerations are another impetus behind some state level indicator projects. For example, Hawai'i's efforts center on preserving and improving quality-of-life aspects. In partnership with United Way and the University of Hawaii, the reports are updated periodically providing status on the well-being of the state in key indicators in economic, social and environmental domains. It includes county level comparisons in addition to state level data. The overall purpose is to, "invite discussion on how the positive aspects of Hawai'i's living conditions can be preserved and how negative aspects can be curtailed in the effort to attain and sustain a high quality of life for all community members" (Center on the Family 2011, p. 1). Other states focus on quality-of-life attributes too, including Virginia's system. Named "Virginia Performs," it tracks 49 societal indicators and links to agency performance plans (Virginia Performs 2011).

The type and level of public participation varies by project. In some states, large-scale public participation is elicited via meetings, forums, surveys, and social media platforms, to name a few of the input collection tools. Other states rely on partnership arrangements to represent broad segments of the population, and still others use committees comprised of representatives of area residents and/or technical experts. Local indicator projects tend to have more public involvement, given the scope and scale of the projects, while state level projects often rely on representative input. Despite the type of public participation, one element is clear about state level projects – increasing public awareness is a major goal. In turn, increased public awareness is assumed to link to policy responses due to increased awareness of issues, concerns, and desires of residents.

Case Study: Arizona Indicators

As mentioned previously, there are about 20 state level indicators projects currently in the US. We selected Arizona, given that the authors have first-hand experience with it as developers and contributors, and also because it represents a newer generation effort of systems. It started as an Internet-based project, not emanating from existing efforts or reports. Further, it is a response to the dire need for sharing data with the public, with the intent of encouraging both awareness and policy responses. This section provides background information as well as a look at the indicators and information distribution mechanisms used. As such, this project represents one that holds relevance for others interested in enhancing the use of indicators at the state level, and has many features that are generalizable to other places.

Arizona Indicators, a statewide community indicators system, provides an informative case study of a project designed to increase public awareness, promote informed decision making and encourage evidence-based policy responses. The project offers an interesting model since it began as an entirely Web-based project, unlike many of its peer community indicator systems, which trace their origins to a hard copy scorecard or quality-of-life report. Arizona Indicators is also noteworthy for the manner of its evolution, first amassing an impressive data repository for state and county level indicators and then shifting its focus to related policy analysis, public forums, polling, and outreach activities. The result of this organic, cross-institutional development is a complex indicator system with layers of interactive data tools, expert interpretation, and civic dialogue. This section provides a closer look at the project's initial design, influential factors in its development, and its statewide impact to date.

The Context

Arizona is a Southwestern US state with many challenges and opportunities on the environmental, economic, and social fronts. The state's capital, Phoenix, has grown rapidly into one of the ten most populous cities in the US. As the center of the valley where growth was rampant prior to 2008, the capital region has confronted challenges coming with rapid expansion and a history of boom and bust economic cycles. The needs for chronicling the domains impacted by high growth, then followed quickly by rapid economic decline, have been intense. Reliable sources of data, as compiled in an indicator system, has been needed for a while in this region.

In 2007, Arizona State University (ASU) and the Arizona Community Foundation (ACF) recognized that Arizona needed to better understand its competitive position and trajectory. These founding partners, along with other community sponsors and supporters, identified a need for a centralized, Arizona-specific data resource that could advance civil discourse and promote evidence-based decision making at the individual, community, and policy level. Today, Arizona Indicators is a web-based project that presents interactive data visualizations and mapping tools in eleven broad content areas. It also publishes original public opinion data and timely policy analysis with more than 35 reports presently in its publication library.

Arizona Indicators views indicators as measurements that describe conditions, simplify complex data, measure progress, and chart trends over time. There is an underlying philosophy that indicators should be objective and policy neutral, presenting facts and descriptions rather than subjective commentary. Data presented can prompt people to continue exploration of reasons behind trends and hopefully, this will lead to encouraging better policy outcomes. The project offers supplemental expert interpretation and policy options, but does not advocate for particular policy changes. Founded on these basic principles, Arizona Indicators aspires to build more vibrant and sustainable communities throughout the entire state (Arizona Indicators 2011).

Partnerships as the Focus

Arizona State University and the Arizona Community Foundation are the project's founding sponsors and continue to provide the vast majority of financial support. Morrison Institute for Public Policy at ASU manages the project and coordinates with numerous content contributors. *The Arizona Republic,* the state's largest newspaper, is a media partner. *The Arizona Republic* regularly publishes an "Arizona Indicators Snapshot" and has collaborated with the project to develop an interactive city comparator tool for select economic indicators. Arizona Indicators believes that more community involvement leads to higher quality indicators that resonate more deeply with their intended audiences. Partners also play a critical role in publicizing the project and introducing its data to new users. Table 5.3 lists Arizona Indicators project partners, which range from state agencies to nonprofit organizations and foundations. Having a diverse array of partners provides more stability as well as coverage. For example, partnering with the newspaper and media enables more discussion and broader exposure than otherwise possible. Often, the newspaper will release a story or latest report, spurring intense interest in a variety of issues of concern to the state's population. It can often begin the process of tackling difficult policy changes needed, by igniting the discourse and increasing awareness of the dimensions of the issues in question.

Table 5.3 Arizona Indicators project partners

Arizona Community Foundation
Valley of the Sun United Way
Arizona Commerce Authority
Arizona Department of Economic Security
Arizona Department of Education
Arizona Department of Health Services
Arizona Department of Transportation
The Arizona Republic
Lodestar Center for Philanthropy and Nonprofit Innovation
Association of Arizona Food Banks
First Things First
St. Luke's Health Initiatives

Process and Products

Arizona Indicators has a relatively informal process for the development of new indicators. Generally, new indicators are proposed by ASU scholars who contribute to the various content tabs. These scholars collect the data and propose descriptive text and graphic presentations. The Arizona Indicators project manager vets the data and confers with community experts in the field. The project also invites user feedback via the Web site and by soliciting comments at outreach presentations. The project strives to be responsive to user data needs and emerging topics of interest. For example, when the recession hit Arizona, the project added a Public Finance tab containing a wealth of data on state revenues and expenditures. With 11 broad categories of indicators, the project is comprehensive in nature, reflecting major issues of concern to the state's residents.

- Economy
- Public Finance
- Education
- Innovation
- Sustainability
- Culture/Civic
- Health
- Human Services
- Criminal Justice
- Transportation
- Demographics

These broad categories touch on the key issues that Arizonans are seeking to address. For example, the Human Services tab includes data on child poverty. This is

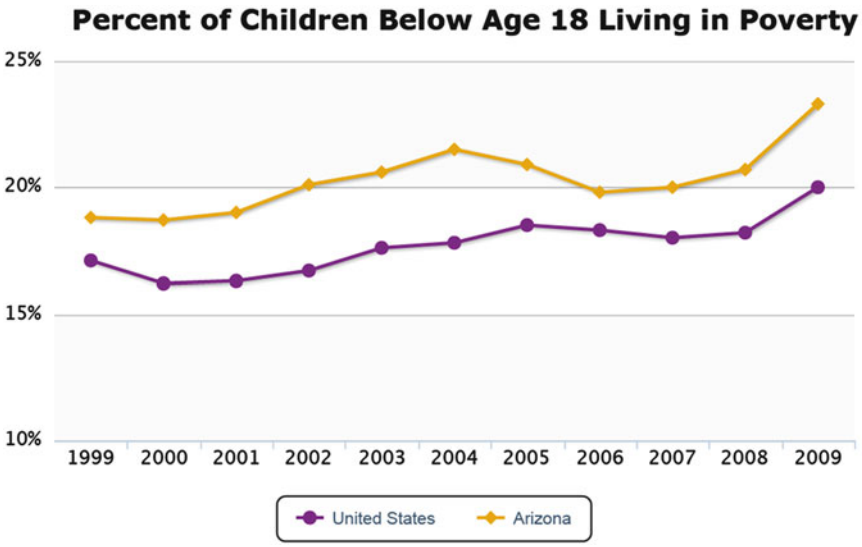

Fig. 5.2 Child poverty in Arizona, an indicator from the Arizona Indicators Project

a serious problem, with Arizona ranking 37th in the US in 2010. Historical data were compiled, and it is clear from the following representation in Fig. 5.2 that child poverty is at the highest point in recent history.

In addition to presenting interactive graphs for a broad range of indicators, Arizona Indicators publishes a number of policy briefs and hosts related policy forums to facilitate informed dialogue. For this particular indicator, the following sites and products are linked to it, as seen in Fig. 5.3.

Those browsing for data or specifically searching on the indicator topic will find linkages to these related and supporting materials. Another example, this time from an indicator in the Culture/Civic tab, clearly shows the dire situation of arts funding in the state (Fig. 5.4).

This shows *what* is happening, hopefully compelling readers to explore why such a dramatic change has occurred and inviting them to gather more information through the links and products shown in Fig. 5.5. Note the diversity of products provided, helping direct readers to other indicator tabs as well as resource materials.

Clearly, Arizona Indicators works to provide indicator users with additional context, expert interpretation and linkages to relevant public policy issues. This is largely accomplished through the publication of four signature series of Arizona Indicators publications: (1) *Indicator Insights;* (2) *Decades;* (3) *Policy Points;* and (4) *AZ Views*. Reports are publicized through the project's monthly newsletter, a weekly Morrison Institute eblast, and media releases. All of these communication strategies ensure that publications are widely circulated. Additionally, hard copies of publications are distributed at policy roundtables and panel discussions that are

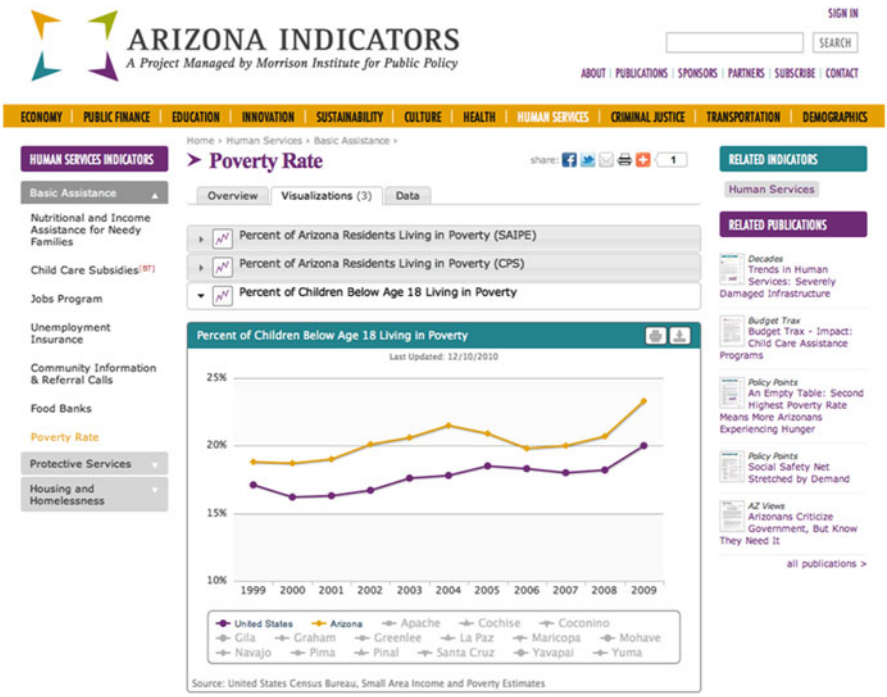

Fig. 5.3 Links and products for the child poverty indicator

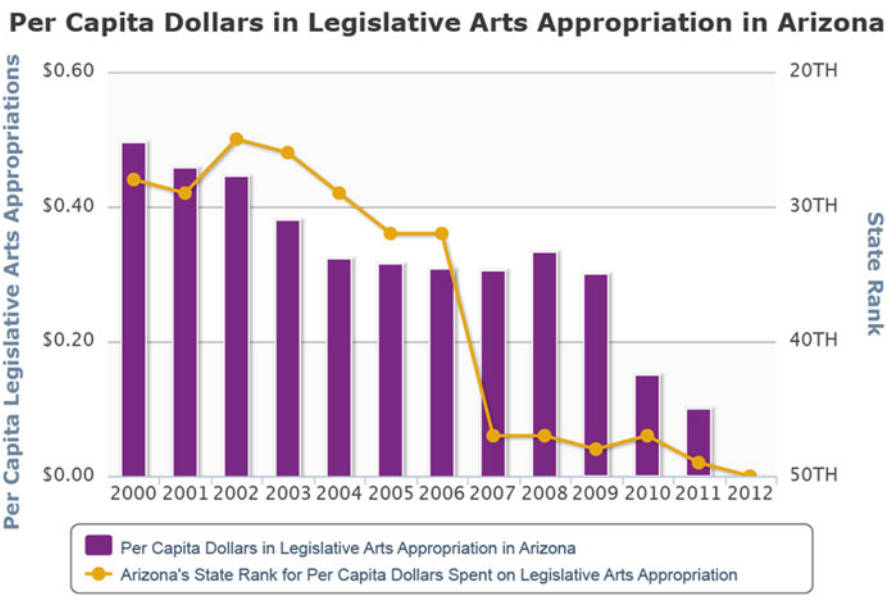

Fig. 5.4 Legislative arts appropriation indicator, 2011

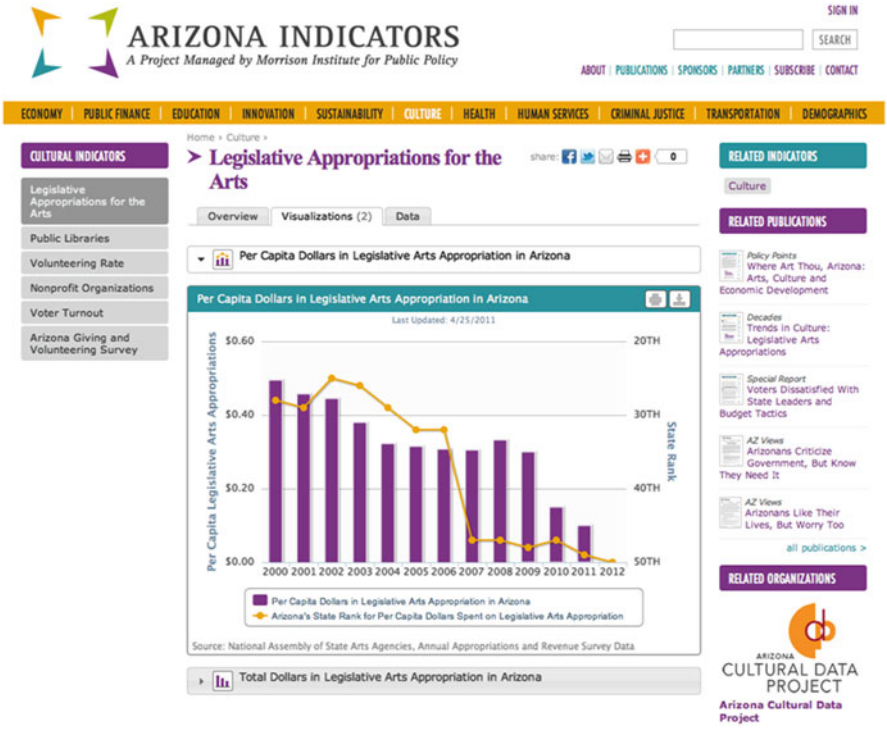

Fig. 5.5 Links and products for the legislative arts appropriation indicator, 2011

often planned to create dialogue around key issues. To show how these various publications support the mission of promoting evidence-based decision making and policy change, each type of publication is described below with sample titles and descriptions. These are the descriptions that users of ArizonaIndicators.org see on the site (Arizona Indicators 2011).

1. *Indicator Insight Publications*
   This series is like a user's guide to content tabs on the Web site, framing the general content area, explaining how the tab is structured, and discussing the various indicators and their significance. Two examples are provided, one for the innovation tab, and other for the demographics tab.

   Innovation – An Expert's Insight on the Issue in Arizona
   Innovation—introducing something new—in the twenty-first century mostly derives from technological advances. Innovation drives the modern economy, leading to gains in productivity and prosperity. In this edition of Indicator Insight, innovation in Arizona is discussed in terms of human capital, financial capital, and high-technology employment.

The 2010 Census Count for Arizona
The decennial census count for Arizona of 6,392,017 on April 1, 2010 is considerably less than the latest population estimates, which are for July 1, 2009. In this edition of Indicator Insight, possible reasons are examined for the large census count discrepancy and its implications for Arizona.

2. *Decades Publications*
Decades provide a longer term view of what is happening in regards to particular issues. They often compare changes in trends over time and give data to show how changes are occurring. The following examples show the types of information provided to users of the system.

Trends in Sustainability: The Urban Heat Island
During the mid-part of the last decade, when the population growth rate was at its highest, the Phoenix area experienced rapid development and urban sprawl. The result has been an intensification of the Urban Heat Island effect. The uncomfortable consequences of urbanization are explored.

Trends in Human Services: Severely Damaged Infrastructure
Human services provide an important safety net for Arizonans and help many achieve self-sufficiency. But by the close of the last decade, the infrastructure was severely damaged by the recession – with shrinking resources at all levels of government, and across the entire spectrum of nonprofit organizations including faith communities.

Trends in Health
During the previous decade Arizona experienced a dramatic increase in the number of people receiving health insurance coverage through the Arizona Health Care Cost Containment System (AHCCCS). If criteria for AHCCCS eligibility don't change, it is unlikely that this trend will be reversed in the coming decade. More positive trends include increased child immunization rates and decreased smoking rates.

3. *Policy Points Publications*
This series connects indicators to current policy issues in Arizona. After the publication is released, a policy forum is typically held to promote a candid dialogue among experts, interested citizens and stakeholders.

Where Art Thou, Arizona: Arts, Culture and Economic Development
A state can use the arts to boost economies in a variety of ways, from incorporating arts into economic development and community development plans to supporting arts education and promoting arts assets. It takes all sectors to ensure success for our creative industries, fostering arts businesses and the benefits they bring for economic development. This issue presents insight about the role of arts in Arizona's economy and the impact of recent funding cuts.

Patterns of Student Mobility in Metropolitan Phoenix
For over 15 years, inter-district open enrollment and charter schools have allowed Arizona families to send their children to the public schools of their choice, regardless of where they reside. To better understand how parents "shop" within Arizona's public education marketplace, this issue of *Policy Points* examines the mobility of elementary school students among districts and charter schools in the Metropolitan Phoenix area.

Is Arizona College Ready?
The Arizona Community Foundation College Readiness Report provides a real-world indicator of how well Maricopa County high schools are preparing their graduates for postsecondary success. For the class of 2009, 76 % of Maricopa County high school graduates were college-ready in English and approximately 46 % were college ready in Mathematics.

A Question That Arizonans Need to Answer
Despite all of the spending reductions, fund transfers, and other techniques used to balance the budget in the preceding few years, Arizona's general fund faces a massive deficit. This issue of Policy Points poses an important question: Are you content with the historically low expenditures being made from the general fund and satisfied that the current low level of public services will be permanent?

4. *AZ Views Publications*
In this series of publications, *AZ Views* presents original public opinion data on a variety of timely issues ranging from quality jobs to education and public safety.

Arizonans On Edge…So Why Not Involved?
What a difference a year makes. In June 2008, AZ Views reported that "Arizonans have a strong sense of job security, despite the national economic slump and the state's budget crisis." That is no longer true, as this edition of AZ Views shows, and Arizona's economic situation arguably is the best example of the worst case.

How Do Arizonans Spend Their Personal Time?
When they're not sleeping, working, or tending to other duties, Arizonans keep busy. From museum tours to farmer's markets, softball to spiritual quests, they spend their personal time on a wide array of different activities, from high culture to casual pastime. And—little surprise here—they tend to like to do them outside.

Arizonans Like Their Jobs But Question Their Schools
Good jobs and good schools—few would disagree that these are essential elements of a secure and rewarding life. Both are also vital components of a healthy society: Good jobs create revenue to support quality schools, which in turn produce a superior workforce to fill those jobs. Based on survey panelists' responses, most Arizonans seem to feel that they're doing well on the employment front, but not quite so well concerning education.

What Do Arizonans Think About Crime, Safety, and Trust?
Majorities of all panelists statewide named crime/public safety as among the chief indicators of "quality of life" and as among the top issues their officials should address. Nearly half said they thought crime was getting worse. But looking beneath these overall views reveals a pair of seeming paradoxes.

Arizonans Like Their Lives, But Worry Too
While participants in the statewide Arizona Indicators Panel believe their quality of life is good, their outlooks show a lot of variety, for not everyone reports such positive views. Opinions differ significantly depending upon geographic location, racial/ethnic background, age, income, education, and other variables.

Arizona Indicators is a project that invites users to explore quality data contextualized with expert analysis, public opinion data, and relevant policy issues. By doing so, the intent of the project is to promote evidence-based policy, while also fostering broader public awareness of the issues so that meaningful and effective policy dialogue can result. The web-based approach, combined with publications available via the Internet serve to disseminate information to a variety of audiences.

Lessons Learned

Throughout its five years of development, Arizona Indicators has learned that a successful indicator system must do far more than compile and present metrics. Data will not drive change without context, interpretation and direct citizen engagement. The evolution of Arizona Indicators from a Web-based data warehouse to an interactive site that connects with users through attention grabbing headlines, applied public policy research, timely public opinion data, and opportunities for face-to-face dialogue, shows the potential of community indicator systems to spark data-driven conversations and influence community led action. The project also proves that the utilization of both academic scholars and community experts yields high quality data and increases the sense of authenticity and community ownership. While Arizona Indicators is still improving its self-evaluation methods, it has found that follow up communication with policy roundtable participants is most successful in determining how the project is achieving impact. For example, after publishing a *Policy Points* brief on the urban heat island effect and hosting a policy roundtable on the same topic, the project learned that as a result of these activities a Phoenix-based electric utility is incorporating building codes and lighter pavement into the list of technologies it is studying as part of a major corporate initiative to reduce summer electricity use. The initiative had previously focused on air conditioners and price signals. This type of feedback is invaluable in terms of tracing impact and making a strong case to current and potential funders.

Conclusion

Providing support for policy, whether it is the intent to improve it or monitor it, is an overriding intent of many indicator projects. Without valid data that shows progress or regression over time, it is difficult for residents and other stakeholders to understand the challenges and dimensions of their area. At the state level, it is particularly important to show these changes and provide easily accessible data. With this in mind, public awareness increases when more people are exposed to information, and in turn, can influence policy changes and outcomes.

The Arizona Indicators case study provides an exploration of one state's process to create and generate a data system. It relies heavily on partnerships, and also integrates substantial analysis in the form of supporting publications. The combination encourages wider coverage by media outlets and prompts discussion and debate around key policy and issue concerns. It is a case that can serve others in their efforts to development indicator projects at the state level, as many of the ideas, concepts and approaches presented here are generalizable to communities beyond Arizona.

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Chapter 6
Partnerships Across Campuses and Throughout Communities: Community Engaged Research in California's Central San Joaquin Valley

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Abstract In this chapter the co-authors explore the process of conducting social indicator research in California's Central San Joaquin Valley. The "Central Valley" is notable for the high level of ethnic diversity, deep economic disparity, unemployment and underemployment, and blend of rural and agricultural communities with urban areas experiencing various levels of gentrification and development. The Partnership for the Assessment of Community (PAC) project was created to serve as a model to measure the changes over a 10-year period in the Central Valley. The PAC research team consists of faculty from different universities in the Central Valley and student-researchers. A description of the pilot study of PAC research is discussed in this chapter. The co-authors offer a critical read of the promises and challenges for researchers interested in conducting community-based research with students across multiple sites. We offer a summary of successful ventures as well as valuable lessons of what did not work for the initial study and salient issues for future social indicator research endeavors in the Central Valley.

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Introduction

While not as capital intensive as particle physics, nor as high-tech as nanorobotics, nor as divisive as the study of ballot initiatives, community engaged scholarship requires something much more precious and often more difficult to acquire: the trust of the community in which one performs research. And in areas historically neglected by social scientists such as California's Central San Joaquin Valley (hereinafter "Central Valley"), being able to create a two-way, mutually beneficial relationship between researcher(s) and community can be much more difficult than in areas that are accustomed to having researchers among them. How does one explain the role of the researcher? How do you ensure that you're not perceived as just "parachuting in" to the community, pillaging them for your data, never to be seen again? How do you create and nurture networks and relationships with community stakeholders and the community writ large? While we do not pretend to have answers to these questions, or to the myriad more issues that occur in community engaged scholarship, we argue that we have come up with some unique strategies as well as learned some very valuable lessons through collaborative research in the Central Valley.

In previous work (DeLugan et al. 2010) we described the Partnership for the Assessment of Communities (PAC) project and our goal to establish a more inclusive and expansive quality-of-life indicator. In this chapter, instead, we will briefly present the genesis of the project and illustrate the process we developed to carry out a multi-campus, multi-year research project designed to track social indicators and to understand quality-of-life in a dramatically disadvantaged and under-resourced region of California. We discuss a process of research design, data analysis and dissemination that involves engagement with a range of community stakeholders. We emphasize the integral role our students have played in carrying out the research. Finally, we examine our six communities as case studies to explore what has worked and what has not worked as well in regards to this collaborative effort in community engaged scholarship. We conclude by highlighting some best practices that we think are generalizable to other scholars.

To tackle deeply entrenched social problems university researchers, community stakeholders, and policy makers are increasingly working together to frame the problems to be tackled and the questions that need to be answered. Beyond undertaking research and interpreting the results, they are working together to disseminate the research findings and advocate for change. It is increasingly clear that community perspectives can strengthen research outcomes especially when community assets and action are incorporated into problem-solving efforts for change (Minkler 2009; Minkler and Hancock 2003). While there are various concepts to describe these research collaborations, for example, participatory action research or community-based participatory research, we use community engaged scholarship to describe research partnerships that mutually benefit university and community stakeholders. The PAC project is an example of community engaged scholarship. It builds on important innovative work in the Central Valley that has aimed to build grassroots and academic networks for change (Fujimoto 1998, 2010; Fujimoto and Sandoval 2005, 2006). To these noteworthy earlier and ongoing efforts, we add the PAC project. It created strategic partnerships with faculty and students from three different institutions of higher education and local and other community stakeholders in order to develop a more comprehensive understanding of the region. Figure 6.1 shows the processes we

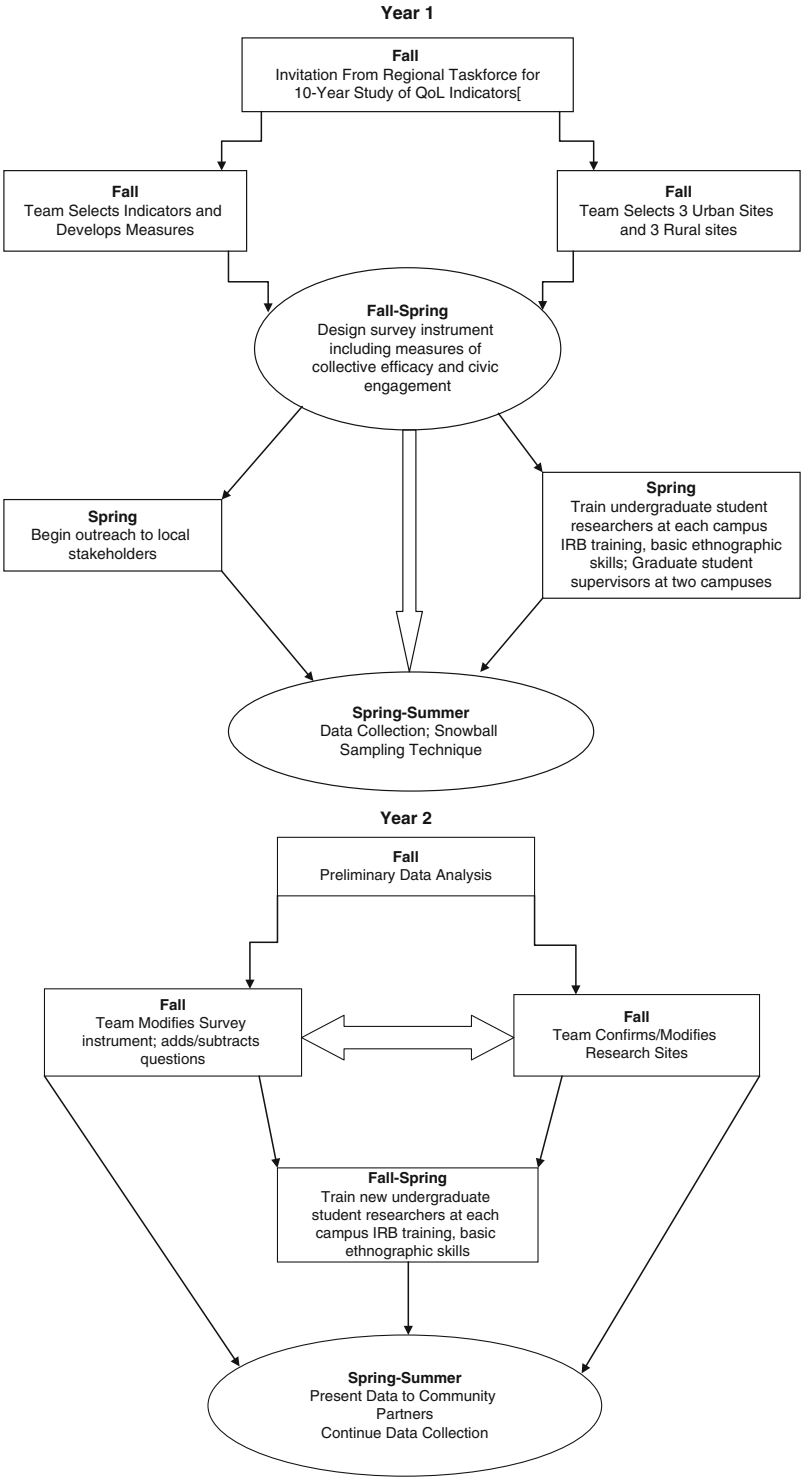

Fig. 6.1 Flow chart of PAC project

describe in the next two sections of the first 2 years of the project, from inception to data collection to community presentations. We believe this serves as a useful visual tool in understanding the research processes we detail in the rest of this chapter.

At its core, the PAC Project is a research collaboration that at once emphasizes local specificity while identifying patterns across select rural and urban locales. While the PAC strives to highlight the priorities and concerns of local residents, we acknowledge that we can do better to incorporate the voices of the residents into our scholarly conversations about pressing issues including in the information that follows below.

Background

California's Central Valley is known for its profitable agricultural industry, endemic poverty and deep social disparities, cultural diversity from national and international migration into the area, and environmental pressures such as poor air quality and lack of access to safe, affordable drinking water (Congressional Research Services 2005). It has been a site of rapid urbanization and is one of the regions suffering most in the nation's current housing foreclosure crisis. The region is heterogeneous. There are large cities such as Fresno, Bakersfield, Stockton, and Modesto; mid-size cities such as Merced; and numerous rural small towns and unincorporated communities. Figure 6.2 shows the entire Central Valley in the context of California, stretching from the North Valley (Shasta, Tehama, Glenn, Butte, and Colusa Counties), Sacramento Metro (Sacramento, El Dorado, Sutter, Yuba, Yolo, Placer), North San Joaquin (San Joaquin, Stanislaus, Merced) and South San Joaquin (Madera, Fresno, Kings, Tulare, Kern). For our study, we focused on what is known locally as the Central Valley, which consists of the following counties: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, Kern.[1] Figure 6.3 then shows our research sites situated within the valley itself.

In recognition of the importance of the San Joaquin Valley to the state as a whole, in June 2005 California Governor Arnold Schwarzenegger issued Executive Order No. S-5-05-2005 (renewed in 2008 for an additional 3 years through Executive

[1]The 2010 U.S. Census reports the following demographic information:

	Fresno	Kern	Kings	Madera	Merced	San Joaquin	Stanislaus	Tulare
White	515,145	499,766	83,027	94,456	148,381	349,287	337,342	265,618
African American	49,523	48,921	11,014	5,629	9,926	51,744	14,721	7,196
Asian	89,357	34,846	5,620	2,802	18,836	98,472	26,090	15,176
American Indian and Alaska Native	15,649	12,676	2,562	4,136	3,473	7,196	5,902	6,993
Native Hawaiian and Pacific Islander	1,405	1,252	271	162	583	3,758	3,401	509
Other	217,085	204,314	42,996	37,380	62,665	131,054	99,210	128,263
Identified by two or more	42,286	37,856	7,492	6,300	11,929	43,795	27,787	18,424

Fig. 6.2 California and the Central San Joaquin Valley

Order No. S-17-0). The Executive Order created the California Partnership for the San Joaquin Valley (CPSJV), and charged it with improving the economic wellbeing of the region as well as the quality of life of its residents (California Partnership for the San Joaquin Valley 2006). The Partnership invited a select group of scholars from three of the region's institutions of higher education (the brand new University of California, Merced; University of the Pacific, Stockton; and California State University, Fresno) to collaborate in developing a 10-year study to track variations in local populations over time on a variety of measures identified in the San Joaquin

Fig. 6.3 California Central Valley counties and research sites

Valley Strategic Action Proposal. The measures included access to health care insurance and to primary care physicians, asthma rates, ozone exceedence, and levels of educational attainment, income, employment and poverty rates. The study was designed to monitor changes in individual communities that might result from concerted efforts of the CPSJV and others to address regional disparities. Attending the initial project meeting were Robin DeLugan, Professor of Anthropology (UC Merced), Simon Weffer, Professor of Sociology (UC Merced), James Mullooly, Professor of Anthropology (California State University, Fresno), Antonio Avalos,

Professor of Economics (California State University, Fresno), Marcia Hernandez, Professor of Sociology (University of the Pacific), and Dari Sylvester, Professor of Political Science (University of the Pacific).[2] The result was the agreement to collaborate and form the Partnership for the Assessment of Communities (PAC). PAC provides an example of how a multidisciplinary team from three universities accommodates both academic research interests and the interests of various community stakeholders in multiple communities. We examine how our research enhanced community-engagement and provided important opportunities for student researchers to connect with local communities.

The team selected six specific locations as a focus for the long-term study. The sites were comprised of urban and rural unincorporated areas from the northern, central and southern areas of the Central Valley. We aimed for communities with some geographic proximity to our individual university campuses. This was no problem for our selection of urban neighborhoods (Stockton, Merced, and Fresno). However, selecting rural communities for the study proved more difficult. The Fresno team started with Pixley in Tulare County due to connections the faculty had with a project there to address the digital divide by introducing computers into the community. However, after the first year, it was apparent that the 130 round-trip miles was an obstacle for students and faculty alike to continue with this community. In year 2 of the research, Orange Cove in Fresno County was substituted for Pixley, providing the team greater ease and accessibility to advance the research. For the Stockton team, the initial choice of Riverbank in Stanislaus County made sense because one of the undergraduate students on the team was from this community. The student offered access and contributed to the team's interviewing success in this rural town. However, after year 3 the student graduated. This left a void for the Stockton faculty who still had not developed direct links to local leadership in Riverbank. The Merced team selected Planada, a rural unincorporated community nine miles from the university. The geographical proximity allowed the faculty members to actively engage the local residents and community leaders in ways that extended beyond surveying efforts. For example, the faculty attended local Municipal Advisory Committee meetings wherein the residents reported to and dialogued with Merced County government officials about the issues of importance to their community. This generated rapport, familiarity, and increased both access and community support of the longitudinal project. The Merced team also involved local community stakeholders input into the design and redesign of the survey instrument and incorporated their suggestions for questions related to improving the

[2] Antonio Avalos left the partnership after year one but left us with an excellent model for summarizing economic data. Another interesting dimension to this multi-disciplinary collaboration is that at the time of forming the PAC, all six academic researchers were junior faculty. Since then, three members have received tenure (Hernandez, Mullooly, Sylvester) and the remaining two will be reviewed for tenure in 2012–2013.

Our experience is that there was general institutional support for our involvement in this local/regional project. Of particular value was how the project served as an example of how faculty in the region's institutions of higher education can collaborate on research to benefit the region.

quality of life. They returned to the community to report on the project's findings, and supervised students from the university who connected to the community through projects separate from the research such as youth development activities. Students on the Merced team have included residents from the two local communities under study.

Census-tracts defined the boundaries of the selected geographic locations as well as the level at which reported data was sought whenever possible. For the pilot period (2007–2010) adult residents within selected census-tracts were surveyed and interviewed about conditions in their lives at the individual, household, and community level. In addition, a survey was prepared for organizations that serve the targeted areas. One particular motive for the organizational survey was that faith-based, non-governmental, and service-providing organizations could provide useful information about community priorities, the level of success of particular interventions or services, and the extent to which organizations were networked or worked together to address common issues or priorities (Small 2009).

Understanding Quality of Life and Community Dynamics with Social Indicators

The PAC project contributes to the multidisciplinary discussion about the changing role and function of social indicator and quality of life research. Our goal was to find ways to connect social indicator research to community engagement and action to address obstacles to community wellbeing and related problem solving. A review of the relevant academic literature aided the development of our project. Swain and Hollar (2003) group social indicator projects into four types: quality-of-life, sustainability, healthy-community, and government benchmarking and performance measurement. The PAC research bridges the distinction that these and other authors make between quality-of-life and community health indicators (Dluhy and Swartz 2006). Further, our team was determined to go beyond the tracking of reported data (income, employment, educational attainment). We decided to incorporate qualitative data provided by local residents about their individual and household experiences, including residents' ideas about community dynamics. The PAC project is unique for its combination of traditional quality-of-life indicators with other indicators that aim to better understand community dynamics.

Our team continues to explore how indicator research can inform us about community dynamics. The American Academy of Arts and Sciences coined the term "social indicators" as an attempt "to develop a system that would allow them to anticipate change and assess the impact and value of their programs" (Marinrogers et al. 2009: 28). Social indicators were defined as "statistics, statistical series and all other forms of evidence that enable us to assess where we stand and are going with respect to our values and goals" (ibid.). Many research projects use social indicators to assist in the monitoring of goals for government agencies, while others are more specialized such as monitoring environmental measures, educational achievements, or the health of children.

Social scientists are not unanimous in their views about social indicators or their research function. Cobb and Rixford (1998) offer an excellent history of the social indicator movement. They point out some of the conflicts raised by researchers. Should social indicators primarily monitor and describe conditions, or should they purposefully guide next steps? Other scholars debated how social indicators were developed and the degree to which their use for data collection should emphasize objectivity and theoretical generalization. Some questioned whether social indicators ought to primarily be based on theoretical models with testable hypotheses, or should foremost be used as a measurement of social conditions. Or should social indicators be developed first to compile data about social conditions before a theoretical generalization? The literature also explored the question of objectivity of the data preserved in social indicator research as well as the partisanship of the data collector, linking general debates about the objectivity of science to social indicator research.

Beginning in the 1970s quality-of-life research illustrated the debates about the role and function of social indicators (Kitchen and Muhajarine 2008). Quality-of-life research initially focused primarily on objective data on topics such as levels of gross domestic product, poverty, income, education, and employment. Subjective measures were also introduced to explore perception of satisfaction with one's community. Perceptual, subjective measures enhanced the limited descriptions of the lived experience provided by objective data. Between the late 1970s and early 1990s quality-of-life indicator research attracted new stakeholders such as government, local business, and local communities themselves. The scale of quality-of-life studies ranged from the study of entire cities to the study of particular neighborhoods. One goal of the research became "the imperative to see change and to improve the circumstances of people" (Kitchen and Muhajarine 2008: 2) illustrating how an emphasis on problem solving interacted with increased attention to community involvement. This development influenced the selection of particular indicators as well as who became partners in research.

Cobb and Rixford (1998) view the purpose of social indicator research as "to alert the public and policymakers about the existence and cause of problems so that they might be solved" (p. 29). They are proponents of indicator research that extends beyond descriptive reporting to work that advances the understanding of why certain social conditions exist as well as how indicator data attempts to affect outcomes. They offer guidelines for a more analytical approach to indicator research.

The conceptual framework and research design of the PAC project is particularly interested in the extent to which well-placed social indicators can also serve as a guide for problem-solving action. Social indicators have ability to not only monitor but also effect change. They can improve community understanding of social problems such as safety and security or the dynamics of social mobility. This points toward a more active role for social indicator research, a role that addresses but also extends beyond purely academic interests. The indicators we selected and the data we are collecting are connected to social science theory about social efficacy, social cohesion, and civic engagement, dynamics that we argue are related to advancing community health and well-being. As such our research design draws on other studies that

measure social cohesion and social efficacy (Sampson et al. 1997) and studies that measure civic and political participation (Brady et al. 1995).

The PAC project blends traditional quality-of-life measures with additional social indicators to examine and monitor problems that are already being targeted by key stakeholders, and to illuminate factors (such as community assets) that may already be at work despite low quality-of-life indicators. We capitalize on the political attention to address endemic disparities in the Central San Joaquin Valley. By building community engagement into the project, PAC endeavors to be an example of action research.

Methodology: What Is Quality of Life?

Six scholars from three different institutions, representing four different fields of study were invited to look into matters of quality-of-life in the San Joaquin Valley. This resulted in a fruitful collaboration that inadvertently but by necessity motivated the formation of some novel best practices in conducting research on quality of life. Quality-of-life is such a complex subject that a multidisciplinary approach is warranted, mindful of the costs that crossing disciplinary boundaries will surely bring.

Selecting indicators to measure quality-of-life and related social dynamics can involve multiple stakeholders. Stakeholders might represent the top-down interests of government to more participatory processes of "bottom-up" community involvement. In the case of PAC, the research began with a mandate through the Governor's office to design a longitudinal project to monitor specific regional disparities. Governmental and quasi-governmental stakeholders suggested we focus on the following initial social indicators:

- Economic conditions (unemployment, per capita and median household income, population below the poverty line)
- Education (high school and college graduation rates, high school and college enrollment and dropout rates)
- Environmental and natural resource issues (specifically ozone exceedence rates and water consumption)
- Healthcare access and availability
- Asthma rates
- Technological divide
- Transportation

These indicators, best described as objective quality-of-life indicators, also corresponded with the action areas of work teams of the California Partnership for the San Joaquin Valley. These indicators were *strategic* in that they meshed with priority regional social development goals identified by the Governor's Office and the California Partnership for the San Joaquin Valley. PAC researchers began to collect quantitative information on these indicators from local, state, and federal agencies and organizations. We endeavored to locate data at the level of census tract when

possible. Our initial objective was to design a study that would monitor the above quality-of-life indicators. In this way, our results could ideally measure the impact of the Governor's initiative at the regional level. For example, by comparing the statewide rate of unemployment to the rate of unemployment of the six communities under investigation, local change could be noted annually.

The research team quickly came to the realization that gross statistics, even local statistics, can overlook important dimensions relating to quality-of-life. This led the research team to develop a survey with both quantitative and qualitative research components. We began to gather data on local community involvement such as civic participation (attending religious or spiritual services, volunteering, voting, and non-voting political practices). We asked individuals about their major health care issues including insurance, access to primary care physicians, household occurrences of asthma or diabetes; transportation and mobility issues; and the safety and security of neighborhoods. The data collection involved detailed face-to-face surveys with residents and informational interviews with representatives of community organizations (non-profit organizations, service providers, faith-based organizations) viewed as key stakeholders. These methods have been useful for gaining information about our targeted communities for which readily available data does not exist. One of the most important elements in the research is that interview respondents are given an opportunity to offer their opinion of how community well-being can be improved. Though such information is subjective and of an individual and personal nature, it provides information on shared experience and perspectives about community life.

Just because community involvement increases in a research project does not mean that an academic interest in and commitment to theory, model making, hypothesis testing or analysis diminishes. Rather than limit the PAC research to a project of tracking objective quality-of-life social indicators over time, we sought to expand the scope so as to study resident's perceptions, experiences, and opinions about their community as well as to measure social cohesion, belonging and engagement within the local community. This desire to deepen the project theoretically was accompanied by a commitment to finding ways to maximize community contribution to the research process.

Scholars have examined the question of whether research outcomes vary when community members determine the indicators to be measured (Muhajarine et al. 2008). A participatory model of community engagement can yield "buy in" thus facilitating cooperation, rapport, and a sense of ownership or commitment by community residents. However, the need for quantifiable and objectively verifiable indicators may require input beyond that provided by individual community members. A tension may exist between academic standards for indicator selection and measurement and a community's interests likely guided less by academic standards.

For research data to be compared, for example across regions, quality-of-life indicators may need to be selected that extend beyond the immediate interests of particular community members. The PAC team was cognizant that we had an opportunity to collect local and regional data that would allow important comparison with nation-wide studies. This motivated an additional selection of certain subjective

social indicators and other measures that relied on qualitative data to better understand resident's perceptions of local community, willingness to work with neighbors, and shared values. The additions were inspired by the work of Sampson and his co-authors in a 1997 article in *Science* that focuses on the concept of neighborhood efficacy. The study used data from the Project on Human Development in Chicago (PHDC) neighborhoods to create measures of informal social control and social cohesion. When these two measures are combined it creates a measure of social efficacy. What attracted the PAC team to incorporate this research into its design is that it suggests that even the most disadvantaged communities may have high social cohesion. This perspective on local social context matched the goals of the PAC project to move beyond individual and household quality-of-life indicators as a way to measure the health of community.

When communities have high levels of social control and/or cohesion, this results in a more engaged community. Its members feel more efficacious, able to make or prevent changes where they live. The PHDC project focused on urban neighborhoods and illuminated how communities contend with social problems such as poverty and high unemployment. It will be extremely valuable to learn what the same approach reveals about rural communities and also neighborhoods in smaller cities as included in our study (Docherty et al. 2001; Sherman 2008). In urban settings researchers have found that survival strategies for poverty permit residents to engage in a wide range of activities, including unethical or morally questionable behavior (such as selling drugs) according to mainstream American standards and still feel part of the community (Anderson 1990; Duneier 1999). The same may not hold true in rural areas, in which mainstream American culture is often more hegemonic (Larson 1978; Snyder and McLaughlin 2004), and where alternative lifestyles such as illegal activities are less plentiful (Sherman 2008: 892). Sherman's 2008 research on rural communities examines how moral capital, defined as behavior dictated by mainstream American values and morals, takes on a heightened meaning. It is a tradable commodity for economic capital (job opportunities) as well as social capital (community support). Quality-of-life research that examines the dynamics of social cohesion and efficacy can illuminate the everyday strategies and practices of coping and survival. The information can be valuable to policymakers and scholars.

Understanding this project as an opportunity to monitor local communities that experience high degrees of disadvantage and inequality, while also recognizing how under-resourced communities positively function, the PAC research endeavors to construct a health of community index that allows comparison across our urban and rural communities and compliments (or counterpoints) the quality-of-life date collected.[3] We understand "neighborhoods" as units where change occurs and can be brought about. The data we collected from individuals enable the testing of hypotheses around how and if social cohesion, volunteerism, civic involvement, and

[3] See Epley and Mohan (2008) who also construct an index for community quality-of-life through analysis of cross-sectional indicators.

other community participation correlate positively or negatively with quality-of-life, which we suggest provides indications of a more or less "healthy" community. We anticipate the insight this approach provides about particular community contexts can assist in a number of interventions to improve local quality of life.

The PAC research is applying social indicators tied to social cohesion and efficacy to a unique regional setting. It examines urban and rural communities of varying size and isolation. The survey currently asks residents to provide information on the following subjective quantitative and qualitative indicators:

- Crime and Safety (security of neighborhood, real and perceived sense of safety)
- Educational Mobility (compared to parents' education completed)
- Health Insurance Coverage and Access to Primary Care Physician
- Household incidence of Asthma, Inhaler Use, and Diabetes
- Housing (effects of foreclosure crisis on family/neighborhood)
- Transportation expenses (effects of spike in gasoline prices)
- Stability of residence, mobility within region, and (im)migration
- Well-being, community participation, and civic involvement

To gain data on the subjective, perception-based indicators, we constructed Likert scaled questions that corresponded with existing social science research (Sampson et al. 1997; Brady et al. 1995). This allows a comparison of the PAC findings of California's Central San Joaquin Valley with other US urban and rural locations. In addition to the health of community measure, the research records the perceptions that residents have about obstacles to community health and well-being and what residents consider to be local community assets. Preliminary findings illustrate local agreement about obstacles and assets and some consistency across the six sites. By illustrating points of consensus at the local level, the research can assist residents to work together to devise strategies for promoting community health. The goal of the pilot research is to generate baseline data from which changes over time can be measured.

Using Resources Strategically: The Essential Role of Student Researchers

Longitudinal qualitative research is very time consuming, labor intensive and at times linguistically and ethically challenging. For example, the survey we constructed took approximately 45 min to administer and had to be conducted in person and frequently carried out in Spanish. By reading the questions to the subjects ourselves, the interviewees' linguistic ability and literacy level were mitigated. After piloting that instrument, we also learned that certain questions which inadvertently indexed a subject's legal ability to vote in a U.S. election had to be removed from the survey. If the subject being interviewed was either an ex-convict or an undocumented immigrant, a question like "Did you vote in the last election?" might not only expose vulnerable subjects, but would not engender the sort of participatory

spirit we intended. Seed grant funding provided by a regional taskforce were not sufficient for the developing project. Therefore the pilot years involved a process of refining the survey and reflecting on how best to utilize our available resources.

One major practice we developed was the utilization of student researchers. The educational opportunities PAC provided for our students was exceptional, and the inclusion of students in this longitudinal study made its year to year continuance possible in the face of dwindling economic resources. Since all of the principal investigators are university professors, inclusion of undergraduate and graduate students in PAC was easy to do. Training students was not as complicated as one might assume, but selection of effective student researchers proved to be a challenge. Because the project is very field oriented, training student researchers was often a matter of a hands-on apprenticeship approach of trial and error requiring the primary professor to be nearby to advise when needed. Whereas the teacher had experience in conducting many interviews and building rapport in the field, the students also brought valuable skills to the field related to their ethnic or geographic background, linguistic ability, or simply their youthful enthusiasm.

The power of effective student researchers was illustrated during the first year of the study when one of the researchers organized a group of subjects to be interviewed at a community center after school program that several of the subjects' children were attending. The researcher arrived with snacks and refreshments for the subjects and funds to pay for a day care provider for the number of the subject's younger children. The researcher discovered that none of the subjects spoke or read enough English to complete the surveys independently. Fortunately, two of the student researchers were Spanish-English bilingual and salvaged an otherwise fruitless field opportunity to interview eight subjects at a rural field site an hour's drive from the research team's home base. By the third year of surveying, PAC had refined the Spanish translation of the survey into its current polished form. Students aided the developing, fine-tuning, and field testing of the survey. We have learned that administration of the Spanish survey requires a bilingual researcher so as to mitigate subject's literacy level.

To have paid for the skilled bilingual field researches and translators would have made the cost of initiating this project prohibitive without a very large grant or other funding source. Utilizing student researchers made launching this project feasible. Involving student researchers benefited the students by providing a rare opportunity to conduct authentic research. This was particularly true of a group of undergraduate ethnography students who assisted in one stage of the pilot project.

One cost that the PAC team did not initially anticipate was the expense of travel and transportation to and from the six sites, in particular the faraway rural sites. To mitigate for the costs of driving out to the rural field sites and having to schedule and often reschedule interviews, groups of researchers and student-researchers car pooled to a site normally picking a high impact location like a community development center where multiple surveys could be completed, or by scheduling fieldwork on a strategic day such as the event of a community-centered activity.

One team took advantage of an annual spring festival that occurred over a weekend in one of the rural communities. While residents of the town walked around and

enjoyed the festival, student researchers mingled about and interviewed willing subjects. Knowing that this particular festival would include a variety of stalls representing different social services, in advance we gained permission to set up our own booth as a way to recruit interview subjects as well as inform members of the community about the goals of the PAC project. Having student researchers, most of whom were Spanish-English bilingual, made for a very productive afternoon. Another effective opportunity was realized after a long informal conversation with a community center director. The Center's director noted that she holds a monthly opportunity for the elderly of the community to come to the center and socialize with friends. There was an agreement to permit our researchers to attend the monthly event. This became another opportunity for a team of student-researchers to recruit interview subjects and to also immediately complete surveys. Being in the community allowed students interested in ethnography to think beyond the PAC survey and record ethnographic field notes while building a local historical picture of the community from the perspective of many of its oldest living members. Establishing rapport with the senior citizens was simplified by the assistance of a supportive community development director. Additionally, the air-conditioned facility made conducting this event during the intense summer heat more tolerable.

One of the major challenges in working with students, be they undergraduates or graduates, was finding and keeping the dedicated individuals who not only took their role seriously but could work independently. Technical aspects of training included requiring all student workers to complete the IRB approval process at the three institutions for working with human subjects. If student-researchers were working on the PAC project as part of a course, there was ongoing discussion with the faculty-researcher regarding the best practices for being in the field. For student-researchers working independently on the project, the faculty-researchers created an intense training program to cover a range of ethical topics related to field research, how to work with community partners, and extensive practice with the survey prior to fieldwork.

A challenge for students was finding the time to devote to the research. If the students were unable to work with a faculty member as a structured requirement of a course, there could be long stretches of time when students' schedules prohibited participation. Students who expressed interest in working on the study were often the ones who had the least amount of time to devote to it. Yet their interest and enthusiasm was sparked, at least in part, by the desire to engage in research that had potential to contribute to community development and improvement. We elaborate on this discussion more in the next section.

The PAC project presented challenges all along the way. From the process of designing research as a team, collecting field data with student researchers, and engaging residents of diverse rural and urban communities including a range of community stakeholders, our foray into this innovative model of community engaged scholarship was never straight forward. Overcoming the challenges provided valuable lessons useful for improving the subsequent pilot years of research. Through the circular process of research design, data collection and analysis, and dissemination of findings we also identified best practices that we hope can benefit others wishing to develop

similar community engaged scholarship projects. In the next section we describe our six unique field sites and highlight the best practices that emerged from 5 years of research collaboration.

Sites and Best Practices

While above we displayed where our research sites are located in the state, in order to better understand the spatial dynamics of each community we include below an description of our research sites and the specific census tracts in our urban communities to be analyzed.

Midtown Magnolia District, Stockton and Riverbank

At the University of the Pacific (Stockton, CA), Professors Marcia Hernandez and Dari Sylvester led the research projects in Midtown Magnolia and Riverbank. Nevertheless, as a team consisting of researchers newly transplanted to the areas surrounding our respective workplaces, we greatly relied on the assistance of undergraduate and graduate student locals who were more familiar with the target areas. This was particularly the case for Riverbank, approximately 20 min from campus, but where we had no contacts. For the first 2 years of the project, we were lucky to hire the research assistance of a student resident of Riverbank who was also bilingual in Spanish. Given her ties to the area, our snowball sampling enabled us to obtain an appropriately sized sample in an efficient manner. After the student graduated and our connection to Riverbank severed, it became increasingly challenging to find students willing/able to make new contacts in the area, find transportation there or re-bridge the connection to non-English speaking respondents.

Initially, Midtown proved to be a more manageable site due largely to its proximity to campus and to our history of campus-ties to the area. When we were unable to locate student researchers in short order, we simply conducted interviews on our own. However, as the project progressed, what seemed to be strength initially became more of a hindrance subsequently. Having been exploited as a "region of guinea pigs" over the course of several years for various research studies, many of the respondents in Midtown soon expressed interview fatigue and grew weary of cooperating with interviewers. The neighborhoods chosen for the study have "historically been damage centered… [Through] historical exploitation, domination, colonization to explain contemporary brokenness such as poverty, poor health and low literacy" (Tuck 2009: 412–413). As some of the previous data collection from university representatives in some of the sites included a strong focus on "damage-centered" research, meaning overemphasis on community lack and dysfunction, community members became increasingly reluctant to participate in our study. The intention of the PAC project is to gather information not to study community

dysfunction, but rather to focus on ways to improve citizen's lives based on what they felt was most important, including recognizing community assets. Our motivation in pursuing a community engaged study using social indicators is that as a research team we could be held accountable to the people living in these areas "for the frameworks and attitudes" employed by researchers (Tuck 2009: 412).

The potential to be seen as university representatives doing "damage-centered research" became even more pronounced when participants began to perceive the various (unrelated) projects from the local university as a single research venture with no end in sight and no real promise of presenting results in a community forum. Additionally the limited resources of each campus team meant that the research faculty were tasked with the charge to sustain open working relationships with community stakeholders when conducting open forums was not a possibility. Partnering with designated organizations at some of the sites allowed for cooperation and communication to develop more easily, and direct feedback on the survey instrument as well as how stakeholders may use the data was useful for the research faculty.

South Merced and Planada

In 2005 the University of California opened its 10th and newest campus in Merced, in the heart of California's Central San Joaquin Valley, motivating new opportunities for research to examine quality of life issues in an under-resourced region undergoing rapid and social economic change. In some ways, it was a brave new world for inhabitants of the Central San Joaquin Valley, with a research university opening; a new species inhabited the landscape: the researcher. Almost immediately, researchers from the Sierra Nevada Research Institute and the School of Natural Sciences had an impact on the community, with researchers studying wildfires and snowpack levels in Yosemite National Park, waterways throughout the valley, air pollution, and a host of other projects that directly and indirectly tied into the agricultural economy that is the heart of the Central Valley. Slower to blossom was social science research. This was in part due to the community not necessarily understanding how relationships can be built with social scientists and many researchers at the University turning their gaze to other parts of the world, not their own backyard. The PAC project, led by Professors DeLugan and Weffer was therefore innovative and launched a multi-year iterative process. Through the time-intensive process of meeting with community leaders and stakeholders, interacting with community members, and being part of larger projects within the community (such as The California Endowment's *Building Healthy Communities* initiative) connections were made, networks formed, and the building blocks laid for qualitative quality-of-life research.

Starting initially with a snowball sampling technique, our research in South Merced and Planada had an interesting skew to it. By using community leaders (such as pastors, politicians, and non-profit and community based organization members) as our first interview subjects, we had a data set that was disproportionately

older, extremely involved in civic life (with nearly a 90 % voting rate in self-reported voting in all elections), and with a higher degree of collective efficacy and positive affect towards place. To create a better pool of participants we started to go to events such as Planada Day, an annual community festival organized by local community members with elected and appointed officials, as well as began recruiting at the local flea market and community institutions such as Head Start. This gave us a more diverse pool of potential interviewees, not just in terms of civic engagement (such as participation in local organizations and a lower voter turnout rate), but also age (dropping our mean age from 55 to 39), but also in terms of US or Foreign born, education level, and self-reported race/ethnicity.

We also had two thought provoking findings regarding our ability to engage in research and work with our two local communities. First, Planada, our rural community, actually had what we like to describe as a "center of gravity", something South Merced lacked. Within a 1 block radius there was a park, post-office, the only "super market" type of establishment, and a building appropriately named *El Centro* (the Center) where a wide range of after school programs and adult enrichment activities such as Zumba classes took place. We have argued that one of the features that makes Planada so distinctive, including its high score on measures of collective efficacy, is that the community has a center of gravity. However, since we began data collection in 2007, *El Centro* has closed, and it will be interesting to see how that affects community efficacy moving forward. Despite the closing of El Centro, Planada offers residents the opportunity for face-to-face community engagement that our urban neighborhood lacks. South Merced lacks this central "hub". And unlike disadvantaged communities in cities like Chicago, there is no one church or religious congregation that serves the population. Even the one major service agency located in the area, the Boys and Girls Club, does not serve as central gathering point for all or most residents of the area.

Second, we heard from numerous interviewees that they had been interviewed "recently" (time frame unspecific) about various topics ranging from health disparities, to employment and economics, to schools. Yet we could not find any public and/or published data to that effect. It greatly frustrated some community stakeholders, such as County Board of Supervisors and local leaders of community based organizations (CBO), that *someone* was collecting data, but that was not being shared back with the community. This was something we decided to address directly by holding community updates (discussed in detail below), as well as including in grant proposals funding to create a "data clearinghouse" where the multitude of local CBOs, government entities, independent researchers, and academics could compare, contrast, merge, and analyze collectively the data.

El Dorado Park (Fresno) and Pixley/Orange Cove

Of the three campuses collaborating on this project, the one with the largest footprint in the Central San Joaquin Valley is California State University-Fresno (Fresno State). From intercollegiate Athletics, to surveys on life in the Central Valley, and its

research on urban education and regional health, Fresno State is a fixture of life in the Central Valley. For PAC, this research team from this campus initially began its work in Pixley, a rural community approximately 75 min from the campus; and in El Dorado Park, an area immediately adjacent to the campus. Physical proximity and the neighborhood's rampant disadvantage made El Dorado Park a convenient site of study. Pixley was selected because of its affiliation with the Great Valley Center, a regional non-profit instrumental in the initial convening of the PAC team. When PAC research began, Pixley was involved in a project coordinated by the Great Valley Center in partnership with AT&T to try to decrease the local digital divide. When community members witnessed the digital divide project enter its final phase and without additional support to continue, it became increasingly difficult for Professor Mullooly to continue to collect PAC data in the community. Added to this factor, the distance to travel from Fresno to Pixley also made the site untenable. After year 1 of the PAC project, Pixley was replaced with Orange Cove, a rural site in Fresno County.

Conversely, El Dorado Park (or Bulldog Lane, as it is more colloquially known because of the presence of the Bulldog street gang) presented a different set of issues. In part, because of its close proximity, it has a long history in dealing with the university, not just in terms of research, but with students living in the community, as well as with campus law enforcement, and interaction with previous researchers. Where Planada and Merced residents were enthusiastic at the chance to give researchers their opinions and ideas, some respondents in Fresno expressed exasperation and frustration at yet another study by Fresno State. However, Professor Mullooly had extensive contacts and good will in the community from his work in Public Anthropology as well as the work of students who take his undergraduate ethnography course who often do work in the community. While the dynamic between Fresno State and residents of El Dorado Park may seem more akin to the relationship between Columbia University and Harlem or the University of Chicago and the South Side of Chicago, because of its public school status, and the many ways that it interacts with the larger community, particularly with community engaged scholarship like Professor Mullooly, these attitudes and feelings are for the most part tempered in comparison to the elite private institutions such as Columbia and Chicago.

Conclusion

This section has illustrated a variety of benefits and challenges of conducting quality of life research in California's Central Valley. One advantage of designing a project that includes multiple universities and faculty in different disciplines (anthropology, economics, political science, and sociology), is that it allowed for a heterogeneity of approaches to address problems in our urban and rural community contexts. What unified these approaches were the best practices that we have identified as productive for all contexts. At the end of the day, what have we learned from our research in the Central Valley? We will share three positive results from our work, and three "teachable moments".

What Works

1. *Returning to the community to give public presentations about the ongoing research.* The Merced team reports back annually to the two communities in the study. This has generated local interest in the project and helped build good will and rapport. It has also assured us of the value of the research to local stakeholders. The school superintendent of our rural town told us that he could use our preliminary data which showed high social cohesion and high civic engagement for his future grant writing efforts to bring resources into the community. Further, the community research presentations provided forums where community residents and stakeholders could suggest ways to strengthen the study. It also gives a real "face" to university research, when faculty members, report back to their communities. It's one thing to be the contact person at the bottom of an IRB consent form; it's another to be someone that serves as a bridge between campus and community *through* research.
2. *Find opportunities to use the local research project to build community-university relationships*. Attempt to ensure that the research is available first and foremost to the local communities. Fresno State offers an annual quality of life in the region symposium that brings diverse stakeholders to the campus. The PAC team presented its ongoing research findings not only at Fresno State, but at smaller regional conferences organized by Central Valley Stakeholders. And in the major proposal for funding we have submitted in the past 2 years, we have also sought to secure funding to create a "data warehouse" for not only our work, but also data created by private community researchers as well as county offices
3. *Listening to community partners and allowing their input to influence the research design.* Not only did community stakeholders have good ideas about the kinds of questions we should be asking, they contributed to our success by promoting the research to other residents thus generating more overall participation and interest in the project. It is, in some senses, Granovetter's "strength of weak ties" hypothesis (1973) as it pertains to community based research. Particularly in the smaller, rural communities having weak ties with community members *beyond* politicians and CBO and non-profit heads is what provides the most "cultural capital" to effectively recruit respondents.

Teachable Moments

1. *When partnering with local organizations or groups be clear about each other's motivations, goals, and access to resources*. There should be open and honest communication between collaborators regarding expectations, aspirations, motivation and resources. In popular discourse, faculty are often portrayed as having a lot of free time and little accountability. In reality, faculty routinely work 60 hours a week, often doing a lot of "invisible labor" and have few resources such as time

and additional funding at their disposal. Conversely, community organizations and corporations operate with different motivations and expectations, and even structure than faculty. While groups are often excited about building collaborations with university members there is a lot of room for miscommunication and misunderstanding about the role of each member in the research project. Clear lines of communication are key, as well as understanding that researcher and community need to "negotiate" these boundary type issues. As a group, the PAC team's membership upon creation was of untenured junior faculty. So that tension between what gets me tenure and what is good for my community though not always explicit, was always running in the background. It is of the utmost importance to get everyone involved in the project to understand these sorts of constraints, and these conversations need to be part and parcel of the iterative process in researchers working with the community to find balance in projects.

2. *Physical distance is not easily overcome*. That certain communities were a distance away from campus sites proved to be an obstacle. Although student researchers from the designated areas had the potential to serve as "insiders" in the field work, given their legitimacy as members of the community, their contribution was not consistent year to year. Nor did the project's initial funding take into consideration the extra transportation costs. While we are not arguing that proximity should be the only or even top 2 or 3 considerations when starting community research, it must be thoroughly discussed in the planning process. In the Central San Joaquin Valley, the lack of public transportation infrastructure made it such that cars were the only real option. Even in major cities with significant public transportation infrastructure, such as Chicago or New York, not *every* neighborhood is easily accessible via public transportation for student researchers, and accommodations must be made, and costs (both in dollars and time) must be adequately addressed…
3. *Be wary of politicians bearing longitudinal projects.* While the original project was pitched to the team as a 10-year effort. There was a mismatch between the request to design and implement a 10-year longitudinal project and the 1 year of funding that was provided – with promises of easily accessible funds for future years. This was perhaps a "rookie" mistake, with the entire faculty untenured Assistant Professors. However, the PAC team cobbled together funds to maintain the project for four more years and are actively seeking major extramural funding. Perhaps this type of project would benefit from a more collaborative model where other stakeholders contribute funds and resources so that the sole responsibility for maintaining the longitudinal project does not fall solely on the shoulders of the academic partners.

Future Directions

In brief, while there have been hurdles in undertaking research in and on the Central San Joaquin Valley, we believe the benefit far outweighs the cost. In shining a light

on an area with such high unemployment, foreclosure and poverty we add to the scholarly understanding of those social processes. But perhaps more importantly, by working closely with community partners in the Central San Joaquin Valley, we show how research can positively affect their lives, and be a tool in their attempts to create system change in their communities. We can also show not just the average citizen, but policy makers and political figures from the local to the national level, and everywhere in between, what the "value added" is of having the research enterprise occur in their communities. How research results can strengthen a school districts proposals, explain why some disadvantaged communities are unable to mobilize protest while others are hotbeds of it, or provide benchmarks for groups to use to measure progress or regression all point to the importance of Community Engaged Scholarship. While at only the midpoint of the original 10-year proposed study, we are excited with the results we have found, and the findings yet to come, always learning with, and from, our six Central San Joaquin Valley communities in the process.

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Chapter 7
Measuring Quality of Life in Border Cities: The Border Observatory Project in the US-Mexico Border Region

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Abstract Beginning in 2004, the Border Observatory Project started to collect quality-of-life data in the US-Mexico border region especially in the urban areas along the border. Up to that time, the various efforts to measure urban conditions in the border were limited, piecemeal, or not systematic, and replete with serious data shortfalls. This made drawing meaningful comparisons between cities on either side of the border a challenging process. Several urban indicators were available, but the full array of possible measures for quality-of-life assessments were not available because of missing data, scale inconsistencies between the two countries, as well as the complications engendered by inconsistent definitional uses. The Observatory collected both "objective" measures and "subjective" indicators up to 2010 to complete the first phase of the project for four pairs of sister cities – eight cities in total. Subjective measures were developed through household surveys in each of the cities, and the study examined longitudinal changes in these measures for two sister pairs. Two other analyses were developed contributing to the quality-of-life measurement approaches – an index based on economic, social and environmental indicators, and a happiness or social well-being measure for each city. As border regions are developing, this case provides a successful and comprehensive approach to bi-national quality-of-life border indicators.

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The US-Mexico Border is a complex and dynamic region. It is a region that can be viewed from the perspective of a newly forming regional urbanism that reflects many of the issues stemming from globalization. These issues include cross-border migration, regional markets proximate to daily flows, border security, drug and crime traffic, and significant flow of goods. The post- NAFTA era has lead to freer movements of goods and better environmental regulations. However, over the last decade with the rapid population growth rates in border communities, decreased employment levels, expansion and spread of *colonias,* there are numerous urban issues emerging that impact the quality of life in border communities. Unfortunately, there is little systematic data concerning how changes in the urban environments along the border affect the quality of life of the residents.

The Border Observatory Project (2005) was developed in 2004 to address this lack of systematic and comparable data in the US-Mexico Border Region, which has been a significant impediment to policy-making efforts in the border region. This is a common obstacle among indicator programs in general and in particular to border regions where cultural, social, and economic differences become more apparent. To address these issues, The Border Observatory Project developed a quality-of-life (QoL) indicators program that uses a combination of approaches. In the aggregate, the employment of these multiple methods creates a more complete and accurate depiction of the state of the US-Mexico Border Region.

The indicators selected by the Border Observatory included both objective and subjective indicators. The subjective indicators of QoL comprised 46 questions largely falling into a number of categories that include the following: personal quality of life, overall satisfaction in living in their respective city, social interaction, quality and availability of education, cost of living and economic conditions, problems with crime, quality and availability of housing, environmental conditions, satisfaction with governmental services, and governmental responsiveness, health care, and emotional well-being (satisfaction). Other questions were asked but these had to do with household sociodemographic data, travel behavior, length of residency, size of households, and home ownership rates. The number of questions for each category varied. For example, six questions were asked to capture “personal satisfaction” while only two were used to measure “happiness” in the study. The objective indicators are based on much fewer questions because comparable bi-national data were not available or at similar geographical scales. Some subjective data just did not translate into available objective official data such as “satisfaction with life”. Only five objective indicators were compared between U.S. and Mexican border cities. These were: crime, education, health availability and infant mortality, physical infrastructure, and poverty. Due to bi-national differences in monitoring, common indicators to both regions were selected. Developing and carrying out a scientific survey of residents in eight border cities generated the subjective QoL indicators data. In order to be able to generalize to the entire population of each city, the sample of households for each city survey was carefully selected. With both types of data there were various obstacles that needed to be addressed, a phenomenon common to many indicator programs but amplified in asymmetric bi – national border regions.

The Border Observatory also uses longitudinal data in its analysis of the state of the US-Mexico border. The existence of longitudinal data permits decision-makers in these cities to identify what QoL indicators have changed over time, the direction of these changes, and their magnitude. Therefore, the indicators from the longitudinal study can be used as measures of progress along QoL dimensions. As such, they can be utilized as drivers of urban policy, either to reverse deteriorating conditions or enhance existing successful programs.

Additionally, two innovative measures are included in the Border Observatory–emotional well being or "happiness" indicators and an aggregate quality-of-life Index for each community. The "happiness" indicators provide a snapshot of individuals' overall well being. These "happiness" scales are beginning to appear in many surveys of QoL. The QoL Index is based on an aggregate average score of the subjective measures for each city. Comparisons can then be made among the cities on overall QofL. The Index was developed by selecting the key QofL measures from each of indicator categories. Altogether, 14 indicators were utilized to serve as the basis for the Index and these were averaged for each city. The use of an Index to estimate a QofL urban score is in dispute for reasons involving the number of indicators, the selection of the measures, weights assigned to the measures, and the meaning of the Index in terms of QofL.

Overall, the Border Observatory uses multiple approaches to gain a more in depth understanding of the US-Mexico border. The chapter will discuss these approaches and provide insight into the application of quality of life indicators in border regions and some of the obstacles that were overcome.

The Border Region

A complex and dynamic area, the US-Mexico border region reflects many of the problems that stem from globalization and bi-national boundary issues. It is a unique region because of its growing social, economic, and cultural integration. The Border Region was formed as a result of the 1983 La Paz Agreement, which "empowers the federal environmental authorities in the United States and Mexico to undertake cooperative initiatives and is implemented through multi-year bi-national programs" (EPA 2010).It consists of four states in the US and six states in Mexico. There are 26 recognized Native American tribes in the border region and several indigenous communities in Mexico, many of which have extensive family and cultural ties (EPA 2010). The region contains both small communities and large, complex, rapidly changing metropolitan areas. It is dominated by 14 pairs of interdependent 'sister cities' with 90 % of the population living in these cities and the remaining 10 % living in smaller rural or tribal communities (Fig. 7.1).

The region is characterized by rapid population growth – population increased from 6.9 million in 1983 to about 13 million in 2005 (Peach and Williams 2005). This growth is a result of internal migration from Mexico and overflow from northern Mexico to the US; despite current economic difficulties, growth continues

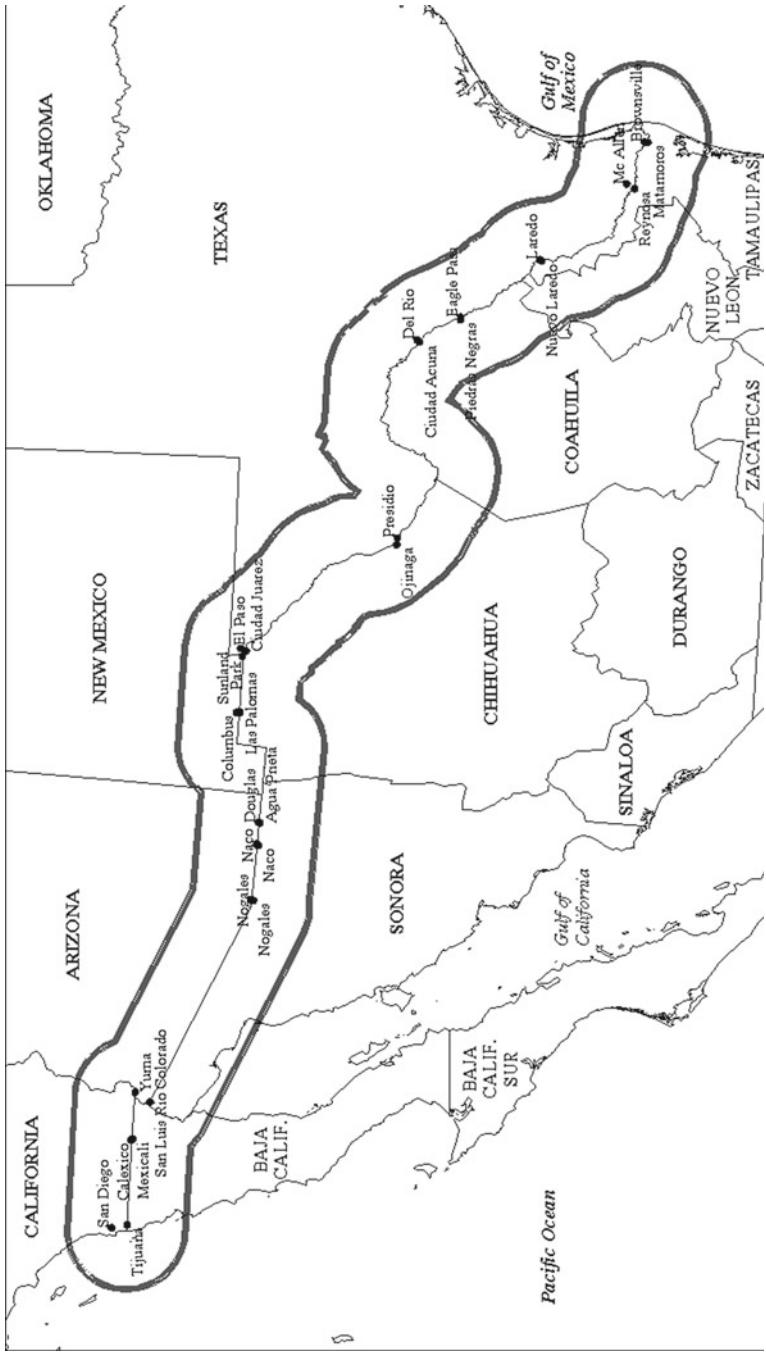

Fig. 7.1 The US – Mexico border region. The US – Mexico Border region extends 100 km (62.5 miles) north and south of the border and is approximately 2,000 miles from east to west. It consists of four US states and 6 Mexican states and 14 pairs of cities or sister cities

unabated. Population estimates project that the population will be 16–25 million by 2030 (EPA 2010).

The border region suffers from unpredictable fluctuations in local economies–fluctuations that often create significant instabilities. Economic and demographic factors in the border region have seriously weakened the abilities of local governments to respond to pressing basic needs. As economic conditions worsen and the population climbs simultaneously, finding resources for long-term solutions continues to be challenging. Crime rates are exploding in the larger Mexican border cities and high levels of air and water pollution persist across the border. Both past and future trends reveal significant challenges. The emergence of the *maquiladora* economic sector in the border has resulted in substantial immigration to the Mexican border states, with resulting population overflow problems in the US border cities. Even with the large-scale employment generation that the *maquiladora* provides, immigration and related social and economic imbalances are apparent. The *colonias marginales* have grown in population and areal extent, resulting in serious environmental problems that affect public health. The provision and maintenance of basic infrastructure have not been able to meet the needs of the dynamically growing population. The largest cities in northern Mexico have experienced the most rapid growth, and yet these cities have also experienced the most severe urban pathologies coupled with minimal, or even absent, abatement strategies.

In the last few years the six northern Mexican states have seen economic growth decline due to global competition. Thus, the significance of the *maquiladora* as an income and employment generator is declining relative to the rest of the economy. This constitutes a major shift in these local economies and may exacerbate already vulnerable socioeconomic, housing, and infrastructure vulnerabilities. In the border region, one institutional capacity factor is that the most southern US counties (except for San Diego) are also the poorest in the US, experiencing both population influxes from Mexico and infrastructure deficits resulting in large-scale environmental degradation.

Concern about the present and future quality of life for residents of the US – Mexico border region has emerged as a salient policy issue in both countries. The Border Observatory was developed to address these quality of life issues in the Border Region and provide policy makers with relevant and reliable data.

The Border Observatory Project

The Border Observatory was initiated in 2004 to address the lack of systematic and comparable quality of life data in the border region cities. This data deficit has been a significant impediment to policy-making efforts in the border region. The Border Observatory is a long-term, longitudinal study that will monitor key quality of life indicators that are relevant for the border region. It is the product of collaboration among four universities, both Mexican and American – Arizona State University, San Diego State University, University of Texas at El Paso, and Universidad Autonoma de Baja California and the border cities.

Table 7.1 Populations of US-Mexico Border cities

City	Population	Year/source
San Diego	1,279,329	2008 estimate
Tijuana	1,482,992	2005 census
El Paso	665,055	2008 estimate
Juarez	1,500,000	Approximate
San Luis and Somerton, AZ	38,436	2009 estimate
San Luis Rio Colorado	138,976	2005 census
Calexico	38,827	2009 estimate
Mexicali	653,046	2005 census

The Border Observatory selected eight cities to include in the first phase of its quality of life study. They are four pairs of sister cities – San Diego and Tijuana, Calexico and Mexicali, San Luis and Somerton, Arizona and San Luis Rio Colorado, and El Paso and Ciudad Juarez. These eight cities were selected because they represent a large proportion of the border population (Table 7.1).

Before the Border Observatory, it was difficult to examine the US – Mexico border region and evaluate whether it demonstrated improvement or deterioration (and in which areas). Available studies are few and use indicators that are not applied consistently, hence making comparative studies nearly impossible. During the last decade, several attempts have been made to develop indicators for the US – Mexico border. Several border area indicators programs are important to discuss briefly since the work of the Border Observatory builds on these previous projects and attempts to address the gaps left by these programs.

The US Environmental Protection Agency (EPA) established the largest set of indicators that were developed to monitor progress toward the six goals of the Border 2012 program. Border 2012 is a 10-year program with a "bottom-up, regional approach, which relies heavily on local input, decision-making, priority-setting, and project implementation to best address environmental issues in the border. It brings together a wide variety of stakeholders to prioritize sustainable actions that consider the environmental needs of the different border communities (EPA 2010)." The issues that the Border 2012 program addresses are (1) water contamination, (2) air pollution, (3) land contamination, (4) environmental health, (5) environment threatening incidents and response, and (6) environmental stewardship. The program uses 23 objective indicators to assess progress in these six areas. The indicators selected are important to environmental concerns in the border region, but lack a quality-of-life focus. The Border 2012 indicators do however have a longitudinal aspect to them, with data having been reported in 2005 and 2010.

A second indicator program was developed by SCERP (Southwest Consortium for Environmental Research and Policy) housed at San Diego State University to provide policy-relevant environmental data for the entire border region over the last 15-year period (Pijawka et al. 2003). Although topically important, the data are piecemeal, not systematic, and originally derived from specific unrelated research projects and programs at five US and ten Mexican universities. While these data are available, they are not usable for border-wide monitoring of conditions, nor are

the data suitable for longitudinal analysis. Further, there is a notable paucity of usable data on social conditions, infrastructure capacity, and community well being.

Another program source of data on QoL stems from the UN's effort in comparing QoL indicators for cities around the globe with the UN Global Urban Observatory (GUO). This program consists of agreed upon indicators that have been applied to cities around the world. The GUO program relies on cities and municipalities to collect data on the indicators and self report these data. As a result, the inclusion of cities in this dataset has proven somewhat sporadic. Another set of indicators included in the study completed by Anderson and Gerber (2008) that used an adjusted United Nations Human Development Index for communities in the border originally established to measure progress at the national level. This use of national-based indicator metrics, however, lacked grounding in specific community connected problems or in a cohesive regional policy context. These types of databases typically are limited to income and education metrics and cannot address the inherently more complex community–based problems that need resolution; they are best at providing crude indicators in terms of income or education and poverty levels and do not help in providing the bases for prescriptive remedies.

The indicator programs mentioned above have all contributed to highlighting the complex issues apparent in the Border Region. They however lack several key features that are present in the Border Observatory's project. First is the absence of longitudinal data in all except the EPA environmental indicators. The EPA indicators, although they do include longitudinal data, are only for environmental issues and do not address issues within a quality of life framework.

Not surprisingly, many of the problems these programs have addressed included issues of data availability, program implementation, data consistency in areas, and border data collection. These difficulties are known for most indicator programs and staying power is a principal weakness for indicator programs in general and for the US – Mexico region specifically. New data collection efforts on environmental quality such as the Border Environment 2012 Report (2011) are piecemeal, often dependent on information that happens to be available. Furthermore, they are not based on relevant data that are needed or on systematic data that enable comparisons to be made over time and space. A systematic approach for the border region that incorporates all the urban areas, over time, and for a comprehensive set of urban conditions has not been developed except for the Observatory.

Quality-of-Life Indicators

Quality of life can be defined as "the level of enjoyment and fulfillment derived by humans from the life they live within their local economic, cultural, social and environmental conditions" (Redefining Progress 1997). Quality of life has been cited as the most frequently used conceptual framework for urban indicator programs (Redefining Progress 1997) – other commonly used conceptual frameworks include sustainability, healthy communities, and livability (McAslan 2010). Earlier quality of life indicator programs were developed in response to the lack of success that

social and environmental indicators (and created at the national level) had in local public policy making. They aimed to combine many dimensions of a community into a single, often comprehensive, report. Because of this, many quality-of-life indicator programs include close to 100 indicators or more. This comprehensiveness is one reason why quality-of-life programs are often cited as being ineffectual in policy making. Due to their large numbers of indicators, it becomes difficult to prioritize issues and indicators and each year different indicators draw the attention of policy makers or the public (Dluhy and Swartz 2006). This, however, has not prevented a large number of organizations and local governments from developing comprehensive quality of life indicator programs. The more successful programs have limited the total number of indicators to a more manageable number and have selected only the most meaningful indicators in key issue areas (McAslan 2010). The Border Observatory followed the example of some of these more successful programs and developed a manageable number of highly focused indicators that are specific to the issues in the Border Region. It was expected that this focus would make it a useful tool for policy makers in the region.

For the Border Observatory's quality-of-life study both objective and subjective indicators are used. Objective indicators are used to measure concrete aspects of a system and are based on observed statistical data (Santos and Martins 2007). These are observable and measurable phenomena. Subjective indicators gather data through field surveys in which citizens are usually asked for their subjective interpretation of various qualities within the city (Santos and Martins 2007). While objective indicators are primarily used in a wide range of indicator programs, the use of subjective QoL indicators to guide policy decisions has been controversial. Some scholars have suggested that measures of subjective well – being require additional research and refinement before they are used in policy decisions. Others argue that the use of such measures is long overdue. The Border Observatory developed its indicator project based on the assumption that subjective measures are a necessary complement to objective QoL indicators.

To select indicators for the Border Observatory the *SMART* principle was used. *SMART* refers to an indicator that is specific, measurable, achievable, relevant, and time bound. Specific means that the indicators should each measure single aspects of a community. Measurable refers to having an indicator that can be accurately measured and interpreted. Achievable means that the indicator must be something that can be measured in a reasonable amount of time and not be too complex. The indicators should be relevant and meaningful to the communities they measure and to policy makers. And lastly, indicators are most effective when measured over time. Ensuring such attributes in desired indicators ensures accurate portrayal of ground truths in our databases for further analyses.

Objective Indicators

Objective indicators typically used in quality-of-life studies are quantitative measures that characterize a physical, social, or economic condition. These measures have

Table 7.2 Objective indicators

Category	Topic	Indicator measurement
Demographics	Population	Percent change in population
Economy	Household income	Per capita income
	Poverty	Percent of population living below nationally defined poverty line
Education	Access	(a) Number of schools per 100,000 population
		(b) Number of colleges and universities per 100,000 population
	Attainment	(c) Percent of population older than 25 years of age who have completed high school
		(d) Percent of population older than 25 with bachelor's degree or higher
Health	Infant mortality	Infant deaths per 1,000 live births
	Access	(a) Physicians per 100,000 population
		(b) Number of hospitals and clinics per 100,000 population
Housing	Quality	Percent of homes lacking drinking water connections
Public Safety	Crime	Murders per 100,000 population

been derived through scholarly analysis and are commonly found in government reports. The goal of objective indicators is to compare places – countries, regions, cities – on various conditions. Gathering objective data in the border region proved to be challenging due to data differences on both sides of the border. The US and Mexican methods of data collection, as well as the data collected, differ both from the census as well as other agencies like the environmental agencies of both countries. In some cases, there is no comparable counterpart for information available for US cities and for their sister cities. For example, air quality measurements are regularly taken by the US EPA and are readily available as public records via the Internet. However no such initiative is made by the Mexican government to monitor air quality; further, the air quality data that is collected is not consistently reported.

For the final indicator set, the objective indicators used fall into several categories – demographics, economy, education, health, public safety, and housing. Table 7.2 shows the list of objective indicators and the measurements used for each one. Information on many of these indicators could be considered demographic in nature, and these data were acquired from the census sources of both countries. Several challenges had to be overcome, including navigating information databases in Spanish. This remediative approach involved employing bi-lingual researchers and using the Google Translate tool. These indicators were selected from a number of sources including the UN Urban Observatory Program and the Human Development Index, and from past and discontinued EPA border indicators initiatives and random studies from the Southwest Consortium for Environmental Research and Policy (SCERP) out of San Diego State University. A foundational study on border indicators by SCERP was the series of focus groups in San Diego and Tijuana on appropriate indicators for the bi-national region through stakeholder interests. As that study discovered, few indicators can satisfy the needs of both sides of the border and even

fewer indicators data are available. A few specific indicators that were measured highlight some of the difficulty in measuring indicators in bi-national regions like the US-Mexico border.

The first indicator of importance is the economic indicator of poverty, which is a critical quality of life issue especially in the border region. For this category two indicators were chosen. The first, per capita income is a very common economic measure, which shows the general economic productivity of a city or region and data on this indicator was readily available for all the cities in the border region. The second indicator was the poverty rate, which highlights several problems in regional and cross border analysis. In the US, poverty is measured on an income threshold. In Mexico, three types of poverty metrics are measured – nutritional, socioeconomic and 'overall.' The 'overall' poverty measure is the closest to the one employed in the US and is defined as the "percent of people whose per capita household income is below the level necessary to cover consumption needs for nutrition, clothing, shelter, health, transportation, and education." In comparing this "overall poverty" metric to US poverty levels, it is important to remember that the amount of income differs between the two countries on what defines the level of poverty.

Education is a very important aspect of quality of life, and like other indicators used for bi-national analysis is often measured in variant ways. The Border Observatory looked at two indicators. The first, the percent of high school graduates, which is closely related to a country's overall level of development, demonstrates the ability to allocate public resources for education and is a leading factor in economic development. Data for this were easily obtained from the census databases of both countries. The second indicator measured was the number of schools per 100,000 population, which highlights accessibility to educational services. This information was obtained from the separate school district websites for each US city. However, for Mexican cities, locating this information turned out to be more challenging to accomplish. In order to collect this information for Mexico, all schools were individually mapped and counted manually using Google Earth and Google Maps. In terms of similar future research efforts for places where data similar to this is not readily available, mapping tools such as these can be highly useful.

A third important quality of life dimension is public safety. A common measure of this is crime rates, which proved to be another challenging indicator for an accurate cross border comparison. Several explanatory factors seem to be that either crime records are not well maintained for Mexico or are not publicly disclosed for scientific research. As a result, indirect sources had to be used like information gathered from Mexican newspapers reporting rates of theft, rape, and murder. For the US cities, however, the data were easily available from the FBI databases, and were well categorized for ease of use for research purposes. For several of the four twin cities, due to mismatches between available data, only thefts or murders were taken as indicators of crime. For others where multiple statistics were available, the average of all available crime type rates was taken.

These objective indicators highlighted above show the importance of having well-defined, accurate, and measurable data. Without such well-constructed indicators, data cannot be accurately collected and meaningful comparisons cannot be

made. If this is lacking, it is hard to know definitively whether one area is better or worse off than another. The US-Mexico Border Observatory took considerable care in identifying indicators that both measure important quality-of-life issues and had data already available or could easily be measured. The most important consideration to acknowledge when conducting bi-national studies such as this one is that differences in data collection exist and must be identified and accounted. When indicators cannot be converted to the same metrics, as was the case with poverty levels in both countries, then it must be clearly stated.

Subjective Indicators

As mentioned previously, the Border Observatory decided to rely heavily on subjective indicators, even though the use of such indicators has been controversial in policy making. The Border Observatory conducted its work on the assumption that people's perceptions toward community issues were equally as important as the objective measure of that same issue.

The initial steps to undertake when developing subjective indicators pertained to deciding what needs to be measured and how. The Border Observatory designed a survey instrument to gauge residents' responses to subjective indicator scales for both sides of the border. Because the accuracy and reliability of the results was pivotally important, the Border Observatory was especially sensitive to the wording of the questions to ensure the meanings in Spanish and in English were as closely as similar as possible. Several pilot survey designs were implemented prior to the final design of the survey. Based on those efforts, It was determined that conducting household surveys was the preferred method of data collection.

Because there exists only a handful of objective numerical indicators at the urban level that can be compared in the bi-national border region, it was important to develop a comprehensive list of subjective indicators. Many of these were derived from earlier community satisfaction surveys and the more recent "level of personal well- being" surveys. The final survey contained 46 indicator questions within 14 categories, some of which related to the objective indicators that had previously been selected and others that looked at other aspects of people's quality of life – personal quality of life, education, public safety, housing, environmental quality, local economy, transportation, public services, health care, happiness, and life satisfaction. The complete set of subjective indicators is shown in Table 7.3.

Responses to each question was measured using a 1–9 scale that asked individuals to rate how they felt on specific topics – 1 being poor and 9 being high. The number of surveys conducted in each city varied. The goal was to achieve a 95 % confidence level for the results in each city with a reasonable margin of error. Table 7.4 shows the number of surveys completed in each of the eight cities and the corresponding margin of error. For each city, households were randomly selected for face- to – face interviews and based on gender statistics and cultural differences, interviewers asked either for the male or female head of household in English or Spanish.

Table 7.3 Subjective indicators from border observatory quality of life survey

Indicator topic	Survey question
Personal quality of life	How would you rate your personal quality of life in this city?
	Overall, how satisfied are you with living in this city?
	Is this a good place to raise children?
	How friendly are people in this city?
	How many people do you have in your household?
	How long have you lived in this city?
	How many times have you crossed the US-Mexico border to visit the neighboring city?
	What would happen to your quality of life if you lived in the neighboring city on the other side of the border?
Education	How would you rate the quality of colleges and universities available in your area?
	How would you rate the quality of schools available to children in your area?
Local economy	How would you rate your current household economic situation?
	How does the economic situation of your household compare to 1 year ago?
	How do you see your household economic situation 1 year from now?
	How has the availability of jobs changed since a year ago?
	How has the cost of living changed since a year ago?
Public safety	How would you rate the problem of crime in your neighborhood?
	How safe do you feel walking alone after dark in your neighborhood?
	How much do you trust the police to provide you safety?
Housing	How satisfied with your current housing are you?
	Do you rent or own your home?
	Is the housing cost imposing a financial burden on you?
Environmental quality	How would you rate the air quality here?
	Are you concerned with the effect of local air pollution on your health?
	How would you rate the quality of piped water provided by the city to your household?
	Are you concerned about the effect of this water on your health?
	How would you rate your satisfaction with the quality of parks and recreation in your city?
Transportation	How many cars does your household own?
	Is traffic congestion a problem?
	Do you commute to work?
	Has your commute time changed over the past 12 months?
	How would you rate the quality of public transportation?
Public services	How satisfied are you with the quality of trash collection services?
	How satisfied are you with the quality of street lighting?
	How satisfied are you with the quality of fire department services?
	How satisfied are you with the quality of roads in your neighborhood?
	In general, how satisfied are you with the responsiveness of your local government to your needs?
Health care	How would you rate the availability of health care facilities in your community?
	How would you rate the quality of health care in your community?
	How would you rate the availability of physicians in your community?
	How would you rate the quality of physicians in your community?

(continued)

Table 7.3 (continued)

Indicator topic	Survey question
Happiness and life satisfaction	In general, how would you rate your emotional state, i.e. your overall level of happiness?
	In general, how satisfied are you with the life you lead?
	Do you have trouble sleeping?
	How much do you enjoy your normal day to day activities?
	How often do you feel unhappy or depressed?
	How often do you feel completely happy?

Table 7.4 Survey sample sizes

		Highest margin of error based on sample size and population	
City	Sample size	95 % Confidence level	99 % Confidence level
San Diego	1,007	+/– 3.09 %	+/– 4.06 %
Tijuana	1,079	+/– 2.98 %	+/– 3.93 %
El Paso	196	+/– 7 %	+/– 9.21 %
Juarez	417	+/– 4.8 %	+/– 6.32 %
San Luis and Somerton, AZ	347	+/– 5.24 %	+/– 6.89 %
San Luis Rio Colorado	398	+/– 4.91 %	+/– 6.46 %
Calexico	98	+/– 9.89 %	+/– 13.01 %
Mexicali	302	+/– 5.64 %	+/– 7.42 %

The surveys were translated into English and Spanish using academic and local teams. A missing household or a non – response resulted in adding another randomly-selected household.

Innovative Measurements

The Border Observatory project includes two measurements that could be considered innovative. The first is a subjective measurement of happiness. The second is a quality of life cumulative index developed from a core set of the subjective indicators.

Measuring Happiness

During the past decade, a number of research projects have attempted to measure the elusive concepts of "happiness" and overall "life satisfaction" in various parts of the world. The results from these surveys vary significantly, but all show substantial regional differences in happiness and life satisfaction. For example, the World Database of Happiness ranks how much people report enjoying their life on a scale from 0 to 10. The findings were based on random samples of people from different

countries from 2000 to 2008. This research revealed that Mexico ranked fifth in the world in happiness ratings (behind Iceland, Denmark, Columbia, and Switzerland) with an average rating of eight out of ten. Although Mexico's Gross Domestic Product per capita pales in comparison to its northern neighbor, its residents' happiness ratings surpassed those in the US (Veenhoven 2006).

On a research level, it has recently become common to distinguish between two types of happiness. One type, which we call "Life Satisfaction," asks people to reflect on their life and rate their satisfaction with it. The Border Observatory surveys explore this dimension by asking people (1) to rate satisfaction with their personal quality of life in their city, and (2) to rate their overall life satisfaction. Another type of happiness is commonly called "emotional well being." While Life Satisfaction scores reflect how satisfied people feel when they think or reflect about their life, Emotional Well Being measures the moment –to-moment experiences of happiness, worry, stress, and other emotional states. It is a reflection of the emotions that are experienced daily. Life satisfaction refers to being happy about your life, while emotional well being refers to being happy in your life. In can be argued that both types of happiness are influenced by an individual's environment, which is why they are included in our survey. If the built environment can influence a person's happiness, then policy makers need to be aware of how people rate their own happiness in the cities in which they live.

Quality-of-Life Index

The Border Observatory also developed a quality of life index to compare the border cities on all dimensions in the study. This is an important tool as it gives a general overview and comparison of all eight border cities. The index was established by combining residents' average ratings on 14 key selected indicators from each of the border cities in our study. The 14 selected indicators in the QoL index include the following:

1. How would you rate your personal quality of life in this city?
2. Is this a good place to raise children?
3. How would you rate the quality of colleges available in your area?
4. How would you rate the quality of schools available to children in your area?
5. How would you rate your current household economic situation?
6. How would you rate the problem of crime in your neighborhood or city?
7. How much do you trust the local police to provider you security?
8. How satisfied are you with your current housing?
9. How would you rate the air quality here?
10. How would you rate the quality of piped water provided by the city to your household?
11. Is traffic congestion problem?
12. How satisfied are you with the responsiveness of your local government to your needs?
13. How would you rate the quality of health care in your community?
14. In general, how would you rate your emotional state in terms of happiness?

These indicators were taken from each QoL category without assigning weights for each. The measures were identified by examining focus group reports on border indicators, earlier initiatives at border indicator development and SCERP reports on priority issues on the border. Although each of the 14 has equal weighting, a choice was made to include two indicators instead of only one from two separate categories – crime and education. This effectively provides greater weight to these two categories, which were determined in earlier focus groups to be more important in determining overall quality of life.

The decision was made to develop an index in order to provide a quick comparison of the border region cities. An index, like an indicator, is presented as a single number. An index, however, is a combination of two or more indicators and is designed to be a summary indicator which shows a general trend of a system (Redefining Progress 1997). There is sometimes confusion between indicators and indexes, and often an index is treated like an indicator. Indexes are useful for providing a simplified mechanism for looking at an entire system (one of the most common examples is the Human Development Index) but they are not necessarily useful for policy making, which is the ultimate aim of indicators. This is because an index does not distinguish among its different component indicators. This does not allow policies and actions to be determined since one has no way of knowing which component to address. Nevertheless, indexes are useful because they can provide a simplified and more generalized view of cities or regions. The Index was simply based on averaging the 14 indicators for each city.

Results

In this section of the chapter, data for both the objective and subjective indicators are shown in separate tables for each of the eight cities in the region. The objective indicators collected for the eight cities show clear differences between the US and the Mexico side of the border (Table 7.5). In many cases, the subjective indicators (Table 7.6) show similar results as the objective data and others that do not. The key subjective indicators in this discussion are shown in Table 7.6. The results based on the happiness ratings are presented next (Table 7.7) by city and comparisons can be made between the perceived quality of life on the other side of the border by respective populations of U.S. and Mexican border cities (Table 7.8). The Quality of life Index for all our cities are shown next (Table 7.9) followed by our longitudinal analysis for two cites Mexicali and Calexico (Table 7.10).

Comparing Objective and Subjective Indicators

Public Safety. Public safety, as measured by crime rates, is a major component of quality of life. As seen in Table 7.5, crime rates, and more specifically murder rates, are highly varied on either side of the border. The average murder rate in the four US cities is 3.6 per 100,000 residents, which is lower than the US national average

Table 7.5 Objective indicators data

	US Cities					Mexico Cities				
Indicator	San Diego	El Paso	San Luis, AZ	Calexico	**Average**	Tijuana	Juarez	San Luis RC	Mexicali	**Average**
Crime										
Murders per 100,000	4.12	3.42	4.44	2.56	**3.64**	56.87	257	0	47.56	**120.5**
Education										
Schools per 100,000	17.18	14.6	20.59	40.28	**23.16**	1.49	1.29	5.09	2.69	**2.64**
Colleges per 100,000	1.67	1.64	2.29	2.69	**2.07**	1.06	0.38	1.27	2.1	**1.20**
HS Graduates older than 25 (%)	82.8	68.6	73.3	47.4	**68.03**	n/a	72	10.35	68	**50.12**
Bachelors older than 25 (%)	35	18.3	16.2	9.1	**19.65**	n/a	8.6	12.1	9.3	**10**
Health										
Hospitals or clinics per 100,000	–	–	–	–	**n/a**	4.5	3.7	11.5	8.8	**7.13**
Physicians per 100,000	266	172	105	74	**154.3**	102	75	107	119	**100.8**
Infant Mortality (per 1,000)	7.1	3.9	6.4	6.5	**5.98**	21.3	20.9	20.9	20.7	**20.95**
Physical Infrastructure										
No Potable Water (% homes)	0	0	0	0	**0**	26.81	15.13	12.83	20.27	**18.75**
Poverty										
Nutritional poverty (%)	n/a	n/a	n/a	n/a		0.5	4.9	7.2	1.5	**3.53**
Socio-Economic Poverty	n/a	n/a	n/a	n/a		1.1	9.7	13.5	2.6	**6.73**
Overall Poverty Percent	14.6	22.2	14.7	25.7	**19.3**	7.1	33.4	41.1	10.3	**22.98**

Table 7.6 Subjective indicators results

	US Cities					Mexico cities				
Indicator	San Diego	El Paso	San Luis, AZ	Calexico[a]	**Average**	Tijuana	Juarez	San Luis RC	Mexicali[a]	**Average**
Crime										
Crime in your neighborhood?	6.29	7.03	6.59	6.12	**6.51**	3.73	3.94	5.94	3.97	**4.40**
Trust the local police for security?	6.66	6.74	7.21	7.10	**6.93**	3.34	3.49	5.88	3.85	**4.14**
Education										
Quality of colleges?	7.45	7.34	6.71	6.98	**7.12**	7.52	7.19	7.27	7.90	**7.47**
Quality of schools for children?	6.59	7.20	7.09	7.12	**7.00**	7.15	6.57	7.69	7.06	**7.12**
Health										
Availability of facilities?	6.84	6.36	5.86	5.16	**6.05**	6.68	5.73	6.27	6.52	**6.30**
Quality of health care?	6.90	6.50	6.17	5.82	**6.35**	6.79	5.92	6.74	6.60	**6.60**
Availability of physicians?	6.68	6.30	5.83	5.26	**6.02**	6.78	5.70	6.33	5.96	**6.19**
Quality of physicians?	6.93	6.76	6.34	6.38	**6.51**	7.11	6.37	7.21	7.06	**6.94**
Public Services and Infrastructure										
Quality of trash collection?	7.41	7.48	8.10	6.79	**7.45**	6.68	7.18	7.42	7.69	**7.24**
Quality of street lighting?	6.29	6.58	7.39	6.45	**6.68**	7.02	6.55	7.60	7.33	**7.12**
Quality of fire department?	7.69	7.96	8.29	7.63	**7.89**	7.52	7.13	7.65	7.28	**7.40**
Quality of roads in neighborhood?	6.31	6.59	7.29	6.32	**5.12**	5.50	4.72	5.13	5.14	**5.12**
Responsiveness of local government?	5.24	5.62	5.7	5.20	**5.42**	4.62	4.30	5.95	5.40	**5.03**
Quality of piped water?	5.78	6.55	3.32	6.78	**5.61**	6.83	4.74	6.23	7.28	**6.27**
Satisfaction with current housing?	7.56	7.88	8.09	8.14	**7.68**	7.22	7.16	7.62	7.90	**7.52**
Poverty										
Housing cost imposing a financial burden?	6.47	6.36	6.07	5.05	**5.99**	5.75	5.59	5.00	4.46	**5.20**
Current household economic situation?	6.63	6.77	6.40	6.75	**6.64**	6.98	6.09	6.59	6.82	**6.62**

Note: for all indicators, 1 equals a low rating and 9 equals a high rating

[a]Calexico and Mexicali subjective results from 2008 survey

Table 7.7 Happiness indicators results

	US Cities					Mexico Cities				
Indicator	San Diego	El Paso	San Luis, AZ	Calexico	**Average**	Tijuana	Juarez	San Luis RC	Mexicali	**Average**
Emotional state, i.e. your overall level of happiness?	7.61	7.62	7.82	7.55	**7.65**	7.74	7.35	7.50	7.49	**7.52**
Satisfaction with the life you lead?	7.72	7.70	8.02	7.77	**7.80**	7.79	7.56	7.93	7.82	**7.78**
Do you have trouble sleeping?	7.20	7.04	7.50	7.69	**7.36**	7.52	7.32	8.02	7.81	**7.68**
How much do you enjoy your normal day to day activities?	7.35	7.27	7.09	7.39	**7.26**	7.73	7.24	7.38	7.48	**7.46**
How often do you feel unhappy or depressed?	7.34	6.87	6.98	6.84	**7.01**	7.45	6.95	7.16	6.82	**7.10**
How often do you feel completely happy?	4.27	7.41	7.11	7.11	**6.48**	7.87	7.15	7.29	7.15	**7.37**
City Averages	6.92	7.32	7.42	7.39	**7.26**	7.68	7.26	7.55	7.43	**7.48**

Note: for all indicators, 1 equals a low rating and 9 equals a high rating

Table 7.8 Quality of life on the other side of the border

	US Cities					Mexico Cities				
Indicator	San Diego	El Paso	San Luis, AZ	Calexico	**Average**	Tijuana	Juarez	San Luis RC	Mexicali	**Average**
Quality of life if you lived on the other side of the border?	2.62	2.93	2.65	3.5	**2.93**	6.35	6.84	6.4	5.4	**6.25**

Note: A rating of 1 equals a much worse overall quality of life and 9 equals a much higher quality of life

of 5.4. The average in the Mexican cities is 120.5 per 100,000 residents, is estimated to be 2.5 times higher than the Mexican average murder rate. The average of the Mexican cities is skewed by Juarez, which has a murder rate exceeding 250 per 100,000, while the other two cities with data have about 50 (more than ten times than in the US cities).

The subjective indicator data (Table 7.6) on crime supports the objective data. The average rating in the Mexican cities was only 4.4 (out of 9.0) compared to the US cities with an average of 6.51. Additionally, three of the four Mexican cities – Tijuana, Juarez and Mexicali – showed scores between 3.5 and 4.0. Such low ratings mean that residents are expressing very serious concerns over crime. Even the best ranked cities on crime such as El Paso and San Luis, AZ, only rated between 6.5 and 7.0. In addition to people viewing crime as a serious problem in the four Mexican cities and a moderate problem in the four US cities, the subjective indicators also show a low level of trust of local police in Mexican cities and moderate trust in the US cities. The average rating of trust of local police in Mexico was only 4.14 out of 9.0 compared to 6.93 in the US cities.

Education. For education, objective indicators and subjective indicators examine two separate aspects. The objective indicators primarily focus on the availability of schools and the educational attainment of the population, whereas the subjective explore the idea of how people perceive these facilities in terms of their quality and whether or not they match their expectations. Both the objective and subjective indicators are concerned with both primary and high school education and with college level education.

The objective data (Table 7.5) shows that US cities have an average of 23.2 elementary schools per 100,000 residents while Mexican cities have nearly one tenth the number with only 2.6 schools per 100,000 residents. Education attainment levels reflect this, with the four US cities having 68 % of residents with high school diplomas and the four Mexican cities with only 50 % of residents having diplomas. College availability and degree attainment follow a similar pattern – more schools are available in the US cities and a higher percentage of the population has degrees. The four US cities have 2.07 colleges per 100,000 versus 1.2 in the four Mexican cities. In the US cities, 20 % of the population has a college degree while only 10 %

Table 7.9 Quality of life index

	US Cities					Mexico Cities				
Indicator	San Diego	El Paso	San Luis, AZ	Calexico	**Average**	Tijuana	Juarez	San Luis RC	Mexicali	**Average**
Personal overall quality of life?	7.15	7.10	7.45	7.79	**7.37**	7.28	6.43	7.37	7.25	**7.08**
Good place to raise children?	6.62	7.53	7.82	7.70	**7.42**	6.46	5.45	7.60	6.87	**6.60**
Quality of colleges and universities?	7.45	7.34	6.71	6.98	**7.12**	7.52	7.19	7.27	7.90	**7.47**
Quality of schools for children?	6.59	7.20	7.09	7.12	**7.00**	7.15	6.57	7.69	7.06	**7.12**
Current household economic situation?	6.63	6.77	6.40	6.61	**6.60**	6.98	6.09	6.59	6.05	**6.43**
Crime in your neighborhood?	6.29	7.03	6.59	2.50	**5.60**	3.73	3.94	5.94	5.15	**4.69**
Trust the local police for security?	6.66	6.74	7.21	7.10	**6.93**	3.34	3.49	5.88	3.85	**4.14**
Satisfaction with current housing?	7.56	7.88	8.09	8.14	**7.92**	7.22	7.16	7.62	7.90	**7.48**
Air quality?	6.89	5.60	6.96	6.05	**6.38**	5.77	4.11	5.15	4.50	**4.88**
Quality of piped water?	5.78	6.55	3.32	6.78	**5.61**	6.83	4.74	6.23	7.28	**6.27**
Is traffic congestion a problem?	5.4	4.83	5.68	3.10	**4.75**	2.99	3.12	6.42	6.90	**4.86**
Satisfaction with the responsiveness of government?	5.24	5.62	5.7	5.20	**5.44**	4.62	4.30	5.95	5.40	**5.07**
Quality of health care?	6.90	6.50	6.17	5.50	**6.27**	6.79	5.92	6.74	7.00	**6.61**
Emotional state, i.e. overall level of happiness?	7.61	7.62	7.82	8.06	**7.78**	7.74	7.35	7.5	7.42	**7.50**
Quality of Life Index total	6.63	6.74	6.64	6.33	**6.58**	6.03	5.42	6.71	6.47	**6.16**

Note: For all indicators, 1 equals a low rating and 9 equals a high rating

Table 7.10 Calexico and Mexicali subjective indicators 2004 and 2008

	Calexico			Mexicali		
Indicator	2004	2008		2004	2008	
Personal quality of life in this city?	7.16	7.79	+++	7.23	7.25	+
Is this a good place to raise children?	7.47	7.70	++	7.28	6.87	--
Quality of colleges & universities?	6.73	6.98	++	8.10	7.90	--
Quality of schools for children?	7.01	7.12	++	7.28	7.06	--
Current household economic situation?	6.75	6.61	--	6.82	6.05	---
Problem of crime in your neighborhood?	6.12	2.50	----	3.97	5.15	++++
Trust the local police for security?	6.68	7.10	++	4.67	3.85	---
Satisfaction with your current housing?	7.67	8.14	++	7.61	7.90	++
Air quality?	6.09	6.05	-	5.08	4.50	---
Quality of piped water?	6.37	6.78	++	6.81	7.28	++
Is traffic congestion a problem?	4.04	3.10	----	3.85	6.90	++++
Satisfaction with the responsiveness of local Government?	5.14	5.20	+	5.27	5.40	++
Quality of health care?	5.82	5.50	--	6.60	7.00	++
Emotional state, i.e. your overall level of Happiness?	7.55	8.06	+++	7.49	7.42	-
Quality of Life Index	6.44	6.33	--	6.60	6.47	--

Note: for all indicators, 1 equals a low rating and 9 equals a high rating
Note: +/- = change less than 0.1 = not significant; ++/-- = change between 0.1 and 0.25 = minor change; +++/--- = change greater than 0.5 = notable change; ++++/---- = significant change

have a degree on the Mexico side of the border. This is interesting since the spectrum of accessibility to education is quite broad along the border. A definite trend exists among these eight cities – cities with less accessibility have lower educational attainment while cities that have higher accessibility to education see a higher percentage of educated people.

On the subjective indicators (Table 7.6), residents in almost all cities rated their schools and universities at moderately high quality, averaging 7.0 out of 9.0–7.3 for higher education and 7.06 for primary education. Interestingly, the average rated quality of both colleges and primary schools was higher for the Mexican cities than the US cities. Since the objective indicators show that there is less access to education in the Mexican cities, it does not seem that access and quality are closely related. Even though direct comparisons cannot be made between the objective and subjective indicators concerning education, since one addresses availability and the other addresses quality, they are still useful in understanding the quality of life in border cities.

Health. Public health is a principal element in most studies of quality of life and indicators. It has also become a major policy issue in the US and knowing the state and quality of health is just as important as how people perceive their health and provision of health care. The objective indicators (Table 7.5) for health show that cities on US side of the border average 154.25 physicians per 100,000 residents. The average infant mortality rate in the four US cities is 5.98 per 1,000 live births, compared to the US national average of 6.26. The four Mexican cities have 100.75

physicians per 100,000 residents. Their average infant mortality is 18.42 per 1,000 births compared to the Mexico average of 21.62. Based on these indicators, health care is comparatively better overall on the US side of the border.

The subjective indicators (Table 7.6) for health show a fair-to-moderate level of health care in border communities. The average for all four health care indicators for all eight cities was 6.37 out of 9.0, with a range of less than 1.0. In all eight cities the availability of health care facilities and physicians was ranked lower than the quality. When the results for all four indicators are averaged, San Diego and Tijuana ranked the highest at 6.84 while Juarez and Calexico ranked the lowest at 5.93 and 5.66 respectively. When comparing the subjective indicators for availability between the US and Mexico side of the border, the average of the four US cities is lower than the average for the four Mexican cities for both availability of health care facilities and availability of physicians. This is the opposite of what would be expected based on the objective data, which shows that there are more facilities and physicians on the US side of the border.

Public Services and Infrastructure. The objective data (Table 7.5) in the physical infrastructure clearly indicate problems of accessibility to potable water for households in Mexican cities. In the four Mexican cities, 18.75 % of homes do not have potable water connections. This compares to the US where virtually all homes have piped water. The subjective indicator for piped water quality (Table 7.6) shows that the households in the Mexican cities with piped water rate their water quality higher than the US cities. The average rated water quality in the Mexican cities was 6.27 compared to only 5.61 in the US cities. Of the eight cities, only Mexicali rated over a 7.0 on piped water quality at 7.28. This shows that water quality is a concern on both sides of the border. Even with this difference in piped water, residents in all eight cities ranked the overall quality of their housing as pretty good – 7.68 in the US cities and 7.52 in the Mexican cities. This indicator showed very little difference between either side of the border, a difference that is clearly apparent when looking at the objective data.

The differences in infrastructure and public services become more apparent when looking at additional subjective indicators (Table 7.6). In general, residents in the four Mexican cities provided lower scores to public services than residents in US. The survey asked residents about their level of satisfaction with the quality of four public service areas: trash collection, street lighting, fire departments, and roads. This was followed by a question asking about the responsiveness of local government to their needs. In the four US cities, the average of the four questions relating to trash collection, street lighting, the quality of fire departments, and streets the average rating was 7.16 out of 9.0. In the Mexican cities, the average was 6.72. For each separate indicator, there was not a significant difference between US and Mexican cities, except in response to the quality of streets. Trash collection and fire departments ranked higher in the US cities, with 7.44 and 7.89 respectively, compared to 7.24 and 7.39 in the Mexican cities. The quality of street lighting was perceived as better in the Mexican cities, ranking 7.12 versus only 6.68 in the four US cities. The indicator for quality of streets showed the largest difference – in the Mexican cities street quality ranked 5.12 and in the four US cities it ranked 6.62.

Residents in the four US cities also rated government responsiveness higher than in the Mexican cities – 5.42 in the US versus 5.03 in Mexico. These scores on government responsiveness are only moderate, and do not reflect the higher scores given to the quality of the four separate public service categories.

Economy. Overall, poverty rates were shown to be higher in Mexico (Table 7.5). In the four Mexican cities, the overall poverty rate is 22.98 and in the US cities the poverty rate is 19.3. When compared to each other, the US has lower poverty levels, but when compared against their respective national poverty levels, the picture is much different. The four US cities have higher poverty rates than the US average, which is around 15 %. In Mexico, depending how the poverty level is defined, as much as 40 % of the population is in poverty. This means that the four cities in the border region have poverty levels nearly half that of the national average. Interestingly, Tijuana was found to have the lowest poverty rate of the eight cities, and in fact has the lowest poverty rate of any Mexican city. This is primarily attributable to the robust economy of Tijuana, which is driven by tourism.

Within the subjective indicators (Table 7.6), there are two questions that most closely relate to poverty levels. The first is whether housing costs impose a financial burden and the second asks about the current household financial situation. Regarding housing costs, the average among the four Mexican cities is 5.2 out of 9.0, which shows a moderate burden. The average among the four US cities is not much better at 5.98 out of 9.0. The average ranking for current household situation is nearly identical – 6.62 for the four Mexican cities and 6.64 among the US cities. Although the poverty levels in the eight border cities vary greatly, the subjective indicators do not reflect this. The subjective indicators show very little variation and demonstrate that residents on both sides of the border have similar perceptions of their economic situation, which is, overall, neither good nor bad.

Happiness

Residents in all eight cities reported moderately high ratings on overall emotional state – an average of 7.65 in the US cities and 7.52 in the Mexican cities. There were no major differences based on the size of the communities or whether the communities were in Mexico or in the US. The data on residents' life satisfaction state showed similar results. The average in the four US cities was 7.80 and in the four Mexican cities it was 7.78. This indicated that border residents are generally happy with their daily lives. Residents were asked to report how often they felt happy, how often they felt depressed, how much they enjoyed their day-to-day activities, and how often they had trouble sleeping. Generally, residents reported positive emotions. Residents of the eight border cities reported few significant differences on this indicator. No relationship was found between the size of the city or between the US and Mexican sides of the border in terms of reported levels of happiness.

An interesting result relating to these happiness measures was found when asking residents on both sides of the border about their anticipated quality of life if they

were to move to the other side of the border. These results show that residents on the US side of the border believe that their quality of life would be much worse if they lived in a sister city on the Mexico side of the border. In contrast, residents of border cities in Mexico expect that their quality of life would be much improved if they lived on the US side of the border.

Given that there are no real differences between reported life satisfaction and emotional well being between Mexico and the US border cities, what accounts for the perception of the quality of life on the other side of the border? Comparison of the objective quality of life indicators for Mexico and the US reveals two clear differences between the US and Mexican border cities. First, there is a substantial difference in per capita income between the US and Mexico. US residents are on average wealthier than are their neighbors to the south. Second, the infrastructure of US cities is significantly better than that of their sister cities to the south. It would be easy for residents to infer that these differences would lead to differences in the quality of life on the opposite side of the border. But, as our data indicate, such differences do not necessarily lead to differences in happiness or life satisfaction. The relationship between happiness and income is complicated. It is true that poorer nations become somewhat happier as they become middle-class nations. But once the basic living necessities have been achieved, additional income is only slightly connected to rated happiness and sense of well being. Other factors determining overall personal qualities of life are important to consider in addition to household income. For example, emotional well being is associated with the quality of personal relationships. In the US, the daily activity that is typically highly correlated with emotional well-being is socializing with people one likes. The daily activity most injurious to this kind of happiness is commuting.

Quality-of-Life Index

Overall, the quality-of-life index shows little difference between the eight border cities. The result was an overall ranking of the eight cities from the lowest – Ciudad Juarez to the highest – San Diego. One interesting result is that the four lowest ranking cities are the four Mexican cities while the four highest are the four US cities. In order from the lowest ranked to the highest they are (1) Ciudad Juarez, (2) Tijuana, (3) Mexicali, (4) San Luis Rio Colorado, (5) San Luis and Somerton, (6) El Paso, (7) Calexico and (8) San Diego.

The aggregated QoL index for the eight border communities provides important insights. First, the range of subjective QoL ratings for the border communities is from 5.6 to 6.6 (out of 9), a rather small variance, indicating that differences among the eight cities are not large on the cumulative subjective quality of life index. This is surprising given the substantial differences between US and Mexican border cities on objective-level indicators reported earlier. Second, while there are certain indicators that demonstrate serious problems with QoL such as concerns over crime in the border, the perception of these problems are tempered when aggregated with

other QoL indicators. As a result, community indices from 5.6 to 6.6 in terms of QoL are not at the lowest level of possible ratings, but neither are they at the highest.

Quality-of-Life Changes over Time

When using indicators, one of the most important dimensions is time. Longitudinal indicators provide important information for decision-makers and planners because they can identify those areas in community quality of life that are improving or declining and by how much. As such, indicators can red-flag specific problem areas for intervention through action or policy.

The Border Observatory Project conducted its first set of surveys in 2004 and 2005 in order to develop baseline indicator conditions for the Mexicali-Calexico bi-national region. Calexico is on the US side of the border in California while Mexicali is on the Mexican side of the border in Baja, California. The intent was to continue collecting data on the same indicators over time in order to monitor changing conditions in this twin-city region and in other similar border cities. In 2008, a second survey was completed for the same sister-cities of Calexico and Mexicali. Such longitudinal data provides an opportunity to examine changes over a 4-year period, from 2004 to 2008. The longitudinal data only include the subjective indicators collected from household surveys. This is due to the short span of time between surveys and that fact that no newer objective data was available from the secondary sources. The subjective indicators show observable changes during the 4-year period in critical areas and the shifts over time reflected significant public concerns. The Border Observatory concluded that in dynamic, rapidly-changing border regions with economic and infrastructure pressures, quality of life measures can change quickly requiring rapid political action to ameliorate deteriorating urban conditions.

Overall, the quality of life in both cities decreased – from 6.44 in Calexico in 2004 to 6.33 in 2008 and from 6.60 in Mexicali in 2004 to 6.47 in 2008. This change is not very significant, but does show an overall trend. Looking at individual indicators, we see that nine indicators showed improvement in Calexico. Two of these showed significant increases. In Mexicali, seven of the indicators showed improvement and seven showed worsening conditions.

Personal Quality of Life. In 2004, residents of both communities rated their personal quality of life in the low 7.0 range, or fairly good. Four years later, the overall personal quality of life for Calexico residents had improved slightly, from 7.16 to 7.79. In contrast, Mexicali residents did not perceive any change. Whether a place is good for raising children can be seen as an important "overall" indicator of the quality of that place. On this indicator, Calexico improved slightly from 7.47 to 7.7. However, as a place to raise children Mexicali declined from 7.28 to 6.87.

Economy. In both cities the household economic situation declined in the 4 years from the 2004 benchmark but only negligibly for Calexico. In contrast, the decline in Mexicali is noteworthy. In 2004, Mexicali's residents had a slightly higher rating

than its sister city in household economic conditions; but by 2008, it fell from 6.82 to 6.05, a noticeable decline in relative terms. However, it should be noted that a rating of 6.0 is still considered to be a "fair" rating. In other words, Mexicali households in 2008 were not in any economic crisis but felt less secure about their economic prospects than they did in 2004. There is no indication that residents anticipated the coming nationwide financial crisis.

Crime. One seriously declining indicator for Calexico is the perception of the growing rate of crime. From a fair rating of 6.12 in 2004, residents in 2008 rated the problem of crime in the severe problem category, around 2.5. This decline in public outlook is significant. Yet, despite the growing problem in public safety, other quality of life factors have generally improved in Calexico including increased trust in local police to provide security. In contrast, Mexicali residents saw the problem of crime improving.

Happiness. Residents of Calexico rated their emotional-well being (happiness) in 2008 higher than it was in 2004. This increase in the well-being rating is noteworthy because in 2004 the baseline rating was already fairly good at 7.5. In 2008, this increased to 8.05 – now ranking in the "excellent" category. No real difference in this indicator was seen in Mexicali.

Conclusions

The Border Observatory Project is an important case study in bi-national, regional, and urban quality of life indicators. It incorporates many proven characteristics of previously established indicator programs. It employs indicators relevant to issues in the US-Mexico border region. It has built on the efforts of previous indicator programs that have been developed specifically for the US-Mexico border region. It has also introduced the idea of measuring 'happiness' into quality of life indicators.

Even with the success the program has had, it is not without its challenges. It faces many problems common among indicators programs. Such problems include cost and funding, community support, and a lack of impact on policy. The Border Observatory initially planned to expand the program to include all border cities and to report on an annual or bi-annual basis. This was before the global recession, which has put further strain on communities in the border region and financial support for the program has dropped.

The Border Observatory indicators have demonstrated that quality of life can improve or worsen in a relatively short period of time. This suggests that policy makers can make a difference in many aspects of QoL. However, as the data point out, substantial declines in QoL in the border region can occur rapidly, especially when no action is taken and when residents perceive weaknesses in local government's responsiveness to problems. Communities and decision makers must acknowledge the utility of indicator programs and support them in any way they can. By doing so, they will know what impacts their actions have had and what actions may improve quality of life.

The US-Mexico border is a dynamic place and focused strategic actions can definitely improve conditions; but, the absence of action by government can very quickly lead to severe and adverse conditions as well. This is true no matter where a city is located, but is especially applicable in areas where demographic, environmental, and economic disparities exist, as is common in many border regions. The Border Observatory will continue its work as best it can in order to provide accurate and reliable data on quality of life in the US-Mexico border.

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Chapter 8
The Fox River Region Leading Indicators for Excellence: The Benefits and Challenges of Regional Collaboration

Lora H. Warner and Ashley A. Heath

Abstract Philanthropic partners in three metropolitan areas of Northeast Wisconsin collaborated to study quality of life using a mixed-method approach that enabled them to develop common indicators. The research was done in such a way that data could be aggregated regionally, shared and analyzed collectively, and compiled into a comprehensive report for the entire region. With the LIFE Study (an acronym for Leading Indicators for Excellence), each metro area compiled secondary, public opinion, and qualitative data to provide a rich data resource for its community and create a dashboard of leading indicators. Triangulation of the data revealed strong themes of local strengths and areas of concern. The Fox River Region LIFE Study demonstrates the feasibility of a collaborative project to compile data on quality of life at the regional level and offers a number of insights that will assist others in designing an approach that leads to regional action.

Ten philanthropic organizations in the three metropolitan areas of the lower Fox River Region created a unique opportunity by joining forces to coordinate concurrent "quality of life" studies of their metropolitan areas. In recognition of growing regionalization of the area, a plan was put in place to pool the three datasets to portray selected results at a regional level. With a strong, multi-method data collection process, this initiative involved identification of a dashboard of leading community indicators and triangulation of data pointing to community strengths and challenges.

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This chapter will discuss how the regional LIFE Study developed, beginning with a brief look at the context in which it took place. Next, the chapter describes how the project was organized, the research components and methodology, and selected results. Finally, it examines the factors that promoted and inhibited the regional-level work, pointing to a number of lessons learned in the attempt to regionalize the impact of the assessment.

Background and History

The Fox River Region

The Fox River Region (as defined for this project) is located in Northeastern Wisconsin, from Green Bay (at the north) heading south along the corridor of the Lower Fox River through Oshkosh. The area has a rich economic history of paper production, manufacturing, and commercial trade along the river, and currently is one of the fastest growing areas in Wisconsin. The high quality of life in the Fox River Region has been widely acknowledged, with low crime rates, superior educational opportunities, affordable healthcare, and many amenities for families (About New North 2011). The Fox River unites this area while also offering numerous recreational opportunities and tourist attractions. In 2010, the four-county region which contains the three distinct metropolitan areas together was home to 698,901 persons (U.S. Census Bureau 2010). While each metro area has its own unique identity, its geographic and socio-cultural similarities lead residents to cross boundaries. Residents commute regularly to jobs across the region and enjoy the leisure opportunities that each community has to offer (Fig. 8.1).

Much like many other northeastern and mid western areas, the region is characterized by numerous jurisdictional entities: cities, villages, towns, counties, authorities, coalitions, partnerships, associations, service agencies, and various other units overlap throughout the region. In addition, health and safety task forces, educational service organizations, economic coalitions, and environmental watershed initiatives work across the region. The variety of entities creates challenges to address common problems or opportunities on a broader scale. For example, due to population

2010	Green Bay, WI Metro Area	Appleton, WI Metro Area	Oshkosh-Neenah, WI Metro Area
Total population	306,241	225,666	166,994
Minority	35,453	18,241	10,270
Age 65 and over	38,204	26,459	22,336
Per capita income	$24,814	$26,409	$25,409

Source: U.S. Census, 2010

Fig. 8.1 Fox River Region demographic information

growth, all three of these metropolitan areas face possible reductions in federal transportation funding. Although many employees commute the Fox River Region corridor daily, the discrete public transportation authorities and funding streams make collaboration highly challenging. This is especially true of the Fox Cities, a metropolitan area located at the confluence of three counties that is characterized by 17 cities, villages and towns. Likewise, the three areas are all working hard to attract commerce, larger conventions, major sporting tournaments, and cultural events yet they often they do so independently, even, at times, competitively. Golob (2009) described the challenges of taking action across multiple jurisdictions: "Unlike a city with a centralized government and the ability to create and implement coherent overall strategic plans to address such issues as insufficient affordable housing or a changing economic base…., it is more difficult when control is divided among so many political entities (p. 28)."

At the same time, there is growing recognition among these localities that working together may enable them to achieve more benefits than they can achieve alone. The NEW North, a nonprofit economic development organization, is a recent example of regional collaborative work. The New North is a brand that works to unite an 18 county region in Northeast Wisconsin comprised of businesses, economic development, chamber of commerce, workforce development, civic, nonprofit and education leaders. The common goal of the New North is to ensure the area will be "recognized as competitive for job growth while maintaining a superior quality of life" (New North 2011). A nonprofit organization, the New North facilitates job growth and economic viability for the region while also attracting and retaining diverse talent, supporting an entrepreneurial climate and small business, nurturing sustainable practices, and more. While the New North focuses on economic collaboration, and other groups address common challenges (drug task forces, health care partnerships, etc.), there is recognition locally that collaboration is an effective way to address other issues. Would it be beneficial for the communities to work together to enhance the region's quality of life in a broader way? This project involved just such an attempt.

Previous Community Data Collection Initiatives

All three of the participating metropolitan areas had previously collected community data to varying degrees. For example, partners in the Green Bay area had conducted a Quality of Life public opinion survey since 1995 with an array of local sponsors varying from nonprofit agencies to businesses. This survey had been conducted on an annual basis yet had not taken place since 2007 due to inconsistent sponsorship. Other agencies in the area had compiled fairly extensive secondary data on the community on an occasional basis, including the Green Bay Area Chamber of Commerce, the Brown County United Way, Start Smart (which publishes an annual report on children), Bay Area Community Council (BACC), and others. However, none of these studies attempted to create a broad set of community indicators.

The Oshkosh metropolitan area had a similar history with quality of life research. The broadest recent community research had been conducted in 2002 and 2008 by the Oshkosh Public Library along with a task force of area volunteers. Entitled 'L.I.F.E. in Winnebagoland' (referring to Winnebago County), this project included just secondary data. Additionally, in 2004, a community quality of life telephone survey was sponsored by the Oshkosh Area Community Foundation, Oshkosh Northwestern (local newspaper), Oshkosh Area United Way, and the University of Wisconsin-Oshkosh Foundation. Since then, various agencies throughout the County tracked data or conducted surveys for their own purposes throughout the years.

Stakeholders in the Fox Cities area had undertaken specialized data collection efforts similar to those described above but had developed the most cohesive, strongly branded community indicator study of the three locales. Important funders in the Fox Cities area had begun to study quality of life in the 1990s and conducted a full "L.I.F.E. Study" (Leading Indicators for Excellence) in 2001 and again in 2006. Since that time, the Fox Cities LIFE Study, sponsored by five community organizations, had become well known as a strong source of information in the community. Incorporated by funders into requests for proposals and used as impetus for major initiatives to confront identified challenges, the Fox Cities project had sparked community action and become recognized as having positive impact on quality of life in the area.

Fox River Region LIFE Study

Recognizing the benefits of the comprehensive Fox Cities model, i.e., collecting extensive data consistently over time, the three metropolitan areas adopted the Fox Cities study design for their initial collaborative community indicator project. Ultimately, as the work progressed, each community would develop its own report while retaining common methods and structure. Throughout the year and a half-long study, the research team coordinated the work and sought balance of participation in each community's effort so that all three of the communities would buy into their own and the collective products. Adhering to this principle required a great deal of effort by the research team and the participating organizations.

According to the Alliance for Regional Stewardship (ARS), there are two major reasons that regions undertake community indicator studies (2005). Many communities assemble data with the primary purpose to catalyze change. A report for this purpose "often includes in-depth analysis and recommendations based on the indicators about where the region should 'go'" (Alliance for Regional Stewardship 2005, p. 7). Such reports take a position on issues and make value judgments, having drilled down into selected topics that they highlight as important to the community. The second major purpose of indicator reports is to provide a set of highly credible, objective data on current conditions of the area. The purpose of studies that use this value-free approach is to become a valid source of local data that can be used by various stakeholders in the community.

Brown County:	Fox Cities:	Oshkosh:
• Brown County United Way • Greater Green Bay Community Foundation • Green Bay Area Chamber of Commerce	• Community Foundation for the Fox Valley Region, Inc. • Fox Cities Chamber of Commerce & Industry • Fox Cities Economic Development Partnership • United Way Fox Cities	• Oshkosh Area Community Foundation • Oshkosh Area United Way • US Venture Fund for Basic Needs

Fig. 8.2 Fox River Region LIFE Study funders

Essentially, for their first attempt at a collaborative project, the communities of the Fox River Region LIFE Study pursued *both* purposes: attempting to develop an accurate dataset on the "state of the region" as well as stimulating action by identifying crucial challenges that the area faced. As the collaborative partnership began, their goal was not to benchmark their communities against each other to see which one was the 'best place to live' or which one was performing better. Instead, their goal was to provide a well-rounded, data-driven view of each community's status, strengths, and challenges. At the same time, by coordinating this research, they planned to aggregate information for the four-county region as a whole. Their hope was to become a "catalyst for innovative regional thinking and action" (Alliance for Regional Stewardship 2005).

Fox River Region Participants

According to ARS (2005), "one of the first challenges faced by an organization that has decided to produce an indicators report is determining how to pay for it" (p. 7). Ten funding partners ultimately supported the work of the Fox River Region LIFE Study, including three community foundations, three United Ways, two chambers of commerce, an economic development partnership, and a corporate foundation. While several of the funders had previously worked jointly on local projects initiated by their affiliates, they had no experience collaboratively developing such a wide scale regional effort. The project ultimately engaged an even greater number of collaborators that participated in the work, donated funds, or offered in-kind services. In fact, three local colleges contributed to the research and the two technical colleges printed all of the reports (Fig. 8.2).

Gahin and Paterson (2001) refer to a "bottom up" approach where the impetus to develop community indicators comes from the grassroots. In the Fox River Region LIFE Study, the coordinated project was initiated in this way by nonprofit leaders who felt that the work done in the Fox Cities would be an ideal model to replicate more broadly. The participating funders reflected a wide range of perspectives on what might be involved in conducting a community indicator study. Each had a different financial capacity, history and experience with research, staff size and capabilities, unique strengths (such as experiences in working on certain topics or

community issues) and relationships with stakeholders in their local areas. While some of the funders were more focused on the benefits of the aggregated regional report, others wanted to emphasize community issues and concerns while still others intended to make use of the report to market the region to a wider audience. Community foundations that participated saw the effort as a potential way to catalyze quality of life enhancements in a number of directions, including the arts, human services, the economy, youth, civic engagement, and much more. The United Way organizations sought clarity about the basic needs and vulnerable populations in the communities, while chambers of commerce saw the LIFE Study as a way to give economic developers a deeper understanding of what the community had to offer, primarily valuing the report(s) as marketing tools.

All funders clearly shared a common interest in promoting the welfare of the region. As they discussed their ideas over time, momentum built to coordinate their work to achieve a broader benefit over a wider scale. Each community would produce a tailored, locally constructed community indicator project yet agreed to coordinate a portion of the research in order to pool it at a regional level. As a collaborative project, no one agency assumed control or authority; decisions were shared and coordinated using an informal consensus-building approach, from the timing of data collection to the contents of press releases. All ten had to agree on the study components, timeline, budgets, and level of in-kind support that would be offered. This consensus-building and coordination was managed by the research team.

Interestingly, while representatives of local government participated in various aspects of the study, overall, they played a minor role in the Fox River Region project. As accountability has become increasingly important around the U.S., many governments have had greater interest in performance measurement and in measuring community conditions. Government leaders often play key roles in community indicator studies by mobilizing stakeholders, developing policies to address areas of concern, and allocating resources (Gahin and Paterson 2001). In contrast, the Fox River Region LIFE Study was primarily driven by key nonprofit funders. The complex and multi-jurisdictional lay of the land made it challenging to determine which government officials to include and how to do so fairly. Including government may have delayed and complicated the effort. However, the absence of governmental policymakers and the resources that they deploy may have an impact on communities' abilities to implement actions that can impact the challenges that are identified within each report.

Geographic Scope of the Fox River Region LIFE Study

The Alliance for Regional Stewardship identified many considerations for choosing geographic boundaries for an indicator study, a task that is "not as easy as it sounds" (Alliance for Regional Stewardship 2005, p. 9). Logical boundaries should relate to areas of performance and often vary depending on the topic of investigation (i.e., watershed boundaries, economic regions, school districts, etc.). Moreover,

geographic distinctions used for existing secondary datasets may dictate the boundaries that are available for use (Alliance for Regional Stewardship 2005). Each community involved in the Fox River Region LIFE Study compiled secondary data at the county level rather than according to metropolitan statistical geographic areas. The U.S. Census, Bureau of Labor Statistics, and other statistical agencies have used varying boundaries for statistics compiled to describe the Fox River region. Finally, if historical comparisons are desired, way data have been collected *in the past* is also a factor. The team faced several decisions regarding definition of its regional geographic area. In fact, the difficulty of this challenge provides an argument in favor of future regionalization of efforts.

As noted earlier, the three metropolitan areas cover a four county area. How the metropolitan areas perceive themselves does not necessarily follow county borders nor match the way data are compiled. This geographic situation had been addressed in a variety of ways by public agencies that provide statistics. In fact, several times in the past decade, the U.S. Census has changed the boundaries of the Fox Cities and Oshkosh metropolitan statistical areas (MSAs) as population has grown. Brown County (which includes the City of Green Bay and its suburbs) was cleanly defined geographically, and accurately reflected the identity of the metropolitan area. However, county-level data did not cleanly differentiate the two remaining metropolitan areas. The multiple municipalities forming the Fox Cities stretched along the river corridor spanning three counties, while Winnebago County included Oshkosh along with two of the Fox Cities (Neenah and Menasha). For the LIFE Study, the most realistic solution to achieve consistency in the data was to use counties, since metropolitan area definitions were changing and extensive county-level data were readily available on an annual basis. However, the decision to use county-level data led to a geographic challenge that could not be overcome: Winnebago County was included in the local reports for both the Fox Cities and Oshkosh.

To complicate matters, the decision to employ county as unit of analysis then dictated which U.S. Census dataset could be used. The American Community Survey (ACS) provides annual estimates of key demographic characteristics (U.S. Census Bureau 2010) but county level Census data were not available for all four counties, since Calumet County had a much lower population. The Fox River Region LIFE Study chose to employ the American Community Survey 3-year estimates in order to be able portray data from all four counties. This 3-year dataset also has the benefit of greater accuracy due to the larger sample it uses (U.S. Census Bureau 2010).

The decision how to define the geographic units of analysis was much more time consuming and difficult than anyone had anticipated. Lack of available data that conformed to perceived geographic distinctions and community identities had required the team to make sacrifices, as the decision to use counties led to overlap in the data presented by each metropolitan area report. The desire to regionalize the results had caused a higher level of complexity: it involved making tradeoffs in order to identify the best data for future comparisons, to reflect each metro area as accurately as possible (reflecting the identity of each metro area), and to provide a standard metric for aggregating regionally.

Leadership

Sponsoring organizations remained highly involved by contributing to the studies that were unfolding in each community. The three locales employed similar leadership strategies: a community Steering Team was comprised of one or two representatives from each sponsoring organization (along with several other local volunteers). Steering Teams met monthly with the researchers to review progress, make decisions on the direction of project, and provide limited in-kind support. In this way, each Steering Team customized the work to suit its own goals. Members became knowledgeable spokespersons for the study within their respective communities and the region as a whole.

All three Steering Teams recognized the need to expand the base of support for the LIFE Study locally. Each community invited approximately 25 community leaders representing a diverse range of interests to serve on Advisory Councils, which met quarterly. Advisory Council members provided input and feedback at key points in the process and served as advocates for the LIFE Study. They were instrumental in identifying experts to recruit for focus groups and reviewed late drafts of the reports for clarity and accuracy.

Finally, from the sponsoring organizations across the region, marketing and public relations staff formed a Communications Team. This team identified local branding and marketing opportunities for each study but more importantly, they worked on a regional level to implement a marketing plan, organize public events for the release of the LIFE Study, and lead graphic design for online and print publications of the report. The Communications Team members proved to be a vital component of the leadership of the LIFE Study.

Study sponsors contracted with the Center for Public Affairs at the University of Wisconsin Green Bay to manage the research and coordinate the project. The St. Norbert College Strategic Research Institute administered all survey research. These institutions worked together as the Research Team to develop the project plan and timeline, conduct committee meetings, facilitate committee participation, and compile the published reports. Faculty from the University of Wisconsin Oshkosh facilitated the Oshkosh expert focus groups.

Many other community organizations played important roles in the overall success of the project. For example, numerous nonprofit organizations in each community provided utilization data upon request. University of Wisconsin-Oshkosh faculty led expert focus groups in their community, and the region's two technical colleges, Fox Valley Technical College (FVTC) in the Fox Cities and Northeast Wisconsin Technical College (NWTC) in Green Bay shared in the print production of the four LIFE Study reports. In all, five higher education institutions partnered to deliver the data and reports to the area.

The research team attempted to meet each community where it was, incorporating the best of its previous work, engaging important local stakeholders, and responding to unique requests for data. For example, the Green Bay team adapted its public opinion survey to include items historically used in previous surveys with greater

LIFE of Arts & Culture	Primarily not-for-profit arts and cultural assets
LIFE in the Community	Demographics, civic engagement, volunteerism, government, infrastructure
A Healthy LIFE	Physical and mental health, access to health care of all types
LIFE at Home	Children and families (childcare, youth, elderly, populations with special needs)
LIFE of Learning	Education (Pre-K-12, higher education, lifelong learning)
LIFE in Natural Environment	Natural environment (water and air quality, land use, conservation)
LIFE of Recreation & Leisure	Recreational and commercial entertainment opportunities, sports
A Safe LIFE	Personal and public safety
LIFE of Self-Sufficiency	Affordable housing, nutrition, basic needs
LIFE at Work	Economy and employment

Fig. 8.3 Framework for the Fox River Region LIFE Study

focus on issues of racial/ethnic diversity. The Fox Cities team chose to engage its Advisory Council more frequently and led them through different activities than the others. In Oshkosh, much of the secondary data used for past studies were included again so as to continue to provide longitudinal data on indicators that had been useful to area leaders in the past.

The participatory nature of the local projects consumed a great deal of time. According to the Alliance for Regional Stewardship, "if the underlying goal for the project is to motivate change in the region, then public participation is essential. However, if the purpose is merely to provide information, participation may not be as critical" (2005, p. 14). The goal to prompt these communities to address their challenges required this inclusive methodology.

Organizing Framework

While some community indicator studies zero in on a certain aspect of quality of life, such as health of the population, status of a certain population segment, or quality of the environment, this project organized its data collection around ten sectors. Sponsors agreed that the ten topics reflected community conditions representing key aspects of quality of life for the community as a whole. The goal was to broadly address life in the community and to encompass the factors that relate to the overall well-being of the community. Figure 8.3 defines the ten topic areas. Some overlap occurred: for example, where should transportation data appear? This was resolved by presenting certain information in more than one section (i.e., transportation data were shown in the Economy, Community, and Self-Sufficiency chapters).

In a departure from many other community indicator studies, the Fox River Region LIFE Study included a baseline assessment of the arts and cultural aspects of the community's quality of life. Project leaders believed that the arts are a means of achieving broad social and economic goals that impact the quality of life in a community. Instrumental benefits of the arts include economic growth, crime

reduction, community development, and student learning. Moreover, the intrinsic benefits of the arts are "satisfying in themselves; many of them can lead to the development of individual capacities and community cohesiveness that are of benefit to the public sphere" (McCarthy et al. 2004). While relatively little community data existed on the rates of arts participation in the communities, or the impact of the arts, project leaders sought to call greater public attention to this issue and to gather baseline information, recognizing that this section would grow and evolve in subsequent years. Less data on the arts were available than initially anticipated.

Components of LIFE Study Mixed Method Research Design

The Fox River Region LIFE Study was more than a community indicator study: as a mixed method needs assessment, the study design incorporated qualitative and quantitative methods in order to triangulate the findings and identify key issues for the community. Mixed methods research "focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies… the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone" (Creswell and Plano-Clark 2007, p. 5). The variety of data collection methods employed for the LIFE Study enabled the research team to analyze themes arising from several sources. For example, in Brown County, several sources indicated a concern about civic engagement and community leadership. Public opinion surveys showed a sharp decline in the percentage of individuals who believed that they could impact the decisions of local leaders. At the same time, secondary data showed that the majority of county elections were unopposed. Key findings from several focus groups revealed that community residents and experts believed that, at times, local elected leaders had not addressed community issues constructively. The triangulation of findings that corroborated each other strengthened the validity of the findings.

Data Collection Approach

The Fox River Region LIFE Study became a complex undertaking: numerous research activities were coordinated across three metropolitan areas over 18 months. These activities are described next. In addition, behavioral risk factor surveys, although not part of the LIFE Study, were conducted by health care providers late in early 2011 in order to make these self-reported health behavior data available for inclusion in the LIFE Study reports. As data collection proceeded, each of the three communities tailored their own approaches to a degree, while maintaining an umbrella of coordinated procedures that would enable comparisons of certain findings across the entire four-county region (Fig. 8.4).

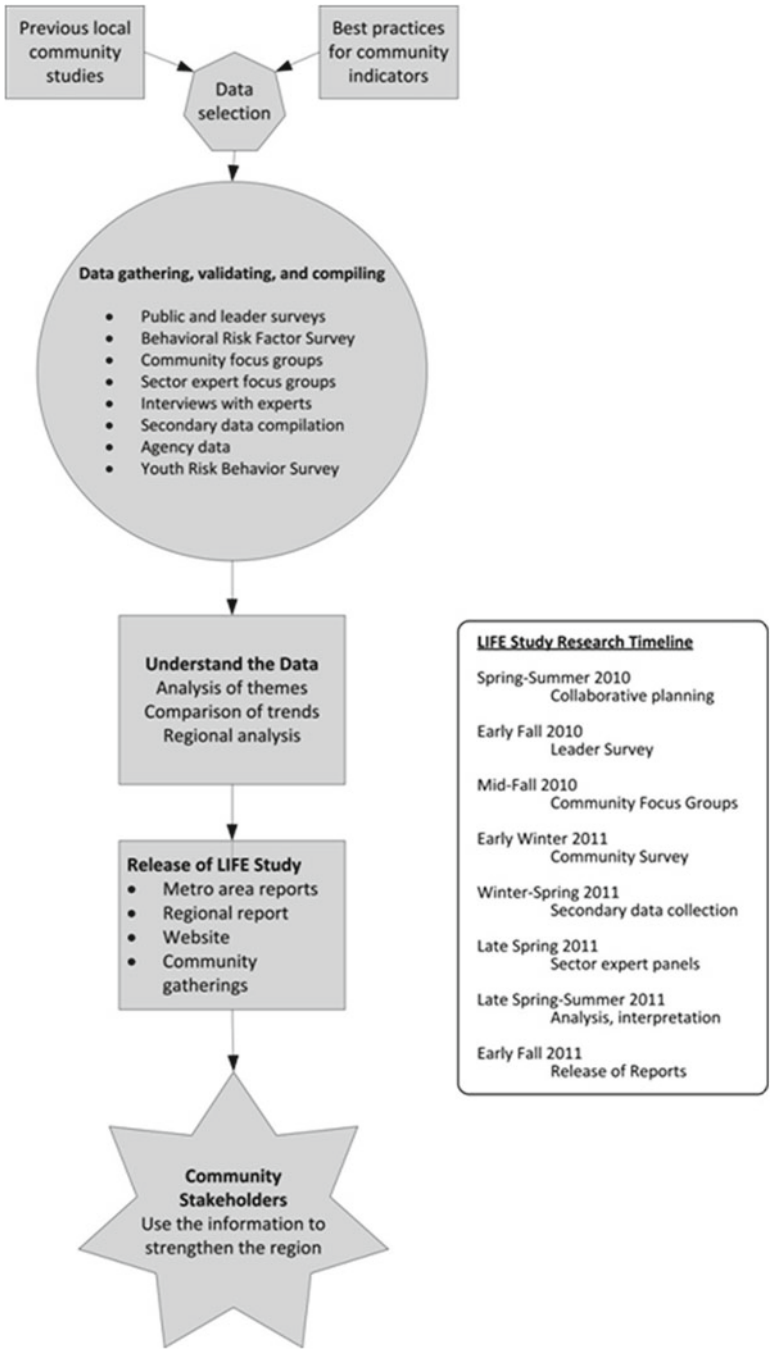

Fig. 8.4 Fox River Region LIFE Study process and timeline

Community Focus Groups

Community focus groups were held with older adults, youth, working parents, and multicultural community members in each locale. While a variety of important population subgroups could have been identified, the research team chose certain constituencies that (1) were expected to be under-represented in surveys or (2) that included groups of individuals with emerging needs. Using a non-random quota-sampling, flyers were circulated to recruit participants. Groups were scheduled at well-known public locations (e.g., libraries, senior centers) with refreshments, free transportation, or childcare available. The participants in each group spent 2 hours in a facilitated discussion, addressing:

- strengths or assets of the area, things that they valued and appreciated;
- areas of progress being made in the community;
- challenges or concerns about the area, things that they felt were concerning;
- actions that they and others like them could take that would benefit the community;
- most important issues for the community to address in the future.

With no budget for incentives included in the lean project plans, recruiting participants proved to be a challenge. In all three communities, relying upon established groups proved advantageous. For example, the aging resource centers in each community helped to recruit older adult participants. Youth-serving organizations enabled the research team to interview groups of youth who attended a leadership training seminar, youth council, or a club. Community focus groups with working parents (likely to be seriously under-represented in the public opinion surveys) were held at a YMCA and technical college, but were sparsely attended. The best results for this demographic segment were achieved by obtaining permission to meet with young professionals at their monthly meeting. Finally, non-white participants were recruited for the multicultural groups with the help of nonprofit advocacy organizations and one-to-one recruitment. In all three metropolitan areas, focus groups with minority residents were well attended and believed to be reflective of the broader area population.

Surveys of Community Leaders and the Public

Each metropolitan area conducted two surveys; one of identified leaders and another of randomly selected adults. In order to create a series of questions that could be (1) compiled into a regional study and (2) compared between leaders and community members locally, a set of “core” survey items were asked similarly on all six of these surveys (showed in Fig. 8.5). The remainder of each survey offered items addressing all of the ten sectors and were customized in each community, precluding cross-regional comparisons for that portion. Many of these community-specific items were posed to both leaders and community residents within an area. In this way, each community had the flexibility to customize its surveys to reflect unique community concerns yet coordinated some responses which could be compared

Overall, how satisfied or dissatisfied are you with the quality of life in <Brown County>?

Very Dissatisfied			Slightly Dissatisfied			Slightly Satisfied			Very Satisfied	Not Sure
1	2	3	4	5	6	7	8	9	10	99

How would you rate the <Brown County> area in terms of…

	Poor	Fair	Good	Excel.	Not
Providing effective education	1	2	3	4	9
Meeting the overall needs of the poor	1	2	3	4	9
Building a strong economy	1	2	3	4	9
Caring for vulnerable persons (like children, the elderly, and persons with disabilities)	1	2	3	4	9
The quality of the natural environment	1	2	3	4	9
The availability of recreation and leisure time opportunities	1	2	3	4	9
Meeting the health needs of citizens	1	2	3	4	9
Living together as neighbors	1	2	3	4	9
The availability of art and cultural opportunities	1	2	3	4	9
Providing for the safety of our citizens	1	2	3	4	9

Thinking about the <Brown County> area overall, how would you rate <Brown County>…

	Poor	Fair	Good	Excel.	Not sure
As a place to raise a family	1	2	3	4	9
As a place for single adults	1	2	3	4	9
As a place to retire	1	2	3	4	9
As a place for people of minority racial, ethnic, religious or other cultural backgrounds	1	2	3	4	9
As a place for children and youth	1	2	3	4	9
As a place for young professionals	1	2	3	4	9
As a place for persons with disabilities	1	2	3	4	9

Generally speaking, considering where you would like to see the <Brown County> area in FIVE years, do you feel the Brown County area is currently headed in the WRONG DIRECTION or the RIGHT DIRECTION?

1….Wrong Direction

2….Right Direction

3….Not Sure

Fig. 8.5 Core survey items, Fox River Region LIFE Study

both within and across communities. These addressed the overall quality of life, direction the community was heading, and general perceptions about community conditions for all ten sectors.

Leader surveys were e-mailed to a selected non-random sample of approximately 1,500 leaders throughout the four county region. Leaders were selected by each metropolitan area's Steering Team, which compiled lists of elected leaders, community board members, major donors, community associations, and the like. Lists were coordinated among the three metropolitan areas. Due to the different recruiting

techniques utilized to identify leaders in each area, when analyzing regional data, the research team weighted the leader responses.

In each area, 1,500 community surveys (4,500 total) were sent by postal mail and offered online to adults in randomly selected households using a standard address based sampling model in Brown, Outagamie, Calumet, and Winnebago Counties. Responses were weighted for race, age and gender to ensure that the sample was an accurate representation of the region's population. The Community surveys were "in the field" during the political upheaval which took place in Wisconsin in the spring of 2010, possibly contributing to some differences between leader and community perceptions on certain issues.

Expert Focus Groups

Another critical component of the qualitative work was focus groups with key informants from each of the ten sectors in each community. While this method provided important information, there was great value simply in the process of dialoging about the quality of life in the community itself with a group of experts. "…community indicator efforts are not only about providing information…but also about empowering and engaging citizens to direct the future of their community" (Gahin and Paterson 2001, p. 351). In all three metropolitan areas, participation in the expert focus groups was outstanding. The level of engagement showed that participants believed the time spent was meaningful and that the *process* of discussing the quality of life relative to each sector was beneficial. In most groups, many experts stayed past the group's conclusion, exchanged business cards, and expressed interest in meeting again.

Persons were chosen for expert focus groups based on their active local involvement in a certain sector; they were individuals that had direct knowledge of conditions, needs, policies, and trends. Experts were identified using a snowball sampling strategy that began with suggestions by Advisory Councils and Steering Teams. Many experts then suggested other possible participants.

Sector-experts spent two hours in a facilitated discussion, focusing on the following points:

- strengths or areas of progress being made in this sector;
- challenges or growing concerns facing the community relating to this sector;
- demographic differences in the experiences of community members pertaining to this sector;
- most important issues for the community to address in this sector;
- possible leading indicators for this sector.

An important part of each session addressed the selection of leading indicators, or points of data that might be strong markers of progress within a given topic area (presented later in the chapter).

Secondary Data

The Research Team reviewed other community indicator projects around the U.S. and interviewed local experts to identify data commonly used as indicators. For example, business leaders suggested certain economic indicators, and environmental practitioners recommended data to reflect the area's water quality. Utilizing the ten-category framework, the Research Team proposed a "target list" of the desired data by sector to the three Steering Teams. This preliminary list identified statistical data descriptive of each category. Each item of data proposed by the Research Team had to meet the following criteria:

- quantitative – numerical form that can be measured;
- meaningful – reflects an important community condition;
- actionable – can create action or change;
- reliable – produced from a reliable source;
- recent *and* historical – can track current and past trends;
- available - found publicly or from limited contact with local agencies; should continue to be available;
- comparable – available on a local, state, and national level whenever possible;
- understandable – can be understood by general public, not too technical.

This process yielded a lengthy list of secondary data which would populate each report.

Leading Indicators

Given this wealth of information which would be included in each 100-page community report, the research team sought a way to simplify data for a general audience. People were not likely to pick up one of these lengthy reports and read it: some would use it as a reference to look up selected statistics; some would read one section; others might skim the summaries for key findings. In order to make the reports accessible to the general public, to expand the audience, and to encourage use, the LIFE Study developed a set of leading indicators for each community and the region. Hardi and Pinter (2006) define indicators as "bits of information pointing to characteristics of systems or highlighting what is happening…. [they] are used to simplify information" (p. 130). The Alliance for Regional Stewardship defined indicators as "specific measurements, pieces of information, which provide a picture of a place over time. They are a tool to measure what a region looks like and report on how things are changing. Regional indicators…indicate where a region is and how it has been doing" (p. 4, 2005). The three Steering Teams recognized that "the indicators a society chooses to report to itself about itself are surprisingly powerful. They reflect collective values and inform collective decisions" (Meadows 1998, p. 4). Realizing the importance that the highlighted indicators would assume, the Research Team proposed a process to identify appropriate

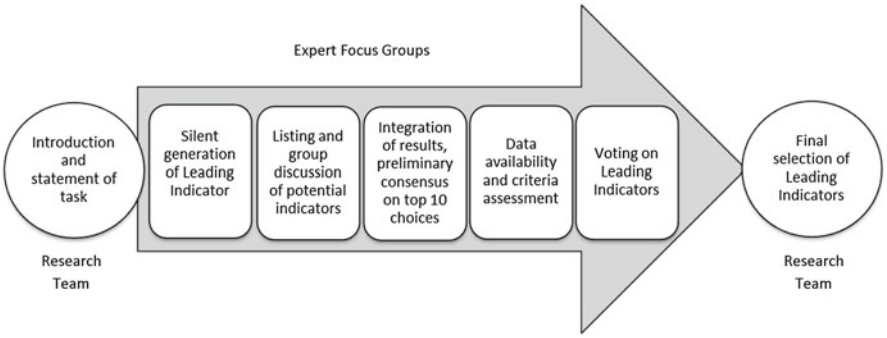

Fig. 8.6 Process to select leading indicators, Fox River Region LIFE Study

indicators. Reflecting the study name, *Leading Indicators* For Excellence, the LIFE Study defined leading indicators as important data points that would measure progress related to community conditions. In some cases, leading indicators refer to a data point that might be predictive, or "leading" in that sense. In other cases, data chosen as leading indicators are significant (or leading) markers of progress (or lack of progress) in a sector.

Selection of Leading Indicators

To choose three or four leading indicators for each of the ten categories, the Research Team relied upon the participants in sector focus groups. For the last 40 min of each 2-hour focus group, experts were led through a closely facilitated process to identify possible data for leading indicators. First, experts examined the previously described list of secondary data slated for inclusion in that section of the report. For example, within the education group, experts reviewed secondary data for the education chapter and were asked to select the best indicators to indicate how the community was doing regarding this sector. Limited to only three or four items of data to tell someone "how the community is doing" relative to education, which data would these experts select?

Next, the modified Delphi process continued with each person sharing one recommended leading indicator with the group and then checking how many others had recommended that same item. Indicators that were noted by at least three experts were recorded on a chart. When an indicator was suggested that had not been chosen by others, the proposing expert made the case for including this item. If others were convinced of the value and availability of this item, it was added to the master list. Some participants offered new data choices that had not been offered as options, while others made strong arguments for an item that was not chosen by others. Then, the entire group of experts discussed the pros and cons of the 8–10 indicators that had just been listed on the chart and "vetted" by the group. Finally, participants voted for their top three choices as leading indicators. This process took place in all three locales. For the most part, similar indicators were chosen by each set of experts (Fig. 8.6).

This proved to be a very difficult task for the experts, requiring them to consider a variety of aspects of each indicator simultaneously:

- *Whether a certain item was predictive of future outcomes in the community.* Ideally, a leading indicator would be predictive. For example, the obesity rate is predictive of future negative health outcomes. The unemployment rate predicts growing needs in many sectors.
- *Whether the data was readily available and efficient to collect.* For example, experts wanted to use as an indicator "number of 9th grade students on track to graduate on time" but it was determined that these data were not consistently tabulated and would have to be obtained from individual schools. Therefore this item was ruled out as a leading indicator.
- *The accuracy of the data in capturing a concern or a good situation.* While the number of persons housed in homeless shelters in a given year does reflect a situation of instability in life, experts suggested that it may underestimate the actual number of homeless individuals. A better leading indicator of one's ability to meet basic needs might be the percent of households that paid more than 30 % of their incomes for housing, a measure taken annually by the U.S. Census.
- *Whether the indicator was actionable.* Could the community have an influence on the situation measured by the indicator?

The project had not initially budgeted for the time and significant resources needed to choose leading indicators. For several sections of the study, very few data points had the potential to be leading indicators. For example, the Arts and Culture category compiled public school data on the number art or music courses in which area youth enrolled, but beyond that, data from that category were not consistently collected nor suitably predictive to be called "leading." A number of the ten LIFE Study sectors were multi-dimensional: a number of topics were included under the umbrella of that chapter. To illustrate, the education category included K-12 education, higher education, literacy, and lifelong learning. The home category included consideration of vulnerable populations: the well-being of young children, youth, people with disabilities, and the elderly. In these cases, experts recommended leading indicators that reflected each population or sub-topic within the sector.

The community Steering Teams, in conjunction with the Research Team, made the final selection of leading indicators. As an example, Southern Winnebago County's leading indicators for the ten sectors are presented in Fig. 8.7. Most of the selected leading indicators were similar across the three metropolitan areas, although each community adopted several that were unique. Brown County adopted the indicator 'employment in the manufacturing sector,' since the area wanted to use this leading indicator as a measure of progress toward that goal. For the regional leading indicators, representatives of each community selected the leading indicators to be used in the aggregate for the four-county region. None of the Fox River LIFE Study communities developed an index score. The regional report relied upon this work as it presented the leading indicator data aggregated across the entire region.

Cross-Cutting	
The indicators entitled "cross cutting" have been chosen because they relate to numerous quality-of-life aspects of the community. The sector expert panels identified this as key data that, if the community could "bend the curve" on these items, it would drive improvements across many areas.	• Alcohol & Drug Related Hospitalization Rate • Higher Educational Attainment of Adult Population • Poverty Rate • Unemployment Rate • Teen Birth Rate
LIFE of Arts & Culture	**LIFE of Natural Environment**
• Number of Nonprofit Art & Culture Organizations • Annual Tickets Sold at Major Nonprofit Art & Culture Organizations • 6-12th Grade Participation in the Art & Music by Gender	• Environmental Health Determinants • Miles of Impaired Surface Water • Average Depth of Lake Water Clarity
LIFE in Our Community	**LIFE of Recreation & Leisure**
• Income Distribution • Voter Participation Rates • Annual Total Funds Distributed by United Way & Community Foundation • Active Neighborhood Watch Groups	• Miles of Bike & Hiking Trails • Park Acreage • Total Estimated Annual Expenditures Made by Visitors
A Healthy LIFE	**A Safe LIFE**
• County Health Rankings for Health Outcomes • Births to Mothers that Obtained Prenatal Care • Percent of Youth who Smoke	• Reported Cases of Child Abuse or Neglect • Juvenile Arrest Rate • Violent and Property Crime Rates
LIFE at Home	**LIFE of Self-Sufficiency**
• Percent of Elderly Persons in Poverty • Long Term Care Use and Waiting List • Child Poverty Rate	• Percent of Households with Housing Cost Burden • Number of Foodshare Recipients • Free & Reduced Lunch Rates of Public Schools
LIFE of Learning	**LIFE at Work**
• Attendance of Fifth Graders • Reading Proficiency of Third Graders • Math Scores of Tenth Graders • Library Circulation	• Per Capita Income • New Business Startups • Dollar Value of Building Permits, Residential & Commercial

Fig. 8.7 Leading Indicator listing for S. Winnegbao County LIFE Study

Cross Cutting Indicators

At times, experts advocated for the inclusion of a leading indicator that came from a different category. For example, some experts believed that the community's poverty rate may impact an individual's ability to obtain food or meet health care needs, or a child's performance in school. In fact, education indicators were recommended in numerous other sectors' focus groups. For example, higher educational attainment might be recommended as a leading indicator for the community's health status (based on the premise that a more educated population is likely to be healthier) or potential for economic development. As these discussions proceeded, certain data began to emerge as important measures of vital, cross-cutting aspects of the community. These data were called "cross-cutting indicators" in recognition of their connection to numerous quality-of-life aspects of the community. If the community could "bend the curve" on these few issues, the quality of life for many members of the community would be positively impacted. The data chosen for these cross-cutting indicators are shown in the results section of this chapter.

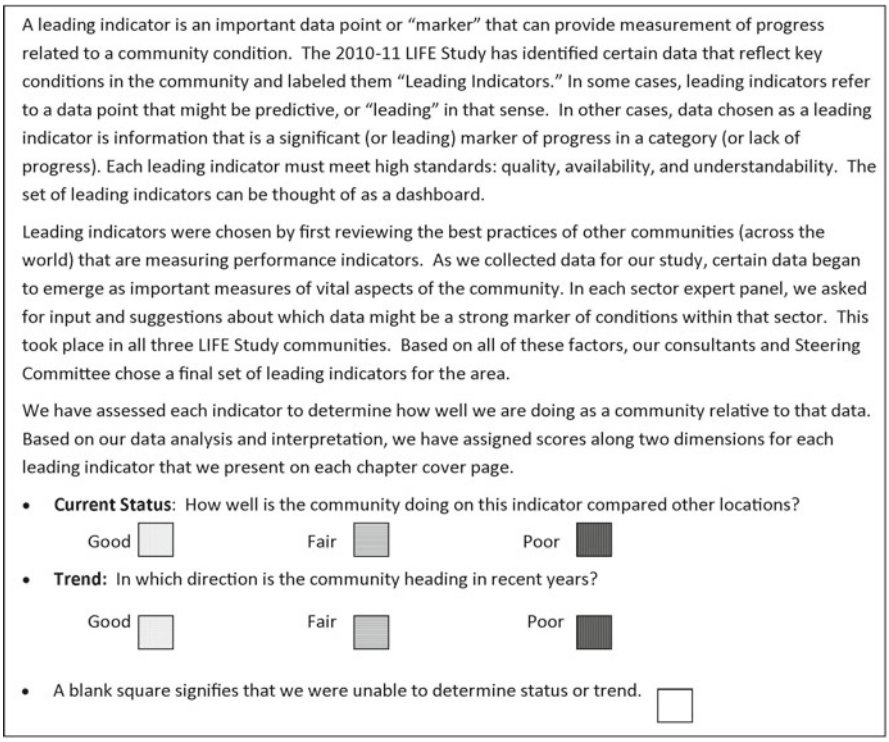

Fig. 8.8 Leading indicators selection and use, Fox River Region LIFE Study

Scoring Community Progress on the Indicators

In another effort to convey the data simply in order to engage the public, the Research Team developed a visual scoring system to indicate how well the community fared on each leading indicator. A variety of scoring approaches are in use elsewhere, ranging from simple to complex, using symbols and colors to convey the status on an indicator. Many scoring systems were reviewed and considered. All Fox River Region LIFE Study communities agreed on a common scoring method that was understandable at a glance, choosing a simple color coding process. Two distinct dimensions were incorporated: (1) how the metro area currently fared relative to peer, statewide, and national averages; and (2) the trend or direction shown by the data. The scoring system involved some judgment by each community Steering Team. In scoring each indicator, data were examined, comparisons to other places or time periods were made, current issues were considered, and expertise was brought to bear. In this way, buy-in was obtained and each community devised a set of leading indicator scores that could tell the public the quality of life status with regard to that data (Fig. 8.8).

Results

The goal of all three communities was to make a broad array of quality data available to the public while using multiple methods to cross-validate findings from the focus group, survey and secondary data. Results that stood out in were used to identify the community's strengths and challenges.

Presenting Data to the Public

Data were presented in the form of three lengthy community reports and one regional report. The general contents for each community's report are shown in Fig. 8.9. Every page of the report presented graphs of secondary data and survey results interspersed with important qualitative findings from focus groups and descriptions of community initiatives underway related to the issue. For example, in the Fox Cities, along with data regarding the growing population of older adults and concerns regarding their ability to live independently, the report also described several new initiatives underway that already were addressing this concern in the community.

Because the purpose was to make the data user friendly for the public, presentation methods were important. The research team followed principles of effective data visualization (Few 2009), such as presenting charts showing reduced information, with simple bar graphs that set up 'at a glance' comparisons to Wisconsin and the U.S. or to historical data. Few (2009) suggests a method of reducing the information

Introduction

- Total populations and projections
- Village of 100 persons (reduction of data with the intention to engage the public)
- Racial and ethnic make-up
- Income and poverty statistics
- Charts showing leading indicators, cross-cutting indicators
- LIFE Study methods
- Major survey findings
- Key finding by category and major strengths and weaknesses charts

10 Sector Chapters (representing each sector of the LIFE Study)

- Leading Indicators scoring
- Community's vision statement
- Listing of all indicators researched
- Resources for data used
- Pages within each sector chapter are organized by sub-headings (ie: LIFE of Arts and Culture: Arts and Culture Opportunities, Young People and the Arts, Economic Impact and Support).

  The following information was provided for each sub-heading of the chapter:
  - Data Highlights: narrative of a select group of indicators with graphs and charts to represent data
  - Progress and Concerns: narrative area on what is going well what the challenges are in the community.

Fig. 8.9 Contents of the LIFE Study community reports

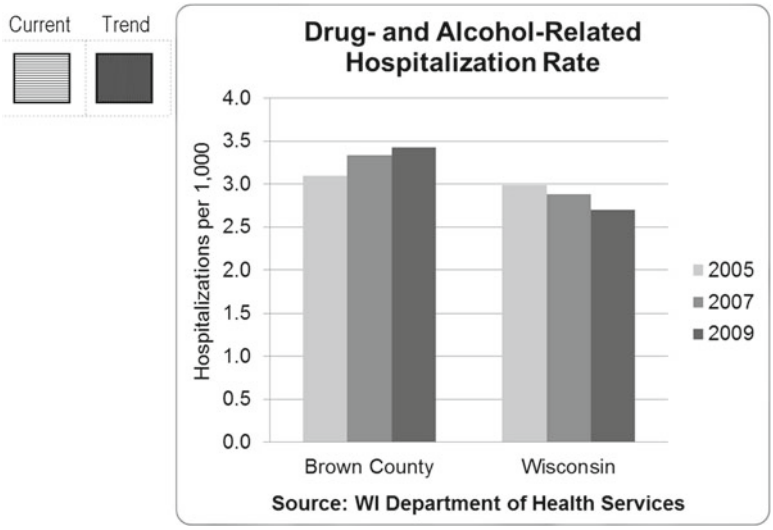

Fig. 8.10 Brown County drug and alcohol hospitalization rate

shown on each chart to the essential. Yet at the same time, sponsors sought to provide some detailed statistics that could be cited by local grant-writers and others. A balance had to be achieved between the amount of information presented and the simplicity of visualization.

Readers interested in detailed findings by metropolitan area should refer to the website, www.lifestudy.info. The community reports contained too much information to meaningfully present in this chapter. Below, a sampling of findings from each report is used to illustrate various aspects of the research. First, the leading indicator scoring system is illustrated, followed by sample results of the multi-method triangulation of important community strengths and challenges. Finally, selected results from the regional report show how the core survey data and secondary data were aggregated to present regional findings.

Application of Scoring System for Leading Indicators

As an example, Brown County chose five leading indicators as "cross cutting," or factors that they believed had an influence on numerous quality-of-life aspects of the community. The five cross cutting indicators that they identified are shown in Figs. 8.10, 8.11, 8.12, 8.13 and 8.14. They included:

- drug and alcohol hospitalization rate;
- higher education attainment of adults;
- unemployment rate;
- poverty rate;
- teen birth rate.

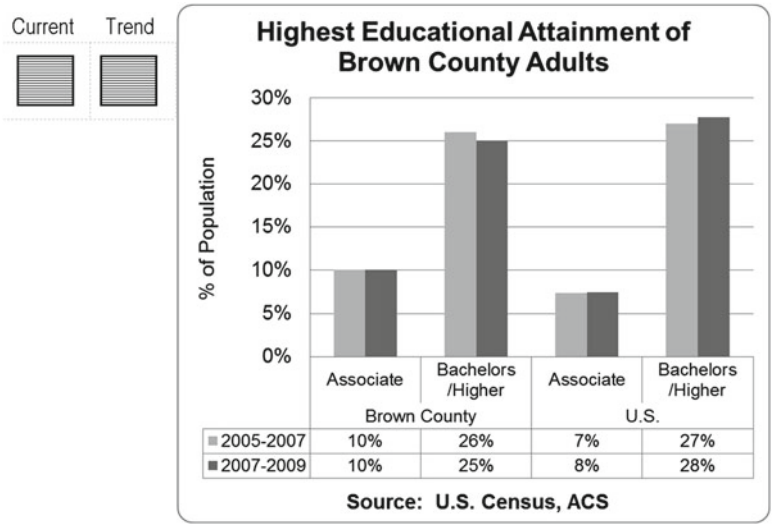

Fig. 8.11 Higher educational attainment of Brown County adults

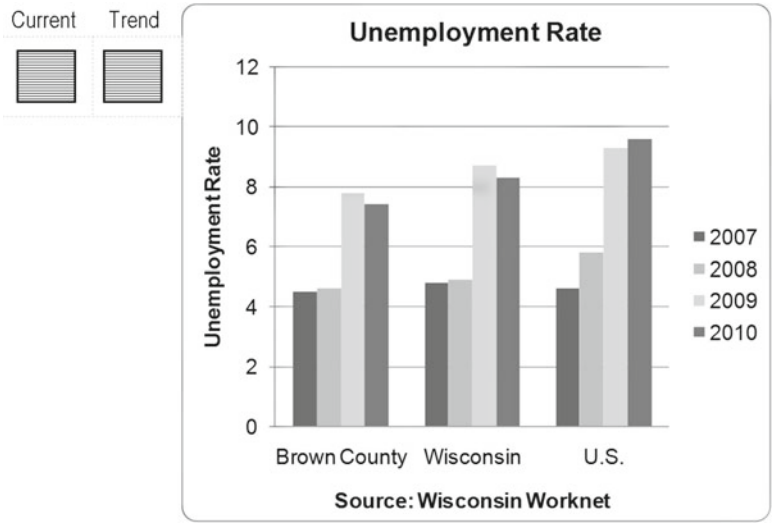

Fig. 8.12 Brown County unemployment rate

The *current status* for all five of these indicators were scored "fair" by the Steering Team, reflecting the fact that Brown County data were less favorable than nearby peer counties, statewide, or national trends. While *data trends* for educational attainment, unemployment, and poverty rates were scored "fair," two cross cutting indicators scored "poor"(drug and alcohol-related hospitalizations and teen

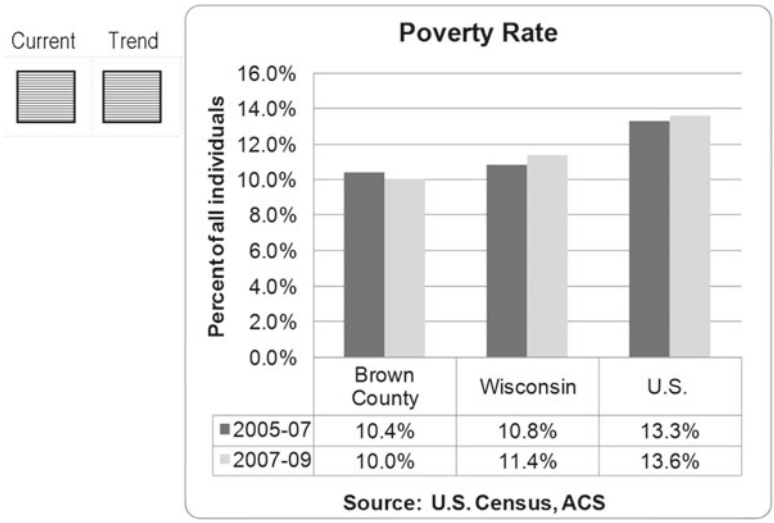

Fig. 8.13 Brown County poverty rate

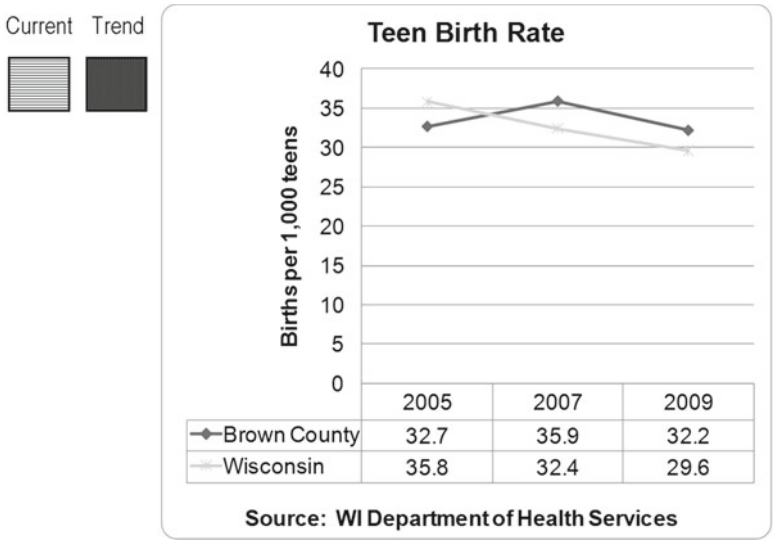

Fig. 8.14 Brown County teen birth rate

birth rates), quickly alerting readers that these were compelling trends heading in the wrong direction. As shown, the scoring system enabled the general public to evaluate how the community fared on each of these significant data points at a glance. The implication of these scores, especially for the cross-cutting indicators, is that the community must develop strategies to change the status and/or trend in a better direction.

Analysis of Mixed-Method Data to Catalyze Action

While one goal of the community indicator reports was to present valid data on the "state of the community," another significant goal was to catalyze action. In order to provide information to help focus the community on key issues, analysis included triangulating that data to highlight themes that were important in the community relative to both strengths and challenges. The multi-method research approach yielded factual and perceptual data in both quantitative and qualitative forms. The analysis of findings was done using a modified content-analysis method which analyzed all sources of data sector by sector, and then across sectors. Results were highlighted to the public as Community Strengths and also as Opportunities for Improvement (challenges) and were supported with key points from the data. This information was presented in high-level charts at the beginning of each community's report. While there were many commonalities among the three metropolitan areas, the analysis took place separately and each metro area had its own unique list of strengths and challenges.

For each of the ten sectors, a wide variety of information was portrayed in a chapter of the community report. Each chapter included selected data from surveys, secondary data, and focus groups. Within each sector, the Research Team identified important findings from data sources (i.e., surveys, secondary data, focus groups) and compared it to the other sources. For example, in Oshkosh, the education system was one of the most highly rated categories on both the leader and community surveys. In focus groups, when asked to list community strengths, participants in most groups pointed to the K-12 education system and higher education. Finally, secondary data from elementary and high schools showed that the Oshkosh area schools were often out-performing peer counties and the state. While these findings did not appear on a common metric, it was clear that the data triangulated to identify a community asset: its quality of education. At the same time, there were instances where data were not cross-confirming, and did not rise to the level of a key finding.

Another method of analysis used to identify strengths and challenges was to count the number of times a certain type of data stood out across the sectors. One of the topics identified by each community in multiple sources related to concerns about alcohol use. This finding cut across sectors: while most of the secondary data related to alcohol use was presented in the Health chapter, the topic arose as a striking finding within other sectors: youth, safety, education, self-sufficiency, and even economy, where experts discussed the challenge of finding qualified workers due to substance abuse issues. Another "cross-cutting" issue concerned access to health care. Data triangulated on the challenge faced by area residents to obtain medical, dental, and mental health care (based on secondary data showing declining coverage, surveys results reporting concern by area and leaders, and focus groups). Not only did these results concern experts in the health focus group, but they concerned experts in other sectors as well, including education, economy, self-sufficiency, and the community.

In this way, the Research Team pointed out 10–12 strengths and concerns revealed by a thorough sifting-through of the data for each locale. These high-level

Strengths	Broadly Recognized Aspects of the Fox Cities
Arts and Cultural Opportunities	• Libraries valued as community asset • Arts and cultural organizations appear strong, especially larger venues
Economic Factors	• Diversified economy, with strength in manufacturing, health care • Infrastructure viewed positively to support economic development, including physical assets, quality of life amenities, entrepreneurship
Educational Quality	• Variety of quality opportunities at all levels • Rated highly by leaders and community members • Achievement of students in K-12 is good and growing • Higher, adult education and lifelong opportunities
Growing Community Inclusiveness	• Efforts to enhance positive impacts of diversity paying off • Community and leader surveys indicate progress (with room to improve)
Health Care Services	• Health care providers seen as very strong by leaders and community
Leisure Opportunities	• Retail, dining, entertainment options • Community events are well received
Natural Environment/ Outdoor Recreation	• The area values its lakes and rivers • Miles of trails and parks increasing • Air quality is good • Drinking water good • Sustainability efforts by business
Nonprofit/volunteer sector	• Work to address concerns collaboratively • High rates of giving and volunteering among community
Place for Children and Families	• Safety of community, quality schools, family oriented • Rated highly by leaders and community members • Community quality of life is viewed positively
Safety	• Lower crime rates than elsewhere (however violent crime on the rise) • Safety services seen as strong and collaborative • Proactive response to emerging concerns about drug issues

Fig. 8.15 Fox Cities LIFE Study strengths

lists were included to engage the public and provide direction for those using the results for strategic planning, funding decisions, and grant-seeking. The intention of the list was to bring attention to important themes of the local LIFE Studies, not to present a thorough analysis of any one issue. The LIFE Study reports could surface key topics but follow up research might be needed to develop a greater understanding of any certain topic. Figures 8.15 and 8.16 show the final lists of Strengths and Challenges identified for one of the metropolitan areas, the Fox Cities.

Regionalization of Data

All three of the Fox River Region LIFE Studies included an enormous amount of information useful to each metropolitan area. At the same time, the sponsors saw the value of compiling data at the regional level to use as an economic development tool

Opportunity Area	Broadly Recognized Aspects of the Fox Cities
Access to Medical, Dental, Mental Health Care	• Due to job losses and too few options for publicly insured individuals, poor access to medical, dental, and mental health care for some
Affordable Housing	• Community survey, leader survey give evidence of strong concern • Growing number of owners and renters burdened with housing costs • Growing homelessness
Care for Elderly and Persons with a Disability	• Concerns about funding/delivery of publicly funded services • Needs of elderly relative to transportation, housing, threat of isolation
Financial/Other Support for "Quality of Life" Activities	• Arts and cultural opportunities, recreation, and community-building organizations struggling to raise philanthropic dollars • Many small organizations challenged to raise funds
Investment in Environment	• Need for greater collaboration and regional planning • Community perceives the area could do more to protect environment • Need for trails/pedestrian routes connected to enable commuting • Experts very concerned about non-point source pollution
Healthy Development of All Youth	• Risky behaviors including alcohol and drug use • Juvenile arrest rate higher than Wisconsin rate • High number of youth report bullying concerns at school; self harm • Preparing young people for healthy and successful adulthood • Perceived isolation of youth from nature, arts, personal relationships
Lifestyle and Health	• Obesity, smoking, abuse of prescription drugs are growing lifestyle problems; binge drinking down, but still too high • Overall health status has declined; incidence of diabetes up
Need for Better Paying Jobs	• Top priority of leaders and community • Need for workforce that is better aligned with employment needs • Income gap growing faster than elsewhere
Personal Safety of Adults	• Outagamie and Winnebago Counties have sexual assault rates higher than Wisconsin • Domestic violence was major concern of safety experts • Elder abuse reportedly growing but difficult to document • Growing misuse of prescription drugs (for adults and youth)
Self-Sufficiency Challenges	• Growing need shown in sharply growing use of public and nonprofit programs • Continuing to support transportation options for those without cars
Support for Children	• Child abuse and neglect rates have grown and exceed state rates • High costs of child care relative to income • At-risk births increasing
Support for Education	• Third grade reading achievement, graduation rate show declines • Community/leaders are concerned about investment for quality future education • Importance of education for economic development

Fig. 8.16 Fox Cities LIFE Study challenges

and to identify common challenges that they might address collaboratively. The coordinated methods enabled the communities to pool common survey, secondary, and focus group data. In order to reduce unfavorable comparisons to one another, the communities elected to present all regional information in aggregated form. In this way, a 25-page regional report shared information on the entire geographic region.

In a meeting characterized by lively debate, leaders of sponsoring organizations identified 37 items of data that would comprise the regional leading indicators (between two and five per sector). The Research Team then aggregated the secondary data for each indicator by weighting the community data according to population and then combining the totals to portray regional rates. Regional leading

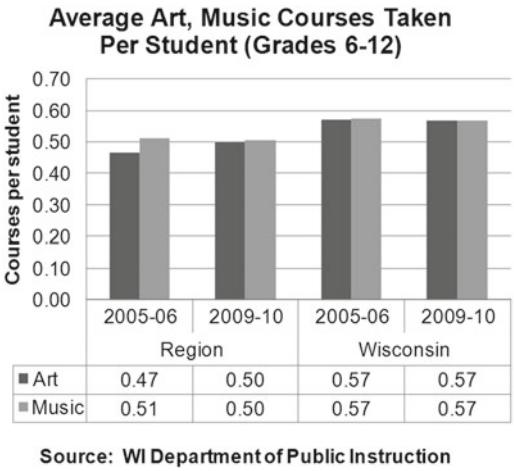

Fig. 8.17 Sample Regional Data, Fox River Region LIFE Study

indicators were not scored since the study timeline approached and there was not sufficient time available at this point for sponsors to do this collectively. As an example of regionalized data, Fig. 8.17 portrays regionalized secondary data calling attention to the fact that students (in grades 6 through 12) within the region participated less frequently in art or music courses than the statewide average.

Key findings from the three metro-area focus groups were compared, yielding a number of common themes found across all communities. Finally, leader and community survey data were pooled and weighted for the entire region. For the combined metropolitan areas, a total of 1,158 surveys of community residents were completed, a response rate of 26 % with a margin of error of ±3 % at the 95 % confidence interval. Responses were weighted for race, age and gender to ensure that the sample was an accurate representation of the region's population. A total of 875 area leaders representing government, faith, business, media, nonprofit, healthcare, education, and philanthropy throughout the region completed surveys, for a response rate of 56 %.

Figure 8.18 compares the regionally-aggregated mean responses of leaders and community members regarding the quality of life that each experiences. On a scale of 1–10, nearly 90 % of leaders in the region scored their area's quality of life 8 or higher, while three-fourths of community members did the same.

Figure 8.19 shows regional results to a question that asked whether individuals believed that their community is heading in the right or wrong direction. Perhaps not surprisingly, leaders' scores exceeded those of the public. While 62 % of leaders felt their area was heading in the right direction, only 43 % of the public agreed. Figure 8.20 shows the ratings of quality of life (for each of the ten sectors) by Leaders and Community members using a scale where 1 = Poor and 4 = Excellent. Mean scores are organized from leaders' highest-rated to lowest-rated sectors. Region-wide leader ratings on quality of education, leisure, and safety of the community out-scored the other sectors, yet at the same time, the public did not view these sectors nearly as favorably. Generally, the ratings given by leaders were more

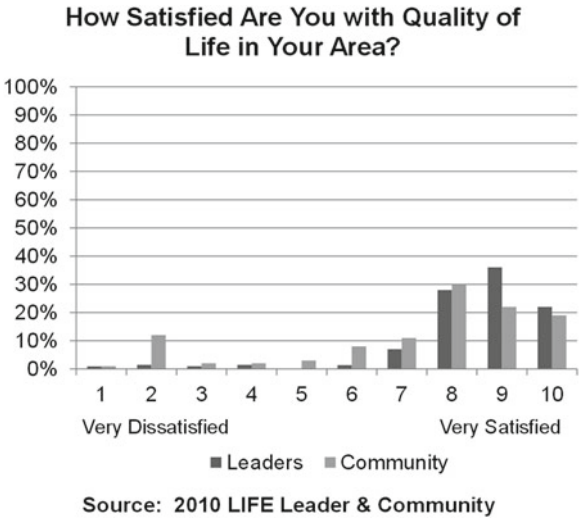

Fig. 8.18 Leader and community satisfaction with quality of life

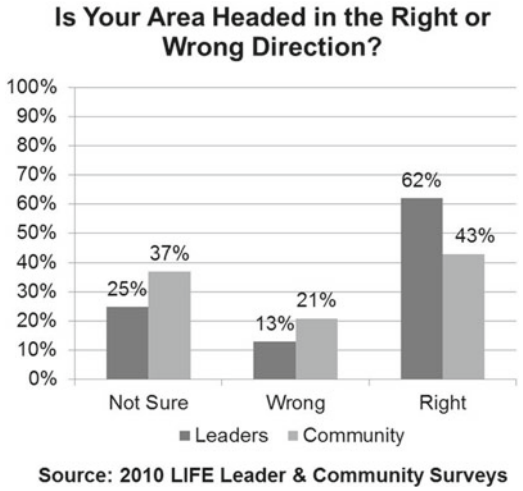

Fig. 8.19 Leader and community perceptions of the area's direction

favorable than those by community members. The lowest-rated sector (for both groups) was "building a strong economy." In fact, such perceptions about the local economy may have been a significant impetus that led the sponsors to collaborate regionally.

Finally, Fig. 8.21 shows Leader and Community member perceptions of quality of life for different subgroups of residents. Again, responses are ordered by leaders' highest to lowest-ranked scores. The region was rated highly as a place for children

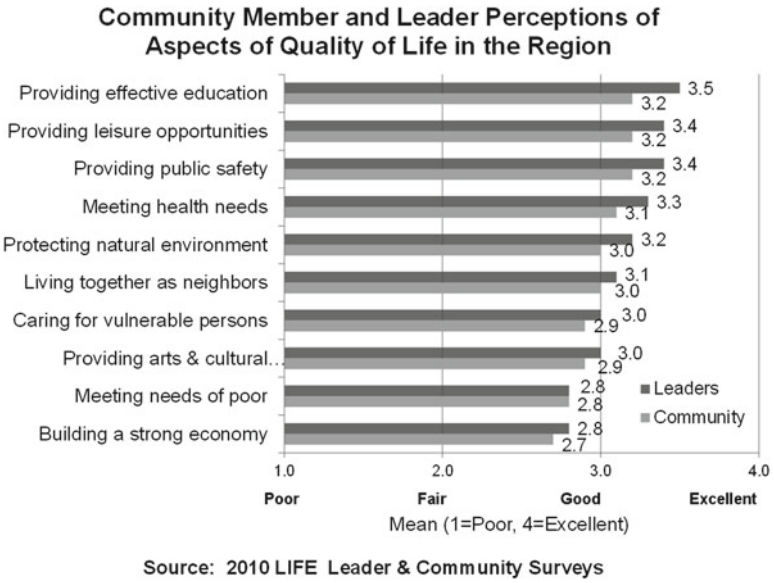

Fig. 8.20 Leader and community quality of life ratings by sector

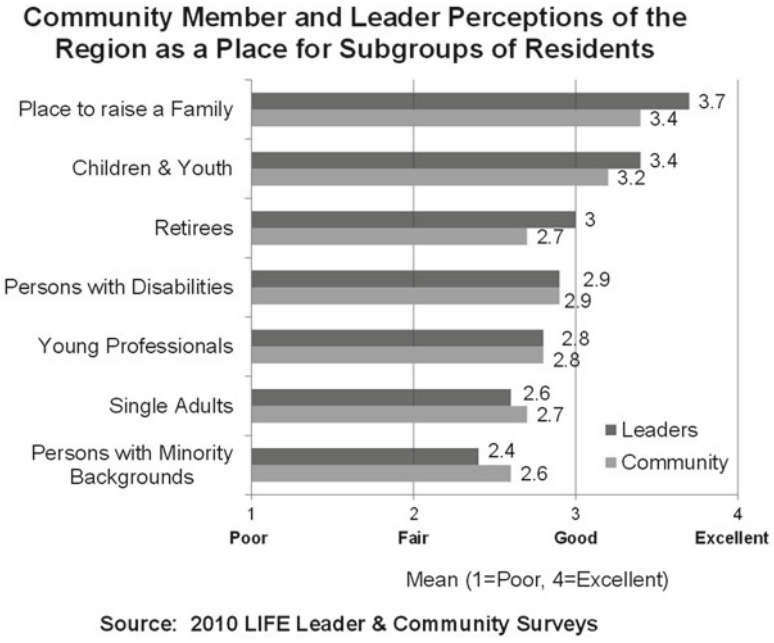

Fig. 8.21 Quality of life ratings for population subgroups

and families, but lower relative to singles and persons with minority backgrounds. Interestingly, community members rated quality of life for the latter two subgroups more favorably than leaders did, perhaps revealing leaders' deeper insight into community conditions overall.

While there were noticeable differences among the three metropolitan areas for many items on these surveys, pooling the data prevented direct comparisons that might highlight a less-favorable status in one community or another. While the LIFE Study communities possess different strengths and face unique challenges, overall, the Research Team found many similarities among them. This method highlighted the collective strengths and concerns.

Promoting Use of the Results

The public relations staff of the funding organizations (referred to as the Communications Team) demonstrated some of the most collaborative teamwork that occurred during the Fox River Region LIFE Study. This group implemented a strong media-relations plan during the course of the work, beginning with the announcement of a regional effort, enhancing the visibility (and response rate) of the surveys, and organizing a media blitz when the reports came out. While coordinating regional press conferences at the beginning and end of the study, the team pooled resources and ideas for local promotional strategies in the intervening year.

Local Follow-Up Plans

The Fox River Region LIFE Study sponsors, having unique characteristics, histories with indicator studies, and community needs, began to encourage usage of the reports in different ways. For the Fox Cities, this was the third major LIFE Study of the community since 2001; it had become well branded, widely referenced, and even eagerly anticipated. Results of previous LIFE Studies had been used to mobilize broader initiatives addressing early literacy, youth education in the arts, transportation, and mental health (among others). These initiatives could demonstrate impact. The study sponsors, in an ongoing effort to promote use, required that grant applicants reference LIFE Study data in proposals. In fact, the 2006 Fox Cities LIFE Study had led to the formation of a major funding initiative, the Basic Needs Giving Partnership, which subsequently funded programs based on a key finding from the 2006 report, i.e., the extensive unmet basic needs for food, housing, and poverty.

In 2011, over 350 individuals attended the breakfast at which the study results were first shared to wide media coverage. Area corporations and foundations sponsored presentations of the results and the Chamber of Commerce sent reports to interested parties. Civic groups held discussions about the findings. Public service announcements and newspaper articles shared brief snapshots of data throughout the remaining year. Many of these methods of getting the word out into the community

were fluid and grass-roots in nature. In 2011, the sponsors have begun to follow the same approach to dissemination that included regular use of the radio (CSA and interviews), regular newspaper articles on important findings, local television interviews, and invited presentations.

In Brown County, sponsors worked hard to develop a new brand for the LIFE Study by generating significant publicity when its local report was released. Along with television and radio coverage, the local newspaper featured a number of front-page articles, editorials, and a special sponsored insert that featured results from the report in a reader-friendly style. Over 200 persons attended the Brown County LIFE Study release, where the County Executive and Mayor of Green Bay endorsed the project. Sponsors announced their collaboration with the Bay Area Community Council (a local, independent think tank focused on community issues), which would facilitate the conference, Brown County 2020: Envisioning the Future. Within 3 months of its LIFE Study release, 200 invited participants were convened for a day and a half to define next steps on several of the area's most pressing major issues. In this way, the Brown County LIFE Study will be used to catalyze a groundswell of common energy by concerned leaders.

The Winnebago County LIFE Study report release employed a similar model with a well-promoted breakfast event attended by almost 200 individuals. Many of the attendees, having participated in the LIFE Study in some capacity, agreed to reconvene at follow-up meetings based upon sectors. In a sense, the approach being taken by the Winnebago County community reflects a "Communities of Practice" model as described by Wenger (p. 1, 2006). They intended to re-convene selected participants from some of the sector expert focus groups to continue to discuss ways to address community conditions. The Advisory Council would meet again to define next steps. The funding partners began to develop action plans that would build upon the process of undertaking the LIFE Study.

In fact, all three locales had achieved a high level of participation in the LIFE Study that created greater interest and momentum. The process of bringing individuals together to discuss their community's quality of life seemed engaging; it built energy toward some next step. Time will tell what impact the data will have on each of the three communities.

Next Steps for the Region

In all metropolitan areas, the difficult task of catalyzing meaningful community action has begun. How the regional findings will be used is less clear. While a number of factors led to the collaborative initiative, other pressures may hamper its impact. Figure 8.22 depicts the promoting and hindering forces affecting the development and use of regional data.

A number of factors led the partners to collaborate. Stakeholders in the region had begun to partner on economic development, efforts to fight crime, delivery of health care, and other topics as they become increasingly aware of the potential benefits of broader partnerships across the Fox River region. Major funders had

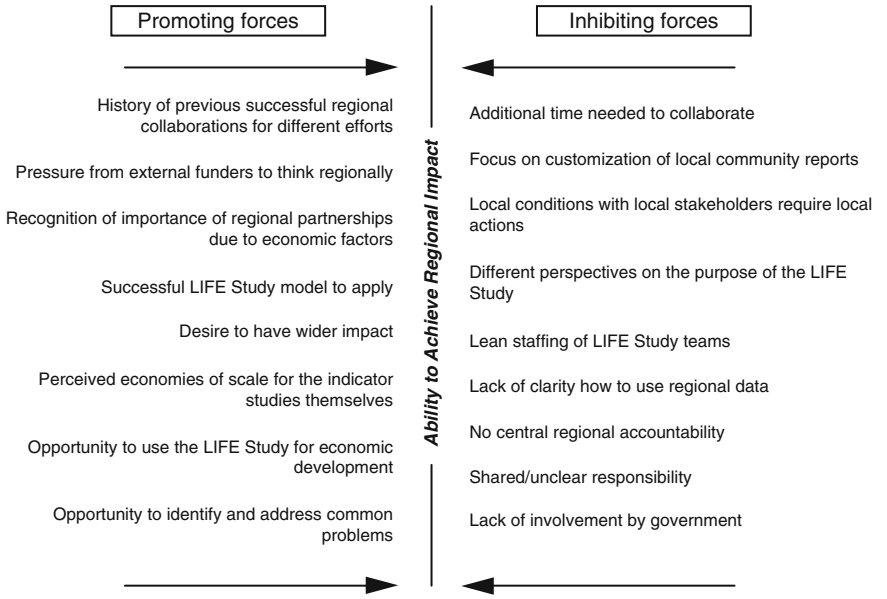

Fig. 8.22 Promoting and inhibiting forces for regional impact

endorsed the idea for the regional study; all recognized the possibilities for having a wider impact than what a single community LIFE Study could do alone. With a strong methodology that had worked well in the Fox Cities, sponsors were confident of their approach to studying quality of life. The report could promote the area's strengths to outsiders; at the same time, it could reveal common challenges that might be addressed jointly. They also believed that they could achieve economies of scale in conducting the research simultaneously. (This belief proved unfounded due to the customization of each local effort and lack of economies that could be achieved on the surveys and focus groups.)

However, a number of forces seemed to inhibit this regional vision. At times, study sponsors had differing views of how the report should be used: should it portray information with a positive tone, or should it highlight challenges facing the entire region? In the local reports, each community could customize its research and make its own decisions about tone or approach. This individualization of the local reports seemed to pull the communities away from a shared regional perspective. Moreover, there was no regional decision-making body and no explicit lines of authority to guide these decisions. At the same time, another more practical issue pulled the communities apart: lean staffing at all of the sponsoring agencies and Research Team in order to minimize costs. While all communities provided some in-kind staffing, on the whole there was insufficient time available to develop the leading indicator approach, to build relationships and trust, and to form a common vision for the regional LIFE Study. The under-budgeting of the time and resources needed

for a true collaboration led to frustration and time pressure as the project moved to completion, limiting the time which could be invested to work things out jointly.

Finally, other than marketing the region externally, the partners had not developed a clear vision of how the regional data might be used or what the payoff might be. Unique conditions and interplay of needs, providers, and funders occur locally. How could three distinct metropolitan communities tackle the issue of, for example, access to health care? Would it make sense for the local free health clinics to partner in some regional way? *Regional* solutions would require greater creativity, more time to develop, and possibly stronger leadership. Regional initiatives would have to break new ground and develop innovative ideas, which are difficult and time consuming activities. Because of these challenges, the future of the collaboration remains unclear.

Conclusions and Lessons Learned

The Fox River Region LIFE Study demonstrated the feasibility of a collaborative project to compile data on quality of life simultaneously at the community and regional levels. The design offered the sponsors flexibility to generate customized reports that built the sense of ownership within each locale, while coordinating data collection just enough to yield a triangulated portrayal of the region. While none of the reports attempted to delve deeply into any one aspect of quality of life, they offered the region a set of well-rounded, soundly researched, objective data.

Leading Indicators and Multi-method Approach

The Fox River Region LIFE Study's mixed methods utilized public opinion surveys, expert and community focus groups, and carefully chosen secondary data that painted a well-rounded portrait of the quality of life. An effective process was implemented to identify community leading indicators both within the metropolitan areas and regionally. The process relied on extensive input from experts on each of the ten sectors that made up the data framework. Although difficult, the process generated interest among its participants and a desire to continue to monitor community conditions in this way. While refinements can be made to the indicators chosen for use and to the scoring method used to present indicator data, the region has developed a dashboard to monitor the area's progress into the future.

Careful sequencing was important to the multi-method procedures used, especially given the scope of the three-community study. The Fox River Region LIFE Study employed a flow of activities that connected the output from one data source to the subsequent stage of research. Finally, this variety of data sources provided clarity on the key issues that faced each community and the region.

Regional Collaboration: Lessons Learned

The Fox River Region LIFE Study was an ambitious undertaking: three parallel, multi-method local studies were completed simultaneously while developing a combined report that would provide a tool for the entire region. Ten funders and three universities collaborated on the research, building the model, breaking new ground in the development of leading indicators for themselves and their combined region. There is a growing literature on best practices for community indicator studies, such as public engagement strategies (Barsell and Maser 2004), use of key informant panels (Burk and Knopf 2009), the development of one index measure, and methods to score the indicators (Warner 2006). The Fox River Region LIFE Study offers additional lessons that impacted the conduct of a broader, cross-community project.

The Fox River Region LIFE Study sponsors wanted to overcome the tendency for competition among the metro areas; they did not want to benchmark themselves with one another using an innovative scoring approach such as the one developed by Epley and Menon (2008). Rather, their goal was to build a partnership that also included most of the major higher educational actors to create a portrait of the region that would provide value to all. This project offers numerous insights for those considering similar projects.

- Build consensus on the purpose of the study at the outset. The Alliance for Regional Stewardship (2005) described two fundamental purposes of indicator studies: to catalyze change (making recommendations) or simply to provide a source of objective information about an area (assuming that users will determine how to use the data). The Fox River Region LIFE Study attempted to do both; it intended to raise awareness of the region and also catalyze change. There was ongoing tension about how the report should treat the reporting of challenges. Should the report identify regional concerns that could bring focus to area-wide conditions, in order to catalyze change regionally? Communities must plan to invest the time needed to hash out and brainstorm collectively about how regional results will be used, especially given the tendency to focus on local challenges and stakeholders.
- Define a regional leadership team with decision-making authority. In an attempt to balance the power and share decision-making, leaders of the LIFE Study's sponsoring organizations served on an informal regional steering team that had some participation by other representatives from each community. A number of time-sensitive decisions arose as the study hit its final stages, and the Research Team attempted to consult with all community leaders on some of these decisions. Similarly, a number of important decisions were made by the Communications Team or individual participants. Clarity of roles, point people with decision-making authority, and clearer lines of authority would have simplified the work and prevented misunderstanding.
- Allow sufficient time for a new collaboration. As noted earlier, there was a history of natural, mildly competitive feelings among the communities coming into this

joint project. The Fox River Region LIFE Study was staffed leanly; the number of regional meetings was held to a minimum due to the tight schedules of key participants. The regional model building was difficult and took more time than anticipated to weigh varying interests. Balanced input was essential, as was face to face time, in order to build relationships and thereby trust. This new partnership required time and effort to establish.

- Marketing functions offer a good opportunity for regional collaboration. Throughout the project, from the announcement of the partnership, to building the website, to releasing the reports, the Communications Team (composed of marketing staff from the sponsoring organizations) managed messaging, management of media, and production of the website and printed reports. These staff clearly built a collaborative relationship during the process, although this team would have benefited as well from a clear designation of authority.
- Maintain the local sense of ownership while coordinating the region-wide project. The Fox River Region LIFE Study methods encouraged the steering team in each community to remain involved, make decisions at important junctures, and have unique aspects included in each of their studies. This inclusiveness enabled the localities to maintain a sense of ownership that will be important for increasing utilization and meaning within each community. The communities worked within a common framework but tailored their studies while coalescing on a core of survey items, focus group methods, and leading indicator secondary data.
- Agree on a follow up plan. Who should be responsible to take the next steps: to identify any regional follow up initiatives, or simply to convene the group once the research was complete? Should there even be a next step? If the purpose was to present data to the community, then the regional report concludes the work. If the purpose sought to catalyze change at a regional level, then an important mobilizing stage begins following the release of the reports. What would regional collaboration look like in the future? What can the metro areas do together using the findings?

Various activities to catalyze change have begun in each locale, while it is unclear what the next steps will be for the regional findings. Forging a new collaborative partnership takes significantly greater time and effort than a single community indicator study, and the amount of time that partners can invest at the beginning of such a project to clarify the purpose, define roles and authority, and get to know one another, is time well invested.

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Chapter 9
Bridging Environmental Sustainability and Quality of Life in Metropolitan Atlanta's Urban Communities

Susannah Lee and Subhrajit Guhathakurta

Abstract Quality of life (QOL) is a central concern in urban planning, given the profession's orientation towards advancing the public well-being. This study develops a multi-attribute Quality of Urban Life (QoUL) Index to compare and track place-based amenities and the state of public welfare in cities within the Atlanta region. Of particular interest is the examination of QoUL in relation to an Urban Environmental Sustainability (UES) Index, which offers important insights about whether and how sustainability contributes to quality of life.

The Increasing Role of Quality-of-Life Studies

Advances in technology and transportation have allowed us to easily transcend the physical boundaries of our communities; yet we are becoming increasingly cognizant of the impact of our local built, social, and natural environment on the quality of our day-to-day lives (Kates and Wilbanks 2003). There has been a return, in academia and in the media, to examining the fundamental structures of local societies within a comparative context (Castells 2002). This exploration of the various physical and cultural attributes within our cities expands our understanding of how sustainable choices can grow our economic, social and personal assets in the long run.

There has been some debate in the literature about how the pursuit of sustainability can enhance quality of life (Gottlieb 1995; Moser 2009; Portney 2003). Although the Brundtland Report (World Commission on Environment and Development 1987) laid out the framework for sustainable development as "…development capable of

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satisfying the needs of the present generation without compromising the ability of future generations to satisfy their own needs" (p. 43), it was careful to emphasize that such development must enhance human individual and collective well-being. However, others have acknowledged that unsustainable resource use may impact quality of life differentially at different parts of the globe (Berke 2002). That is, unsustainable resource use often supports high quality of life in locations distant from the source of the resource. Clearly, individual well-being can be often divorced from collective development of environmental qualities such as pollution, biodiversity, and mobility (Steg and Gifford 2005). In addition, the concept and measures of quality of life differ among cultures and groups (Maslow 1954; Gatersleben 2000; Vlek et al. 1999; Steg and Gifford 2005). The role of sustainability in quality-of-life assessments varies based on how much value individuals or groups associate with it. Therefore the relationship between quality of life and sustainability is contingent upon the specific ways quality of life and sustainability are measured and how they relate to the populations being described. Regardless, place-based measures of both quality of life and sustainability can better inform individuals' household location choices and aid policymakers to better identify specific community projects that enhance livability according to community needs.

Both sustainability and quality of life are malleable concepts that are difficult to precisely define (Szalai 1980; Romney et al. 1994; Diener and Suh 1997; Cutter 1985). They are employed in wide and varying manners dependent on different disciplines' perspectives. The concern about sustainability stems from the notion that the earth's resources are limited or that such resources regenerate more slowly than they are being used. Many economists allay this concern by suggesting that resource scarcity often triggers compensatory behavioral responses such as substitution and innovation. Hence, according to this economic perspective, improving quality of life does not necessarily entail sustainability. Ecologists, on the other hand, adopt a more expansive perspective of sustainability as maintaining the health of the ecological system. This broader concept is based on a systems view of ecological processes in which such systems are intimately connected in complex ways. This connectedness of different parts of the system implies that impacts on one component propagate through the system. Therefore, degrading one part of the system may have several unintended and unanticipated consequences that compromise ecosystem health. In this view, sustainability is fundamental to perpetuating the quality of human existence, albeit, in harmony with the environment.

Although various disciplines construct different conceptualizations of quality of life, they all converge on the broad principle of measuring the well-being of individuals within the context of their environment. Whereas health sciences tend to assess health-related quality of life for individuals or cohorts, social sciences employ varied approaches with discrepant dimensions, such as: cost-of-living indices and other economic analysis; degree of 'liveability,' a term for which varied definitions abound; psychological or perception basis; well-being evaluations at differing levels of totalities, both global and domain-specific; and idiographic, comparative,

and personal assessments of life quality. In planning, however, an imperative focus is on the well-being and development of the community. Myers (1988) has distinguished the planning conception of community QOL from models employed in other disciplines in order to highlight the developmental process of community well-being. Likewise, Marans (2003) and Sirgy et al. (2010) articulate the need for community-based QOL, given that it is a context-dependent concept. Place-based studies are essential to the planning profession because planners seek to design and implement strategies that enhance community well-being. The planner is able to rely on indicators of community well-being to understand attributes of significant impact, identify needed improvements, and anticipate negative trends.

Quality-of-life work at its core is conceptualized in two forms: the objective and the subjective. Much research, such as Ben-Chieh Liu's (1975, 1977) foundational studies on U.S. metropolitan cities, has focused on an objective approach, and entails exhaustive, data-driven evaluations of social, economic, and environmental conditions. The complement to this vein of study is the utilization of resident satisfaction and perceptions to underpin quality-of-life research, such as the ones pioneered by Campbell et al. (1976). Cutter (1985), Wish (1986), Rogerson et al. (1989), and others propose a third way forward, one that has gained traction in recent years. Wish originated a cogent argument for fusing the 'psychographic' and 'demographic' in a single QOL evaluation. Rogerson et al. (1989) cultivated a superior framework from the rudiments of Cutter's work for applying a subjective weighting scheme to objective indicator measurements of QOL. Given that studies such as Cummins' (2000) show there is often divergence between objective and perceptive QOL, an integrated research structure is deemed essential to bridging these two spheres and accurately capturing a complete representation of life quality.

Guhathakurta and Cao's (2011) study of metropolitan Phoenix is a model that employs the integrated approach in constructing a QoUL index. Their study collected objective indicator measurements and melded public opinion survey data taken from metropolitan Phoenix residents to properly weigh attributes of QoUL. In contrast to Guhathakurta and Cao's work, this study expands upon traditional quality-of-life concerns to focus specifically on urban environmental quality from a sustainable development perspective. In so doing, we gain further insight into the interactive effects of our built environment and our overall well-being. Marans (2003) argues that to develop an understanding of environmental quality of places, it is useful to couch such issues within a quality-of-life research framework. Merging QoUL and UES in communities is possible when the emphasis is on improving mutually beneficial attributes. To create vibrant, liveable, and sustainable places requires not only urbanization through densification and other physical determinants, but also enhancement of valued community elements that will engender greater desirability for sustainable environments (Howley et al. 2009). It is expected that capitalizing on the interplay between UES and QoUL will augment quality of place in the long-run. This could serve as a key strategy to address the planners' goals of community development.

The Inimitable Attributes of Metropolitan Atlanta

Atlanta bears the status of a great American city, with a rich and tumultuous history that continues to impact its region to this day. The city was burned to the ground during the civil war but came up from the ashes to become the "Gateway to the South." By 1895 Atlanta had evolved into the "Capital of the New South" (Rice 1983, p.31) as a major transportation hub and center for commercial and industrial development. Over the past decades the city region grew outwards rather than up, experiencing typical twentieth century patterns of sprawl due to innovations in transportation and the rise of the suburban ideal. Atlanta's metropolitan region has grown continuously since the 1900s although the city of Atlanta itself has experienced a steady decrease in its portion of the metropolitan population. The boundaries of the metro region doubled in the 1990s and the Northern suburbs began to receive the lion's share of both population and jobs (Lee 2011). The flight of jobs and middle-income residents to the northern suburbs exacerbated racial polarization in housing, schools, and jobs. Even today the region is characterized by an increasingly black and poor south-central Atlanta encircled by mostly white middle-income suburbs.

The US Census Bureau reports that the South is the fastest growing region in America, jumping by 14.3 %, or over 14 million people, from 2000 to 2010. Georgia on its own added 1.5 million to the population in the past decade. The Atlanta metropolitan region is the 9th most populous metropolitan area in the United States, the largest in the south, and home to about 5.3 million individuals as of 2010. The city of Atlanta has 420,000 or 8 % of the metro area population. None of the other cities are 100,000 or more in population although there are many of them. The four largest cities after Atlanta are Sandy Springs (93,853), Roswell (88,346), Johns Creek (76,728), and Alpharetta (57,551) (U.S. Census Bureau 2010a). The median size of the cities in the Atlanta metro region is about 12,000 persons. Although diminishing in importance over time, metropolitan Atlanta continues to be the physical, cultural, and economic core of this rapidly evolving mega-region, and thus makes an interesting case for studying urban environments and their influence on quality of life.

Methodological Dimensions

This study assesses Quality of Urban Life (QoUL) within metropolitan Atlanta in order to discern patterns and variations in livability among its incorporated places. A Quality of Urban Life Index is constructed that allows for clear comparisons among cities in the metropolitan region. An auxiliary Urban Environmental Sustainability Index is also generated to educe interrelationships between quality of life and environmentally sustainable modes of living. Results yielded by this study indicate a discrepancy between urban life quality and environmental sustainability in the Atlanta Region. However, improvements in urban infrastructure hold the potential to increase both quality of life and sustainability for current and future generations.

The motivations behind this study are threefold: first, to produce a QoUL index that evaluates and compares urban places in metropolitan Atlanta; second, to identify patterns and variations in both QoUL and sustainable living; and third, to determine whether high quality of life and sustainable modes of living are spatially contingent.

The ten inner counties of metropolitan Atlanta, known as the core counties, comprise the spatial extent of the study area. This extent is identical to the Atlanta Regional Commission's (ARC) regional planning domain. This metropolitan boundary delimits the communities in the region that have strong connections to the city center.

Determination of the proper unit of analysis was critical in ensuring that comparability remain valid across the urban region. A number of concerns were deliberated upon, such as the reprising issue in spatial analysis of the Modifiable Areal Unit Problem (MAUP). As well, both availability of data and functionality were considered. One principal objective was to arrive at a format and a unit of analysis that can be updated over time more frequently than the 10-year census cycle. In addition, we intended the chosen unit of analysis to be unambiguous, clearly identifiable, and relevant for policy-making. Cities are places that have a definitive identity and some administrative autonomy. The American Community Survey, which conducts a survey of all incorporated places (cities) above 20,000 at least every 3 years and all places every 5 years, is an ideal source of data that is updated at a reasonable frequency. Thus, cities were chosen as the spatial unit of analysis, inclusive of all incorporated places above a population threshold of 5,000. This minimum eliminates those cities that do not maintain general administrative autonomy, as many below this threshold rely on counties or neighboring cities to provide basic municipal services. Moreover, results from this study are applicable only at the level that they are assessed at in order to avoid the problem of "ecological fallacy". That is, QoUL statistics cannot be inferred for partial areas, and are applicable only to the city as a whole. The final set of cities for QoUL analysis includes the 50 cities shown in Fig. 9.1. The only peculiarity in the data set is the city of Dunwoody, which is included in this study, although it was not formally incorporated until 2008.

It must also be noted that the results from this study are reflective of only the time period from which the data is sourced, 2004–2011. Additional points in time may eventually be assembled for future study in order to examine longitudinal trends. For now however, this temporal window allows for the incorporation of data averaged or estimated over multiple years, such as that provided by the American Community Survey (ACS) and the Georgia Department of Public Health (GDPH).

Quality of Urban Life and the Multi-attribute Approach

QoUL indicators capture those factors that are both responsive to and indicative of our overall urban environment. Moreover, the indicators embody the connection between the QoUL attributes and the local community, and thus must deliver location-specific data. A special consideration in choosing QoUL indicators for cities within a metropolitan region is that city boundaries are less relevant for particular

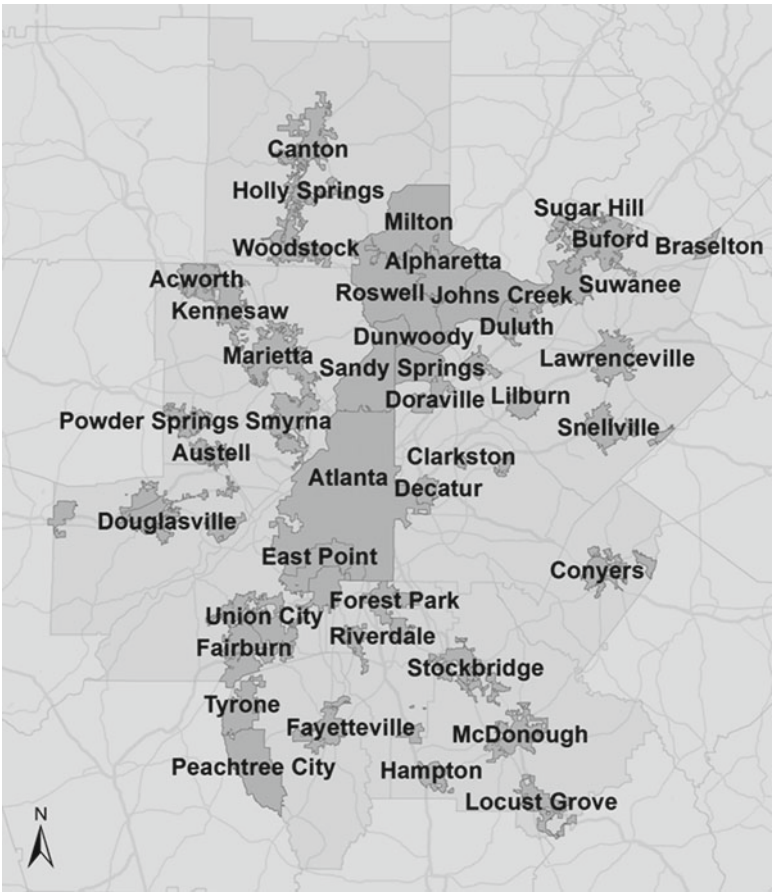

Fig. 9.1 Cities and counties in the metropolitan Atlanta region (Source: U.S. Census Bureau 2010b. Image produced by authors)

types of indicators. For example, large entertainment venues such as ballparks, symphonies, operas, and theme parks cater to metropolitan wide inhabitants (Guhathakurta and Cao 2011). Similarly, the effects of point-source pollution can be problematic to people downstream or downwind and not just to locals. Such spillover effects can confound the assessment of a city's quality of life. In this study, we only concentrate on those indicators for which substantial benefits can be attributed mostly to the local city residents. However, we have used access to greenspace, supermarkets, and other activity centers as measures of local amenities despite the fact that people generally access the closest location which may be within a nearby city rather than the city of one's own residence. Proximity to such amenities does augment the quality of life of the community, whether the amenities fall within the city boundary or closely outside of it. Therefore, the approach we adopted was to determine the percentage of households in a city that are within a reasonable distance of such amenities (separately determined for each amenity), regardless of their location.

Table 9.1 QoUL indicators and measures

Indicators	Measures
Amenities	Access to activity centers
	Low access to food
	Greenspace access
Economy	Household incomes
	Poverty rate
	Unemployment rate
	Jobs in highest paying sectors
	Jobs in lowest paying sectors
Education	High school attainment
	Bachelor degree attainment
Health	Cancer-related mortality rates
	Cardiovascular-related mortality rates
	Behavioral-related mortality rates
Housing	Median home values
	Homeownership rates
	Rental rates
Public safety	Violent crime rates
	Crime rates
Transportation	Mean travel times to work
	Transit access

Source: Authors

In endeavoring to produce a wholly comprehensive, multidimensional index, seven indicators were ultimately chosen: economy, health, housing, public safety, education, amenities, and transportation. These seven indicators are based on a number of previous studies that have derived objective indicators to examine variation in QoL within a metro region (Guhathakurta and Cao 2011; Tazebay et al. 2010; Das 2008). We applied four criteria to determine the applicability of these indicators to our study area. First, the data should be available from public sources and updated at a reasonable frequency (5 years or less). Second, the indicator should be relevant to Atlanta metro residents (i.e., substantial variation exists within the region). Third, the chosen indicators should be policy relevant. And finally, as discussed earlier, the indicators should be applicable to sub-regional places (cities) within the metro area. Multiple measures for each indicator are utilized to ensure that each aspect of QoUL is sufficiently accounted for. Concrete, long-term, or output measures are employed wherever possible to minimize ambiguity or inaccuracy. Furthermore, all statistics chosen are related to city populations to ensure comparability. Observations for all measures are normalized to produce standardized scores, and each bundle of measures is then aggregated. The result of this process yields scores by city for each of the seven indicators outlined in Table 9.1.

Housing

Housing is a fundamental aspect of quality of life, as a form of shelter, an asset, and an investment. Housing, as with other attributes, is not an isolated facet of QoUL,

Table 9.2 Housing measures and ranking

City	Median home values ($)	Median rent ($)	Homeownership (%)	Housing ranking
Milton	466,400	868	73.9	1
Decatur	337,300	657	63.3	2
Tyrone	270,900	775	85.7	3
Hampton	138,200	568	77.3	4
Sandy Springs	452,700	828	47.6	5
Roswell	304,000	812	66.9	6
Austell	147,900	629	70.1	7
Fayetteville	202,700	754	73.4	8
Holly Springs	183,600	779	79.3	9
Acworth	172,700	694	69.0	10
Peachtree City	277,600	891	76.2	11
Alpharetta	331,700	888	65.0	12
Buford	179,500	624	56.3	13
Villa Rica	154,000	623	60.8	14
Lilburn	177,300	705	66.6	15
Locust Grove	134,100	734	77.4	16
Johns Creek	342,200	1,028	79.6	17
Loganville	161,100	728	69.6	18
Canton	170,100	660	56.9	19
Braselton	267,100	1,025	88.8	20

Source: American Community Survey [ACS] (2009b)

but spills into other aspects that influences overall well-being. For example, housing measures often correlate with economic measures, such as income and poverty. Additionally there are generally tradeoffs between housing and transportation, two principal household expenses. This study attempts to create discrete categories for each attribute in order to avoid double-counting various aspects, however it is recognized that QoUL attributes are interlaced.

Three items for the housing indicator are considered: median home values, homeownership rates, and rental rates. While higher homeownership and median home values are desirable, low rental rates are more preferable because affordability is valued. A number of more affluent communities to the north of the city of Atlanta- Milton, Sandy Springs, Dunwoody, Alpharetta, Johns Creek, and Roswell- stand out on the list in Table 9.2, with median home values upwards of $300,000, and some exceeding $400,000. The only geographical outlier in this top tier is Decatur, a small city to the east of Atlanta that has a distinct character, yet is regarded as more of a neighborhood within the central city than a neighbor to it. Milton and Decatur also top the list for housing overall, followed by two small cities, Tyrone and Hampton, and then Sandy Springs, a large and more affluent city that lies just outside the "perimeter" of I-285 which encircles Atlanta. Rental rates are most affordable in Hampton by a fair margin, with median prices costing only $568 per month. Homeownership in the region is quite variable, with percentile rates as low as 21.6 % in Clarkston and 25.6 % in College Park, to an 88.8 % peak in Braselton.

Table 9.3 Economic measures and ranking

City	Median household incomes ($)	Poverty rate	% jobs in highest paying sectors	% jobs in lowest paying sectors	Unemployment rates	Economy ranking
Johns Creek	106,545	4.4	42.8	31.2	6.1	1
Alpharetta	95,888	3.1	43.5	33.3	4.7	2
Milton	117,608	4.7	35.4	36.4	5.0	3
Dunwoody	87,227	4.8	46.2	32.4	5.3	4
Sandy Springs	76,477	7.0	45.7	28.6	4.4	5
Norcross	53,060	9.4	46.3	25.4	6.8	6
Peachtree City	93,072	4.1	17.8	35.5	4.3	7
Suwanee	83,258	5.5	32.4	37.7	7.9	8
Roswell	79,733	7.4	34.4	41.6	5.4	9
Tyrone	77,457	3.0	17.4	33.8	5.0	10
Duluth	61,920	7.1	35.8	37.9	4.5	11
Smyrna	55,468	13.7	34.2	32.6	7.2	12
Chamblee	46,460	23.0	35.0	26.2	4.6	13
Sugar Hill	74,725	8.7	23	44.3	9.5	14
Holly Springs	66,879	3.5	10.8	48.3	4.7	15
Fayetteville	54,230	3.9	12.1	47.8	4.4	16
Woodstock	62,907	7.3	17.7	53.4	5.8	17
Marietta	45,428	16.1	22.7	34.4	7.3	18
Decatur	69,669	15.4	10.8	36.2	8.1	19
Kennesaw	62,149	7.7	19.9	46.1	10.3	20

Sources: ACS (2009a, 2010a) and Atlanta Regional Commission [ARC] (2009c)

Economy

Economy is explicitly tied to the quality of life that we lead. Diener and Suh (1997) argue that economy is a significant driver of life quality, explaining much of what social indicators measure. The economy indicator is of particular interest in this study because the time frame used encapsulates the period during which the 2008–2009 economic recession hit. Therefore the numbers seen in this case may appear disjointed if placed in a larger temporal perspective. The economic downturn serves somewhat as a backdrop for this QoUL snapshot, impacting other attributes as well, such as housing.

The economy indicator measures financial health as well as robustness of local economies. Much research has shown the multiplying effects of economic deprivation on quality of life (Kawachi and Kennedy 1999); likewise, strength of economy is shown to contribute a resilience that is beneficial and extremely critical in urban areas (Layton 2009). The economic attribute captures both the economic stresses and strengths of the cities in the region. The results produced in Table 9.3 are median household income and poverty rates, sourced from the ACS 2005–2009 estimates, and unemployment rates, from ACS 2006–2010 estimates. The range of median household incomes by city is quite broad, ranging from $30,116 in Clarkston, to

Milton's $117,608. The communities of Clarkston, College Park, Forest Park, and Stone Mountain rank poorly for unemployment rates for worker populations ages 16 and over. Peachtree City, Fayetteville, and Sandy Springs Duluth, Chamblee, Alpharetta Holly Springs all have extremely low unemployment rates, below 5 %. Percentages of jobs in the five highest-paying sectors and five lowest-paying sectors both approximate employment prospects within each city. Both of these two statistics are collected from ARC's 2009 employment data at the census tract level, and are thus aggregated to the city level. The job rates in both the lowest paying and highest paying sectors are lowest in the city of Hapeville.

Amenities

The amenities attribute evaluates accessibility of resources in the urban environment. Access to three basic amenities is considered: food retail outlets, greenspace, and activity centers. The statistics for access to greenspace were derived in ArcGIS from a parks and recreational facilities shapefile from the Atlanta Regional Commission. Quarter-mile buffers were produced for each facility. Estimates of population totals falling within buffer zones were calculated with the aid of Census block population data and a Tiger/Line shapefile from the 2010 Census. Populations with greenspace access were then converted to a percentage rate based on total city populations. Figure 9.2 illustrates the spatial calculation process.

Manifold benefits have been attributed to greenspace proximity. Increased access corresponds with increased usage, although other factors also affect usage, such as wealth and social cohesion (Jones et al. 2009; Seaman et al. 2010). Mitchell and Popham (2007) and van Leeuwen et al. (2010) have documented such positive impacts on quality of life as added economic value, increased health, and improved efficiency and functionality of urban spaces. Table 9.4 shows the results for the amenities measures. Three communities, Hapeville, Clarkston, and Decatur, stand out in the region with decent access to parks and recreational areas for more than 60 % of city residents.

A similar task was carried out for access to main activity centers, using another shapefile provided by ARC. The file is a digitized map of orthophotography that identifies traditional municipal downtowns and significant regional centers in the Atlanta region. Those with low access were determined by identifying the percentage of populations that live no further than 2 miles from main activity centers. Proximity to activity centers provides access to other basic needs such as clothes and household items, as well as increasing convenience and entertainment options. Most notably, the community of Braselton lacks any activity center as classified by ARC within 2 miles of its city limits, and thus receives a 100 % score for low access.

Statistics on low food access were sourced from the U.S. Department of Agriculture's (USDA) food desert locator tool, which presents multiple data by census tract. Low food access statistics were collected for the 10-county region and then aggregated to cities. The USDA defines 'low access' as greater than 1 mile from the nearest supermarket or large grocery store in urban areas and greater than

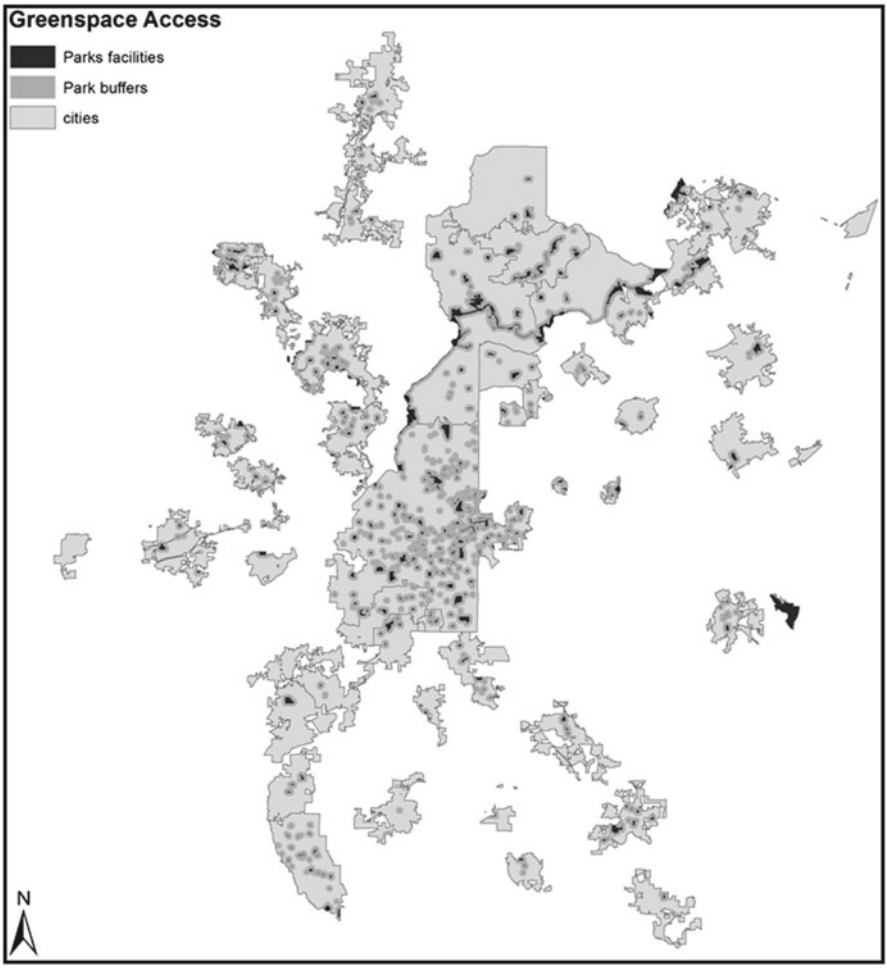

Fig. 9.2 Calculating greenspace access (Source: ARC 2009c; U.S. Census Bureau 2010a; U.S. Census Bureau 2010b. Image produced by authors)

10 miles from any supermarket or large grocery store for rural areas. Twenty-one cities contain populations with low access to food. Four of these – College Park, Morrow, Hapeville, and Union City – have majority populations with poor access, up to 92 % in the case of Union City.

Public Safety

Public safety is appraised in this study through the use of crime rates. The Federal Bureau of Investigation (FBI) manages a Uniform Crime Reports program that maintains updated records for eight major offenses, known as Part I crimes. The Part I

Table 9.4 Amenities measures and ranking

City	% greenspace access	% low access to food	% poor access to activity centers	Amenities ranking
Clarkston	68.3	0.0	0.0	1
Decatur	65.3	9.9	0.0	2
Stone Mountain	51.7	12.2	0.0	3
Atlanta	53.3	11.4	3.3	4
Doraville	47.4	7.1	0.0	5
Chamblee	38.8	0.0	0.0	6
Acworth	36.8	0.0	0.7	7
Duluth	31.6	0.0	0.0	8
Lovejoy	29.7	0.0	0.5	9
Suwanee	27.0	0.0	0.0	10
Austell	24.9	0.0	0.0	11
Kennesaw	27.1	0.0	7.0	12
Powder Springs	21.3	0.0	0.0	13
Conyers	31.0	12.6	0.8	14
East Point	31.6	13.1	1.2	15
Hampton	19.5	0.0	0.0	16
Smyrna	29.1	3.9	9.8	17
Alpharetta	25.7	0.0	9.7	18
Marietta	31.2	10.0	8.4	19
Norcross	14.3	0.0	0.0	20

Sources: ARC (2009c) and U.S. Department of Agriculture (2011)

classification is bisected into violent crimes, which includes forcible rape, aggravated assault, criminal homicide, and robbery; and property crimes, comprising burglary, larceny-theft, motor vehicle theft, and arson. The crime rates included in this study tally offenses for crime rates and for violent crime rates, as shown in Table 9.5. A number of cities to the south of Atlanta – Morrow, College Park, Union City, and East Point – experience the highest crime rates in the metropolitan region. The latter three, along with the city of Atlanta, also top the list for violent crime rates. Holly Springs is the best city in the region in terms of public safety, with very low crime rates and little violent crime. Tyrone, Johns Creek, Peachtree City and Kennesaw are also highly ranked, with crimes lower than 200 counts per 10,000 individuals, and violent crimes less than 10 counts for 10,000 individuals. Alpharetta has a sizeable crime rate, of 315 counts per 10,000, yet they are by and large property-oriented incidences, as the city has a relatively low rate for violent crime, with about 10 counts per 10,000 residents.

Health

The Georgia Department of Public Health tracks mortality statistics by cause of death (COD). Mortality statistics utilized in this study are based on place of residence to avoid the locational fallacy of associating deaths with other environments,

Table 9.5 Public safety measures and ranking

City	Crime rates per 10,000	Violent crime rates per 10,000	Public safety ranking
Holly Springs	116.6	5.7	1
Tyrone	151.6	4.4	2
Johns Creek	127.5	8.6	3
Peachtree City	165.7	4.3	4
Kennesaw	178.4	7.5	5
Canton	200.1	9.0	6
Milton	236.6	8.1	7
Braselton	253.4	11.2	8
Suwanee	245.4	12.6	9
Woodstock	234.6	15.0	10
Alpharetta	314.6	9.9	11
Roswell	258.7	16.9	12
Loganville	304.7	14.6	13
Powder Springs	251.9	24.3	14
Stockbridge	264.1	23.0	15
Duluth	321.7	19.9	16
Acworth	269.6	26.5	17
Fayetteville	301.6	26.0	18
Stone Mountain	320.5	24.7	19
Sandy Springs	364.1	22.9	20

Sources: Federal Bureau of Investigation [FBI] (2009), (2010), Gwinnett County Police Department, n.d., Crime records for Buford and Sugar Hill, Unpublished data and Neighborhood Scout (2011)

such as work, place of death, or other temporary locations. The three COD statistics that are employed are cardiovascular, cancer, and mental and behavioral mortality rates. The health indicator is informed by outcome measures to capture location-specific health across the region. While health has multiple determinants and various means of measurement, mortality statistics provide concrete measures that are highly relevant at the city-level.

Quotients were calculated for each of the COD statistics in order to reflect the demographic variations within each community. A location quotient was employed that measures the concentration of mortality by place in relation to the region. An age quotient was also utilized that accounts for city populations that are on the whole older or younger. Without the age quotient, death rates would otherwise also proxy for population ages, likely seeing higher rates for older city populations in the region and lower rates correlating with city populations that are young for the region. The following equation yielded quotients for each of the three measures:

$$\text{Quotient} = \frac{(\text{city COD rate})}{(\text{regional COD rate})} \div \frac{(\text{city median age})}{(\text{regional median age})}$$

The results can be seen in Table 9.6. Larger values for quotients indicate higher death rates for the community in relation to the region adjusted for median age of

Table 9.6 Health measures and ranking

City	Median age	Cancer mortality quotient	Cardiovascular mortality quotient	Mental and behavioral mortality quotient	Health ranking
Braselton	33.2	0.11	0.15	0.00	1
Villa Rica	32.3	0.12	0.15	0.10	2
Loganville	32.9	0.20	0.09	0.14	3
Johns Creek	36.2	0.51	0.35	0.45	4
Holly Springs	32.3	0.60	0.49	0.16	5
Milton	35.3	0.49	0.48	0.43	6
Suwanee	34.9	0.65	0.37	0.44	7
Lovejoy	26.1	0.73	0.43	0.28	8
Clarkston	29.7	0.52	0.61	0.52	9
Tyrone	42.8	0.80	0.57	0.16	10
Stockbridge	32.2	0.62	0.62	0.40	11
Alpharetta	34.4	0.71	0.52	0.49	12
Duluth	34.1	0.70	0.65	0.47	13
Kennesaw	32.2	0.73	0.76	0.42	14
Sugar Hill	33.7	0.69	0.70	0.56	15
Woodstock	33.8	0.71	0.73	0.52	16
Norcross	32	0.71	0.70	0.64	17
Locust Grove	30.7	1.01	0.87	0.28	18
Peachtree City	40.5	0.99	0.64	0.74	19
Canton	28.6	0.80	0.82	0.89	20

Source: Office of Health Indicators for Planning, Georgia Department of Public Health (2011)

the community, and thus have a negative effect in the ranking for overall health. The average median age for metropolitan Atlanta is 33.4 years. For the entire population of 1,569,426 in the region, the average annual number of cancer associated deaths is 1,874, 2764 for cardiovascular associated deaths, and 446 for mental/behavioral associated deaths. There is a great variance in the area among the 50 cities for cardiovascular related death rates. Braselton has the lowest overall mortality rates, ranking 1st for health. Mental and behavioral causes of death are fairly low throughout the region, although Decatur has a much higher incidence than other cities, with a quotient of 1.86.

Education

Education is a critical component of QoUL that receives much attention from citizens, politicians, and public officials alike. Education is a chief concern for cities and other localities in that it has the possibility to greatly improve or detract from societal welfare in the long run, impacting the prospects of future generations. 2006–2010 ACS estimates provided two statistics on educational attainment: percentages of city residents with high school diplomas, and percentages of city residents with bachelor's degrees. Table 9.7 highlights the communities that rank

Table 9.7 Education measures and ranking

City	% high school diploma	% bachelor's degree or higher	Education ranking
Dunwoody	96.7	67.5	1
Milton	96.9	67.1	2
Johns Creek	97.3	64.0	3
Alpharetta	96.5	62.7	4
Decatur	92.2	65.9	5
Sandy Springs	94.1	59.9	6
Suwanee	96.8	54.1	7
Peachtree City	96.4	52.3	8
Roswell	92.9	52.9	9
Smyrna	90.8	49.3	10
Duluth	91.6	47.5	11
Woodstock	94.9	41.7	12
Braselton	91.1	45.3	13
Kennesaw	93.6	40.5	14
Tyrone	93.4	39.6	15
Atlanta	86.2	45.0	16
Fayetteville	90.9	36.0	17
Holly Springs	88.6	33.1	18
Snellville	89.5	31.2	19
Stockbridge	88.6	31.9	20

Source: ACS (2010b)

highest in education. High school attainment ranges from 53 to 97 %, the highest percentage rate occurring in the city of Johns Creek. Percentages of residents with bachelor's degrees or higher are, as anticipated, noticeably lower than high school achievement rates. Dunwoody, which is strongest in terms of education, has the highest attainment for bachelor's degrees or higher, at 68 %. The lowest percentage rate is for Forest Park, with an astoundingly low 5 %, seven points lower than the penultimate low attainment rate in Locust Grove.

Transportation

Due to high levels of congestion in metropolitan Atlanta, transportation is a dominant focus for planners and residents alike. Sufficient and convenient travel modes are critical for the commuting population in a large, relatively low-density, urban region. Short commute trips not only make travel less painful but also free up more time for friends and family or for other endeavors. We measure access to public transportation as the percentage of population that is within 0.5 miles of a transit stop. The threshold was chosen based on prior studies that show transit ridership declining sharply when commuters have to walk more than 0.5 miles to or from a transit station (Lund et al. 2004; Cervero 1994, 2007). The transit systems considered are: Metropolitan Atlanta Rapid Transit Authority (MARTA) bus and rail, and bus

Table 9.8 Transportation measures and ranking

City	% with transit access	Mean travel times	Transportation ranking
Decatur	96.4	21.4	1
Dunwoody	81.0	21.4	2
Atlanta	95.3	24.2	3
Sandy Springs	63.1	22.0	4
Smyrna	71.0	24.0	5
Hapeville	100.0	28.4	6
Marietta	70.0	26.1	7
Chamblee	94.3	29.0	8
Doraville	98.6	29.7	9
East Point	92.9	29.7	10
Clarkston	100.0	31.0	11
Alpharetta	29.6	23.2	12
College Park	84.1	29.6	13
Canton	60.2	27.5	14
Roswell	25.9	24.3	15
Milton	22.3	25.6	16
Riverdale	17.6	27.2	17
Johns Creek	11.2	27.0	18
Lilburn	0.0	25.9	19
Conyers	4.5	26.7	20

Source: ACS (2009a)

lines serviced by Cherokee Area Transportation System (CATS), Cobb County Transit (CCT), Georgia Regional Transportation Authority (GRTA), and Gwinnett County Transit (GCT). Buffers around transit stops identified those populations with access to bus stops and rail stations. The census block population weighted by block area within these buffers was then used to derive percentage rates with access to transit for each city.

Table 9.8 shows scores and rankings for the transportation attribute. Transit access and mean travel times are equally weighted for the transportation indicator. However percentages of transit access have a greater variance in the distribution and thus incremental increases have relatively greater impact than percentage point increases in transit access on the overall transportation scores. Mean travel times in the Atlanta region vary from about 21–40 min per one way commuting trip. Decatur ranks highest on the list for transportation, followed by the city of Dunwoody, and then Atlanta. The entire populations of Hapeville and Clarkston live within close proximity of transit stops. At the other end of the spectrum, multiple cities in outer counties have no access at all to public transit. Cities such as Locust Grove and Lovejoy fall at the bottom of the transportation ranking because they are further from large urban cores where most employment is provided and lack any access to public transportation.

Table 9.9 QoUL indicators and weights

QoUL indicator	Weight (%)
Education	20
Transportation	20
Economy	15
Safety	15
Health	10
Housing	10
Amenities	10

Source: ARC (2009a, b). Compiled by authors

Constructing the Quality of Urban Life Index

Two ARC surveys (Atlanta Regional Commission 2009a, b) on critical factors of life quality for the Atlanta region were referenced in order to produce weights for QoUL attributes that represent residents' values and opinions. An online public opinion survey and a summer regional poll, both undertaken in 2009, form the foundation for the Index's weighting scheme, based on answers from such questions as, "What is the most important factor for you in deciding where to live?" and "Which of the following issues do you want regional business and political leaders to work on?" Results reveal a value hierarchy for QoUL attributes. Economy, education, transportation and safety repeatedly surfaced as important issues; health, housing, and proximity to amenities received less focus but still garnered attention. Table 9.9 shows the issues ranked by the survey results and their respective weights designated for the QoUL Index.

The final results of the QoUL Index are shown in Table 9.10. Alpharetta, a medium sized city in north Fulton County, ranks first on the QoUL Index in the Atlanta metropolitan area. It is ranked above average for most attributes; however it shows up particularly strong in economy and education. Each of the top ten cities ranks in the top ten for education, a highly valued attribute in the Atlanta region, except the city of Tyrone. Two of the top cities, Milton and Johns Creek, ranked very low for amenities (45th and 46th respectively), yet because these two attributes are valued less by residents, their low rankings do not have a large negative impact on overall QoUL. The cities which are ranked lowest on the Index generally have low scores across the board for each of the seven indicators. For those communities that fall at the bottom of the composite QoUL index, the scores on all indicators are generally low. The anomaly in this case is the city of Hapeville, ranked 43rd in the Index but 6th for transportation. There are however multiple communities that could benefit from improvements to their amenities infrastructure, such as Tyrone and Milton. Both would have ranked higher on the list except for low scores in the amenities indicator.

Table 9.10 Quality of urban life index

City	Quality of urban life ranking
Alpharetta	1
Milton	2
Johns Creek	3
Sandy Springs	4
Decatur	5
Tyrone	6
Dunwoody	7
Peachtree City	8
Roswell	9
Suwanee	10
Smyrna	11
Duluth	12
Holly Springs	13
Kennesaw	14
Braselton	15
Fayetteville	16
Atlanta	17
Woodstock	18
Marietta	19
Acworth	20

Source: Authors

The Urban Environmental Sustainability Index: Appraisal and Comparative Analysis

Sustainability, by definition, is focused on choices that will safeguard human and environmental health in the long-run, not only in the here-and-now. In addition to this future-oriented principle, the term 'sustainability' has been used to evoke every value that humans strive towards including economic growth, equity, cultural diversity, and financial health. For the purposes of the study we look specifically towards the environmental aspect of sustainability as it is a growing concern, particularly for Atlanta. The metropolitan region has struggled over the last decades with air and water quality, congestion, and land degradation issues. Environmentally-oriented sustainable development in this case looks explicitly towards strategies that mitigate pollution and climate change while expanding livability for a growing region. Three attributes for the Urban Environmental Sustainability Index were selected to represent elements of urban infrastructure holding great potential for environmental impact: transportation, ecological amenities, and housing and population density. Figure 9.3 below shows the three attributes corresponding to urban environmental sustainability as well as the interactive relationship between QoUL and UES attributes. While transportation, amenities, and housing overlap both measurement systems, the indicators are constructed differently for each index. Consequently, the indicators appropriately capture impacts on the focal target – the community for QoUL, and the environment for UES.

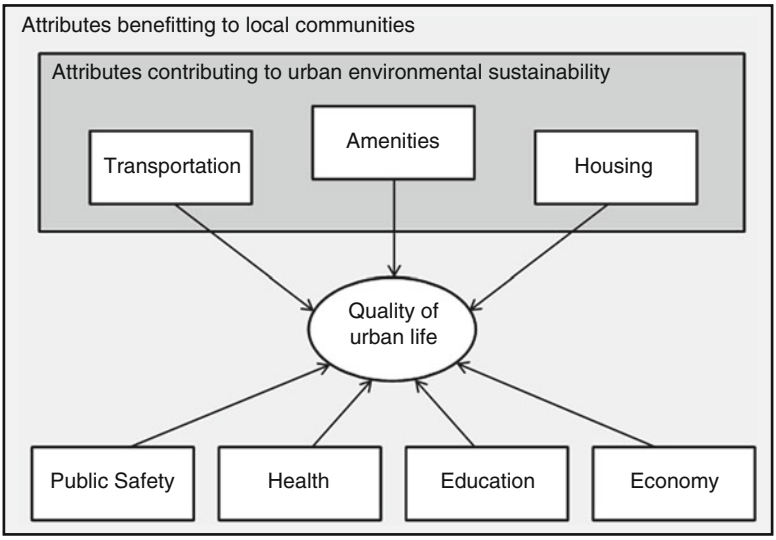

Fig. 9.3 QoUL and UES attributes (Source: Authors)

Table 9.11 Bossard's sustainable urban development index

Indicators	Measures	Index weights
SUD transportation	Green transportation by public transit, walking, bicycling or working at home	1
	Ultra green transportation by walking, bicycling or working at home	1
	Green transportation less than 45 min	1
	No-vehicle households	1
	Short journeys to work: less than 10 min	1
	Not car-truck-or-van journey to work trips greater than 44 min	1
SUD housing and population density	Multiple family housing units	2
	High density housing: greater than 19 dwelling units per structure	1
	Population density per sq. mile	2

Source: Brossard (2011)

We fashioned the UES index based on Earl Bossard's (2011) Sustainability Urban Development (SUD) Index. His SUD Index draws solely from ACS data and thus allows for widespread replication and frequent updating. Table 9.11 shows the SUD Index.

Many of the measures from the SUD Index were incorporated into the Urban Environmental Sustainability (UES) Index. Each of these measures is informed by data from the ACS 2005–2009 estimates. Additionally, another indicator, ecological

Table 9.12 Urban Environmental Sustainability Index

Indicators	Measures
Transportation	Green commutes
	Ultra green commutes
	No-vehicle households
	Short journeys to work
Housing and population density	High density housing
	Population density per sq. mile
	Multiple family housing units
Ecological amenities	Greenspace coverage
	Local food systems

Source: Authors

amenities, was included that assesses urban greenspace coverage and local food systems. The final UES indicators and measures are shown in Table 9.12.

The transportation indicator favors environmentally sustainable travel choices: short trips, car free households, and low-emissions and no-emissions commute modes. As can be noted in Table 9.13, the cities which rank high for sustainable transportation fall predominantly within the inner five counties of metropolitan Atlanta. This is likely due to the prevalence of public transit within the metro core as compared to the outer five counties. As well, cities for which streets are more walkable and bikeable, and contain work and home locations closer together, generally see higher utilization of alternative transportation. Green transportation modes reduce congestion, air pollution, and have larger user capacities without the same increased marginal costs per user that conventional automobile infrastructure bears.

Housing and population density measures the efficiency of land usage, a necessity for urban environments. Multiple housing units increase compactness and accommodate higher population densities. High densities in turn yield sufficient numbers of users for public transit utilization and allow for diversified and efficient allocation of limited land for non-residential uses that benefit communities at large.

The ecological amenities indicator comprises two measures: greenspace coverage and urban agriculture. Greenspace coverage is the percentage of park space to the total land area of the city, using the same ARC data as was used for the greenspace measure for the QoUL Index. Local food systems tallies the number of farmers markets in each city, drawing counts from the USDA National Farmers Markets Directory (2011), the Georgia Department of Agriculture Community Farmers Markets list (2011), and Georgia Organics' Online Local Food Guide (2010).

The final results for urban environmental sustainability across the Atlanta region are shown in Table 9.14. The City of Atlanta tops the UES Index, receiving very high rankings for all three indicators. Decatur comes in second, with two high scores for transportation and population and housing density, although not quite as strong in the ecological amenities indicator. Chamblee, ranked third, mirrors Decatur's strengths and weaknesses.

Decatur is the only city to fall within the top 5 of both indices. Milton and Johns Creek, though high on the QoUL Index, fall in the lower half of the UES Index. Conversely, Conyers and College Park, both highly ranked for environmental

Table 9.13 UES Index rankings

City	Transportation ranking	Housing and population density ranking	Ecological amenities ranking
College Park	1	10	19
Chamblee	2	3	18
Decatur	3	4	11
Atlanta	4	2	1
Doraville	5	21	34
Tyrone	6	49	41
Forest Park	7	32	33
Peachtree City	8	41	27
Norcross	9	35	21
Hapeville	10	18	31
East Point	11	15	38
Conyers	12	13	2
Alpharetta	13	17	15
Dunwoody	14	5	25
Fayetteville	15	40	35
Marietta	16	8	8
Sandy Springs	17	6	13
Buford	18	42	39
Milton	19	36	46
Canton	20	27	16

Source: Authors' calculations

Table 9.14 Urban environmental sustainability index

City	Ranking
Atlanta	1
Decatur	2
Chamblee	3
Conyers	4
College Park	5
Marietta	6
Sandy Springs	7
Clarkston	8
Dunwoody	9
Alpharetta	10
Duluth	11
Smyrna	12
Hapeville	13
Doraville	14
Stone Mountain	15
Canton	16
Douglasville	17
East Point	18
Roswell	19
Norcross	20

Source: Authors' calculations

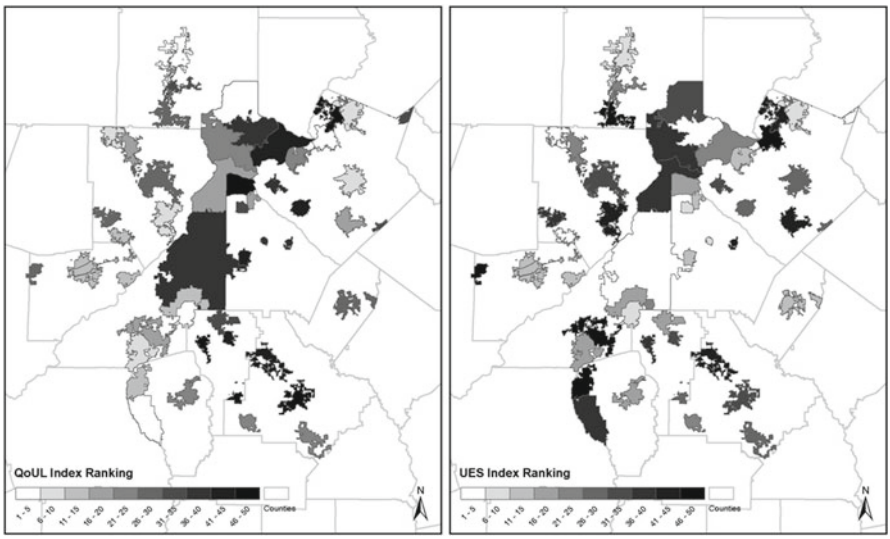

Fig. 9.4 Spatial comparisons of QoUL and UES (Source: U.S. Census Bureau 2010b. Authors' calculations)

sustainability, are in the lowest 20th percentile for QoUL. Very few cities perform well on both indices, although Decatur, Dunwoody and Alpharetta are ranked within the top ten for both. Those cities that perform well on the UES Index are generally ranked high for the amenities and transportation indicators on the QoUL Index. Spatial contrasts between the indices for cities in the region are evident in Fig. 9.4.

To assess the relationship between the two indices, Spearman's Rank Correlation Coefficient was employed. The calculated Spearman's r yields a statistic of .236 on the scale of −1 to 1, indicating a small positive correlation. This fairly weak association between QoUL and UES leaves room for much improvement for the communities in the metropolitan Atlanta region. In particular, further development of local amenities and transportation will bear great advantages for residents' quality of life and the quality of their environment. Transportation is very highly valued in the region, and an issue of great concern; moreover it will contribute much towards urban sustainability. Amenities, though less of a priority for residents, still elevates QoUL, and would increase well-being for communities that currently experience relatively low urban life quality in the region.

Conclusions

Quality-of-life studies are critical precisely because they expand beyond the theoretical discussions of well-being and provide specific measures by which communities can benchmark themselves and track changes over time. Ideally, we would like

sustainable development to be an integral component of urban quality of life. However, this study shows significant variation in QoUL and UES among communities in the Atlanta region. We find that high quality of life does not necessarily entail high levels of environmental sustainability. This may be untenable over the long run. Given current projections of rapid population increase in the coming years, it is likely that Metropolitan Atlanta will face growing environmental problems that may begin to compromise quality of life. Improvements in amenities, housing, and transportation, in particular, are important in increasing quality of life for local communities while reinforcing environmentally sustainable lifestyles. Strategic investments in community infrastructure in the domains identified above will be critical for improving the overall health of urban ecosystems and for benefiting current and future generations in multiple ways.

Although this study used objective measures of QoUL, we acknowledge that perceptions play an equally important role in shaping attitudes towards aspects of quality of life. We have used subjective measures as appropriate to weigh the objective dimensions in order to determine the overall index. As noted by Howley et al. (2009), this study demonstrates that to advance both high quality of life and environmental sustainability, we must move beyond discussions about reconfiguring the built environment to make it compact and densely populated. We also need to increase its livability and resident satisfaction by creating more vibrant, functional, and attractive communities.

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Chapter 10
Building a "Quality in Work" Index in Spain

Jordi López-Tamayo, Vicente Royuela, and Jordi Suriñach

Abstract The European Union launched the Lisbon Strategy in 2000 with the aim of establishing itself as the world's most competitive knowledge-based economy. At the same time, job quality was placed at the top of the European employment and social policy agenda and, later, it was to be incorporated as part of the European Employment and Europe-2020 Strategies. However, in a climate of economic crisis, it is argued that the price we are paying for continued economic growth is the dehumanisation of labour relationships with *good jobs* being substituted by *bad jobs*. In order to appraise such claims, scholars require quantifiable measures. The aim of this study is to define and apply a composite index of the quality in work in Spain. We present the results for the period 2001–2009. Our measure adopts the dimensional framework provided by the European Commission, and we present our results by region, sector, professional category and firm size. We find that the best results are recorded in the most developed regions, in the service sector, in the largest firms and in jobs in which workers are entrusted with most responsibility.

Introduction

In Lisbon, in March 2000, the European Union (EU) resolved to become the world's most competitive knowledge-based economy by 2010. Three years earlier in Luxembourg, in 1997, a related strategy, the European Employment Strategy (EES), had similarly been launched. Underlying the two policies is a growing consensus in Europe that quality and productivity at work go hand in hand and that, consequently,

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more and *better* jobs are essential if Europe wishes to attain its main objectives. Under the German EU Presidency in 2007, quality in work and employment returned to the top of the European employment and social policy agenda with the drawing up of an agreement covering a set of policy principles that included 'good work'. The latter was a new addition to EU terminology superseding a more firmly established concern for 'more and better jobs'. More recently the Commission has published new proposals in "EUROPE 2020 – A strategy for smart, sustainable and inclusive growth", which identifies the overall objectives, priorities and recommendations for flagship initiatives. On 25th–26th March 2010, the European Council debated the new strategy and identified what it considered be its key elements. These were appraised by the European Parliament and a number of modifications were introduced. EU-2020 was formally ratified by the European Council on 17th June 2010, and integrated guidelines were drawn up to implement the proposed reforms. The overall strategy adheres to the original goal of 'more and better jobs' through the fixing of three headline targets to be achieved by 2020: (1) 75 % of people aged 20–64 to be employed; (2) reducing school drop-out rates below 10 % and at least 40 % of 30–34-year-olds completing tertiary education; and (3) at least 20 million fewer people in or at risk of poverty and social exclusion. These goals form part of the 'Agenda for New Skills and Jobs', which identifies a number of actions designed specifically to improve flexibility and security in the labour market ('flexicurity'), to equip people with the right skills for the jobs of today and tomorrow, to improve the **quality of jobs** and ensure better working conditions, and to improve the conditions for job creation.

Yet, despite these political objectives, today's global crisis is a constant reminder of those who would claim that the dehumanisation of labour relations is the price that we must pay for achieving higher economic growth. In Europe, in general, but above all, in Spain, high unemployment rates have been experienced throughout the 1980s and early 1990s. And although this was followed by a subsequent recovery, it has been argued that what occurred was that *good jobs* were substituted by *bad jobs* (Clark 2005). Globalization and the abundance of labour force, together with the technological progress, lead to the inevitable conclusion that "in the current economic system workers are irrelevant" (Sennett 2006).[1]

Eurofund claims (2007) that 'without data, all you are is another person with an opinion'. Therefore, to identify the nature of the relationship between economic growth and the dimensions of quality in work, reliable measures of the work environment and job quality are needed, which is the specific aim of this chapter: namely, the quantification of quality in work.

The objective of this chapter is to apply a previously developed methodology to estimate a composite index of quality in work, considering the European Commission guidelines, and to apply it for Spain for the period 2001–2009. It is interesting to note that, to our knowledge, is the first time that a time series, in order to collect peaks and valleys of economic cycles in the case of the Spanish economy, is provided.

[1]The words were used as the title for an interview with the sociologist Richard Sennett, published by the Spanish newspaper, La Vanguardia, on 20th December 2006.

This will allow us to explore, in the future, the relationship of the indices, both global and partial, with the economic business cycle. We present our results by region, sector, professional category and firm size and we analyse their main results, especially if there has had a convergence or divergence behaviour along this period. We find that the best results are recorded in the most developed regions, in the service sector, in the largest firms and in jobs in which workers are entrusted with most responsibility.

Methodology

In building a quality in work index, both objective and subjective indicators need to be considered. Most of the discussions of work quality held in Lisbon in 2000 focused on the aggregate labour market outcomes published in the official statistics. However, to ensure greater accuracy, and to guarantee that objective assessments are not overstated to the detriment of subjective appraisals, workers' reports are also required. In the intervening years, considerable progress has been made in gathering data and designing indicators that can measure quality in work factors.

Royuela et al. (2008, 2009) adopt an institutional definition of quality in work based on a multidimensional format that can be applied to the Spanish case through the design of specific indicators. The Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions entitled "*Employment and social policies: a framework for investing in quality*" (COM-2001 313 final) provides the following definition of quality of work life (QWL): 'Quality (…) is a key element in promoting employment in a competitive and inclusive knowledge economy. Quality reflects the desire, not just to defend minimum standards, but to promote rising standards and ensure a more equitable sharing of progress. It delivers results – embracing the economy, the workplace, the home, society at large. It links the dual goals of competitiveness and cohesion in a sustainable way, with clear economic benefits flowing from investing in people and strong, supportive, social systems.

The Communication draws heavily on the EU's Social Policy Agenda and on the EES. As such, its definition of QWL takes into account not only the existence of paid employment, but also the characteristics of that employment. It is thus a multidimensional concept that considers such aspects as the objective characteristics related to employment, the specific characteristics of a job, and the subjective evaluation of those characteristics by the individual worker. Most studies of QWL conducted to date adopt some of these key dimensions of job quality, focusing their analyses on the specific characteristics of a job and on aspects of the wider work environment.[2] Indeed, in order to provide a framework of analysis, the Commission

[2]For a review of how the concept has been dealt with in the academic literature, see Martel and Dupuis (2006).

grouped the main elements of QWL under two broad headings: job characteristics, on the one hand, and the work and the wider labour market context, on the other. It further proposed a set of indicators for ten recognised dimensions of quality that would facilitate the undertaking of exhaustive and structured assessment procedures. The eventual tool consists of 75 indicators, both objective and subjective, of some 30 concepts into which the ten dimensions are divided. Table 10.1 shows these dimensions and concepts.

This framework is employed here to compute a composite measure of quality of work life. We used index number methodology to calculate the composite measurements as a result of the weighted average of each indicator and, subsequently, of each concept and dimension. This gave us the final index, which was based on the 2001 Composite European Commission Quality of Work Life Index (CECQWLI).[3] All dimensions were weighted equally, with the exception of the first, *Intrinsic Job Quality*, which counted double as it accounts for individuals' general perceptions of their wellbeing at work. We use wellbeing as a summary measure of quality of work life and as our "residual" factor, i.e. to include all other dimensions not covered by the EC's proposal.

The Composite Quality in Work Index in Spain

The Spanish Labour Market

In the present chapter we apply our index to Spain, a Mediterranean country, with a relatively poor standing among the EU15 states. In 2007, according to Eurostat data, Spain was ranked 13th in terms of GDP per capita (above just Greece and Portugal). Moreover, when Spain entered the European Monetary Union its unemployment rate stood at 24 %, and although it fell to around 8 % in 2007, it has since soared to levels of around 20 % as the country has suffered the effects of the economic crisis. Jaumotte (2011) has recently provided the following description of the Spanish labour market:[4]

- High unemployment rates: from 1980 to 2009 the unemployment rate averaged 16 %.
- High cyclicality of employment and unemployment: output elasticity of unemployment is much larger than that of other EU15 countries.
- High share of temporary contracts; few part-time contracts: there is a marked duality in the market between permanent and temporary (fixed-term) contracts, with the latter representing about 30 % of the labour force.

[3] See Royuela et al. (2003) for details of this methodology.

[4] Additional analyses of the Spanish labour market can be found in Bentolila and Dolado (1994), Dolado et al. (2002), Bentolila and Jimeno (2003), Bank of Spain (2009), and Royuela and Sanchis-i-Marco (2010).

Table 10.1 Dimensions and concepts of quality in work

DIMENSION: 1. Intrinsic job quality	**DIMENSION: 6. Inclusion and access to the labour market**
Concept 1: job satisfaction among workers, taking account of job characteristics, contract type, hours worked and the level of qualification relative to job requirements	Concept 1: effective transition of young people to active life
Concept 2: proportion of workers advancing to higher paid employment over time	Concept 2: employment and long-term unemployment rates by age, educational level, region
Concept 3: low wage earners, working poor, and the distribution of income	Concept 3: labour market bottlenecks and mobility between sectors and occupations
DIMENSION: 2. Skills, life-long learning and career development	**DIMENSION: 7. Work organisation and work-life balance**
Concept 1: proportion of workers with medium and high levels of education	Concept 1: proportion of workers with flexible working arrangements
Concept 2: proportion of workers undertaking training or other forms of life-long learning	Concept 2: opportunities for maternity and paternity leave, and take-up rates; scale of child-care facilities for pre-school and primary school age groups
Concept 3: proportion of workers with basic or higher levels of digital literacy	
DIMENSION: 3. Gender equality	**DIMENSION: 8. Social dialogue and worker involvement and worker involvement**
Concept 1: gender pay gap, appropriately adjusted for such factors as sector, occupation and age	Concept 1: coverage of collective agreements
Concept 2: gender segregation – extent to which women and men are over or under-represented in different professions and sectors	Concept 2: proportion of workers with a financial interest/participation in the firms where they are employed
Concept 3: proportion of women and men with different levels of responsibility within professions and sectors, taking account of factors such as age and education	Concept 3: working days lost in industrial disputes
DIMENSION: 4. Health and safety at work	**DIMENSION: 9. Diversity and non-discrimination**
Concept 1: composite indicators of accidents at work – fatal and serious – including costs; number of days lost due to accidents at work, by sex; occupational diseases, by sex; rates of occupational disease, including new risks e.g. repetitive strain injury	Concept 1: employment rates and pay gaps of older workers compared with average
Concept 2: stress levels and other difficulties concerning working relationships	Concept 2: employment rates and pay gaps of persons with disabilities, and persons from ethnic minorities – compared with average
	Concept 3: information on the existence of labour market complaints procedures, and of successful outcomes

(continued)

Table 10.1 (continued)

DIMENSION: 5. Flexibility and security.	DIMENSION: 10. Overall work performance.
Concept 1: the effective coverage of social protection systems – in terms of breadth of eligibility and level of support – for those in work, or seeking work	Concept 1: average hourly productivity per worker
Concept 2: proportion of workers with flexible working arrangements – as seen by employers and workers	Concept 2: average annual output per worker
Concept 3: job losses – proportion of workers losing their job through redundancies; proportion of those finding alternative employment in a given period	Concept 3: average annual living standards per head of population – taking account of the rate of employment and the dependency ratio
Concept 4: proportion of workers changing the geographical location of their work	

Source: Royuela et al. (2008)

- High degree of wage rigidity: wages increased faster than in other EU15 countries and failed to respond to the changing market conditions ushered in with the economic crisis. As a result most of the adjustments affected temporary workers.

In an attempt at solving some of these structural problems, a labour market reform was finally adopted in June 2010, which reduced the costs of dismissal, eased the criteria for 'fair' dismissal and broadened the conditions under which firms can opt-out of collective bargaining agreements, which take place primarily at province and industry levels. More recently, in February 2012, a new and deeper reform has taken place, searching wider labour market flexibility.

Data Collection for a Wide Analysis of Quality of Work in Spain

Data collection here represents an essential part of the study as the concepts are not always readily measurable. Appendix 1 shows the sources drawn upon in collecting our basic information. Notice that considerably more information was available at the territorial level (93.7 % of the indicators considered) than it was at any other level. By contrast, sector information was available for only 56.2 % of indicators; firm size data was available for just 40.7 % of indicators and information on professional categories was available for only 38.6 %. For our purposes, this asymmetry is not especially relevant, although our key results are obviously more focused on the territorial level of data, the 17 Spanish regions, than they are on the ten sectors, three firm sizes and three professional categories. The information is available for the period 2001–2009.[5]

[5]Note that owing to the fact that the Quality of Life at Work Survey was not conducted by the Labour Ministry in 2005, this year was eventually excluded.

Between the years 2004 and 2007, five changes were made in the methodologies adopted in obtaining the data used in our study, a fact that should be borne in mind when evaluating the results. These included (1) a change to the methodology for conducting the Survey of Quality of Life at Work (SQLW); (2) a methodological change in the conducting of the Labour Force Survey (LFS); (3) a re-estimation of the human capital series computed by the *Instituto Valenciano de Investigaciones Económicas* (IVIE) in 2010; (4) the process of regularization of the immigrant population; and, finally, (5) a change in Spain's regional accounting base (CRE).

Finally, since most of our subjective information is drawn from the SQLW, when the economic cycle changed, the respondents of that survey and their perceptions changed as well. Thus, it might be the case that worker perceptions will improve if they compare their own situation with that of being unemployed. Consequently, a certain degree of caution should be exercised in interpreting the results for 2009.

Main Results

In line with all base indexes, our QWL index takes a value of 100 for Spain in the base year, 2001. This holds both for the composite index and for each dimension considered separately. The index enable us to make comparisons over time of the dimensions under consideration (Table 10.2), as well as comparisons between regions (Table 10.3), sectors (Table 10.4), professional categories (Table 10.5), and firm sizes (Table 10.6). Below, we briefly describe the main outcomes provided by the index.

Results by Dimensions

If we examine the evolution in the global index over time, we see that quality in work improved between 2001 and 2009, growing at a rate of approximately 2 %. The index did, nevertheless, fall in 2004 and its growth rate slowed down in 2009 due to the impact of the global crisis.

The individual dimensions measuring quality in work, however, presented more marked changes. Major improvements were observed in dimensions D03 (Gender equality), D07 (Work organization and work-life balance), D02 (Skills, life-long learning and career development) and D01 (Intrinsic job quality). These positive changes offset the poorer results reported in D10 (Overall work performance) and setbacks in D05 (Flexibility and security) and, especially, those in D06 (Inclusion and access to the labour market). It should be borne in mind that the data for 2009 reflect the harsh realities of the severe economic crisis afflicting the Spanish economy. As a result, between 2008 and 2009, seven of the ten dimensions saw a deterioration in their index scores. Below, we briefly describe the evolution in each dimension over the period considered.

Table 10.2 Basic results for dimensions

	2001	2002		2003		2004		2006		2007		2008		2009		2001–2009[a]	
01. Intrinsic job quality	100	98.35	(10)	98.45	(9)	102.05	(8)	102.63	(9)	110.68	(7)	124.44	(4)	120.16	(4)	2.06 %	(4)
02. Skills, life-long learning and career development	100	100.70	(6)	101.13	(5)	107.22	(2)	111.57	(4)	119.72	(3)	127.66	(3)	121.18	(3)	2.16 %	(3)
03. Gender equality	100	105.06	(1)	113.02	(1)	119.71	(1)	132.82	(1)	133.88	(1)	134.05	(1)	151.42	(1)	4.72 %	(1)
04. Health and safety at work	100	98.99	(8)	99.68	(6)	107.03	(3)	104.27	(7)	110.02	(8)	114.77	(6)	114.12	(5)	1.48 %	(5)
05. Flexibility and security	100	98.52	(9)	99.03	(8)	103.68	(6)	110.86	(5)	113.44	(6)	114.05	(7)	93.27	(9)	−0.77 %	(9)
06. Inclusion and access to the labour market	100	102.32	(3)	103.43	(3)	106.61	(4)	126.40	(2)	129.32	(2)	121.87	(5)	80.90	(10)	−2.33 %	(10)
07. Work organisation and work-life balance	100	100.71	(5)	95.68	(10)	99.20	(9)	109.13	(6)	117.03	(5)	128.94	(2)	133.01	(2)	3.22 %	(2)
08. Social dialogue and worker involvement and worker involvement	100	104.69	(2)	105.15	(2)	83.59	(10)	98.14	(10)	102.12	(10)	103.57	(10)	113.34	(6)	1.40 %	(6)
09. Diversity and non-discrimination	100	100.30	(7)	99.37	(7)	102.69	(7)	121.20	(3)	117.27	(4)	111.65	(8)	108.90	(7)	0.95 %	(7)
10. Overall work performance	100	100.88	(4)	101.84	(4)	103.77	(5)	104.23	(8)	109.58	(9)	108.91	(9)	105.01	(8)	0.54 %	(8)
Spain	100	101.51		102.57		100.41		110.04		112.61		118.21		119.35		1.98 %	
Standard deviation (01–10)		2.23		4.55		8.46		10.65		9.04		9.35		18.66			
Coefficient of variation (01–10)		2.21 %		4.47 %		8.17 %		9.50 %		7.77 %		7.86 %		16.35 %			

[a]Average annual growth rate
Rank in parenthesis

Table 10.3 Basic results for regions (autonomous communities)

	2001		2002		2003		2004		2006		2007		2008		2009		2001–2009[a]	
01. Andalusia	86.37	(17)	88.88	(17)	89.67	(17)	62.44	(17)	98.97	(16)	105.31	(16)	111.34	(15)	109.24	(17)	2.64 %	(6)
02. Aragón	101.76	(8)	102.63	(7)	107.20	(5)	112.65	(6)	116.56	(7)	120.19	(2)	128.60	(2)	125.53	(4)	2.36 %	(8)
03. Asturias	91.40	(13)	96.94	(11)	99.25	(10)	100.66	(11)	101.12	(13)	104.67	(17)	119.48	(9)	122.88	(9)	3.34 %	(1)
04. Balearic Islands	110.83	(2)	112.68	(1)	111.94	(3)	116.53	(3)	123.35	(1)	125.44	(1)	129.59	(1)	129.38	(2)	1.73 %	(13)
05. Canary Islands	100.03	(10)	101.10	(9)	101.04	(9)	104.34	(8)	109.20	(10)	112.37	(9)	115.65	(11)	115.57	(15)	1.62 %	(14)
06. Cantabria	92.39	(12)	95.54	(12)	95.47	(13)	101.51	(10)	120.35	(2)	108.78	(11)	114.66	(12)	123.13	(7)	3.24 %	(2)
07. Castile La Mancha	90.85	(15)	93.21	(14)	89.82	(16)	89.43	(15)	97.38	(17)	107.49	(13)	112.79	(14)	116.48	(13)	2.80 %	(5)
08. Castile Leon	88.09	(16)	92.06	(16)	93.79	(15)	96.63	(12)	105.62	(12)	108.47	(12)	109.84	(16)	116.32	(14)	3.14 %	(3)
09. Catalonia	111.30	(1)	109.05	(3)	108.59	(4)	113.82	(4)	117.88	(6)	118.25	(4)	122.19	(5)	124.35	(5)	1.24 %	(17)
10. Valencia	100.41	(9)	101.39	(8)	101.84	(8)	103.38	(9)	107.81	(11)	111.39	(10)	118.88	(10)	118.81	(11)	1.89 %	(11)
11. Extremadura	91.07	(14)	92.90	(15)	93.91	(14)	87.12	(16)	99.39	(15)	106.48	(14)	106.83	(17)	117.40	(12)	2.86 %	(4)
12. Galicia	94.13	(11)	95.28	(13)	95.65	(12)	91.92	(14)	100.90	(14)	106.16	(15)	113.97	(13)	111.31	(16)	1.88 %	(12)
13. Madrid	108.46	(3)	112.09	(2)	118.57	(1)	122.28	(1)	119.06	(4)	116.39	(7)	121.25	(8)	124.10	(6)	2.51 %	(7)
14. Murcia	101.81	(7)	103.36	(6)	105.58	(6)	106.48	(7)	112.42	(8)	117.08	(5)	122.03	(6)	125.58	(3)	1.51 %	(15)
15. Navarre	107.60	(4)	107.92	(4)	112.64	(2)	119.51	(2)	118.52	(5)	116.61	(6)	123.11	(4)	121.43	(10)	2.36 %	(9)
16. Basque Country	102.27	(6)	104.91	(5)	99.16	(11)	96.24	(13)	111.25	(9)	114.75	(8)	123.72	(3)	122.96	(8)	1.35 %	(16)
17. La Rioja	103.90	(5)	100.99	(10)	102.29	(7)	112.86	(5)	119.80	(3)	119.65	(3)	121.86	(7)	129.84	(1)	2.07 %	(10)
Spain	100		101.51		102.57		100.41		110.04		112.61		118.21		119.35		1.98 %	
Standard deviation (01–17)	7.83		6.97		8.04		14.22		8.48		6.00		6.22		5.66			
Coefficient of variation (01–17)	7.91 %		6.93 %		7.92 %		13.91 %		7.67 %		5.31 %		5.25 %		4.68 %			

[a]Average annual growth rate
Rank in parenthesis

Table 10.4 Basic results for sectors

	2001		2002		2003		2004		2006		2007		2008		2009		2001–2009[a]	
01. Agriculture, livestock, forests and fishing	82.84	(9)	86.13	(10)	87.41	(9)	53.00	(10)	96.46	(10)	106.73	(9)	111.49	(10)	108.93	(10)	3.09 %	(3)
02. Energy, chemistry, rubber and metallurgy	114.12	(2)	114.97	(2)	111.79	(3)	134.07	(2)	128.89	(2)	122.19	(2)	127.61	(2)	125.69	(2)	1.08 %	(9)
03. Food, textiles, wood, paper and publication	97.43	(6)	98.69	(6)	98.86	(6)	94.57	(6)	103.94	(6)	111.65	(6)	118.61	(5)	119.79	(6)	2.32 %	(4)
04. Machinery, electrical material and transport material	105.63	(4)	109.45	(4)	106.82	(4)	111.40	(4)	118.29	(3)	118.91	(3)	124.37	(3)	125.04	(3)	1.89 %	(7)
05. Construction	82.50	(10)	87.15	(9)	86.79	(10)	74.50	(9)	96.52	(9)	104.23	(10)	112.63	(8)	113.99	(8)	3.66 %	(1)
06. Commerce, hotel and catering, repairs	94.06	(7)	96.12	(7)	97.81	(7)	86.59	(7)	100.37	(8)	107.36	(8)	112.49	(9)	112.97	(9)	2.06 %	(6)
07. Transport and telecommunications	100.81	(5)	99.97	(5)	100.08	(5)	96.63	(5)	112.33	(5)	114.79	(5)	116.68	(6)	122.42	(5)	2.18 %	(5)
08. Financial services for companies and leasing	121.40	(1)	121.54	(1)	123.47	(1)	141.30	(1)	133.75	(1)	123.98	(1)	129.11	(1)	132.80	(1)	1.00 %	(10)
09. Public administration, education and health	110.53	(3)	110.14	(3)	113.62	(2)	121.82	(3)	117.26	(4)	116.30	(4)	121.97	(4)	122.88	(4)	1.18 %	(8)
10. Other community services	86.27	(8)	87.63	(8)	89.60	(8)	78.18	(8)	102.13	(7)	109.05	(7)	112.85	(7)	114.29	(7)	3.17 %	(2)
Spain	100		101.51		102.57		100.41		110.04		112.61		118.21		119.35		1.98 %	
Standard deviation (01–10)	12.77		11.81		11.59		26.50		12.63		6.46		6.29		6.90			
Coefficient of variation (01–10)	12.82 %		11.67 %		11.40 %		26.71 %		11.38 %		5.69 %		5.30 %		5.76 %			

[a]Average annual growth rate
Rank in parenthesis

Table 10.5 Basic results for professional categories

	2001		2002		2003		2004		2006		2007		2008		2009		2001–2009[a]	
01. Managers and professionals	118.48	(1)	118.78	(1)	124.56	(1)	134.71	(1)	124.98	(1)	125.38	(1)	132.80	(1)	132.33	(1)	1.24 %	(3)
02. Technicians and skilled workers	99.07	(2)	100.57	(2)	101.52	(2)	100.46	(2)	107.79	(2)	109.43	(2)	115.06	(2)	116.52	(2)	1.82 %	(2)
03. Operators and non-skilled workers	86.22	(3)	88.67	(3)	85.66	(3)	69.64	(3)	101.95	(3)	108.81	(3)	112.28	(3)	114.48	(3)	3.20 %	(1)
Spain	100		101.51		102.57		100.41		110.04		112.61		118.21		119.35		1.98 %	
Standard deviation (01–03)	13.26		12.38		15.97		26.57		9.77		7.67		9.09		7.98			
Coefficient of variation (01–03)	13.10 %		12.06 %		15.37 %		26.16 %		8.76 %		6.69 %		7.57 %		6.59 %			

[a]Average annual growth rate
Rank in parenthesis

Table 10.6 Basic results for firm size

	2001		2002		2003		2004		2006		2007		2008		2009		2001–09(*)	
01. Self-employed	97.83	(2)	101.60	(2)	105.22	(2)	93.39	(2)	104.69	(3)	114.69	(2)	118.73	(2)	116.85	(3)	1.99 %	(2)
02. Small and Medium Size	93.63	(3)	95.15	(3)	95.09	(3)	92.14	(3)	105.65	(2)	109.59	(3)	116.24	(3)	117.52	(2)	2.56 %	(1)
03. Big	117.33	(1)	118.03	(1)	121.12	(1)	124.88	(1)	123.87	(1)	119.90	(1)	123.25	(1)	125.28	(1)	0.73 %	(3)
Spain	100		101.51		102.57		100.41		110.04		112.61		118.21		119.35		1.98 %	
Standard deviation (01–03)	10.33		9.63		10.72		15.15		8.82		4.21		2.90		3.83			
Coefficient of variation (01–03)	10.03 %		9.18 %		10.00 %		14.64 %		7.92 %		3.67 %		2.43 %		3.19 %			

[a]Average annual growth rate
Rank in parenthesis

- D01 – *Intrinsic job quality*: this dimension shows moderate growth during the period 2001–2009 (with an average annual growth rate of 2.1 %). An increasing number of individuals report being satisfied with their jobs. Between 2008 and 2009, the index for this dimension fell (−3.4 %).
- D02 – *Skills, life-long learning and career development*: this dimension shows moderate growth during the period 2001–2009 (2.2 % annual growth). The decline between 2008 and 2009 reflects the reduction in resources spent by companies on training and, in part, the fall in the share of the highly educated labour force. These aspects were widely observed throughout the country.
- D03 – *Gender equality*: this dimension improved dramatically during the period 2001–2009 (4.7 % annual growth). This reflects two factors: (1) gender policies facilitated the access of women to the labour market, as reflected, for example, in the increase in the number of female managers during the period 2001–2009; and (2) the adjustment that occurred in the labour market has affected male workers most markedly. This has reinforced the indicators of equality for women, especially during the last 3 years of crisis: 2007, 2008 and 2009.
- D04 – *Health and safety at work*: this dimension presents moderate improvement during the 2001–2009 period (1.5 % annual growth). This is due mainly to: (1) a reduction in workplace accidents thanks to improved standards in jobs at greatest risks, such as those in the construction sector; and (2) a significant decline in workers who feel they work in hazardous conditions or have to do undertake strenuous physical activities. There has also been an increase in the amount of workers who are satisfied with their physical environment and the health and safety conditions in their place of work, as well as in the number of those who feel that their company provides adequate safeguards. The result was reversed between 2008 and 2009, despite the fall in number of accidents in the workplace.
- D05 – *Flexibility and security*: this dimension presents a declining index during the 2001–2009 period (−0.8 % annually), mainly owing to the drop recorded between 2008 and 2009 (−18.2 %). The negative index is due to (1) a fall in the wage gap between permanent and temporary workers; (2) an increase in the number of part-time workers unable to find full-time employment; (3) the drop in the number of welfare pension beneficiaries; and (4) the increase in the rate of unemployment coverage.
- D06 – *Inclusion and access to the labour market*: this dimension dropped to values well below those of 2001 (−2.3 % annually). In this case the fall began in 2007, reflecting, in the main, widespread job losses, especially among the young and long-term unemployed. There has also been a reduction in the number of job vacancies. The impact of the crisis can be seen in the sharp drop suffered by this dimension between 2008 and 2009 (−33.6 %).
- D07 – *Work organisation and work-life balance*: this dimension shows quite remarkable growth throughout the period (3.2 % annual growth). Between 2001 and 2009, there was an increase in the number of workers expressing satisfaction with the social services provided by their firms (housing subsidies, training, dining, etc.). Moreover, while part-time contracts remain at low levels, fixed-term contracts fell as the crisis targeted the signing of such contracts as opposed to

permanent contracts, thereby magnifying the duality in the Spanish labour market. Until 2009, some utilities subsidized by firms were maintained and a degree of support was provided to reconcile work with family life. In general, the behaviour observed throughout the period has not changed greatly in recent years and, indeed, between 2008 and 2009 the index grew by 3.2 %.

- D08 – *Social dialogue and worker involvement*: this dimension has grown throughout the period (1.4 % annual growth), in particular towards the end (10 % between 2008 and 2009). This improvement reflects the increase in the number of workers participating in company benefit schemes, working for companies that operate collective bargaining structures, or for companies regulated by some kind of financial agreement. Notice that that the crisis has tended to expel workers without these benefits from the labour market, which has led to slightly misleading results in the case of this dimension.
- D09 – *Diversity and discrimination*: the values recorded for this dimension in 2009 are very similar to those recorded in 2001, with just a moderate annual growth of 1 %. However, the decline experienced in 2008, and which became more marked in 2009, offset the growth experienced during the boom years of the economic cycle. Immigrants were partly responsible for the economic growth observed during the boom (note the 2005 process of regularization of this population) but, together with young workers, they have been hit hardest by the crisis. The index value for this dimension fell by 2.5 % between 2008 and 2009.
- D10 – *Overall work performance*: this dimension barely grew during the decade, with average annual growth standing at just 0.5 %. The modest overall results recorded by this dimension reflect the falls in GDP per capita and the general increase in the economic dependency ratio, while the decline experienced between 2008 and 2009 (−3.6 %) are the result of a fall in the first factor and a rise in the second.

Results by Regions

Table 10.3 shows the index results for the 17 Spanish *Comunidades Autónomas*, and Figs. 10.1 and 10.2 present maps indicating the relative positions of each region according to the 2001 and 2009 index values, respectively. The 2001 results highlight a remarkable degree of index dispersion (there being a 25-point difference between the minimum of 86.3 recorded by Andalusia and the maximum of 111.3 recorded by the Balearic Islands). At the bottom of the distribution (5th quintile) we find Andalusia, Castile Leon, Castile La Mancha and Extremadura (south and centre of Spain). The 4th quintile comprises Asturias, Cantabria and Galicia (north). In the middle of the distribution (3rd quintile) we find Aragon, the Canary Islands and Valencia. Between the 60th and the 80th percentile lie the regions of the Basque Country, La Rioja and Murcia. Finally, at the top of the distribution we find the Balearic Islands, Catalonia, Madrid and Navarre.

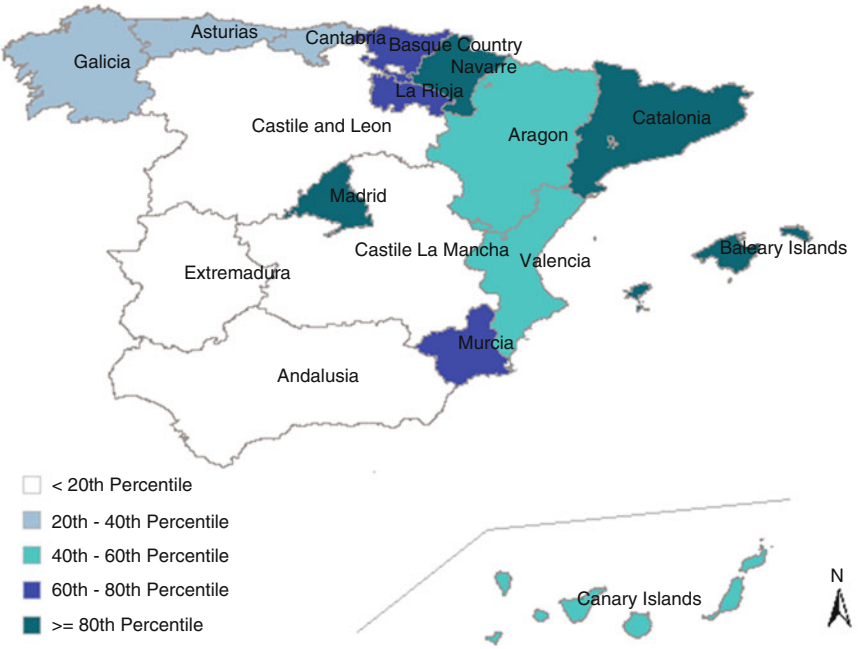

Fig. 10.1 Relative position of the Spanish regions. 2001

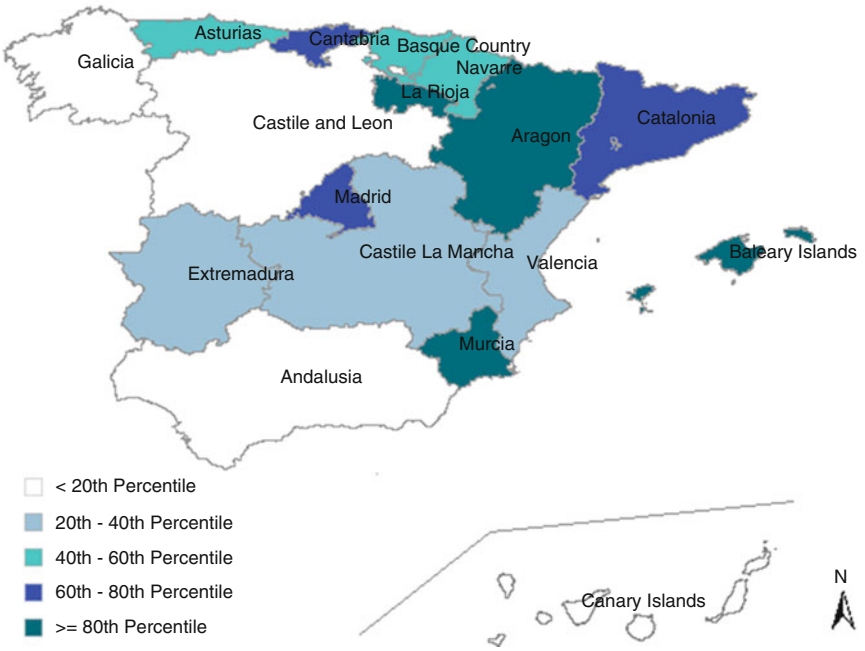

Fig. 10.2 Relative position of the Spanish regions. 2009

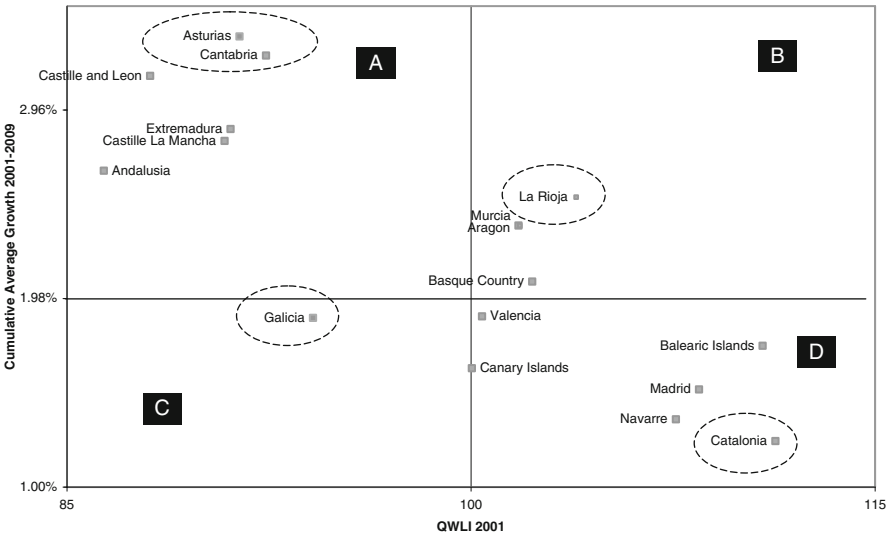

Fig. 10.3 Change in relative position of the Spanish regions. 2001–2009

If we compare these results and those obtained for 2009, we find a similar picture regarding the relative position held by the Spanish regions, although there has been a decline in the overall index dispersion – the gap being closed to 21 points (between Andalusia – 109.2 – and La Rioja – 129.84). Some regions find themselves in a worse position in 2009 (Galicia and Canary Islands now occupy the 5th quintile), while Extremadura and Castile La Mancha improved their standing significantly. Likewise, the most developed regions, Catalonia and Madrid, now lie in the 2nd quintile, while Aragon, Murcia and La Rioja join Balearic Islands in the 1st quintile.

However, the final ranking of the regions is not the only point of interest; we also need to measure the effort each region has expended in seeking to improve the QWL in its territory over the period. This information is included in Fig. 10.3.

Thus, taking into account not only their initial position, but also their cumulative average growth over the period 2001–2009, the autonomous communities can be divided into four groups:

- Group A: Regions below the average (100) in 2001 presenting an above average increase (2 %) over the period. This group comprises regions from the south (Andalusia and Estremadura), the centre (Castile Leon and Castile La Mancha) and the north (Asturias and Cantabria). Although Andalusia experienced considerable growth between 2001 and 2009, it remained at the bottom of the ranking, indicating just how poor its initial position was. By contrast, Asturias and Cantabria, which also started with low values in 2001, ended up with above average values in 2009 thanks to their strong growth.

- Group B: Regions above the average (100) in 2001 presenting an above average improvement (2 %) over the period. This group comprises the regions of Murcia, Aragon, the Basque Country and La Rioja, the latter establishing itself at the top of the ranking in 2009.
- Group C: Regions below the average (100) in 2001 presenting a below average improvement (2 %) over the period. In this group we find only Galicia, lying in the northwest of Spain. The relative position of this region worsened, as it fell from 11th in the 2001 ranking to 16th in that of 2009.
- Group D: Regions above the average (100) in 2001 and presenting a below average improvement (2 %) over the period. In this group we find the island regions (Balearic and Canary Islands), and three developed regions: the capital of Spain (Madrid), two economic poles, Valencia and Catalonia; and, finally, the region of Navarre, one of the regions with the highest indexes of well being.

In short, Spain can be divided into three distinct areas. The first includes southern and central zones together with Galicia, characterized, in comparative terms, by low quality in work. The second is made up of the northern zone, with average levels of labour quality. Thirdly, the eastern regions plus Madrid, in the centre of the country, are characterized by higher quality in work than the rest of the state. Figure 10.3 also shows a certain degree of convergence in these regional values during the decade 2001–2009.

Results by Sectors

In 2009, the economic sectors with the highest quality in work scores were Financial services for companies and leasing; Energy, chemistry, rubber and metallurgy; Transport and telecommunications; Public administration, education and health; and Food, textile, wood, paper and publishing. By contrast, Other community services; Construction; Commerce, hotel and catering and repairs; and Agriculture, livestock, forests and fisheries presented the lowest quality in work indexes. Thus, it would appear that sectors with the highest added value perform better on the composite index of quality in work.

Interestingly, all economic sectors improved their quality in work indexes from 2001 to 2009. The sectors that underwent the most marked improvements were Construction, Other community services and Agriculture, livestock, forests and fishing. The sectors with the smallest rates of improvement were Energy, chemistry, rubber and metallurgy, Financial services for companies and leasing, and Public administration, education and health. Between 2008 and 2009, however, while labour quality improved significantly (by almost 5 %) in the Transport and telecommunications sectors, there were setbacks in Energy, chemicals, rubber and metallurgy, and Agriculture, livestock, forests and fisheries.

The range of the quality in work index in 2001 (39 points separated the minimum score of 82.5 in the Construction sector and the maximum score of 121.4 of the

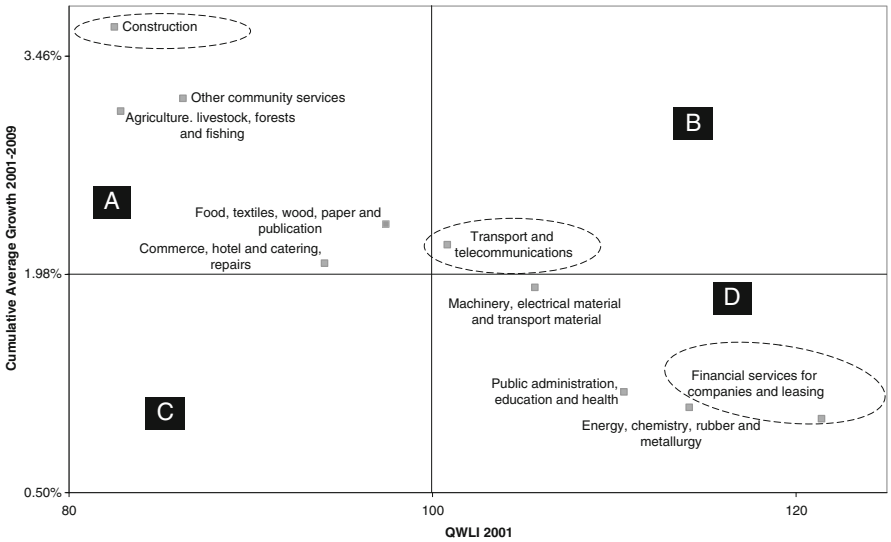

Fig. 10.4 Change in relative position of the Spanish sectors. 2001–2009

Financial services for companies and leasing) was higher than in the case of the regions. In 2009, the index range had fallen by 15 points to a difference of 24. Figure 10.4 illustrates that there has been considerable convergence, with the sectors presenting low quality in work indexes in 2001 having experienced the greatest increase in the index in the intervening years. This convergence pattern is stronger than that observed in the case of the regions (Fig. 10.3).

As with the regions, we can classify the sectors into different groups according to the progress recorded between 2001 and 2009:

- Group A: Sectors below the average (100) in 2001 presenting an above average increase (2 %) over the period. This group comprises Construction; Other community services; Agriculture, livestock, forests and fisheries; Food, textiles, wood, paper and publication; and Commerce, hotel and catering and repairs.
- Group B: Sectors above the average (100) in 2001 presenting an above average increase (2 %) over the period. The only sector in this group is Transport and telecommunications.
- Group D: Sectors above the average (100) in 2001 presenting a below average improvement (2 %) over the period. This group comprises Machinery, electrical material and transport material; Public administration, education and health; Financial services for companies and leasing; and, finally, Energy, chemistry, rubber and metallurgy.

Interestingly, no sector can be classified in Group C (i.e., below the average in 2001 presenting a below average increase in the index over the period).

Results by Professional Categories and Firm Sizes

Our results for the quality in work index by professional category are shown in Table 10.5. We considered three professional categories: Managers and professionals; Technicians and skilled workers; and Operators and unskilled workers. This division reflects the scarcity of statistical information available preventing us from disaggregating the data further.

Professionals and managers enjoy significantly higher quality in work (132.3 in 2009) than is the case of the other two groups of workers. This result is higher than the highest average value for any region, and ties with the average index for the Financial services for companies and leasing sector. As for the other two categories – Technicians and skilled workers and Operators and unskilled workers, the relative differences have experienced a dramatic reduction (from 13 points in 2001 to 2 points in 2009). This is the result of a significant improvement in the situation of those employed in the group of Operators and unskilled workers. Here, there has been an average annual increase of 3.2 % since 2001.

Between 2008 and 2009, the quality in work index of Managers and professionals has fallen by −0.4 %. By contrast, the situation of the other workers has improved, albeit at a slower rate than during the period of expansion.

Our results for the quality in work index by firm size are shown in Table 10.6. As expected, workers in large firms present a significantly higher quality in work index (125.3). Here, we see that the categories that started the period with the worst quality in work indexes experienced most improvement over the period (2 % for Self-employed and 2.6 % for Small and medium sized firms) compared to a much lower rate for large firms (0.7 %).

Between 2008 and 2009, a fall was recorded in the quality of the Self-employed category (−1.6 %). By contrast, the other two groups presented some improvement.

Convergence – A Brief Analysis

Most research works on convergence have analysed whether the expected convergence resulting coming from the neoclassical economic growth model (Solow, 1956; Swan, 1956) is achieved in a list of countries (Barro and Sala-i-Martin 1992, 1997; Mankiw et al. 1992; Quah 1996), regions (Lopez-Bazo et al. 1999; Bivand and Brunstad 2005), and even local areas (Royuela and Artís 2006). Others have also analysed whether convergence happens also in other social dimensions such as life expectancy, infant mortality, educational enrolment and literacy rates and even environmental degradation (Neumayer 2003; Goesling and Firebaugh 2004; Bourguignon and Morrisson 2002; Becker et al. 2005; Dorius 2008; Royuela and García 2013).

Regarding convergence in employment terms, the list of applied works is much scarcer. O'Donoghue (2000) analyses if there is convergence in employment structures in the British urban system in the 1980s. More recently Drucker (2011)

focuses on the employment structure in the United States. Regarding the analysis of convergence in quality in work, we find the recent report of Eurofund (2009) for European countries, and here we present a brief analysis for Spanish regions and sectors for the period 2001–2009.

According to the neoclassical growth theory, one should expect a convergence process in economic terms as a result of decreasing marginal returns in production, and especially thanks to the mobility of factors of production. At the regional level convergence is expected to be stronger than at the international level as labour is supposed to be mobile through migration flows. Workers are expected to look at wages, of course, but if we assume that non-monetary issues matter as well, we should expect convergence also all aspects involved in the utility function of workers, what can be summarised in the concept of quality in work.

Convergence is usually summarised using two concepts: β-convergence (Barro and Sala-i-Martin 1992) and σ-convergence (Quah 1993). The former expects lagging regions to grow faster, while the latter concept looks at a decreasing dispersion of the analysed variables. Along the document we have been looking at the data and now we can summarise the main findings regarding both concepts:

- β-convergence: The above results clearly point to a process of convergence, as for regions and sectors presenting the highest (lowest) quality endowments in 2001 generally recording lower (higher) index increases than the country average. Moreover, this negative relationship was more marked in the case of the economic sectors than it was in the regions.
- σ-convergence: we have considered the evolution in relative dispersion as indicated by the coefficient of variation (Fig. 10.5). With the exception of 2004, we observed a constant decrease in the pattern of relative dispersion of the quality in work index by region, sector, professional category and firm size:
  - In the case of the regions, it fell from 7.9 % in 2001 to 4.7 % in 2009. (Data in Table 10.3).
  - In the economic sectors, it fell from 12.8 to 5.8 % in the same period. (Data in Table 10.4).
  - In the professional categories it fell from 13.1 % in 2001 to 6.6 % in 2009. (Data in Table 10.5).
  - Finally, in the case of firm size it fell from 10 to 3.2 %. (Data in Table 10.6).

All in all, we observe a process of convergence over the years. This is particularly marked in the case of the economic sectors, professional categories and firm sizes, suggesting that the labour market adjusts more quickly in these dimensions than it does in the regional one. Interestingly, the initial impact of the economic crisis has only resulted in an increase in the coefficient of variation for sectors and firm sizes in 2009. However, this is not unexpected given that regional labour markets in Spain tend not to adjust through the usual mechanisms of migration. This is because, among other factors, migration is barred by high prices in housing markets (Aguayo 2011). By contrast, workers change more readily the sector in which they work, and firms adapt more readily their size structure during the economic cycle.

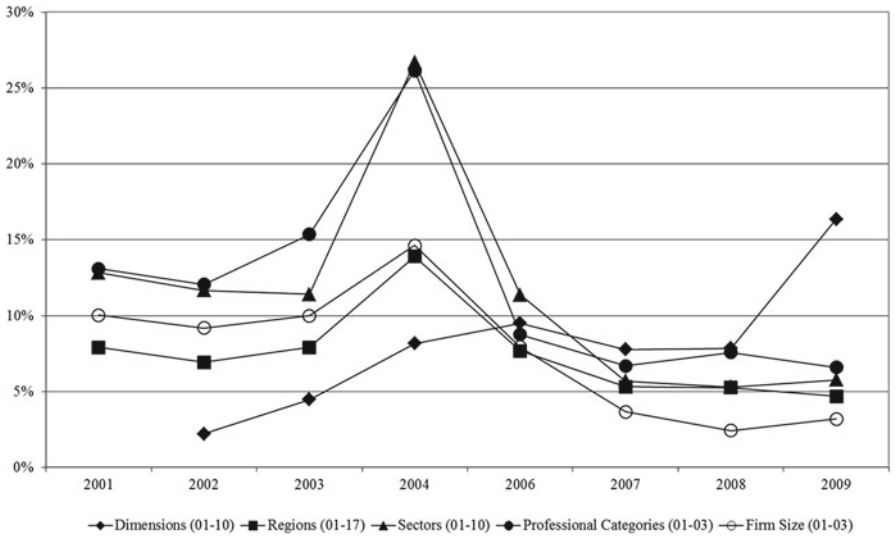

Fig. 10.5 Evolution of the relative dispersion of QWLI's. 2001–2009

Conclusions and Future Research

In this chapter we have designed a general methodology to quantify the quality of labor in a country, based on European Commission guidelines. Taking into account the obvious differences in the availability of the variables included in the different dimensions of this indicator, this methodology can be applied to other EU countries.

In particular, we have presented the outcomes of a quality in work index for Spain for the years 2001–2009. Drawing on the definition of quality in work and the dimensional structures drawn up by the European Commission, we compute the index for each dimension in this framework and also for Spain's 17 regions, 10 sectors, 3 professional categories and 3 firm sizes. We find that the best results are recorded in the most developed regions, in the service sector, in the largest firms and in jobs in which workers are entrusted with most responsibility. We also conclude that the economic crisis has affected seven of the ten dimensions considered between 2008 and 2009, in particular as regards the concepts included in D06 – Inclusion and access to the labour market, and D05 – Flexibility and security.

By region, we identify three main zones characterised by the quality in work. Thus, the south and centre of Spain present low index levels, the north presents average levels of quality, while the highest index scores are found in the east of Spain and in the capital, Madrid. As for economic sector, professional category and firm size, we find that the higher the sector's added value, the higher the workers' qualifications, and the larger the firm, the higher is the quality in work index.

Finally, our data reveal a process of convergence, that is, greater increases in the index are recorded in sectors and regions that started the period with a low quality

endowment (β-convergence). In a similar vein, we note a reduction in the gap between regions, sectors, firm sizes and professional categories (σ-convergence). Specifically, economic sectors and firm sizes experienced the steepest convergence processes; however, in 2009 this falling trend in their coefficients of variation was curtailed. This might suggest that the market adjusts quicker in relation to these dimensions than it does to the territorial dimension, which can be seen as a symptom of the spatial rigidities in the Spanish labour market. In other words: as there has been a strong growth process in Spain, we have observed increases in the quality in work index, what has resulted in a subsequent convergence process in regions and sectors. On the contrary, as the crisis emerged, the index stops its growing path and a divergence process begins. Several conclusions arise. First: quality in work has a parallel path to the business cycle. Second: improving quality in work conditions in lagged regions and sectors is easier when we observe growth. And third: higher labour market flexibility may help to equalize quality in work in sectors and regions. In order to strengthen the convergence process a higher policy activism promoting *flexicurity* should try to improve flexibility and security in the labour market. These actions may apply to any country, like Spain, with low flexibility levels in the labour market.

Future research is advisable in several directions. Firstly, the convergence analysis of quality in work can be analysed using conditional regressions and spatial estimation techniques. Secondly, it is worth to consider a deeper study of the relationship between quality in work, labour productivity and the business cycle. Moreover, and taking into account the actual crises in Europe (and, specially, in Spain), it will be very interesting to analyse the behaviour of the Quality of Work Index for the current crisis period, beyond 2009. Thirdly, we assume that several indices and variables can be improved, looking for better indicators of several concepts and increasing the time frequency of several data sources. Finally, the adoption of the methodology to a broader international context can be achieved by adapting the structure and the final adoption of the chosen indicators to a common framework.

Appendix 1: Data, Indicators, and Measurement of Spanish Quality of Work

In the following pages we display the ten dimensions and related concepts, the indicators proposed by the EC, and the indicators proposed for Spain.

DIMENSION: 1. Intrinsic Job Quality

CONCEPT (C): Job satisfaction among workers, taking account of job characteristics, contract type, ours worked and the level of qualification relative to job requirements.

INDICATORS-EC (IEC): Satisfaction with type of work in present job; skills needed for current job provided by formal training or education; the possession of skills or qualifications to do a more demanding job than the current one (overqualified).

INDICATORS-SPAIN (IS): Workers degree of satisfaction (Source [S]: Quality of Work Life Survey [ECVT]. Availability [Av]: Region, sector, firm size and professional rate, 2001–2004); total labour cost (S: Labour Status Survey, Labour Ministry. Av: region and sector. 2001–2004); average earning per worker per month (S: Salary Structure Survey, Av: region, sector, firm size and professional rate, 2002).

C: Proportion of workers advancing to higher paid employment over time.

IEC: Current net monthly wage.

IS: Interannual increase in total labour cost (S: Labour Status Survey, Labour Ministry; Av: region and sector. 2001–2004).C: Low wage earners, working poor, and the distribution of income.

IEC: Proportion of employees earning less than 60 % of median income; is the household able to make ends meet?; Income distribution as measured by the S80/S20 income quantile ratio.

IS: Proportion of households with earnings (S: Continuous Survey of Family Budgets, Av: region, 2001–2004); median of households' net earnings (S: ECVT. Av: region, sector, firm size and professional rate, 2001–2004).

DIMENSION: 2. Skills, Life-Long Learning and Career Development

C: Proportion of workers with medium and high levels of education.

IEC: Persons in employment with medium and high educational attainment level (ISCED) as a percentage of the employed population.

IS: Workers classified by education: average number of years in education (S: Bancaja: "El Capital Humano en España", Av: region and sector, 2002); workers classified by education: proportion of active workers with higher education (S: Bancaja: "El Capital Humano en España", Av: region and sector, 2002); active population classified by educational level: average number of years in education (S: Active Population Survey EPA, Av: region, 2001–2004); workers classified by education: proportion of active workers with higher education (S: EPA, Av: region, 2001–2004); proportion of workers with higher education (S: ECVT; Av: region, sector, firm size and professional rate, 2001–2004).

C: Proportion of workers undertaking training or other forms of life-long learning.

IEC: Participation rate in education and training as defined by the percentage of the population participating in education and training by sex, age groups (25–34, 35–44, and 45–64 years old) and working status (employed, unemployed,

inactive); percentage of the population aged 25–64 participating in education and training, by sex; percentage of workforce participating in job-related training, by sex (some doubts about the notion of workforce).

IS: Occupational training course: finished courses per 10.000 workers (S: Labour Ministry Yearbook MTAS, Av: region and sector, 2001–2003); occupational training course: students per 100 workers (S: Labour Ministry Yearbook MTAS, Av: region and sector, 2001–2003); proportion of workers who have finished training courses (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004); proportion of workers who finished *useful* training courses (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004); training days financed by the firm (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004).C: Proportion of workers with basic or higher levels of digital literacy.

IEC: Currently not entirely available.

IS: Currently not entirely available.

DIMENSION: 3. Gender Equality

C: Gender pay gap, appropriately adjusted for such factors as sector, occupation and age.

IEC: ratio of women's hourly earnings index to men's for paid employees at work 15 + hours by job content and education.

IS: Average earning ratio (women/men) (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004); salary earnings: gender differences (S: Salary Structure Survey, Av: region, sector and professional rate, 2002).

C: Gender segregation – extent to which women and men are over or under-represented in different professions and sectors.

IEC: Average national proportion of employment for women and men applied to employment in each sector/occupation. The differences are added and related to total employment to obtain a gender imbalance figure.

IS: Proportion of women workers, classified by sector and firm size (S: Labour Status Survey. MTAS, Av: Sector and firm size, 2001–2004); activity rate: gender differences (S: EPA, Av: region, 2001–2004); Unemployment rate: gender differences (S: EPA, Av: region, 2001–2004).

C: Proportion of women and men with different levels of responsibility within professions and sectors, taking account of factors such as age and education.

IEC: Employment of women and men, by level of responsibility within firms and by sector (adjustment for age and education); job status (supervisory, intermediate, non-supervisory) by occupation or industry.

IS: Proportion of women working as member of the board of a firm in comparison with the proportion of men on the board (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004).

DIMENSION: 4. Health and Safety at Work

C: Composite indicators of accidents at work – fatal and serious – including costs; total and mean number of days lost due to accidents at work, by sex; occupational diseases, by sex; rates of occupational disease, including new risks e.g. repetitive strain injury.

IEC: Incidence rate, defined as the number of accidents at work per 100,000 persons in employment, by sex, calculated as: [number of accidents (fatal or non-fatal) / number of employed persons in the studied population] x 100 000; health problems related to making repetitive movements; working at very high speed and its effects on health.

IS: Accidents at different work rates (S: Labour Accidents at Work. MTAS, Av: region, sector, firm size and professional rate, 2001–2004).

C: Stress levels and other difficulties concerning working relationships.

IEC: Working to tight deadlines and its effects on health.

IS: Proportion of workers who consider that they have to do physical work (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004); proportion of workers who consider that their work is stressful (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004); proportion of workers who consider that their work is dangerous (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004); proportion of workers who consider that their work is developed in a satisfactory environment (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004); proportion of workers who consider that their work is satisfactory in hygienic terms (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004); proportion of workers who are satisfied with the safety measures (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004).

DIMENSION: 5. Flexibility and Security

C: Effective coverage of social protection systems – in terms of breadth of eligibility and level of support – for those in work, or seeking work.

IEC: Coverage of the employed by social insurance, as measured by the total net social/social insurance receipts in the year prior to the interview (as part of income).

IS: Coverage of the employed by social insurance (S: MTAS e INEM, Av: region, 2001–2004); beneficiaries of assistance insurance (S: MTAS and INEM, Av: Region. 2001–2004); benefits for retired people (S: MTAS e INEM Av: region, 2001–2004); average amount of benefits (S: MTAS and INEM, Av: Region. 2001–2004).

C: Proportion of workers with flexible working arrangements – as seen by employers and workers.

IEC: Satisfaction with working time in present job; type of employment contract, by categories: permanent, fixed-term or short-term, casual work with no contract, some other working arrangement; full-time/part-time.
IS: Salary differences between permanent and temporary contracts (S: Salary Structure Survey. Av: region, 2002); proportion of workers with permanent contracts (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004); proportion of workers with permanent contracts and undesired part time jobs (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004).
C: Job losses – proportion of workers losing their job through redundancies; proportion of those finding alternative employment in a given period.
IEC: Reason for leaving a previous job; main reason for leaving last job or business.
IS: Unemployment rate (S: EPA, Av: region, 2001–2004).
C: Proportion of workers changing the geographical location of their work.
IEC: Data available through Eurostat but in need of analysis and presentation.
IS: Not available.

DIMENSION: 6. Inclusion and Access to the Labour Market

C: Effective transition of young people to active life.
IEC: Activity rate 15–24 as a proportion of the population of 15–24; youth unemployment ratio: unemployed aged 15–24 as a percentage of the population aged 15–24.
IS: Unemployment rate of young people (15–25) (S: EPA, Av: region, 2001–2004); employment rate of young people (15–25) (S: EPA, Av: region, 2001–2004).
C: Employment and long-term unemployment rates by age, educational level, region.
IEC: Employment rate by main age group (15–24, 25–54, 55–64, 15–64) and educational attainment levels (ISCED: high, medium and low); total long-term unemployment rate.
IS: Proportion of long-term unemployed workers (S: EPA, Av: region, 2001–2004).
C: Labour market bottlenecks and mobility between sectors and occupations.
IEC: None currently available; employed in current and previous job; sector of current and previous job.
IS: Vacancies/Unemployed workers. (S: INEM, Av: region and professional rate, 2001–2004).

DIMENSION: 7. Work Organisation and Work-Life Balance

C: Proportion of workers with flexible working arrangements.
IEC: Proportion of employees with flexible working arrangements (flexible hours, annualised hours contract, on-call work) out of total employees, by sex; number of employees working involuntary part-time as a percentage of total number of employees.

IS: Proportion of workers with part time contracts (S: EPA, Av: region, 2001–2004); proportion of workers with temporary contracts, per region (S: EPA, Av: region, 2001–2004); proportion of workers with temporary contracts, per sector (S: EPA, Av: sector, 2001–2004); proportion of workers with part-time jobs because they have not found a permanent job (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004); proportion of workers with part-time jobs because they are not *willing* to take on a permanent job (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004).

C: Opportunities for maternity and paternity leave, and take-up rates; scale of child-care facilities for pre-school and primary school age groups.

IEC: Employed men and women on parental leave (paid and unpaid) as a proportion of all employed parents; allocation of parental leave between employed men and women as a proportion of all parental leave; children cared for (other than by the family) as a proportion of all children in the same age group. Broken down by before the non-compulsory preschool system, in non-compulsory or equivalent preschool system and compulsory primary education.

IS: Subsidy for infant care per 1,000 inhabitants (S: Labour Ministry Yearbook MTAS, Av: region, 2001–2004); infant services per 100,000 inhabitants (S: Labour Ministry Yearbook MTAS, Av: region, 2001–2004); primary health care per 1,000 inhabitants (S: Labour Ministry Yearbook MTAS, Av: region, 2001–2004); proportion of workers whose firms offer subsidies for nurseries (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004); proportion of workers whose firms offer subsidies for housing (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004); proportion of workers whose firms offer subsidies for life long learning (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004); proportion of workers whose firms offer canteen services (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004); proportion of workers whose firms offer pension plans (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004), Proportion of workers whose firms offer *other* services (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004).

DIMENSION: 8. Social Dialogue and Worker Involvement and Worker Involvement

C: Coverage of collective agreements.

IEC: None currently available.

IS: Proportion of workers with collective agreements (S: Labour Ministry Yearbook MTAS and EPA Av: Region, sector and professional rate, 2001–2003); proportion of workers employed in firms without any structure for conducting collective negotiations (S: ECVT, Av: region, sector, firm size and professional rate. 2001–2004); ratio of workers with a firm-level of collective agreement (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004).

C: Proportion of workers with a financial interest/participation in the firms where they are employed.
IEC: Percentage of business units with more than 200 employees in each country using financial participation schemes.
IS: Proportion of workers whose salary partly depends on the firm's profits (S: ECVT, Av: region, sector, firm size and professional rate, 2001–2004).
C: Working days lost in industrial disputes.
IEC: Number of working days lost (1,000).
IS: Ratio of lost days per strikes over working days (S: Labour Ministry Yearbook MTAS, Av: region and sector, 2001–2003).

DIMENSION: 9. Diversity and Non-discrimination

C: Employment rates and pay gaps of older workers compared with average.
IEC: Total net monthly wages.
IS: Activity rate for workers older than 55 (S: EPA, Av: region. 2001–2004); unemployment rate of older workers (older than 55) (S: EPA, Av: Region. 2001–2004); average earnings per worker.
(S: Salary Structure Survey, Av: region and sector, 2002).
C: Employment rates and pay gaps of persons with disabilities, and persons from ethnic minorities – compared with average.
IEC: None currently available but some employment data is available concerning non-nationals.
IS: Earnings differentials by nationality (S: Salary Structure Survey, Av: sector and professional rate, 2002); Ratio of social security systems enroled in by workers over total potential workers (S: Seguridad Social e INE [Padrón], Av: region, 2001–2004); proportion of workers enroled in the social security system (S: Seguridad Social, Av: region, 2001–2004); foreigners: ratio of foreigners working in the cleaning regime (S: Seguridad Social, Av: region, 2001–2004).
C: Information on the existence of labour market complaints procedures, and of successful outcomes
IEC: None currently available.
IS: Not available.

DIMENSION: 10. Overall Work Performance

C: Average hourly productivity per worker.
IEC: Average productivity per hour worked, calculated as the GDP divided by the total number of hours worked during the year.
IS: Added value per worked hour (measured in constant euros) (S: MTAS e INE, Av: region and sector, 2001–2004).

C: Average annual output per worker.
IEC: Annual labour productivity, calculated as GDP per person employed; GDP per head of population in purchasing power parities.
IS: Value added per worker (measured in constant euros) (S: MTAS and INE, Av: region and sector, 2001–2004).
C: Average annual living standards per head of population – taking account of the rate of employment and the dependency ratio.
IEC: Economic dependency ratio, calculated as aged 15 + unemployed people as a percentage of total employment.
IS: Value added per capita (S: INE, Av: region and sector, 2001–2004); economic dependence ratio (non-workers over 15 / total employment) (S: INE and EPA, Av: region, 2001–2004).

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