Community Quality-of-Life and Well-Being

Meg Holden
Rhonda Phillips
Chantal Stevens *Editors*

Community Quality-of-Life Indicators: Best Cases VII

Springer

Community Quality-of-Life and Well-Being

Series editor

Rhonda Phillips, Purdue University, West Lafayette, IN, USA

The Community Quality of Life and Well-being book series is a collection of volumes related to community level research, providing community planners and quality of life researchers involved in community and regional well-being innovative research and application. Formerly entitled, Community Quality of Life Indicators: Best Practices, the series reflects a broad scope of well-being. Next to best practices of community quality-of-life indicators projects the series welcomes a variety of research and practice topics as related to overall community well-being and quality of life dimensions, whether relating to policy, application, research, and/or practice. Research on issues such as societal happiness, quality of life domains in the policy construct, measuring and gauging progress, dimensions of planning and community development, and related topics are anticipated. This series is published by Springer in partnership with the International Society for Quality-of-Life Studies, a global society with the purpose of promoting and encouraging research and collaboration in quality of life and well-being theory and applications.

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Chantal Stevens
Editors

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Editors
Meg Holden
Urban Studies Program
Simon Fraser University
Vancouver, BC
Canada

Chantal Stevens
King County Auditor's Office
Seattle
USA

Rhonda Phillips
Honors College
Purdue University
West Lafayette, IN
USA

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About the Editors

Meg Holden (Ph.D., New School for Social Research) is a social scientist whose research investigates the promises and results of sustainability planning in cities around the world. She is an Associate Professor of urban studies and geography at Simon Fraser University in Vancouver, Canada. Meg served as a board member of the Community Indicators Consortium from 2011 to 2016 and she currently serves as editorial board member of the journal *Applied Research in Quality of Life* as well as the Springer book series on Community Quality of Life and Wellbeing. Meg is the author of *Pragmatic Justifications for the Sustainable City*: *Acting in the common place* (Routledge, 2017).

Rhonda Phillips Ph.D., FACIP, has research and outreach efforts that focus on the quality of life and well-being related to community and economic development. At Purdue University, she serves as inaugural Dean of the Honors College and Professor in the Agricultural Economics Department. She is author or editor of over 20 books, including *Sustainable Communities: Creating a Durable Local Economy*, and *Introduction to Community Development*. Formerly a Senior Sustainability Scientist with the Wrigley Global Institute of Sustainability, Rhonda also served as Director and Professor in the School of Community Resources and Development at Arizona State University. She is a member of the College of Fellows

of the American Institute of Certified Planners, and immediate past president of the International Society for Quality-of-Life Studies.

Chantal Stevens is the Executive Director of the Community Indicators Consortium, an open learning network and global community of practice among persons interested or engaged in the field of indicators development and application. Her interests and expertise in sustainability, community indicators, public engagement and performance management were honed over a 25-year career as the Executive Director of Sustainable Seattle, a pioneer in the field of community-generated indicators, and People for Salmon, a state-wide public engagement initiative, as well as Performance Management Analyst and Legislative Auditor with King County, Environmental Division Manager with the Muckleshoot Indian Tribe, and several terms on the Issaquah Planning Commission and many position and diverse boards or commissions. She holds a Master's Degree in Marine Affairs from the University of Washington.

Chapter 1
The History, Status and Future of the Community Indicators Movement

Lyle Wray, Chantal Stevens and Meg Holden

Abstract This introductory chapter to the volume provides an overview of the history of community indicators, beginning with a grant provided by the Russell Sage Foundation in 1910 to the Charity Organization Society (of New York) to survey industrial conditions in Pittsburgh, and moving to present day. As a social movement, we present community indicators efforts as being grounded in challenges and innovations within the distinct but overlapping domains of public administration, social work and philanthropy, community development, sustainable communities and environmental justice, happiness and wellbeing studies, and data analytics. Each frames and pursues the task of crafting and disseminating indicators of community conditions in a different way, resulting in a richly diverse field of practice and theory, that the Community Indicators Consortium seeks to serve and promote. In so doing, the Community Indicators Consortium recognizes that uniting these diverse approaches in community indicators provides a forum in which to pursue common themes of work, including the need to amplify the voice of disadvantaged communities, to seriously explore the increasing use of information technology, to produce positive community change and to sustain these efforts over time. Each chapter in this volume is also summarized here.

Keywords Community indicators · Community indicators consortium · Public administration · Wellbeing indicators · Philanthropy · Community development · Sustainable development · Data analytics · Happiness studies

L. Wray
Capitol Region Council of Governments, Hartford, CT, USA

C. Stevens
Community Indicators Consortium, Issaquah, WA, USA

M. Holden (✉)
Simon Fraser University, Vancouver, Canada
e-mail: mholden@sfu.ca

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1.1 History of the Community Indicators Movement

While data and statistics have been used for centuries by governments and businesses, the origin of community indicators is associated with a grant provided by the Russell Sage Foundation in 1910 to the Charity Organization Society of New York to survey industrial conditions in Pittsburgh (Smith 1991, 40–41). After the study was released in 1914, the Russell Sage Foundation provided technical advice to many other cities to complete similar work. Partly because of this initiative, over two thousand local surveys were taken on education, recreation, public health, crime, and general social conditions.

In the second half of the 20th century, the evolution of the indicators field paralleled, and sometimes triggered, the evolution of consciousness about what constitutes quality of life in community. The 1960s and 1970s saw the rise of the social indicators movement. In 1974, the academic journal *Social Indicators Research* was founded and started publishing research results dealing with measurement of the quality of life that encompassed the whole spectrum of society at scales ranging from the individual to international systems.

In 1985, the charitable organization JCCI in Jacksonville, Florida initiated a set of quality-of-life indicators that tracked a variety of issues to understand progress. With Sustainable Seattle in 1992 and others, sustainability indicators came into existence at about the same time as sustainability became a concept in public discourse, often associated with the work of the Brundtland Commission (the World Commission on Environment and Development) in 1987 and affirmed by the 1992 Rio Earth Summit in Rio de Janeiro, Brazil. Along with their focus on sustainability, this approach to indicators, in contrast with previous efforts, was grassroots and bottom-up. As such, they established a new base for social indicators, where the community is the originator, the guardian and the audience of the project. The community indicators movement was born.

With precedent-setting work by the Reno, Nevada-based indicators initiative Truckee Meadows Tomorrow, modern indicator projects are leading movements in their communities based on a commitment not merely to measure trends but to act on trends of concern, via cross-sector collaboration. SA2020, in San Antonio, Texas, along with many contemporary projects, took to heart the criticisms directed at their predecessors that indicators initiatives were investing the bulk of their time to establish strong and defensible measurement systems, leaving far too little time for considerations of either how to publicize and generate an audience for their work, or how to act to change undesirable trends. SA2020 now outsources data collection and analysis to a third party. Instead of assembling data, the indicators initiative focuses on communicating information and engaging the community in steps toward positive change.

Building on the "Beyond GDP" approaches of the 1990s, the well-being movement emerged explicitly in this century. Recent years have seen community

indicator projects evolve with greater focus on the importance of the individual, happiness and well-being, within community change. This has meant a concomitant expansion of the measures taken to include the realm of individuals' subjective experiences within community and the impact these experiences have on their assessment of life in their community. The measurement frontier of community indicators work now engages the particular challenge of identifying valid, comparable measures of happiness, mental health, and the experience of equity and fairness.

Barrington-Leigh and Escande (2016) constructed a database of well-being and progress indicators with the key elements being: material living standards, health, education, governance and civic participation, social connections, relationships and community, environment, culture, accounts of time-use, and various types of security. This list overlaps a good deal with the earlier commissioned work of Stiglitz et al. (2009) who proposed eight indicators for well-being and progress.

1.2 Evolution of the Community Indicators Consortium

The Community Indicators Consortium (CIC) started as an umbrella of nine organizations producing indicators, that came together to help provide some overall coherence, coordination, and mutual support within the burgeoning international community indicators movement. The idea for the Consortium germinated at the 2003 International Society for Quality-of-Life Studies (ISQOLS) conference on community indicators in Williamsburg, Virginia and led to the first CIC conference in 2004 in Reno, Nevada on the theme "Advancing the Science and Practice of Community Indicators." The 2004 conference in Reno drew together an unexpectedly large group of participants, who brought their diverse perspectives, skills, knowledge, and experience in community indicators work. The conference buzzed with the shared passion of attendees to improve the quality of life in communities through approaches that utilize measurable indicators of progress.

Due in part to the success of the conference and the positive interest it generated, CIC incorporated with the goal of becoming a "learning community" and offering resources and connections necessary to any group aiming to develop and implement a community indicators project that is aimed at "making a difference" in community. Now in its thirteenth year, CIC is led by a 15-member board and an executive director and counts about 300 dues-paying members.

CIC's mission is to advance and support the development, availability and effective use of community indicators for making measurable and sustainable improvements in quality of community life. CIC works to fulfill its mission by hosting an annual international conference, organizing educational and networking events, providing on-line classes, and sharing information in a timely and dependable way. CIC built and maintains a comprehensive online database of past

and active community indicator projects all over the world (www.communityindicators.net/projects). In addition, over the dozen years of its existence, CIC has taken on several special projects, led by the interests and opportunities identified by members. One notable project dealt with the intersection of community indicator projects and the use of systems of performance measures in organizations, including local governments. This work resulted in a set of guidelines for the integration of performance measures and community indicators, and the development of a community indicator-performance measurement maturity model which puts these guidelines to the test of practice.

1.3 What Are "Community Indicators"?

The definition of 'community indicators' is often in the eye of the beholder. Breaking the term into its two component parts, it involves indicators, metrics that represent a level or a condition and that often can be expressed as a rate or a count. Just as importantly, it involves 'community', a grouping of people based on a geographic, demographic or social criterion, such as a neighborhood, ethnicity, income level, etc. As a social movement, community indicators groups are often expected to function with some input or leadership from the community, acting outside of or in parallel with formal local government, and to include a process for reporting to the community in a format that is public and accessible to non-experts.

Community indicator projects are developed to serve as a map to guide priority and agenda-setting for the work of multiple responsible groups in improving community-level conditions across the full spectrum of challenges affecting a community. The indicator format allows for progress on each measure of significance to be tracked over time and compared to conditions experienced by comparator communities. Sometimes, an additional step taken within community indicators work is to set numeric targets for indicators, where the intent is to motivate interventions toward achieving a community goal. Targets may be chosen by decision-makers or the community, and can be drawn from science or policy (e.g. acceptable levels of air pollutants established by the World Health Organization), based on the best practices of other communities (e.g. to achieve the same rate of persons with a family doctor as community "x"), or based on the aspirations of the community (e.g. to be the first greenhouse gas neutral community). A city may work to decrease the ground level particulates in the air based on a reference to scientific research that shows at what level that pollutant will impact the health of the most vulnerable, or threaten community health generally; or it may compare the poverty level to that of peer cities or that of the state, province or country, with a view either to addressing inequities in conditions or to building capacity to address poverty overall.

In addition to individual indicators or frameworks, several **indices** have been proposed to summarize a portfolio of measures. When a portfolio of indicators is needed to tell the full story of a community, indices offer an easy to understand solution, hence the popularity of a summarizing index such as the Dow Jones Industrial Average, for example. Interactive indices such as the Ecological Footprint (Wackernagel and Rees 1996), the Walk Score (walkscore.org) and the Livability Index (AARP) have captured the popular imagination because they distil complex ecological or social-economic considerations into a single digit that allows for manipulation and comparisons based on changes in locations or aspirations. The Prosperity Index of the Legatum Institute (http://www.prosperity.com/#!/) is a high-level index of well-being indicators. Its eight dimensions overlap in good part with the Stiglitz et al. (2009) model for measurement of well-being: economy, entrepreneurship and opportunity, governance, education, health, safety and security, personal freedom, and social capital.

Barrington-Leigh and Escande (2016) lament the fact that existing indices with many components often lack transparency as to how the index is formed and thus lack staying power as they may fail to persuade those who will not simply accept the wisdom of the choices implicit within an index.

1.4 Framing Community Indicators Projects

Community indicators span a wide range of dimensions, levels of generality and precision, geography and time series depth. Applicability to the community as a whole or to specific interests and identities, and those that indicate objectively measurable phenomena as well as those that reflect subjective perceptions all may feature together in the indicator system. Some community indicator systems scale their focus at the postal or zip code level, others at the level of the neighborhood or block group, others around the landscape scale such as a watershed or a geopolitical construct, such as a metropolitan region. Many are designed as multipurpose data-rich tools for local understanding and community work, which can be tailored according to different geographies, time periods, interest groups, policy areas of focus, or other specificities.

Just as in performance measurement, it often helps to have an organizing framework for a portfolio of indicators in a given community. Many projects organize community priorities as “domains” and populate each domain with indicators. One of the more popular frameworks groups indicators into environment, economy and equity. The term “triple bottom line” was first coined in 1994 and has been used extensively not only in the community indicator field but beyond (Hindle 2012). Based on Putnam’s seminal work, the four basic types of capital—human, social, built, and natural—provide another useful framework well adapted to tracking well-being at the community level. Cultural, political and financial capitals

were added by Flora and Flora (2004) to constitute their community capitals framework. Other frameworks employed, particularly in the public sector, are known as the balanced scorecard approach (Kaplan and Norton 1996), the social return on investment (Millar 2012), and results-based accountability (Friedman 1997).

1.5 Situating Community Indicators Work

The work of designing, framing, reporting on and implementing action from a basis of community indicators today is conducted by people from a range of different professions. Over the history of the movement, as different groups of professionals have recognized value in community indicators work, they have also adapted the work involved in creating and using community indicators to suit their own professional norms and capacities. This has added to the richness of debate and diversity in the field. Figure 1.1 presents a diagrammatic understanding of the major professional fields currently engaged in community indicators work, from our perspective within the Community Indicators Consortium. Each field's different engagement with community indicators will be discussed in turn.

Public Administration and Performance Management. Public administration is the implementation of government policy and also an academic discipline that studies this implementation and prepares civil servants for work in the public service. Heavily influenced by organizational management as well as policy analysis theory, indicators within public administration appeal with their promise of reconciling values and high level goals of public service with the instrumental demands of implementation and measuring results. That is, within a typical public administration frame, an indicators initiative, theoretically speaking, can be broken down into four sequential stages of work and pursued in a systematic, efficient manner. Namely, these stages consist of:

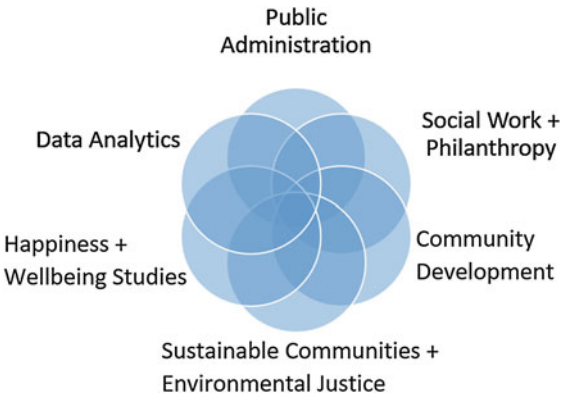

Fig. 1.1 The intersection of professional fields involved in the work of community indicators

- Selecting indicators to meet the need to measure progress toward particular goals;
- Measuring indicators based upon existing or new data;
- Analyzing and reporting on indicators to communicate trends; and
- Designing actions to improve deteriorating trends in communities.

In the field of public administration, indicators find considerable resonance with the practice of performance measurement, which emerged as an initiative to make more systematic the evaluation of government and public service work. The use of indicators within a performance measurement approach to public administration has not been without its critics, who have pointed out that modelling public and community work based upon private sector models is not always suitable for meeting community goals (e.g. Hartley 2010). Different iterations of new frameworks have evolved, as have understandings of how to attribute value to relationships between the observed conditions, the actions taken, and the outcomes that have transpired.

CIC, with the support of the Alfred P. Sloan Foundation, identified benefits, barriers and strategies for better community indicator/performance measure (CI-PM) integration, highlighting the importance of integration and collaboration to improve citizen engagement in using information for better community decision-making. CI-PM integration leads to better assessment of communities' quality of life and to better engagement of community members and other key stakeholders in the development and use of community indicators and performance measures. The work of CI-PM engages both governmental and non-profit organizations, along with community members.

According to one of the leaders of the field of performance measurement, Harry Hatry (2014) of the Urban Institute, "performance measurement" is a process in which a governmental or non-governmental public service organization undertakes regular collection of outcome and/or output data (preferably both) throughout the year (not only at the end of the year) for its programs and services. One emerging theory within public administration is that of the "public value". Moore and Khagram (2004) coined the term "public value" as the public sector equivalent of shareholder value in the business sector. The goal is to produce socially desirable outcomes for a community. Community indicators are one way to track such progress.

Social Work and Philanthropy. Not far removed from the interests and objectives of public administration, social work and philanthropy sectors use indicators as means to better track and measure success in interventions in communities. Indicators work within this sector emphasizes tracking the success of efforts to improve conditions in poor and marginalized communities, and to learn from the results of interventions. Compared to the domain of public administration, this work is less tied to notions of efficiency, and has demonstrated exciting innovations in recent years related to finding better frameworks for understanding

and measuring "collective impact" rather than insisting upon strictly statistical models of causation (Kania and Kramer 2011). Much work is being conducted within private as well as community foundations and social organizations working to redress inequities around the world. The work of the community foundation Jacksonville Community Council (www.jcci.org) is widely recognized as the longest running contemporary community indicators initiative.

Community Development. Community development work can be distinguished from the preceding initiatives by its emphasis on the need for engagement and empowerment of non-expert community members to diagnose and address their own problems. Indicators initiatives have proven a valuable tool for numerous groups, particularly in making a case for the change that they advocate based upon comparing trends with other communities. There are also intersections between the work of community development organizations working with indicators and the public administration strain of indicators work, as these groups too need to prove the method, efficiency, and impact within their work with public and other grant funds.

Sustainable Communities and Environmental Justice. Indicators for sustainable communities and environmental justice groups can be thought of as a special case of community development-based indicators. Emerging from the internationalization of a sustainable development agenda in the early 1990s, many community-based groups took up an indicators approach as a means of coming to terms locally with the meaning and implications of this new frame for thinking about human progress and environmental protection. Like the work of community development organizations more broadly, sustainability and environmental justice indicators efforts have placed a strong emphasis on the process of orienting, framing, selecting, and presenting the indicators. For the community indicators field as a whole, this has brought to light the social learning as well as communicative roles played by indicators, recognizing the limits of the expectation that good data "speak for themselves." The environmental justice movement, sometimes more oriented toward a rights-based argument for action as opposed to one of demonstrating indicators and trends, has found particular utility in indicators work where indicators can be used to visualize and map stark inequities that go unaddressed in policy and practice.

Happiness and Wellbeing Studies. US President John F. Kennedy is often remembered for raising questions about the utility of the single indicator of the Gross National Product or Gross Domestic Product to refer generally to the progress of society. In addition to being taken up as a mantra within many community indicators efforts aiming to diversify and qualify arguments about conditions and trends in local communities, the field of happiness and wellbeing studies has taken off with a key goal being to find better ways to characterize, communicate and support human progress.

Famously, the Kingdom of Bhutan prioritized Gross National Happiness as a national policy priority in the early 1970s, and since this time a growing number of nations and local communities have invested in thinking harder about how to promote what makes people happy and well, rather than or in addition to what

makes them rich, or safe, or less vulnerable. In this field, key debates flow around questions of how best to measure subjective concepts such as happiness and wellbeing, how to compare these measurements, and how to interpret differences.

Data Analytics. Analysis and display of data in ways that effectively communicate the story behind a trend in data have always been key to good community indicators work, of any variety. Although community indicators work began well before the use of internet and mobile technologies had become a daily necessity, the field has been part of the evolution of better approaches to data visualization and display as informatics and geographic information systems technologies have evolved.

The field of data analytics has emerged as information and internet technologies have greatly increased the velocity and volume of so-called "big data" available in cities and communities (IBM 2015). At the same time, this has increased the opportunities for data entrepreneurs to create new means to collect data, often via mobile and internet-of-things technologies. With this technological shift, the private sector has become interested in the indicators field in a major way, with information technology companies such as IBM, Siemens and Cisco now promoting "smart cities" and the benefits of living environments that are embedded with sensors and means to collect and track data at every turn, promising to use this data to create a more efficient, comfortable life.

The rise of the big data and the smart city concepts may present opportunities within community indicators, but also present a stark contrast and challenge to the way in which the community indicators movement has traditionally operated in a context of data scarcity, not data overabundance. Community indicators projects have long emphasized the need to collect new and better data to reflect more acutely upon on-the-ground conditions in overlooked communities and trends. Big data promoters promise that, with interconnected networks of continuous flows of data swirling all around our communities, this need for communities to collect their own data will become obsolete, replaced by the need to acquire the technology and expertise to mine the abundant digital data for patterns that matter. As such, trends in big data and data analytics raise many significant questions for the community indicators movement.

In addition to this basic question about whether the work of community indicators needs to change its overall orientation and approach in order to work with abundant, fast data, are other questions about the work of ensuring the openness, transparency, and public nature of data, questions about protection of personal privacy, and questions about whether the flows of big data do anything, in fact, to address data scarcity when it comes to the measures that matter to communities.

1.6 New Research in the Field of Community Indicators

Across this diverse field of interests and approaches in community indicators work, these efforts share a common belief that transparency about specific community trends and their impacts on overall community conditions will lead to positive

change that will improve outcomes overall. This belief has been put to the test time and time again within political battles waged by indicators initiatives, in which the superior data and the superior argument do not always hold sway. Through a classical, rational lens of thinking about information and policy change, making a community and its elected decision-makers aware of negative trends and inequities should be sufficient to motivate and mobilize action to turn these trends and inequities around. History tells a different story.

Not unlike the story in other realms of voluntary and community work, efforts in community indicators have been plagued by the short lifespan of many initiatives. All too often, the cycle is one of a burst of investment of enthusiasm, dedication, skill, and resources, a hard slog to establish an initial reputation and reporting system, some small triumphs of media, community, and perhaps even political attention, followed by a series of disappointments in efforts to repeat, accelerate, or institutionalize the work, and ultimately by the decline or disappearance of the initiative. From a capacity-building, social capital and social learning approach, this cycle is not a condemnation of community indicators work, because it serves to launch new careers, political and justice agendas and plant new ideas in community —this is seeding work. From a perspective of institutional change and the development of better habits around the use of data in decision making and community action, this is an unfortunate state of affairs, holding community indicators efforts back from attaining their most significant impacts through a lack of time to measure and argue for the needs that arise from observed trends over time.

Different perspectives exist on the reasons for this cycle, and how it might be broken to produce more stability in the community indicators field. In his chapter in this book, Barrington-Leigh (2017) takes a longitudinal view of community indicators initiatives since the 1970s, and asks what factors may have played the biggest role in determining the resilience of those that have survived to date. His message is one of caution about rushing to generate indices from key indicators and data, because it is the unaggregated and subjectively-oriented indicators initiatives that seem to have out-survived composite indicators work. Grounded within the field of happiness and wellbeing studies, Barrington-Leigh makes a case for subjective measures of life satisfaction, drawing from new understandings of how collective well-being in community can be derived from individual survey responses to questions about individual life satisfaction.

Latching on to the work within the realms of philanthropy and social work, as well as the community development realm of indicators work, a more realistic story about how better information can guide better decisions involves the recognition that additional phases of work are needed to mobilize action. Momentum is growing around the notion that the most effective action is collective—that is, based upon partnerships of different kinds of organizations that agree to join forces in a targeted way around a particular trend, or the need for more information in decision-making more broadly (Kania and Kramer 2011).

The account that Ridzi (2017) provides in his chapter, Community Indicators and the Collective Goods Criterion for Impact, is an account of the power of collective thinking and action. He argues that, although it would be impossible to prove that the community indicators project CNY.vitals itself is the cause of seven years of positive change in the four-year high school graduation rate in Syracuse, New York, the work within this indicators project helped to develop a "measurement mentality" which in and of itself is a collective good in favor of positive change in this community. Drawing the notion of the collective good criterion from the social movement literature, Ridzi argues that the positioning of the community indicator project CNY.vitals in the middle of many social initiatives, with the ability to contribute something to diverse agendas, meant that this project has more power to offer community change agents, in all their diversity, than if it had been the kind of specific, targeted, structured policy change initiative to which impact is typically attributed. This is a story of a community indicator initiative that worked effectively to encourage collaboration and movement-building around an inclusive ideal of desired change as it opened the black box of measures of social progress in the community and how these measures can be leveraged for action in the longer term.

Helmstetter et al. (2017), working on the community indicators initiative Minnesota Compass, provide an account of what it has meant for their work in community indicators to initiate and maintain partnerships. They offer practical reflections on what they have seen to be key to making partnerships work in this field, so that their efforts maintain their focus and build impact as they stay involved with the work of attempting to "move the needle" on the dashboard in the direction of progress. This case from the philanthropic sector in Minnesota is followed by another case for partnership formation from Northeast Ohio, provided by Emily Garr Pacetti, working within the community and economic development sector.

Pacetti's (2017) chapter, Aligning Local and Regional Data to Achieve a More Inclusive Economy: A Northeast Ohio Model, focuses on the importance of laying out the common substantive basis for partnership to align the economic development priorities of different interested groups working in Northeast Ohio, in the metropolitan Cleveland area. This partnership-based approach found its success through the convening of partners across sectors and geographies to build a common understanding of competitive economic development that can benefit the region and that "matters to metros".

An important claim by the author is that the pursuit of racial inclusion and income equality can enhance metropolitan regional economic growth. She draws upon a five-part definition of an inclusive economy, along with evidence that shows how reducing economic disparities can benefit job growth, while simply increasing per capita income may not. Northeast Ohio took these two elements to produce the notion that to sustain growth, communities must invest in opportunities for residents that have often been left behind.

Holden's (2017) chapter, Getting to Groundbreaking But Not Build Out, provides a cautionary tale of partnerships in creating new community indicators projects around housing development that can break down as political gaps are revealed between the partners. While this new community indicators initiative showed a great deal of promise in its initial years of work toward a partnership-based approach to information sharing and reporting related to the creation of new housing in metropolitan Vancouver, Canada, ultimately the shared model of control over the outcomes and messaging, in the context of a yawning political divide amongst the partners, led to breakdown. This chapter offers lessons about what every community indicator practitioner knows: that data may present itself as "raw" and politically neutral, but instead it is always "cooked." Community indicators work treads on politically disruptive ground, to the extent that the initiatives represent new groups, partnerships and coalitions seeking to control and create messages from data that advance policy agendas which threaten the status quo.

Part 2 of the book offers a series of four case studies of community indicators projects that are all, in their diverse contexts, seeking to reveal and rectify disparities and injustices. The papers address environmental justice, economic disparities, veterans' needs, gender equity for women and girls, and the potential of a systemic model to determine policy action priorities.

In the first article by Gunn et al. (2017) entitled: Environmental Justice in Australia: Measuring the relationship between industrial odor exposure and community disadvantage, new ground was covered in metropolitan Melbourne, Australia by examining the spatial correlation between odor complaints, polluting facilities and areas of socio-economic disadvantage. The research sets out to discover the extent of odor exposure from facilities and to help identify if communities affected by odor have different socioeconomic characteristics. The potential benefits are improved pollution mitigation strategies and better understanding of needed separation distances between industrial and residential areas particularly in the context of growing metropolitan areas, that may be increasing the proximity of mixed land uses.

Measurement of odor impact and of socioeconomic status showed indeed that a disproportionate number of vulnerable community members were affected across the region. Residents affected by odor impacts were near polluting facilities located in areas of greater socioeconomic disadvantage with low incomes and poor English language proficiency. The suggestion was made to use smaller, more granular geographic measurement areas to avoid averaging out impacts over larger geographic areas. The authors suggest that the findings of the study be used to facilitate dialogue among policy makers, researchers and communities to inform land use planning and policy. The findings should be used to avoid encroachment between residential areas, new developments and industrial zones going forward.

In the next chapter by Green and Espino (2017) entitled: Addressing Disparities and Improving the System of Care for Veterans through the Community Assessment Process, the authors describe a San Mateo County veterans' needs assessment as part of a strategy to end homelessness among veterans in that county. Green and Espino start with the chilling statistic that veterans represent 7% of the overall population but 11% of those experiencing homelessness.

The authors cite the power of community indicator projects to build on community level data to spur regional partnerships to serve all veterans and to move from a reactive crisis response system to a more proactive system to produce wellbeing. They describe the use of a five step community assessment process to address the challenges of engaging in a veterans' indicator project to bring about social change from the identification of veterans, to developing a set of indicators, building relationships among programs and agencies, improving data systems and outcomes for veterans and sharing findings and suggestions for improving the service delivery system. The authors describe a community veterans summit and formation of a veterans' commission relating to the community indicators project that built on the awareness of the need to develop a more coordinated system to serve veterans.

Next, in the chapter by Lee and Deviney (2017) entitled: Economic Issues for Women in Texas, the authors present a variety of important trends through disaggregation of data in community indicators through gender as an example of a key factors or lens with which to address community indicators. The authors set out to encourage others to learn more about the economic challenges and opportunities faced by women and girls in Texas. The hope is to increase the economic security of women by sharing information with community leaders, elected and appointed officials, non-profit organizations, businesses and foundations. The article gives strength to the principle that is often makes sense to disaggregate data into more refined slices to gain a clearer and more nuanced view of an issue. This is clearly true in the case of the gender lens for women and girls as presented for the state of Texas.

Women and girls in Texas are presented as a young, diverse and growing population. Thirty-seven percent of women and girls are Hispanic or Latina, for example. Women are 1.2 times as likely to be in poverty as a man. Sixty-seven percent of two parent households have both parents working out of the home. Average wages for women are about one quarter less than men. Women are making gains in post-secondary education but economic barriers remain to increasing higher education rates. Child care costs and lack of pre-kindergarten programs are important challenges. Issues of health insurance access and housing affordability also negatively impact women.

By disaggregating data across a number of areas, the paper shows the challenges faced by women and girls and offers support for addressing the critical need to invest in building blocks for economic security for women and girls to the betterment of the state of Texas as a whole.

Finally, King (2017) lays out the framework followed in Houston to develop a comprehensive sustainability indicators program that relies on the power of objective data over that of subjective understandings and preferences. The systematic model pursued in the case of the Houston project is explained, demonstrating the value of geographic information systems and statistical principal

components analysis to define clusters of indicator relationships that in turn can help inform strategic priority setting for sustainable development investment with impact. This last case brings the volume full circle back to a similar sense of what community indicators projects are for to that of Barrington-Leigh (2017). That is, that these measurement systems ought to be designed to provide information that will empower others to aggregate it in different ways and make value judgments to inform priorities and actions, across the community and over the long term. Even across the diversity of approaches to community indicators today, widespread agreement exists that this provision of clear, valuable, timely information to non-expert audiences is key to the success of the indicator movement. Where significant difference continues to exist is on the question of what *else* community indicators projects need to do to gain and maintain an audience and institutional presence, remain relevant as other sources of information proliferate, and as conditions may continue to worsen despite the most valiant efforts to bring injustices, deterioration, and failed policy outcomes to light.

As an aggregate, these chapters reveal community indicator projects to be relevant, dynamic and adaptive. Whether applied to a single issue or the wellbeing of a whole community, indicators have the power to inform, convene, unite, and ultimately improve community conditions. The field of community indicators has undergone a rapid evolution in only a few decades, and this evolution is ongoing. Across the field we continue to see a search for balance between the role of subjective well-being and more objective indicators of community well-being, and between more collaborative and values-based and more expert-led approaches. Community indicators projects today operate within a need to amplify the voice of disadvantaged communities, seriously explore the increasing use of information technology, and a continuing struggle to produce positive community change and to sustain these efforts over time.

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Author Biographies

Lyle Wray, Ph.D. serves as Executive Director of the Capitol Region Council of Governments based in Hartford, Connecticut that serves one million residents. He has been involved in community indicator projects in California and Connecticut most recently with the www.metrohartfordprogresspoints.org project. He serves as Vice-President of the Community Indicator Consortium. His published work has focused on citizen engagement in community performance measurement projects. He earned a BA, MA and Ph.D. in Psychology from the University of Manitoba, Winnipeg, Canada.

Chantal Stevens is the Executive Director of the Community Indicators Consortium, an open learning network and global community of practice among persons interested or engaged in the field of indicators development and application. Her interests and expertise in sustainability, community indicators, public engagement and performance management were honed over a 25-year career as the Executive Director of Sustainable Seattle, a pioneer in the field of community-generated indicators, and People for Salmon, a state-wide public engagement initiative, as well as Performance Management Analyst and Legislative Auditor with King County, Environmental Division Manager with the Muckleshoot Indian Tribe, and several terms on the Issaquah Planning Commission and many position and diverse boards or commissions. She holds a Master's Degree in Marine Affairs from the University of Washington.

Meg Holden, Ph.D. is a social scientist whose research investigates the promises and results of sustainability planning in cities around the world. She is an Associate Professor of urban studies and geography at Simon Fraser University in Vancouver, Canada. Meg served as a board member of the Community Indicators Consortium from 2011 to 2016 and she currently serves as editorial board member of the journal *Applied Research in Quality of Life* as well as the Springer book series on Community Quality of Life and Wellbeing. Meg is the author of *Pragmatic Justifications for the Sustainable City*: *Acting in the common place* (Routledge, 2017). Meg obtained the Ph.D. in Public and Urban Policy from the New School for Social Research.

Part I
Organizing Concepts and Collaboration in Community Indicators

Chapter 2
The Role of Subjective Well-Being as an Organizing Concept for Community Indicators

Christopher Barrington-Leigh

Abstract One important objective of community indicator initiatives, often explicit in their title or mandate, is to assess overall well-being, life quality, or social progress. These concepts are increasingly becoming accountable to the evaluation survey respondents give when asked about how their life feels, overall. Such quantitative, subjective data are not directly useful for guiding policy, but statistical analysis based on these subjective well-being data can now be used to guide the choice of indicators in a community indicator system, and can even provide weights to use in calculating a summary index for a set of seemingly unrelated indicator measures. This chapter uses a database of 82 indicator initiatives implemented since the 1970s from 30 countries, and at all geographic scales, to assess trends in the structure, content, and success of attempts to measure human flourishing or life quality. Based on a taxonomy that encompasses unaggregated dashboards of indicators, money-denominated accounts, other indices (composite indicators), and measures oriented around subjective well-being, the database suggests that unaggregated and subjective-well-being-oriented indicator initiatives are more successful in terms of their longevity. Moreover, in the interest of accessibility, transparency, accountability, and the assurance of relevance, the construction of indices should only be carried out when quantitatively guided by the analysis of subjective well-being data. Relying on subjective well-being in this way provides an intuitive, compelling headline indicator or synthetic index, supported by a set of policy-amenable indicators whose inclusion is accountable to the actual experience of citizens.

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C. Barrington-Leigh (✉)
McGill University, Montreal, Canada
e-mail: chris.barrington-leigh@mcgill.ca

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2.1 Introduction

While often initiated or led by the civil society sector, community indicators are effective when they capture the attention of the public and government. Considerable benefits may flow from public engagement in the process of deliberation and creation of indicators (Hall and Rickard 2013), but typically the ultimate goal is to build sufficient consensus about measurable objectives for society, and for that consensus to have sufficient duration, that those objectives drive policy and are used to hold decision makers to account.

In order to shed some light on which features in indicator initiatives might be most conducive to achieving this sort of *acceptance, authority,* and *staying power*, this chapter provides a community-indicator-oriented summary of a longer review published in *Social Indicators Research* (Barrington-Leigh and Escande 2016, hereafter: *MPWB*). The review is based on a database of indicator initiatives of well-being and progress at all levels of government and geography. In some sense, the cutting edge of innovation in thinking how to measure progress and well-being happens at the smallest and largest of these, i.e., in local community indicator initiatives and in international organizations, while intermediate levels such as national governments tend to be more tied to conventional metrics, due to larger political stakes and institutional inertia.

In any case, we collected quantitative and qualitative information on 82 different indicator projects, classified them, and analyzed the patterns and trends in what we found. Our sample was not made to be representative, nor was it meant to be all-inclusive. Indicator initiatives were considered eligible for inclusion in the database only if the title or stated objective of the effort relates to some concept of overall well-being or progress. This excludes indicator initiatives focused on a particular issue or demographic component of the population. For instance, indicator projects with scopes limited to "child well-being" or "economic progress" were excluded. It also excludes plenty of efforts which act more as a centralized clearinghouse of policy-relevant statistics. These criteria rule out a significant fraction of the longer list in the Community Indicators Consortium's database of Indicator Projects.

Below I outline some different ways we classified the indicator initiatives.

Geographic scale We included indicator initiatives which encompass a "**local**" or "community" scale, which mostly applies to towns or cities; those which span a "**regional**" scale, i.e, a sub-national province or state; those with "**national**"

coverage; and "**international**" ones which span multiple countries or are even calculated for most or all countries. Usually, the spatial resolution is finer than the geographic scale of coverage.

Responsible agency Within each of those scales, there are several possibilities for who designs or leads the indicator project. These we classified into "**government and inter-government**," "**nongovernment**" for any civil society, non-profit, or for-profit organization, and "**academic**" for systems defined by researchers and which typically can be implemented using existing data.

Rationale In principle, the structure of an indicator system can be chosen "**top-down**", i.e., decided by a small group of experts or representatives, or be derived directly from some theoretical idea; or it can be "**bottom-up**," which could mean either driven by a democratic or broadly consultative process, or derived from some data-driven process able to choose and organize constituent elements of an indicator system.

Structure Much of our emphasis lies in differentiating indicator systems based on how they take many numbers and aggregate them together to produce one, or a few, summary values. We call the different options "**Sets of indicators**," "**Indices**," "**Accounts**," and "**Subjective measures**."

Inclusion of subjective well-being Indicator initiatives can choose to incorporate or eschew individuals' subjective reports of their overall well-being.

Several bits of relevant terminology are ambiguous. The usage in this chapter is as follows. "Well-being" and "progress" are used in their most general senses, in order to encompass the full range of metrics in our database. "Subjective well-being" (SWB) refers to any of a range of questions eliciting different aspects of subjective psychological experience (but not subjective assessments of objective facts), while "life satisfaction" refers to a single question, discussed later, which captures a cognitive evaluation of life. "Measure" and "indicator" are often used interchangeably to refer to any individual quantitative metric, while I use "indicator initiative," "indicator project," or "indicator system" to refer an entry in our database, regardless of which kind of *structure* it has. On the other hand, "sets of indicators" is a category of *structure*, above, and means a collection of measures that are not combined into a summary value in any way. These sets of indicators are sometimes called "dashboards" by others.

Table 2.1 shows a subset of indicator projects, taken from the database of *MPWB*, which are classified as being calculated at the community level. The sample of local projects is, for reasons of practical convenience, biased towards English-speaking regions and North America in particular. The larger database includes projects from 30 different countries. As can be seen in the small sample of Table 2.1, many initiatives have not survived. One line of inquiry is to determine which characteristics of indicator initiatives are associated with better chances of surviving. Of course, those which are no longer active but which made it into our database are only the ones with sufficient prominence or impact in their time in order to come to our attention. The analysis in the rest of this chapter is based on the full database of 82 initiatives.

Table 2.1 "Local" indicator initiatives

Name	Country	Year	Alive	Who	What	How	Pop
Subjective QOL in the City of Flint, and Genesee County, Michigan	USA	1979	N	NG	SWB		420k
The Indices of Community Well-Being for Calgary Community Districts	Canada	1985	N	Gov	Idx	T	1M
Jacksonville Community Council QoL progress report	USA	1985	Y	NG	Set	T/B	840k
Oregon Benchmarks	USA	1989	N	Gov	Set	T/B	
Truckee Meadows Tomorrow—Quality of Life Compact program	USA	1994	Y	NG	Set	T/B	320k
Santa Cruz County California Community Assessment Project	USA	1994	N	NG	Set	T	63k
Ontario SDC, Quality of Life Index	Canada	1997	N	NG	Idx	T/B	14M
GPI Atlantic, Nova Scotia	Canada	1998	N	NG	A/S	T	940k
BC regional Socio-economic Profiles and Index	Canada	1998	N	Gov	Idx	T	4.6k
Federation of Canadian Municipalities QOLRS	Canada	1999	N	Gov	Set	T/B	2.6M
Social Development Index	China	2000	Y	Gov/Acd	Idx	T	7M
Boston Foundation's Boston indicators Project	USA	2000	Y	NG	Set		1M
Zurich sustainability indicator set	Switzerland	2000	Y	Gov	Set	T	400k
Buffalo City 2001 QOL survey	South Africa	2001	N	Gov	Set	T	750k
Porto Monitoring System on Urban Quality of Life	Portugal	2001	Y	Gov/Acd	Set	T	1.7M
GPI, Alberta, Pembina Institute	Canada	2001	N	NG	Act	T/B	4.1M
Tasmania Together Project	Australia	2001	N	Gov	Set	T/B	520k
Newfoundland community accounts	Canada	2002	Y	Gov	Set	T	530k
Peterborough Quality of Life Report	Canada	2002	Y	NG	Set	B	120k
Hennepin County 2002 Community Indicators Report	USA	2002	N	Gov	Set	T	1.2M
City of Florence QOL	Italy	2003	N	Gov/Acd	Set	B	360k

(continued)

Table 2.1 (continued)

Name	Country	Year	Alive	Who	What	How	Pop
Community Foundations of Canada's Vital Signs Program	Canada	2007	Y	NG	Set		30M
Khaveh Shomali QOL	Iran	2009	N	Acd	S/I	T	
The Glasgow Indicators Project	Scotland	2009	Y	Gov/Acd	Set	T	590k
Winnipeg Peg report	Canada	2010	Y	NG	Set	T/B	660k

Indicator initiatives in the database of Barrington-Leigh and Escande (2016) classified as "local," meaning that the geographic precision or scope of the indicators is at the municipality or metro scale. *Year* is the founding year; *Alive* records whether or not the indicator project is still in production; *Who* classifies its creator as government or non-government (there are none of academic origin in this subset); *What* describes its *structure* as a Set of Indicators, an Index, or a set of Accounts, or a combination; and *How* specifies whether it was designed with a top-down, bottom-up, or hybrid approach. *Pop* is the population of the region or regions covered

The goal in what follows is (1) to understand some trends in how indicator initiatives are being constructed, (2) to assess which classes of indicator initiatives best survive the test of time, and (3) to suggest how subjective and objective measures can be used together in order to construct accountable, accessible, and authoritative community indicator systems. I conclude by recommending that subjective well-being can play a central role in measures of human outcomes, but that in order to do them justice most long-term environmental indicators must be separated from those focused on current human well-being.

2.2 Statistical and Cultural Trends of Indicator Initiatives

To begin with, it is interesting to look at broader trends in the fashion of language surrounding progress and well-being. The upper panel of Fig. 2.1 shows a history from 1975 to 2008 of how often different words were used in printed books. It shows some patterns we might expect from the history of social indicators. First, the term "social indicator," popular in the late 1970s, is in decline. The use of terms "gross domestic product" (GDP) and "gross national product" (GNP) is also on the decline, after having peaked in the 1990s. By contrast, reference to modern augmented GDP measures, often referred to as "genuine progress indicators" (GPIs) is on the rise, as are the terms "beyond GDP," "well-being," "happiness," and "sustainability." One may interpret these trends as indicative of overall interest in these concepts, and reflective therefore of the importance English-speaking societies place on them. During this same period, there has been an even stronger trend in writing by academic economists, as judged by their publications. The number of articles appearing in economics journals and referring to "life satisfaction" or "happiness" or "subjective well-being" grew from three in 1991 to >300 per year

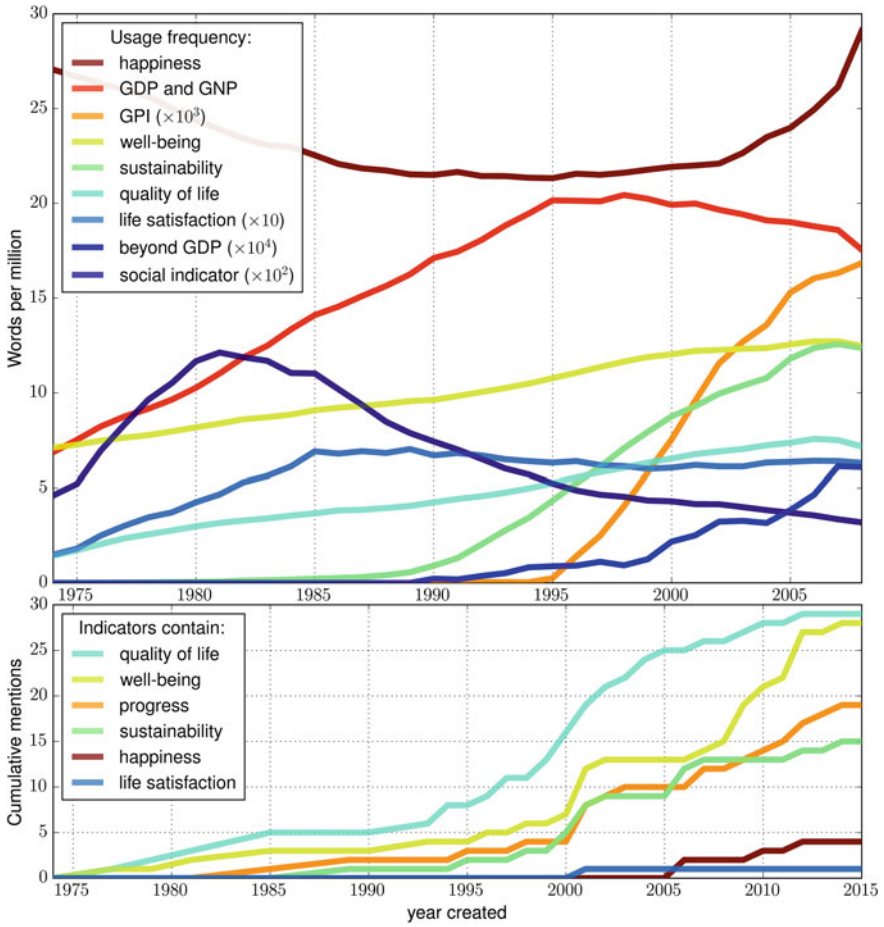

Fig. 2.1 Usage of progress and well-being terminology over time. *Upper panel* Historical incidences of some relevant terms in printed books, taken from Google's n-grams (see http://ngram.google.com for more information). "Life satisfaction" represents the sum of incidences of "life satisfaction" and "satisfaction with life" and is scaled up by a factor of 10 for better visibility. "Social indicator" is scaled up by a factor of 100, and GPI, short for "genuine progress indicator," is scaled up by 1000. Use of the term "sustainable development" shows a similar pattern over time as "sustainability." The Google N-gram database ends in 2008. *Lower panel* the (rescaled) cumulative number of mentions of different terms (labeled by *color* in *top panel*) in the stated name or purpose of those measures

last year (MPWB). To some extent, the growth in indicator initiatives using more human-based measures of progress may have much to do with the idea that we can now measure happiness quantitatively. Advances in research have provided specific

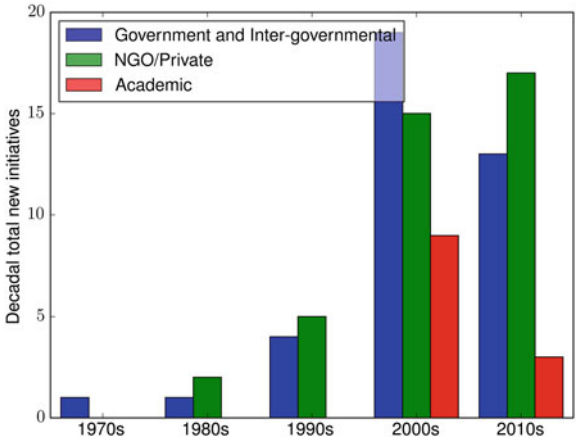

Fig. 2.2 Government and non-government designers. *Bars* show the number of new indicator initiatives in our database by decade. Two indicator initiatives fall simultaneously into the *non-government* and *academia* categories; the rest are in only one

insights about the importance of social links and other life conditions in fostering a satisfying life.

Carrying out a similar analysis on the language used in the names or stated purpose of indicator systems in our database shows consistent trends. The lower panel in Fig. 2.1 shows the cumulative number of mentions of several of these terms. In recent years, "well-being" and "progress" are used more often than "quality of life" or "sustainability" in explaining the essence or objective of new indicator initiatives. "Happiness" is a relatively new term to appear prominently in the name or objective of indicator initiatives.

Figure 2.2 portrays the breakdown of *who* was responsible for leading each effort. In both the full database and the smaller (local) list shown in Table 2.1, the indicator initiatives have been founded by a fairly constant and even mix of government and non-government/private actors. *MPWB* discusses the advantages and challenges particular to each category, but clearly—and particularly for local initiatives—a broad and cross-cutting alliance of stakeholders is the most promising, because it can best ensure ongoing demand for the product, collective accountability for continued efforts to produce it, a robustness of funding in some cases, and of course the legitimacy of a broad base of support for the structure and content.

2.3 Quantitative, Qualitative, Objective, and Subjective

I now turn to the classification of *structure*, mentioned earlier, and outlined by *MPWB*. Indicator initiatives' types have been described and classified in different ways by various authors. Our categories distinguish, first, whether a set of indicators is combined into summary statistics of some kind. Nearly all community indicator initiatives are comprised of a panel of measures, and in many cases this is as far as the quantitative contribution goes. For instance, an initiative focused on

child well-being may include an estimate of attendance at primary school, expressed as a fraction of the appropriately-aged child population. It may also present rates of change for this indicator, for instance as the measured change over ten years. Beyond that, a published form of the initiative may go on to provide qualitative evidence in the form of a discussion of associated observations, policy changes, or anecdotes, or may provide normative evaluations of whether the levels and trends are good or bad. For instance, the Boston Indicators project and Canada's Vital Signs projects have considerable and strong emphases, respectively, on such qualitative accounts.

In the example above, the initiative remains a *set of indicators* if its contribution is to collate a series of statistics, relevant to some topic or objective, and accompanying discussion. However, it becomes an *index* if some aggregate measure, for instance named overall child well-being, is constructed to summarize the performance of multiple other measures. Unlike the individual constituent indicators which have natural units such as fraction of children, calories per day, or average reading level (grade) at age 12, indices often have contrived scales and no units. For instance, they may be a number which is scaled so that its value in a base year was 100. A prominent example is the Human Development Index (Human Development Report Office 2013), which is simply a combination of life expectancy, income per capita, and two measures of population education levels. There is no obvious or natural way to combine these, so the method is somewhat arbitrary. A more complex example is the Canadian Index of Wellbeing, which blends 64 individual measures into a summary index (Michalos et al. 2011, p. 6). Clearly, someone else using the same data might choose to combine them in a different way and therefore come up with a different value for the index.

This problem with indices is a serious challenge when they become subject to public scrutiny. The Stiglitz-Sen-Fitoussi Commission, appointed by the French Presidency, wrote in its 2009 report that statistical offices should provide information to empower others to aggregate across dimensions of life quality in various ways, to create a variety of indices (Stiglitz et al. 2009), rather than make the value judgments necessary to settle on and promote a single index. In our database, 52% of indicator initiatives which fit purely into the "index" category have become defunct, as compared with 40% of the collections of indicators which have chosen not to aggregate their components (*MPWB*).

Two kinds of indices appear to have a more accountable rationale for their method. We defer discussion of one of them for later, but the first is those which are summing up things with monetary values, referred to above as *Accounts*. The GDP is such an index, as are many of the "Genuine Progress Indicators" (GPI) which aim to partly "correct" the GDP by including missing components such as the degradation of natural capital. However, even though these indices may be denominated in units of currency, they are not simple sums. Expressing GDP in terms comparable across years is a complex calculation because it must take into account the year-to-year changing market prices of countless goods whose real values have presumably not changed. GPIs have an even harder challenge, since they aim to put financial values onto components of provision, investment, and disinvestment or

harm, without having any direct price evaluations to work from. This requires higher levels of judgment and extrapolation in order to quantify the contributions. In fact, the inevitable omissions in these methods leave their indices also lacking in transparency and objectivity.

2.3.1 Subjective Well-Being

So far, the focus has been on objective indicators. The rate of attendance at primary school, life expectancy, and volume of a good produced are all values which, in principle, someone else could re-measure if they had access to the same population, and they should come up with the same answer. By contrast, the use of *subjective* data to assess well-being and progress is on the rise in economics and in indicator design, but relies on an individual's evaluation which cannot be verified by a second or outside authority.

It is worthwhile to consider a certain single survey question which has a somewhat central role in this field:

> Overall, how satisfied are you with life as a whole these days, on a scale from 0 to 10, where zero means you feel "not at all satisfied' and 10 means you feel "completely satisfied"?

While clearly highly subjective, this life satisfaction (LS) question solicits a numeric response, and the data from fielding it are therefore quantitative. This fact has facilitated an extensive and rapidly growing body of research (alluded to earlier) which quantitatively analyzes variations in LS across individuals, communities, and countries, at a point in time as well as using changes over time. The body of evidence shows that LS exhibits reasonable stability within individuals, sensitivity to life conditions and changes, the ability to predict behavior, reasonable variation with material and other circumstances across the entire range of global national development levels, and international and intercultural comparability (Helliwell et al. 2010; Exton et al. 2015). More broadly, SWB reports for an individual are consistent with those predicted on their behalf by family and close friends (Diener 1984; Sandvik et al. 1993), and SWB reports correlate with objective physiological signs of mood and well-being. While an individual's answer is subjective, average responses from a population are a reproducible measurement.

Upon acceptance of the idea that individuals can aggregate their experience in accordance with their own priorities and values in a way that no one else can, the advantages of having access to such measurements become apparent. The aforementioned Stiglitz-Sen-Fitoussi report points out that it is difficult to compare income over time in the face of technological change, for reasons already given above, and it is also a great challenge to value publicly-provided individual services, as well as numerous other experiences which are not a result of choices. By contrast, individuals' own cognitive evaluations of life accommodate in principle all these experiences and changes with the appropriate psychological weights.

The understanding of these measures has advanced rapidly in recent years due to the increasing abundance of empirical data. Efforts by the U.S. National Academies (Stone and Mackie 2014) and in particular the OECD (OECD 2013) have led to a standardization of SWB measurement, in which LS is identified as the primary measure for policy analysis. Politically, too, such "happiness" metrics have gained traction and, increasingly, investment and policy accountability. High-level examples include Prime Minister Cameron's initiative in the U.K. (Cameron 2010; UK Office of National Statistics 2011; Dolan et al. 2011); President Sarkozy's rationale for the Stiglitz-Sen-Fitoussi report (Stiglitz et al. 2009); the OECD's Better Life initiative (OECD 2015, 2016); the World Happiness Reports (Helliwell et al. 2012, and nearly annually since); and the U.S. Federal Reserve chair Bernanke's speech on well-being (Bernanke 2010).

Accordingly, there has arisen our fourth category of indicator system *structure*, the "Subjective measures." These are indicator initiatives consisting entirely of subjective reports, for instance satisfaction with various aspects of a local government's performance, or which are otherwise oriented around subjective well-being. One of the indicator projects listed in Table 2.1, in Genesee County, fits this description. Figure 2.3 shows the distribution of our four categories over time. According to this limited sample, there was a peak of interest in monetary-denominated accounts (GPIs and the like) in the previous decade, but there is a continued growth in the role of indicator initiatives focused on subjective

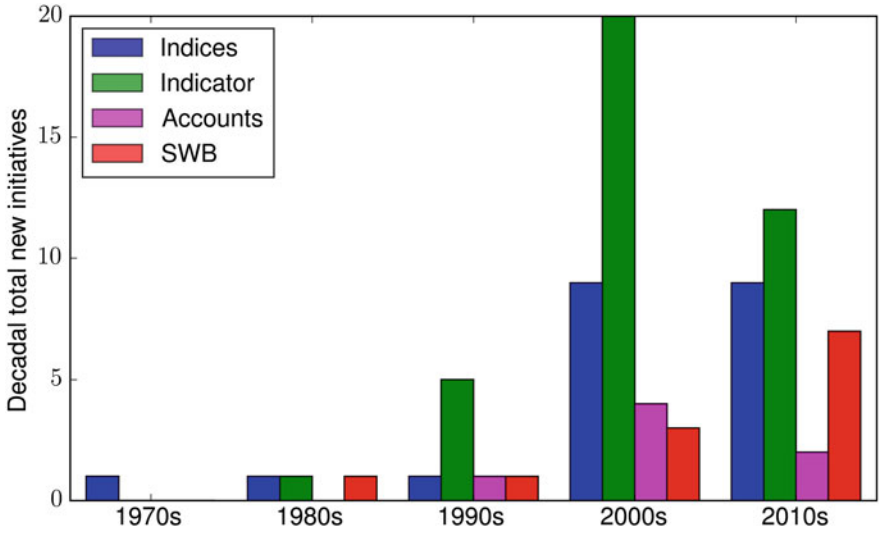

Fig. 2.3 Indicator sets, Indices, Accounts, and Subjective measures. *Bars* show the classification of new measures in our database by decade. The "Indicators" category refers to sets of indicators that are not rolled into an index. The subjective well-being (SWB) category includes measures exclusively composed of subjective assessments, as well as indices aggregated according to weights derived from empirical models of life satisfaction. Excluded from "Index" are those indices which also fit in the SWB category

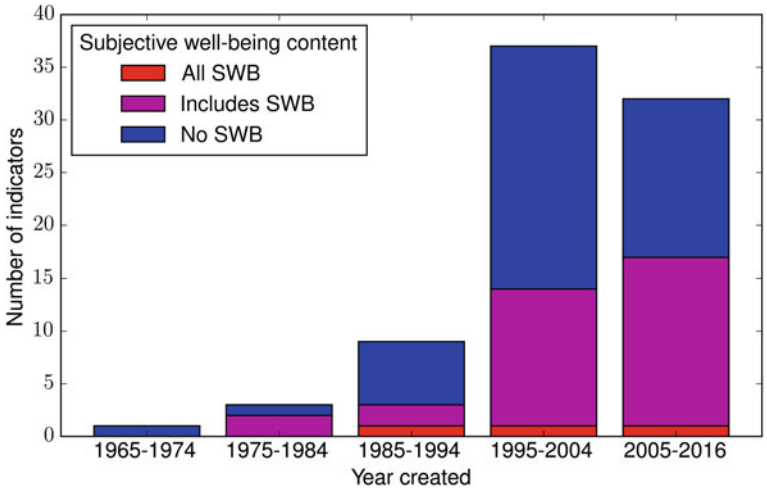

Fig. 2.4 Incorporation of subjective responses into measures of progress. From *MPWB*

well-being. Figure 2.4 provides even stronger evidence of this trend. A number of indicator systems include at least one subjective response measure in their panel of indicators, even if they do not privilege SWB as a focus or guide. In the last decade, fully half of the new indicator initiatives have incorporated subjective responses in one way or another, which is nearly double the rate of the previous decade.

Possibly the most interesting development in the measurement of general-purpose well-being indicator systems is the rise of indices which are built from a set of objective indicators but which use SWB to guide their aggregation. In our classification, these fall both into the "Index category" and the "Subjective measure" category. Earlier I referred to two kinds of indices which appear to be more accountable because of their transparent method of creating an index out of a collection of relatively unrelated indicators; however, I explained why the first, the money-denominated accounts, is in fact plagued by transparency problems.

By contrast, the SWB-based indices may pose a paradigm in which the recipe for building an index from a set of (typically) objective measures is more accountable. Our database includes three examples. The Legatum Prosperity Index (Lind 2014) uses a model explaining variation in responses to Gallup World Poll's life evaluation question to determine weights for building an index out of eight domains. Similarly, a regional analysis in France uses the answer to the question, "In your current life, do you feel happy: never, occasionally, quite often, very often?" along with the same statistical technique to find weights for aggregating 11 indicator dimensions (Bigot et al. 2012). Thirdly, the Economist's *Quality of Life Index* is generated using weights derived from a similar model of life satisfaction data (The Economist Intelligence Unit 2005).

In each case, an objective, reproducible method is used to determine how to build an index out of a set of available measures which may be thought to pertain to quality of life, progress, or well-being.

The method essentially evaluates the importance of each item for explaining variation in SWB, and then uses the measured importance as a corresponding weight. In fact, the resulting index is like a synthetic measure of SWB, as it statistically reproduces the measured subjective indicator using only the set of more objective indicators. In the next section, I discuss the advantages of this approach, and explain some of its limitations.

2.4 Structuring Indicator Initiatives to Be Meaningful and Accountable

Indicator systems meant to reflect policy success, or to capture overall well-being or a broad—if not comprehensive—measure of progress, require several attributes to support their adoption, persistence, and ability to influence. These include accountability, accessibility, and relevance. Being accountable relates to at least two things about the indicator project, corresponding to our categories of *rationale* and *structure*. First, the conception and design of the indicator system must have legitimacy, in its ultimate form but usually also in the process of devising it. In "bottom-up" design processes, for instance, there is a sufficient level of atheoretical input from the population being monitored. Secondly, an accountable structure is one with sufficient transparency in order that others can both reproduce it and understand it.

This last point relates to accessibility, also. Not only must the indicator system structure be feasibly understood by others, but the presentation format of the indicator system should also be appealing. For this reason indicator initiatives sometimes choose to build an index as a summary measure; it acts as a headline feature as well as an organizing concept which can encourage further exploration of the more detailed, disaggregated components which constitute it.

In order to be relevant, of course, the metrics included in an indicator system must in fact help to differentiate good experience from less good experience and ultimately good policy from bad. Ideally, the metrics would also be concise: i.e., they would be the best and smallest available set which address the relevant dimensions, and no more.

My focus on LS reflects two advantages in regards to the criteria described above. First, LS can serve as an organizing concept and headline measure for human welfare or quality of life. Even if is reported in its raw form and a remaining set of indicators is not aggregated into any index, featuring LS as the headline indicator communicates the overall intent of an indicator system. It also conveys a particular approach, in which it is the experience of the target population that is privileged with the ultimate voice and priority. This portrays one kind of accountability in the measurement

system simply because the designers are not deciding which policies, departments, or domains are the most important.

Secondly, LS can serve as a statistical tool to provide guidance on weights for an index, and even on what social and economic variables to incorporate in an indicator system. How might one achieve the best and smallest set of indicators in a panel of indicators, and how might one evaluate the relevance of a particular indicator when deciding whether or not to record, include, or publish it? Using LS data as a guide allows exactly this, in principle. Although the process is not completely devoid of judgment, the statistical calculations referred to earlier (typically, these are linear regressions) provide measures of importance for LS for each of an array of indicators that one might propose as jointly relevant for well-being. This process not only provides weights that can be used in building an index out of a set of indicators; it also can suggest which indicators to drop entirely. If an indicator is not deemed important by such models, then it is not currently useful in differentiating between those experiencing high quality of life and those experiencing low quality of life, overall.

One drawback of such data-driven weights in an index is that if a new or better set of indicators arises, for instance because a new, improved measure of social capital becomes available in a survey, it has implications for past assessments of the index. That is, one could then calculate trends over time in two ways—with or without the new value included. Moreover, even with the same set of indicators, the weights could change just with updated values of the data or with newer external science informing the weights. This means that there is not a single possible version of the index, but rather that it remains to some extent a work in progress. In fact, this is not so different from the ever-evolving detailed definition of GDP, or the GPIs which are limited in their inclusiveness only by what data and methods are available at any point.

A second caution is that an indicator system for well-being does not encompass all community indicator objectives. There is no reason to believe that SWB measures like life satisfaction incorporate full assessments of future risks or unseen damage to the environment or to public resource stocks. As a result, well-being indicator initiatives are best separated from complementary ones addressing long-term sustainability (Neumayer 1999; Hall et al. 2011). *MPWB* also articulates deep concerns with treating environmental or sustainability assessments in an analogous way to what is advocated here for well-being, i.e., folding them into a single index. While use of improved accounting systems like GPI and augmented GDPs still has a role for evaluating trade-offs between one asset and another, the task of ensuring environmental integrity is much more complex and lends itself more to tracking a set of indicators which cannot sensibly be combined. Most likely, in this realm policy should be in the form of enforcement of limits (e.g. quotas) on most of those indicators, rather than trying to optimize a single outcome.

Despite these limitations, because LS-based weighting schemes as described above do not rely on arbitrary choice, but are constrained to follow whatever the data say, and because even the set of included factors (indicators) is ultimately

chosen by the data itself, the schemes do not suffer as much as other indices from the drawbacks related to accountability and theoretical foundation. When the public and policy makers trust that the weights of an index are meaningful, they may also be more likely to feel interested to investigate and take seriously the more specific indicators that comprise the index.

2.5 Conclusion

Well-being is a bit of a weasel-word, in that it can be used to refer to whatever priorities a given advocate wishes to promote as important. However, subjective well-being, and life satisfaction in particular, is becoming the measure to which other definitions of well-being are accountable.

One new option in the menu of strategies for devising, organizing, and communicating community indicator projects is to use life satisfaction responses as a way to give privilege to a collective voice for defining what is important. Rather than asking citizens explicitly what they believe is important to measure and to pursue, recording life satisfaction allows for the choice to be an implicit one because modern methods are established to infer what matters based only on how people judge their lives, overall, when asked for a cognitive evaluation. That is, when large data sets on individual life satisfaction and an array of more objective life circumstances are brought together, the circumstances can be used to statistically "explain" life satisfaction, and this tells us which life conditions deserve the most focus, and in what proportion. This has the nice property of separating, as much as possible, objective measures from subjective ones, while recognizing that ultimately the selection and pursuit of objective measures are all accountable to our subjective assessment of life quality.

Use of SWB in this way can in principle (1) guide and test the choice of indicators in an indicator initiative; (2) provide objective, empirically-based weights for creating an index measure out of a set of indicators; (3) provide a headline indicator to succinctly communicate the overall goal of pursuing life quality to those who might otherwise be put off by a rather technical array of detailed quantitative indicators; and indeed (4) keep the effort, and therefore policy, accountable above all to a purely human centered and experience-based metric of well-being.

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Author Biography

Christopher Barrington-Leigh is an Assistant Professor at McGill University, jointly appointed at the Institute for Health and Social Policy and the School of Environment, and is an associate member in McGill's Department of Economics. Originally trained in upper atmospheric and space plasma physics at M.I.T., Stanford, and Berkeley, Chris subsequently received a Ph.D. in Economics at UBC. Chris' research interests lie in two fields. One is focused on empirical and quantitative assessments of human well-being, and their implications for economic, social, and environmental policy, including the pursuit of overall economic growth and material consumption expansion. In particular, his research makes use of subjective well-being reports to address the relative importance of social and community-oriented aspects of life along with material consumption. He uses large international as well as national surveys, experiments, and economic theoretical modeling to understand individual and aggregate consumption benefits, and their implications for policy. His other research pursuit addresses issues in environmental economics, including the structure of urban road networks and their implication for climate policy. Chris was a Global Scholar of the Canadian Institute for Advanced Research (2009–2014).

Chapter 3
Community Indicators and the Collective Goods Criterion for Impact

Frank Ridzi

Abstract Common wisdom holds that communities can accomplish more when people find ways to work together. However, such nuanced sensibilities can be difficult to measure. This is true in the field of community indicators as well as its allied fields of social movements, collective impact, catalytic philanthropy and community coalitions. Due to the elusiveness of evaluation techniques some in the social movements field have argued for a definition of success based on the collective goods criterion (CGC). In this chapter we explore the case of Syracuse, New York on the occasion of its achievement of seven years of positive change in its key community indicator of the four year graduation rate. Though it would be difficult to claim that Syracuse's community indicators project, CNY.vitals, caused this change, we explore how a CGC approach can be used to examine how the measurement mentality that accompanied the community indicators project is associated with collective benefits that have accrued to members of the community in terms of cultural capital, philanthropic investment and governmental policy change.

Keywords Syracuse · CNY vitals · Collective goods · Literacy rate · Catalytic philanthropy · Collective impact · Philanthropy

3.1 Introduction

In this chapter, we focus on the challenge of measuring the success of Community Indicator Projects (CIPs) that aspire to bring about positive community change. The first part of this chapter examines what can be learned from the wisdom of the social movement literature's collective goods criterion. The second part of the chapter provides an overview of a specific case study, CNY Vitals, describing how this criterion can be useful.

F. Ridzi (✉)
Central New York Community Foundation and Le Moyne College,
Syracuse, NY, USA
e-mail: FrankRidzi@gmail.com

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3.2 Why the Collective Goods Criterion?

Community Indicators projects (CIPs) seldom limit their ambitions to simply measuring local data. Whether explicitly or implicitly stated, the end game for most CIPs is to help bring about a noticeable improvement in the quality of life that residents experience (Holden and Phillips 2010; Wood 2016). Consequently, CIPs that begin by measuring community well-being often evolve into a follow up phase of mobilizing community stakeholders to attempt to bring about changes in policy, resources and social capital that, it is hoped, will make the community indicators that people have rallied around change for the better (Wood 2016). For instance, if a CIP began by bringing attention to high community obesity rates, the next steps might involve rallying stakeholders to this issue, articulating strategies for community change (such as raising issue awareness and launching exercise and healthy eating programs for youth), and maintaining constant lines of communication about how pre-existing strategies can better coordinate to reinforce the broader initiative. Communities that set out to make this transition from problem identification to taking action toward remediation often turn to implementation structures such as community coalitions (Butterfoss 2007; Ridzi et al. 2011) or other variants of the collective impact approach (Kania and Kramer 2011). These approaches offer frameworks for how to structure collaborative community initiatives that incorporate and coordinate the efforts of groups that, under business as usual, typically carry out their missions in isolation (or silos) from each other. In essence by adopting one of these structures communities do not have to reinvent the wheel while setting out to increase coordination among residents, governments, schools, businesses and others.

While a variety of models exist for the formation of coalitions or other collective impact structures (Butterfoss 2007; Kania and Kramer 2011; Ridzi et al. 2011), there has been remarkably little effort to connect these structures with another type of community mobilization literature—that of social movements. There are likely numerous reasons for this. Most notably, collective impact or coalition movements are a distinctive type of social movement from those that dominate the social movement literature. Social movements and collective impact approaches differ in distinctive ways. While social movements tend to emphasize grassroots resident-led efforts to change community power dynamics, collective impact approaches tend to be more "grass-tips" (Butterfoss 2007: 10) and led by community leaders. Nevertheless, they also have many commonalities; most notably that they both seek to transform the institutions in place to make life better for the constituents of their communities. While exploring the similarities and differences are beyond the scope of this paper, it is nevertheless helpful to explore some of these contrasts when it comes to the issue of measuring the success of their efforts because it helps to elucidate how the common good criterion that has been utilized in social movement literature can also be of use within the CIP/collective impact realm.

Community Indicators projects that evolve into collective impact have sought to measure impact most often by hoping for positive change in the numbers that are

spotlighted (Hatry and Morley 2008; Ridzi 2012; Zimmerman 2012; Wood 2016). This is the premise behind numerous projects that have been launched as well as recent software packages that have been developed within the framework of results based accountability (Carlson et al. 2011, see also Results Scorecard 2016). However, there has long been a noted difficulty, even when positive change is brought about, in the actual attribution of credit for such changes. Community Indicators are not alone here. The kindred literature on community coalitions (health focused and otherwise) suggests that, though a vast amount is known about their organization, their ability to mobilize support to achieve policy change, and their regard as effective institutions within the communities they serve, there is little ability to prove that they actually make a community better off. Collective Impact and Catalytic Philanthropy (Kramer 2009) models too often cannot point to improvements in large scale community indicators such as graduation rates based on their work (Henig et al. 2016). Rather they must often look to their successes in rallying people and their governments to bring about policy change as the evidence of their success. So while seeking to enact more expansive medical coverage policies or enroll a greater number of children in healthcare might be pointed to as evidence of effectiveness, we fall short of being able to attribute declines in child mortality in a community to such efforts, even if the two co-occur. The problem is that correlation does not prove causation, especially within the complex ecosystems of communities large enough to warrant community indicator projects. This type of problematic reasoning was made famous in large scale community indicator forays into analysis such as popularized by Freakonomics (Levitt and Dubner 2005). These authors made great sweeping proclamations such as about how legalized abortion has led to a decades later reduction in crime (since unwanted children that would later become thugs were prevented from being born). While plausible, few would say that this correlation actually proves that the noted policy change of abortion caused the outcome of reduced crime, since reality is likely much more complex. The same is true in the case of efforts related to community indicators. These initiatives simply take place in an ecosystem too complex to prove cause and effect. In this respect, community indicators/collective impact efforts and social movements find themselves on similar footing. As Amenta and Young assert, "important developments sometimes happen in the wake of social movements and the collective action of challengers. But it is premature to call these developments the outcomes or results of challenges because events that happen during or after a challenge may be due to forces other than the challenge" (p. 23).

Because it predates the collective impact and coalition craze, the social movements literature has had longer to reflect on this dilemma. Though typically focused on the power struggles of different classes of people, often in a Marxian historical materialist vein, this area of study also sought to understand how community mobilization (not entirely unlike that encouraged by indicators movements) could bring about change for the better. Perhaps in part due to the fact that social movements often materialize out of disenfranchisement (or perceived disenfranchisement), social movements have not been associated with community indicators. Indeed, it is not hard to see why since in a conflict perspective it is those in power

who control the means and apparatus of the state and the measurement systems that govern everyday lives (Smith 1999). Hence, it would not behoove a social movement that is seeking to disrupt the power of a ruling class to embrace the same measures that are controlled by a ruling class as its standard for success. While at some level it would appear that social movement literature is at odds with community indicators, it is perhaps this isolation from the control of enumerating apparatus that has led the field of social movements to develop other measures for success, in line with an effort to drive change from the status quo. While there is, of course, the blunt instrument of examining whether a government was overthrown, an allegedly unjust law overturned, or a political party ousted from power, there are also more subtle nuances to success within the social movements literature. The collective goods criterion helps to make this visible since it has been used to conceptualize what constitutes an important result of a social movement effort (Amenta and Young 1999: 22).

The social movement literature asserts that coalitions have three dimensions for measuring impact: "they last long enough to achieve goals or concessions, they consistently carry out collective action, and they manage to influence their targets in desired ways" (Suzanne Staggenborg as seen in Reese 2011). While on first glance this might look very similar to what one might articulate as a goal of CIPs that evolve into collective impact coalition formation, there is a key difference brought about in the phrasing of the outcome. To "influence their targets in desired ways" is, on further analysis, much broader, and much more forgiving than a comparative goal of a CIP effort to for instance "move the needle on a specific targeted community indicator." This broader perspective on what success could look like is not an accident. Ever since William Gamson's 1975 work, *The Strategy of Social Protest*, (2nd edition in 1990) the field has wrestled with the reality that there is often wide disagreement among activists and even between activists and scholars about the official goals of social movements. As might be anticipated, disagreement about the purposes of movements might lead to a bit of a challenge when it comes time to determine if it succeeded. While collective impact may seem to be on different footing since it insists upon shared measures of success from the beginning (Kania and Kramer 2011), in practice, the selection of such measures can be intensely political and may, more often than not, involve settling for what measures are available, or expedient, rather than what the majority of participants would see as a true measure of success. For instance, even though a room full of highly trained professionals may agree to use a specific measure, the majority of these same professionals may readily concede that the agreed upon measure falls far short of capturing the true goal of the initiative. Given this similarity of disagreement in both social movements and CIP/collective impact efforts it may be helpful to resort to the collective goods criterion that allows for the fact that collective action may often result in impacts that, though positive and desirable, were not anticipated by anyone.

Hence, in short the "collective goods criterion" of social movements is much more generous, perhaps because it is born of recognition that activists seldom achieve the goals that they set out to achieve. Furthermore, because of this lack of

linearity, the social movement thinkers in this area tend to shy away from using terms such as "success," "failure" or "outcomes" of social movements, but rather focus on the "impact" of such movements (Amenta and Young 1999). This approach sees such movements as impactful if they secure any significant positive movement for the groups on whose behalf they advocate. This could include improvement on the political, individual, institutional, international or cultural realms. It would also include direct and indirect as well as unanticipated and latent effects.

So what types of wisdom might CIPs with collective impact aspirations draw from a collective goods criterion? For starters, a collective good criterion suggests that collective movements should be wary of drawing lines in the sand and insisting that they will be the ultimate measures of the initiative's success. The litany of social movements case studies suggest that collective action can often lead to positive change, but that it is often in ways that were not initially predicted. Groups that draw a line in the sand at the outset risk having a mostly successful effort labeled a failure because it failed to meet one measurable criterion.

Second the collective goods criterion suggests that it is worthwhile to take an inductive approach to identifying indicators of success rather than a deductive approach. A deductive approach picks a measure from the outset and says: if the initiative is a success, the needle will move. An inductive approach, on the other hand, is much more holistic and qualitative. It would look more like a retrospective analysis of all of the positive changes that have occurred following from the initiative with an open minded readiness to be on the lookout for unanticipated positive outcomes. These might take such forms as community investment, governmental policy change and increases in recognition of the importance or validity of the cause.

Finally, the collective good criterion's broad perspective on impact warns against singling out specific members of the community, or programs that they run. To do so would be antithetical to the notion of a movement based on collective action. Not only would focusing on one outcome be too limiting based on the inductive approach of the criterion but it could potentially undercut the core of solidarity that is the heart of what makes collective action a success. This is consistent with advocates of collective impact who have argued that the movement needs to avoid looking for silver bullets to solve our problems and instead look for silver buckshot (Kania et al. 2014):

> Achieving population-level change requires stakeholders to abandon the search for a single silver bullet solution. Instead, they must shift their mindset and recognize that success comes from the combination of many interventions. For practitioners, this shift means thinking about their work as part of a larger context, and considering how their efforts fit into the larger puzzle of activities. Funders and policymakers similarly must shift from investing in individual, single-point interventions toward investing in processes and relationships that enable multiple organizations to work together. It is important to note that this shift toward silver buckshot solutions does not minimize the importance of high quality individual programs, interventions, and policies. Rather, it emphasizes that each of these programs and policies is necessary, but not sufficient, for success. Rather than isolating individual programs and trying to scale them up, collective impact works best when it

> focuses on the ways that strong individual interventions or policies fit together and reinforce each other to solve a complex problem.

Taking this metaphor further, the main advantage of using it is that it helps us increase our chances of hitting a target even when it is in motion or when we are trying to hit multiple targets simultaneously. In that regard, it takes into account the imprecision with which we are able to measure our social lives and the constantly changing factors that cause and sustain such intractable social problems as poverty, illiteracy and pollution.

If we were to launch a broad initiative with a single identified goal and then celebrate only one champion from within the larger cohort of collaborators that we identified as causing the change we seek, we would not only be overlooking all of the accomplishments of the various members of the initiative that were not able to be well measured but we would also risk ostracizing the others who participated. Indeed Helmstetter et al. (this volume) assert that overcoming competitive orientations is critical to success. To use another metaphor, singling out a key partner over the collective group of collaborators is akin to asking which battle won the United States' revolutionary war. The answer, from a common good criterion perspective, is "all of them." Every battle fought drew resources and efforts away from others that, if the initial battle had not been fought, might have turned out differently. This is not to say some of the battles themselves were not failures or could not have been implemented more effectively—certainly that is true and (as Kania et al. 2014 suggest) we should not cease to rigorously evaluate the many programs and activities of a collective impact initiative to figure out which seem to be gaining us the most traction so that we can devote more resources to them. This approach simply suggests that the success of the initiative must be the success of all —all flags flying at the same height. It is in the essence of the word collective and the ethos of social movements not to single out some above others. To do so would be to undermine the collective part of collective impact and to diminish the social capital or what David Laird has called the "civic muscle" that enables the movement to continue. This is critical since, as some have argued, the true success of such movements is not the numbers at all but rather the ability to continue collaborating moving into the future. In the words of Aldrich et al. "Interventions come and go; sustaining the capacity to collaborate means the community will always have a durable resource with which to address common concerns" (Aldrich et al. 2009, p. 147).

Thinking still more broadly, the collective good criterion and its emphasis on the value of collective buckshot over emphasizing silver bullets makes the models to which it is applied more likely to be generalizable to other communities. As we know from numerous failed attempts to bring collaborative efforts to scale in other communities, we cannot overlook the diversity that will lead to success in one location and failure in another. The collective good criterion leaves the definitions of success open broadly enough to account for different types of success as the same coalition or collective impact model is applied in multiple diverse

communities. In the following pages we explore this robustness that the collective good criterion offers by applying it within a case study of Syracuse New York.

3.3 Community Context

It is hard to think of a more rustbelt city than Syracuse, New York. Like most "legacy cities" in the northeastern United States, it was one of the powerhouse manufacturing hubs that helped the United States climb to prominence by utilizing such superhighways of their day as the Erie Canal and the railway system. However, as global economic shifts have de-centered the former economic centers of the world, key industries have shifted from rust belt to sun belt and then to developing nations. Cities such as Syracuse have persisted and developed rugged community pride and visions of future greatness that comingle with nostalgia for the past. As one of the top three communities for refugee resettlement in the United States (Baker 2016), the central New York region has stemmed the tide of outward migration and sought to build a new future based on embracing diversity and leveraging the many natural resources and key economic engines (such as institutions of higher education and healthcare) that are abundant in the community. Indeed, to many, Central New York offers unparalleled quality of life. Suburbs boast some of the best schools in the nation and a very affordable cost of living, along with proximity to both abundant natural beauty and world class urban destinations such as New York City and Toronto. Unfortunately, as is common in cities across the nation, prosperity has not been evenly shared. Inner cities across the nation have been left behind as jobs and opportunity move to the suburbs. The result is an increase in concentrated poverty, which has affected Syracuse as much as anyone, and led to its ranking as having the highest concentration of poverty for certain racial groups among the nation's largest 100 metro areas (Semuels 2015; Jargowsky 2015). It is in this context that we explore the current triumph of community indicator progress in high school graduation rates and turn to the collective goods criterion to explore how we might share credit among all of the region's community indicators and collective impact efforts.

3.4 An Evolving History of Community Indicators in CNY

The birth of the CNY vitals community indicators project can be traced back to 1997 when a group called FOCUS Greater Syracuse (FOCUS, stands for Forging Our Community's United Strength) convened to lead a community-wide visioning process (Wood 2012). Ultimately collecting input from over 4000 community members, there was a sense that the community's concerns could be grouped into a set of indicator areas and there was a developing desire to be able to measure progress toward meeting community goals. As a result, in 2000 FOCUS gathered

approximately 30 content experts and began developing a set of community indicators, looking to the National Civic League for guidance (Wood 2012).

Since that time, however, the community's efforts grew through partnerships with Syracuse University's Community Benchmarks Program and the Central New York Community Foundation from a report of less than 15 pages in 2000 through another follow up report in 2005 to the launch of a website in 2011. At the same time the project expanded from 89 goals to nearly 400 indicators and the involvement of over 80 community leaders (FOCUS 2016a, CNYvitals.org). Furthermore, the indicators project, still very much a product of local sweat equity, has grown to include such tools as "dataZoa" and Results Scorecard.[1]

Today CNY Vitals is a unique community indicators website developed by many partners dedicated to improving the quality of life for those who live and work in Central New York. Within subject areas users will find a robust set of data and indicators concerning Onondaga County and the region. This dynamic and interactive website provides a central clearinghouse for data from a multitude of sources, many of which were not previously available online. Indicator teams, made up of volunteers from many disciplines across the region, work to improve and update indicators at regular intervals.

The purpose of CNY Vitals is to provide timely, accurate data and information on the trends and issues facing Central New York's residents. The hope is that this information will generate discussion, inform plans, inspire collaboration and spur action. The vision is that community leaders will use the information available through CNY Vitals to construct informed plans and secure additional financial resources to address community needs. Furthermore, the community will be well-equipped with the information necessary to see if shared efforts are making a difference and creating positive and lasting change.

3.4.1 Using a Measurement Mentality to Set the Community's Sight on Literacy and Education

With the emergence of Kania and Kramer's seminal article on collective impact in the *Stanford Social Innovation Review* in 2011, there has been recent interest in how community indicator programs can incorporate this new framework to catalyze collective impact initiatives that help to develop approaches to facilitate change (Zimmerman 2012; Wood 2016). Though collective impact is new as a concept, it can also be seen as a re-framing of the vision that was present in the initial FOCUS

[1]dataZoa is a web based tool that automates data updates for community indicators websites (https://www.datazoa.com/about/about.asp) and Results Scorecard (now renamed Clear Impact) is web based platform for setting goals and tracking progress toward movement of indicators in desired directions (http://resultsscorecard.com/).

greater Syracuse convening that led to the group developing a set of indicators guided by the following criteria:

1. The indicator measures something that can be changed by community effort.
2. The information comes from a reliable source.
3. The indicator is clear and understandable.
4. Most people would agree on whether the indicator should move up or down (Wood 2012: 81–82).

Hence, with this introduction of community indicators in Syracuse, New York there was a clear intention to produce measurable change that is the hallmark of a collective impact movement. From the beginning, the education of youth was a major focus of community concern. Nowhere is this more apparent than in the fact the first 11 of the 87 "GOALS-From the People As presented at the FOCUS Greater Syracuse Vision Fair" pertained to an improved educational pipeline:

1. Open schools weekends, nights, and holidays
2. Provide equal, quality, education for all children
3. Increase the number of school days
4. Teach students to be good citizens
5. Keep training teachers and make them accountable
6. Combine city and county schools
7. Increase technology in all classrooms
8. Establish community scholarships
9. Improve services for all children, ages 0-6
10. Provide affordable, quality childcare
11. Organize more programs for teens (FOCUS 2016b).

The interests in improving educational outcomes were not limited to children alone. Syracuse is sometimes referred to as the birthplace of the modern adult literacy movement. This is largely due to the fact that two of the world's largest literacy education groups, Literacy Volunteers of America and Laubach Literacy, were founded in Syracuse. These organizations, respectively, have rich histories of training community volunteers to tutor their neighbors and producing a wealth of reading materials appropriate to developing adult readers. Despite this tradition, however, the focus on literacy did not receive concrete attention until numbers could be put to the nature and extent of the problem. Perhaps most notable was a billboard that was posted announcing that 61,000 adults in the community could not read it (see Ridzi 2012). This helped to launch some philanthropic investment in 2003 that included myriad catalytic philanthropy style interventions. There were banners, media blitzes, professional development opportunities, and a series of community events (Ridzi et al. 2011).

Picking up the torch, in 2005, Syracuse 20/20, another civic group created a "Toward A Competitive City Agenda Score Card For The City Of Syracuse" listing high school graduations as a key area of assessment and tracking whether it was

going up. Among its other recommendations, the commission recommended a focus on dropout prevention (Syracuse 20/20 2016).

3.4.2 *Assessing Impact by TheAccrual of Collective Goods in Response to Noted Community Need*

Practitioners of collective impact have noted that "identifying shared measurements is one of the most challenging aspects of the approach" (Wood 2016: 1). Though the above narrative shares that a multitude of community groups coalesced around the goals of improved educational outcomes, it would be difficult, to say the least, to identify any one of these groups as being primarily responsible for the triumphant feeling when, on January 12th 2016, the Syracuse City School District proudly proclaimed that graduation rates again this year, "continued to climb."[2] The school district and the community were celebrating a drop-out rate that decreased from 26% in 2008 to 16% in 2015. Furthermore, they looked forward to an anticipated eight year high in graduations in 2016.[3]

Some groups had articulated, years before, a need to address the indicator of dropouts, others had articulated a series of goals that would lead to increased graduation rates (some of which, like instituting a community scholarship, had been implemented, and others had set to work developing a pipeline to graduation that began with better services to children at birth. Was it the early childhood efforts of the "read ahead" initiative that began focusing on preparing children for kindergarten in 2003? Those children graduating in 2015 would have been kindergarten age in 2003. Or was it the calls from civic groups for the city to take action that resulted in new approaches within the school system? Or was it the launch of a literacy coalition, the community's joining of the campaign for grade level reading and the creation of myriad new afterschool, summer and other programs? The collective good criterion would seem to suggest that this is the wrong line of questioning.

Rather, the collective good criterion would encourage us to look beyond simply the attainment of goals such as the increased graduation rate and to celebrate any and all significant advancements in a positive direction that the CNY community indicators advocates had sought to advance. Furthermore, rather than seek to credit any one component of the community's educational improvement movement, we might do as Haworth and Graham (2007, 128 in Sirgy et al. 2013) have asserted by

[2]Graduation Rates in the Syracuse City School District Continue to Climb Published on January 12, 2016 http://www.syracusecityschools.com/districtpage.cfm?pageid=3243.

[3]Syracuse graduation rate reaches 55% for 1st time in 8 years. Published January 14, 2016. Syracuse Post Standard. http://www.syracuse.com/schools/index.ssf/2016/01/syracuse_graduation_rate_reaches_55_percent_highest_in_8_years.html.

seeing, "Well-being is something that we do together, not something that we each possess."

So, how was it that the CNY community has come to this new level of well-being? The collective good criterion might encourage us to look at such things as community investment, governmental policy change and recognition that have accrued as the result of community efforts writ large. In the case of CNY we find an abundance of success here. When it comes to community investment local foundations and national philanthropy teamed up to create a pipeline for children from birth through careers. It begins with the Literacy Coalition of Onondaga County's dissemination of books to all children from birth to age five through the Dolly Parton's Imagination Library Program. This began in a quadrant of the city identified using community indicators of need and then received further support to expand to half of the city, then the entire city, and now the county. At each step in the trajectory an inter-organizational team of collaborators worked to measure the efficacy of the program. During these years children are also invited, along with their parents and caregivers in many cases, to participate in family literacy events and trainings. From there children enter kindergarten and receive remedial help with reading from programs such as the Book Buddies and other community groups. Once in school children are also eligible for summer enrichment programs that are part of the city's Say Yes to Education program. As the nation's first city-wide implementation of this program, Say Yes also offers additional after school supports and the promise of free college tuition to all city graduates that are admitted to any of a growing number of private and public colleges. There to assist students at this next transition is a corps of college and career access organizations that seek to help those students persist through graduation. For those that do not head off to college or who need additional assistance, the community has instituted literacy zones and has worked to better coordinate adult education offerings.

The above description constitutes not a full accounting of community activities all building toward collective impact, but rather some illustrative examples of how the community can count as successes the investments of local donors, volunteers and local and national foundations in the creation of systems change (a more extensive list of community activities building toward collective impact in the Central New York Area is included as an appendix). Though community indicators projects vary considerably, as Holden and Philips have pointed out, "what they share is a commitment to developing a systems-oriented understanding of the path from current trends to the change in our communities that we want to see, a participatory approach to defining and mobilizing change in that direction, and a significant role for high quality information in guiding this change" (Holden and Phillips 2010: 262).

Notably, the above types of changes have not been limited to philanthropy but have included governmental co-leadership and co-investment. This amounts to local governmental policy changes that have done such things as funded the expansion of the book distribution program from just the city to include the entire county and infusion of literacy programming throughout county caseworker home visits and the work of program partners that the county funds. Involved from the

beginning, the county took part in active recruitment of at risk youth to programming, strategic planning and the ongoing evaluation work. Being part of this ongoing measurement work has led the county to feel confident expanding its support for the programming. Furthermore, collaboration with the county and state government has led to the recent securing (from state government) of the remaining $20 million needed to endow permanent college scholarships for the children of Syracuse schools (CNYcentral 2016), thus achieving a goal the community set for itself in 1997.

In addition to community investment and governmental policy change, a third form of impact that has occurred following from Syracuse's indicator to collective impact efforts is the increasing recognition of education as a critical local issue. This comes in several ways. First, as Gamson (1990) has pointed out, social movements can achieve a degree of success by either moving their agenda forward in their challenges of the status quo or by becoming recognized as the legitimated mouthpiece for the constituents and issue they represent. This has certainly occurred on multiple levels. Syracuse has been recognized on multiple occasions as a pacesetter community by the Annie E. Casey Foundation-led Campaign for Grade Level Reading. This has brought attention and credibility to local leaders in this area. In addition, local efforts are now routinely mentioned in state of the city and state of the county addresses. It is not uncommon for Community Indicator projects to serve as a facilitator of what Forester (1987 in Wood 2016: 2) calls "attention shaping" by working to bring attention to local issues and foster political will toward action. Similarly, among collective impact efforts one strategy for the use of community-level data is to use it to catalyze discussion about the current state of affairs and what can be done to address its deficiencies (Zimmerman 2012). Given that another way noted to make impact is through transforming culture such as belief systems, ideologies and collective identities (Amenta and Young 1999), this can also perhaps be counted as one of the ways the Central New York movement for educational improvement has been impactful.

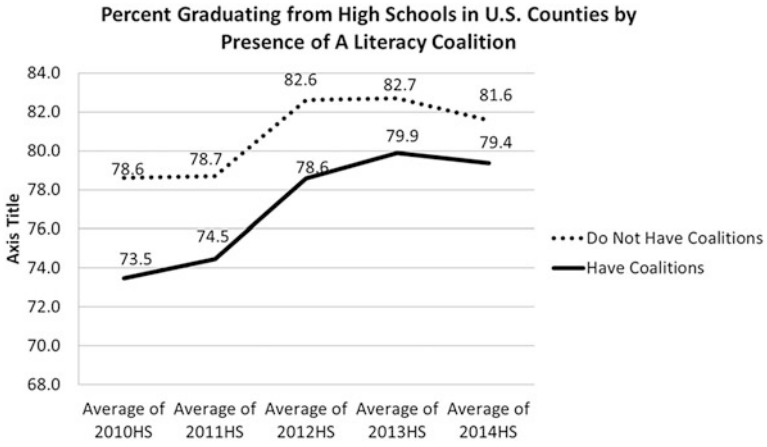
3.4.3 National Patterns

While the above reflections on the common good criterion can be seen to extoll the values of a more qualitative and inductive approach to assessing the success of community indicators/collective impact efforts, it should not be mis-construed to suggest that social movements theory is counter to quantitative or numerical analysis. Rather, such approaches are not as common as they could be mostly because of their methodological difficulties. Indeed, as Amenta and Young (1999) assert, "To ascertain or demonstrate the impact of a challenge, researchers must ascertain what might have happened in its absence" (p. 23). This is difficult, they admit because the "basic methodological task, generic to all forms of causal analysis, is a difficult one for this subject matter, because the conditions that influence the rise of challengers may also independently influence both the goals

sought by the challengers and occurrences that might benefit those whom the challengers seek to represent" (p. 23).

It is useful to reflect upon the noted methodological challenges of measuring the impact of social movements since they are often similar to those faced when trying to measure CIP/Collective Impact efforts. First of all, collective actions are rarely alone in pressing for changes (Amenta and Young 1999: 36). This can be seen clearly in the above case study, in which multiple efforts emerged with similar goals over time. The result is that it is very difficult to determine if any particular effort brought about a positive change. Given such challenges, social movement analysts have had little choice but to confer an assessment of "impactful" within very generous parameters. Though far from proving causation, some such as Gamson (1990) have considered a movement a success as long as its agenda was mainly accomplished within 15 years of the movement's demise, without needing to demonstrate that the movement was actually what brought that outcome about. Others have just assumed that co-occurring events could be attributed to contemporaneous movements (Burstein 1993 in Amenta and Young 1999). Under this standard, we could without a doubt declare Central New York's indicator-influenced movement a success.

However, much of the challenge to more rigorous claims of impact of social movements is akin to the same challenge among CIP/CI's. For the most part, the literature is dominated with single case studies. In such cases it is very difficult to control for anything. The best solution to date has been to use historical comparisons and to increase the sample of study to include as many communities as possible (Amenta and Young 1999). There also needs to be some variability in the communities included in a study; this is a perennial challenge since evaluators often have data only on communities that are implementing an initiative and so do not have comparison data from communities that are not implementing such efforts. Ideally, statistics can be used with data on performance and impact collected over time. To further illustrate how this might be done, we have used the County Health Rankings, a collaboration between the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute (UWPHI). These data were created and made available publically "to build a culture of health by raising awareness of the multiple factors that influence health and stimulating and supporting local action to improve health by addressing these factors" (Catlin 2014: 61). Most specifically, we have looked at high school graduation rates for all counties across the nation, which is available in this dataset. We then compared the graduation rates for communities with literacy coalitions (a form of collective impact structure). What we can see in the chart is that such communities seem to start out in 2010 with graduation rates much lower than the national average. Between 2010 and 2014 the national average for graduations increased, but the communities with coalitions seem to have made more gain overall. As we see, both groups see fairly consistent improvement, up to a point, after which both sets lose their efficacy. Nevertheless, in this time period the gap between the groups diminishes from 5.1 to 2.2% (a nearly 57% decline in the gap).



While we do not take this as proof that collective impact efforts indeed have an impact, this is nevertheless meant to display that an approach to assessing social movements and measurable aspects of collective good, can also be applied to community indicators projects and the collective impact approaches they gestate.

3.5 Conclusion

As we have seen in the literature on CIPs, communities "do not just want to help identify local problems; they want to improve decisions and accountability and improve their ability to organize resources to respond to local problems" (Wood 2016: 1). In the pages above we have explored how the collective good criterion can help communities better conceptualize the types of successes they may encounter and to plan accordingly. Because it stresses a broad definition of success, beyond just the indicators identified at the outset as problematic, it encourages communities to avoid drawing lines in the sand. While the collective impact approach that has been gaining momentum across the nation suggests that no positive change can occur without shared measurement, selecting a measure can also be a double edged sword. Groups that gather to start a movement often have ideas about what types of things they assume are measured, and what they feel ought to be measured, but are ignorant of whether these data points are in fact measured. Furthermore, it may avoid problematic retreats in the future if organizations avoid publically announcing specific goals and rather announce areas of focus from which measures of progress will evolve. This approach can be facilitated by taking an inductive approach to identifying indicators of success, and being open to a variety of forms of impact including community investment, governmental policy change and transformation of culture that comes with new recognition of the issues that CIP/CIs embrace. Finally, communities can avoid singling out

individuals within the collective impact approach since this is counter to the collective action ethos. While communities that consider the collective good criterion may ultimately decide not to use it, familiarity with this standard that has developed within the social movements literature can contribute to building the repertoire of community indicator proponents.

Appendix: Community Activities Building Toward Collective Impact in the Central New York Area

Arts, culture, and recreation	
IDEAS Arts Collaborative	http://weare.cnyarts.org/programs/ideas-collaborative/
CNY ARTS	http://weare.cnyarts.org/
Engage CNY	http://weare.cnyarts.org/programs/engagecny/
Civic engagement	
Consensus CNY: The Commission on Government Modernization	https://www.facebook.com/ConsensusCNY/
Demographics	
Syracuse refugee alliance	http://www.myhopeprint.org/refugee-alliance/
Alliance of Communities Transforming Syracuse (ACTS)	http://www.acts-syracuse.org/
Economy	
CNY employment consortium (supported employment)	https://www.destinyusa.com/press-releases/cny-employment-consortium-sponsors-abilities-fair-at-destiny-usa/
Upstate revitalization initiative	http://www.syracuse.com/business-news/index.ssf/2015/12/central_new_york_a_winner_in_cuomos_15_billion_upstate_revival_initiative.html
Greater syracuse HOPE—Healing, Opportunity, Prosperity and Empowerment (anti-poverty initiative)	http://www.syracuse.com/crime/index.ssf/2016/01/new_anti-proverty_group_forms_in_syracuse.html
Greater Syracuse Works (GSW)	http://www.greatersyracuseworks.org/
Education	
Literacy Coalition of Onondaga County	http://onliteracy.org/
early childhood alliance	http://www.nyfunders.org/Tools/BroadCaster/Upload/Project111/Docs/ECA_Coordinator.pdf
literacy zones	http://198.36.22.200/about/curriculum/AdultEducation/literacyZones
Success by six	http://unitedway-cny.org/success-by-6/
Environment, transportation, and planning	
Green & healthy homes	

(continued)

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	http://www.greenandhealthyhomes.org/get-help/find-ghhi-site
Interstate 81 challenge	http://thei81challenge.org/
Housing	
Housing and Homeless Coalition of Syracuse and Onondaga County	https://www.facebook.com/hhccny
Human services and health	
Syracuse area domestic & sexual violence coalition	http://www.verahouse.org/coalition
Human services leadership coalition	http://hslccny.org/
Public safety	
Cuse cares	http://www.localsyr.com/news/cuse-cares-shares-progress-and-struggles-with-violence-prevention
Trauma response team	http://www.ncbi.nlm.nih.gov/pubmed/26282564
In this together	http://falk.syr.edu/MarriageFamilyTherapy/documents/2015/TraumaFlyer.pdf
syracuse truce	http://www.syracusetruce.com/syracusetruce/
Fight crime invest in kids	http://www.fightcrime.org/syracuse-area-police-chiefs-visit-preschool-back-early-education-cut-crime-d1566/

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Author Biography

Frank Ridzi is Vice President for Community Investment at the Central New York Community Foundation, Associate Professor of Sociology at Le Moyne College and President of the Literacy Funders Network, an affinity group of the Council on Foundations. Frank has conducted research and written in the areas of literacy coalitions, sociology of work, and student affairs. His writings have appeared in such places as the Foundation Review, the Community Literacy Journal, the Journal of Organizational Change Management, and Review of Policy Research. Frank oversees and monitors the grantmaking process, conducts research on issues or concerns of importance to the foundation, shares expertise with donors and manages special projects for the foundation. He has worked for the Community Foundation since 2008, where he previously served as Program Officer for Community Initiatives and Director of Research and Community Initiatives. Frank holds a Masters Degree in Public Administration and a Ph.D. in Sociology from Syracuse University's Maxwell School. He also carries a Certificate of Advanced Study in Women's Studies. Prior to joining the Community Foundation, he served as Director for the Center of Urban and Regional Applied Research at Le Moyne College, where he still serves as Associate Professor of Sociology.

Chapter 4
Collaboration to Promote Use of Community Indicators: Communication Is Key

Craig Helmstetter, Paul Mattessich, Ruth Hamberg and Nancy Hartzler

Abstract To play a meaningful role in quality-of-life efforts, organizations managing indicators initiatives must collaborate with others. After summarizing evidence-based factors that influence the success of collaboration, the chapter highlights factors of greatest potential interest to community indicators initiatives: Mutual understanding and trust, members see the collaboration as in their self-interest, multiple layers of participation, appropriate cross-section of members, and open and frequent communication. These factors are then explored through a case study of the community indicators project that we operate, Minnesota Compass. Finally, we end by outlining a tactical approach to communications and outreach that reinforces collaboration—and helps to ensure the use of indicators toward the broader goal of increasing overall quality of life.

Keywords Minnesota Compass · Collaboration · Quality of life · Communication

4.1 Introduction

In this chapter, we focus on the strengthening of collaboration as a means to enhance the use of community indicators. Because of the complexity of our modern communities, the improvement of the quality of life in a city or region requires the employment of a variety of tools, including collaboration when appropriate, in order to integrate the efforts of multiple organizations, adapt to constant change, customize problem-solving approaches, and thereby succeed.[1] To play a meaningful role in quality-of-life efforts, organizations managing indicators initiatives must collaborate with others.

[1]See, for example, Auspos and Cabaj (2014), Kania and Kramer (2011).

C. Helmstetter (✉) · P. Mattessich · R. Hamberg · N. Hartzler
Wilder Foundation, St Paul, MN, USA
e-mail: craig.helmstetter@wilder.org

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The first part of this chapter summarizes evidence-based factors that influence the success of collaboration. We highlight the factors of greatest potential interest to community indicators initiatives. The second part of the chapter provides an overview of a specific case study, Minnesota Compass, describing how it has woven the ingredients for collaborative success into its strategy and operations. The chapter describes, for example, how the extensive use of advisory committees and a governance consortium creates community ownership for the project, ensures the relevance of the indicators for current policy and programmatic priorities, and solidifies a financial base. In the third part, we focus on how to nurture collaboration with a thorough communications and outreach plan, including the use of technology and social media for regular engagement with stakeholders.

4.2 Key Ingredients for Successful Collaboration

Collaboration refers to a mutually beneficial and well-defined relationship entered into by two or more organizations to achieve common goals. A meta-analysis of research literature on collaboration (Mattessich et al. 2001) has identified 20 factors which increase the likelihood of success in collaborative relationships.[2] These factors appear in Table 4.1.

All of these factors have importance for community indicators initiatives. Such initiatives typically require collaboration among organizations of varied types: research organizations, government entities, nonprofit organizations, grantmaking foundations, news media, higher education institutions, database providers, and others. We have limited space in this article, but based on our experience in a highly collaborative social indicators initiative, and our observation of other indicators initiatives, five of these factors merit special attention.

Mutual understanding and trust

> Members of the collaborative group share an understanding and respect for each other and their respective organizations: how they operate, their cultural norms and values, their limitations, and their expectations (Mattessich et al. 2001: 14).

Trust constitutes a significant element of any relationship. Sometimes, the organizations involved in an indicators initiative already know and trust one another; other times, they must build their relationships from scratch. In a situation where

[2]See Mattessich et al. (2001) for a description of the meta-analytic procedures used to identify the factors. Note also that Wilder Research is currently updating the meta-analysis of research on collaboration, with the intent to publish updated findings during 2016. The new edition includes expanded content describing how to apply the research-based factors in increasingly diverse 21st Century communities.

Table 4.1 Factors influencing the success of collaboration

1. Factors related to the ENVIRONMENT
A. History of collaboration or cooperation in the community A history of collaboration or cooperation exists in the community and offers the potential collaborative partners an understanding of the roles and expectations required in collaboration and enables them to trust the process
B. Collaborative group seen as a legitimate leader in the community The collaborative group (and, by implication, the agencies in the group) is perceived within the community as reliable and competent—at least related to the goals and activities it intends to accomplish
C. Favorable political and social climate Political leaders, opinion-makers, persons who control resources, and the general public support (or at least do not oppose) the mission of the collaborative group
2. Factors Related to MEMBERSHIP CHARACTERISTICS
A. Mutual respect, understanding, and trust Members of the collaborative group share an understanding and respect for each other and their respective organizations: how they operate, their cultural norms and values, their limitations, and their expectations
B. Appropriate cross section of members The collaborative group includes representatives from each segment of the community who will be affected by its activities. It engages members at the appropriate time and at an appropriate level of involvement
C. Members see collaboration as in their self-interest Collaborating partners believe that they will benefit from their involvement in the collaboration and that the advantages of membership will offset costs such as slower decision making processes
D. Ability to compromise Collaborating partners are able to compromise, since the many decisions within a collaborative effort cannot possibly fit the preferences of every member perfectly
3. Factors Related to PROCESS AND STRUCTURE
A. Members share a stake in both process and outcome Members of a collaborative group feel "ownership" of both the way the group works and the results or products of its work
B. Multiple layers of participation Every level (upper management, middle management, front line) within each partner organization has involvement in the collaborative initiative. Each layer brings different assets to the collaboration and may need to be involved to different degrees and at different stages of development
C. Flexibility The collaborative group remains open to varied ways of shifting its internal structure, organizing itself, and performing activities to accomplish its work
D. Development of clear roles and guidelines The collaborating partners jointly develop a set of shared operating principles. They clearly understand their roles and responsibilities and are committed to carrying them out
E. Adaptability to changing conditions The collaborative group has the ability to make changes, even to major goals, members, etc., in order to deal with changing conditions in the external environment
F. Appropriate pace of development The structure, resources, and activities of the collaborative group change over time to meet the needs of the collaborative group without overwhelming its capacity, at each point throughout the initiative

(continued)

Table 4.1 (continued)

4. Factors Related to COMMUNICATION
A. Open and frequent communication
Collaborative group members interact often, update one another, discuss issues openly, create transparency, and convey all necessary information to one another and to people outside of the group
B. Established informal relationships and communication links
In addition to formal channels of communication, members establish personal connections —producing a better, more informed, and cohesive group
5. Factors Related to PURPOSE
A. Concrete, attainable goals and objectives
Goals and objectives of the collaborative group are clear to all partners, and can realistically be attained
B. Shared vision
Collaborating partners have the same vision, with clearly agreed-upon mission, operating principles, objectives, and strategy. The shared vision may exist at the outset of collaboration, or the partners may develop a vision as they work together
C. Unique purpose
The mission and goals, or approach, of the collaborative group differ, at least in part, from the mission and goals, or approach, of the member organizations
6. Factors Related to RESOURCES
A. Sufficient funds, staff, materials, and time
The collaborative group has an adequate, consistent financial base, along with the staff and materials needed to support its operations. It allows sufficient time to achieve its goals and includes time to nurture the collaboration
B. Skilled leadership
The individual who provides leadership for the collaborative group has organizing, facilitation, and interpersonal skills, such as emotional intelligence and cultural competence, and carries out the role with fairness. Thus, the leader is granted respect or "legitimacy" by the collaborative partners
(Mattessich et al. 2001)

acquaintance and trust do not yet exist, participants in a new initiative must devote energy to learning about each other. They should understand one another's specific goals and motivations, in addition to their capacity to play their respective roles in the effort. Building strong relationships takes time; moving quickly into decision-making and task accomplishment, before establishing mutual understanding and trust, can lessen the likelihood of success.

Open and frequent communication

> Collaborative group members interact often, update one another, discuss issues openly, and convey all necessary information to one another and to people outside of the group (Mattessich et al. 2001: 23).

All human interaction requires effective communication. To succeed, collaborative initiatives must establish mechanisms for interaction among the partners.

Some interaction will involve specific tasks, e.g., the delivery of data from one partner to another, or the joint development of a report or website. Other interaction will involve broader tasks, such as developing a strategic plan or identifying the potential consumers of the collaborative's products and services and forming an approach to meeting the consumers' needs.

Multiple layers of participation

> Every level (upper management, middle management, front line) within each partner organization has involvement in the collaborative initiative. Each layer brings different assets to the collaboration and may need to be involved to different degrees and at different stages of development (Mattessich et al. 2001: 19).

Most organizations have some form of hierarchy. Research shows that each significant part of this hierarchy needs representation in a collaborative initiative in order to increase the likelihood of success. Problems develop, for example, if staff at one level go too far in planning with other organizations and making commitments on partnership arrangements without somehow including higher-level management in the discussions. This does not imply that someone at every level of the organizational hierarchy must devote significant time to a collaborative initiative. A board of directors or a CEO might just receive briefings every three or four months, while other staff engage in collaborative work every day. Nonetheless, some amount of involvement from every organizational level should occur.

Members see the collaboration as in their self-interest

> Collaborating partners believe that they will benefit from their involvement in the collaboration and that the advantages of membership will offset costs such as slower decision making processes (Mattessich et al. 2001: 17).

Collaboration requires effort. It requires time and other resources. It sometimes requires risk. Initially, the costs might seem to outweigh the benefits. Sometimes, certain partners might need to overcome competitive orientations they held toward each other prior to forming a new partnership to develop indicators. For these reasons and more, the collaborative must provide avenues for each participating organization to further its own individual mission while simultaneously achieving the collaborative mission.

Appropriate cross-section of members

> The collaborative group includes representatives from each segment of the community who will be affected by its activities. It engages members at the appropriate time and at an appropriate level of involvement (Mattessich et al. 2001: 16).

A collaborative initiative needs to determine the necessary partners for success. Who controls data, for example? Whose networks can most effectively acquire the resources necessary for the collection, compiling, analysis, and reporting of indicators? Who has a strong influence on public opinion? Asking questions such as

these enables an initiative to identify and recruit partners who will bring necessary expertise, resources, and connections for the intended work.

4.3 Case Study: Minnesota Compass

Minnesota Compass is an on-going, comprehensive, community indicators project run by a nonprofit social research organization, Wilder Research, on behalf of a collaborative of Minnesota-based foundations. The goal of the project is to actively promote the understanding of important social and economic trends facing communities throughout Minnesota, to help inform productive action. Or, as stated more concisely in the project's tagline: "Measuring progress. Inspiring action."

The project's main vehicle for accomplishing this goal is a website that tracks 39 "key measures" (normative indicators) and four "context measures" (descriptive demographic indicators) across 15 major topics (health, housing, economy, education, etc.; see Fig. 4.1). Additionally, the website provides geographic-based data

Fig. 4.1 Minnesota Compass website. *Source* www.MNCompass.org, homepage as of October 6, 2016

profiles for the state as a whole, seven regions within the state, Minnesota's 87 counties, all cities with populations of at least 1000 (355 in 2017), and over 100 urban neighborhoods, as well as "at-a-glance" data profiles for various immigrant and child populations. The website also includes context and analysis in the form of topic overview pages, blog-like "Insights" articles, and libraries of links to relevant reports and data sources.

Although maintaining a website is among the "core" activities of the initiative, Minnesota Compass engages in many activities beyond maintaining a website. For example, roughly half of the broader enterprise's budget is generated through contractual projects that leverage the skills and infrastructure assembled through the grant-funded core. These projects respond to the community's desire to more deeply and thoroughly understand trends and issues related to specific substantive areas (e.g., Science, Technology, Engineering, and Math) or geographic areas (e.g., a developing light rail corridor). Additionally, Minnesota Compass staff frequently offer presentations and serve as a resource to local media outlets. Finally, as we discuss below, the project is as much a community engagement effort as it is an informational hub.

4.3.1 Collaborative Factors at Work

As noted in the first section of this chapter, all major factors of collaboration found in Mattessich et al.'s research can be relevant to indicators projects. We have found five factors to be particularly relevant, and the remainder of this section illustrates how these factors have played out in the implementation and ongoing operations of Minnesota Compass: Mutual understanding and trust; members see the collaboration as in their self-interest; multiple layers of participation; appropriate cross-section of members; members share a stake in both process and outcome; and open and frequent communication.

4.3.2 Mutual Understanding and Trust

The mutual understanding and trust that exists among those collaborating on Minnesota Compass is, perhaps, best reflected in the project's origins. The project had its origins in a much smaller project which developed in the late 1980s and focused only on four counties in Minnesota. Then, in 2004, several local community leaders traveled to Boston, where they learned about an online community indicators project called the Boston Indicators project. Over the next two years a dozen local foundations formed a collaborative to support the development and implementation of the statewide project, Minnesota Compass.

Early on in that process, local foundations designated Wilder Research as the logical research home for this endeavor, in part due to Wilder's previous experience

tracking indicators, and in part due to the credibility that Wilder had established directly with the foundations, and with the broader community, through years of previous research and evaluation projects.

Equally as important was the respect and trust that the foundations had amongst themselves; none of the members attempted to use the project as a way of gaining particular prominence over other members, and no members sought to position the data in such a way as to highlight the importance of their grantmaking programs or other initiatives over and above the work of other collaborative members.

4.3.3 Members See the Collaboration as in Their Self-Interest

Minnesota Compass satisfies the self-interest of the collaborative of local foundations in several ways. First and foremost, though the specific strategy of each foundation is tailored to particular programming and a specific geographic range, each foundation was committed to a broad goal of improving quality of life. They saw the Boston Indicators Project, and other web-based community indicators projects, as providing a significant tool to those trying to improve their communities: credible information available free of charge that is both easily accessible and understandable by the general public.

Second, the foundations recognized that the sort of demographic and socioeconomic data maintained by a community indicators project would help them maintain strategic focus. Some foundations had conducted community needs assessments, and others had been assembling information on a more ad hoc basis, but all could see the benefit of having regular access to a set of data that could answer questions like: What community strengths should we be building on? What are the community's most pressing needs? Where are things improving? How does our local community compare to peers nationwide? Answers to questions like these are necessary to foundation officials, who need to make decisions about how to target their grantmaking.

Third, foundations saw the project as a tool that could help nonprofits strengthen their proposals, and ultimately their programming. Foundations recognized that some nonprofits lack capacity to identify credible data that help them make the case for their programming. Additionally, foundations asked that Compass convey not only data, but also help nonprofits identify relevant research, especially evidence-based practices that have been shown to impact social problems. Finally, foundations were interested in having Compass identify existing initiatives aimed at addressing a given issue, to help nonprofits plug into existing efforts rather than proposing to duplicate efforts.

For these reasons, Compass staff developed a template for each major topic covered by the project that not only includes indicators, but also includes "Ideas at Work," a webpage that lists collaborations and links to evidence-based practices, as

well as a library of relevant reports and on-line resources. This package was designed with the collaborative in response to their perceived self-interests.

Although a few members of the original collaborative have left over the years, most have stayed and others have joined. This suggests that the self-interested value proposition remains strong.

4.3.4 Multiple Layers of Participation

Over the years we have developed two ongoing "institutional" committees overseeing the work of Minnesota Compass: Governance and Steering. These groups have separate but overlapping functions related to shaping and evolving the project. They also function to involve two layers of participation, buy-in, and championing within each of the organizations that fund Minnesota Compass.

The Compass Governance committee typically meets in person one time per year. This group provides high-level oversight for overall project direction. It is made up of the first-or second-in-command at each of the foundations that back Minnesota Compass. Originally, this group met quarterly and the group itself was of value to the members as a rare venue to network among top foundation executives. Over time, as more "collective impact" initiatives have formed, the Compass Governance committee has become one of many venues where local foundation executives can meet and interact. Some top executives have delegated the assignment to a second-in-command position. Regardless of the exact position, having executive-level involvement has been instrumental to the project's continued success.

The Compass Steering committee typically meets in person two times per year. This group provides strategic direction: for example, recommending which of our topics are due for a re-convening of advisory group members in the coming months. This group is largely made up of foundation managers in charge of the grant programs most closely aligned with Minnesota Compass, as well as a few others (the State Demographer, the head of Minnesota's Citizens League, an official from Minnesota's State College and University system, and a local media representative or two). These individuals help Minnesota Compass stay connected to the many initiatives in which they are involved, and they provide another layer of buy-in at their home organizations.

This two-tiered committee system has served Minnesota Compass well. In the short life of the project there has been some turn-over in both the executive-level positions that participate in the Governance committee and the program-level positions that are involved in the Steering committee. Whenever such turnover occurs, the additional layer of participation is very helpful in maintaining organizational commitment to Compass.

In addition to the committees, yet another layer of participation is often achieved through the periodic topic advisory groups on which Compass relies for input to

refresh and revise our topic-based key measures. The primary function of those groups is to obtain involvement of an appropriate cross-section of members.

4.3.5 Appropriate Cross-Section of Members

Minnesota Compass, like most community indicators projects, seeks to inform a broader audience beyond members of the collaboration that are actively working on the project. To gain legitimacy and buy-in from this broader cross-section, Minnesota Compass established time-limited "topic advisory groups" to help shape each of the major topics represented in the project (education, health, workforce, etc.). From the outset, we intentionally selected participants in these groups who would represent a variety of standpoints on a particular issue. In each group we include people from both for-profit and nonprofit organizations, as well as academia and the public sector. We also look for diversity in political ideology, regional representation, and race and ethnicity. The diversity of these advisory groups not only produces broad-scale buy-in, it also leads to the selection of key measures that are useful to those directly involved in the advisory groups and also to others in the community who hold similar interests to the people actually participating in the advisory groups.

4.3.6 Open and Frequent Communication

Community indicators projects rely on open and frequent communications at least as heavily as other types of collaborations. While data management and analysis are more often the focus of community indicators projects, communications are equally as important. Further, not only is it important to communicate with a broader audience to help accomplish goals related to the dissemination of the information maintained by the indicators project, it is also vitally important to maintain open and frequent communication within the collaboration that works on the project. This factor is so central to Minnesota Compass that we have designated the remainder of this chapter to a discussion of some tactical examples of how we have orchestrated open and frequent communications. The concepts and tactics also lend themselves to several of the other factors of collaboration listed in Table 4.1.

4.4 Communications and Outreach: A Tactical Approach

With the right set of communications and outreach strategies, quality-of-life initiatives can strengthen relationships within the collaboration and with other stakeholders of the project.

Table 4.2 Communications and outreach elements

Element	Guiding questions	Application
Mission	What is the mission of your project? Are there interim goals that you are striving toward in pursuit of your mission?	Minnesota Compass' mission to actively promote the understanding of important social and economic trends facing communities throughout Minnesota, to help inform productive action. In short: *Measuring progress. Inspiring action*
Audience	Who else is interested in the project's mission? Who would like to help it move forward? You will use this to build a contact list and determine where to prioritize communication and engagement efforts	Compass' audience is made up of community leaders and decision-makers, broadly-defined, throughout Minnesota and its regions, cities, and neighborhoods
Collaborators	Of your audience, which individuals, partners or organizations have the capacity and resources to help accomplish the mission? These "key stakeholders" will have some influence on whether or not you reach the goal, and under what conditions. Their resources may include financial support, expertise, human capital, and social capital	Compass' key collaborators include funders and founding organizations, and groups who partner with us for contracted work
Key messages	What information would you like your audience to take from an interaction with your work?	Compass' event and project communications plans include a list of 3–5 key messages to align all of our communications

Before exploring the available strategies and tools to implement them, it will help to define the project's mission, audience, collaborators, and key messages. See Table 4.2 for a description of each of these elements and an example of how Minnesota Compass carries it out.

4.4.1 Strategies and Tools

Two key strategies the Compass project has used to build and maintain relationships through communication are to maintain a master contact list and to develop an outreach calendar. The tools we use to implement the plan include a monthly e-newsletter, in-person meetings, presentations, and social media.

4.4.1.1 Contact List

To maintain open and frequent communication, we created a master contact list that documents who we have engaged with or would like to engage with.

Contact lists can be maintained in a variety of formats (electronic documents, e-mail platforms, client relation management (CRM) databases, etc.). Spreadsheets have typically been sufficient for Minnesota Compass.

A contact list is only as useful as it is up to date. It is important to designate someone to manage the task and to formalize a flow: for example, when staff make new contacts at events, how will they record contact information? Who will take the next step of inviting new contacts to learn more about the project or opt into receiving an e-newsletter? Can we include an e-newsletter prompt in the registration process for our events? When do we remove someone from a contact list?

4.4.1.2 Outreach Calendar

The use of an outreach calendar ensures that members in different roles within the collaboration, as well as other key stakeholders, continue to receive the right level of communication at appropriate intervals. It is important to make sure content is tailored to the interests of each of your stakeholder groups.

Our outreach calendar in Table 4.3 notes standard communications each stakeholder group receives. As opportunities arise, we connect in additional ways with each of these groups. For example, we may offer a webinar highlighting a new section of the website, or inform a group in the community about new content that may be of particular interest to them.

4.4.1.3 Communication Tools

As mentioned earlier, we make the data we track publicly available on the Compass website, along with analysis and resources to promote the understanding of important social and economic trends facing communities throughout Minnesota. As indicated in our Outreach Calendar, we use a variety of ways to engage our partners and stakeholders.

The Compass monthly e-newsletter is the primary way we connect with all of our stakeholders to keep them aware of new and updated content on the website. Figure 4.2 provides an example.

We use one of the widely available email marketing services as the technical platform for our newsletter. This platform allows us to quickly reach stakeholders, to easily share newsletter content on our social media channels, and to measure the open, click-through, and opt-out rates for each issue, and compare them with averages for similar industries. For example, compared with other nonprofit users of

Table 4.3 Outreach calendar

Audience (number of people)	In-person meeting	Email update	Social media
Governance Committee (N = 15)	Annual Governance meeting Annual Meeting Presentation offered to each organization	Quarterly Monthly e-newsletter	Ongoing
Steering Committee (N = 15)	Bi-annual Steering Committee meeting Annual Meeting	Bi-monthly Monthly e-newsletter	Ongoing
Time-limited topic advisory committees (N = 20 to 50)	During time they serve on committee: Two advisory meetings Annual Compass Meeting	Monthly e-newsletter (subscriptions invited during committee process for those not already subscribed)	Ongoing
Community partners (N = 150)	Depending on topic, select individuals are invited to Annual Compass Meeting Presentations are commonly offered to organizations and collaboratives	Monthly e-newsletter	Ongoing
Media		Monthly e-newsletter Media alerts as needed	Ongoing
All stakeholders		Monthly e-newsletter	Ongoing

this service, our "open rate average" is higher (35% compared with 21%), and our click-through rate is significantly higher (31% compared with 8%). By keeping our contact list current, we maintain a low opt-out rate of just 1 percent. Our website analytics show website visits increase 15–20% on the day the newsletter goes out. The service we use also allows us to learn what newsletter content is of most interest to our stakeholders, and test how to most effectively present it.

Social media has become a valuable dissemination tool for us. We use it to share "data bites" and links to articles of interest to our audiences more quickly and frequently than the monthly newsletter. Twitter has been a particularly good way to keep news reporters aware of updated data.

We have found face-to-face interactions continue to be our most effective engagement tool for reaching targeted audiences. Our Annual Meeting has a waiting list within a few days after we send an invitation. Our presentations, advisory meetings, and trainings often result in contracts for related work.

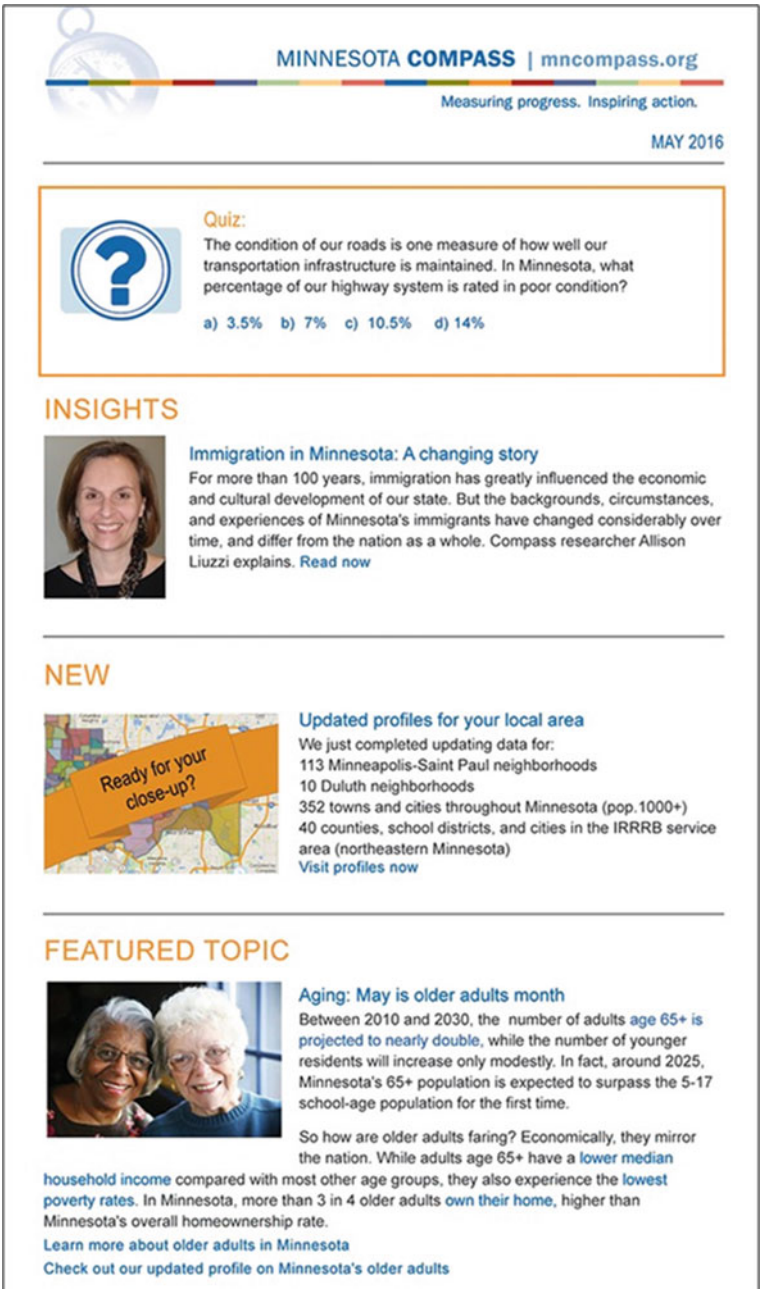

Fig. 4.2 Minnesota Compass e-newsletter, May 2016

4.5 Conclusion

Collaboration has comprised an essential dimension of Minnesota Compass. Most other indicators projects will also find collaboration essential—for defining and compiling their constituent indicators, for reporting trends to relevant audiences, and for engaging in community improvement efforts.

This chapter has described evidence-based factors which influence the likelihood that collaborative efforts will succeed. It illustrated ways that indicators projects can operationalize those factors, including very specific, well-established techniques for communication. Indicators professionals of the twenty-first century must possess both scientific proficiency and leadership proficiency. Data science must blend with organizational science. We hope that this chapter has offered insight regarding ways to manage collaboration in order for indicators projects to achieve their maximum potential.

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Author Biographies

Craig Helmstetter, Ph.D., is a Senior Research Manager at Wilder Research, a division of the Amherst H. Wilder Foundation in St. Paul; and project director for Minnesota Compass. Craig joined Wilder Research in 2001 after working as a program evaluator for Minnesota's Office of the Legislative Auditor. Prior to that Craig worked as a project director for a survey research center, and in the social services with children, developmentally disabled adults, and people experiencing homelessness. Craig received a master's in Community and Regional Planning and doctorate in Sociology from the University of Oregon. He has taught university-level seminars on quantitative research methods and homelessness, has spoken at several local and national conferences, and currently serves on the board of the Community Indicators Consortium.

Paul Mattessich, Ph.D., has served as the Executive Director of Wilder Research since 1982, and founder of Minnesota Compass. Paul lectures frequently throughout the United States and the United Kingdom, especially on topics of organization and service effectiveness, collaboration/partnerships, and major social trends. He has authored or co-authored more than 300 publications. Since 2000, he has spent several weeks each year in Belfast, Northern Ireland, working with youth development and civic engagement organizations that promote democratic skills to bring communities together and to resolve conflict. He has served on a variety of government and nonprofit boards of directors and special task forces. He currently sits on the boards of the Hamm Memorial Psychiatric Clinic and of Minnesota Community Measurement. He has an appointment as Adjunct Faculty in the Department of Youth Studies, School of Social Work, at the University of Minnesota. He received his doctorate in Sociology from the University of Minnesota.

Ruth Hamberg is an Engagement Specialist at Wilder Research, focusing on Minnesota Compass. She manages development, events, social media, and stakeholder engagement for the project. Ruth also contributes to data processing and analysis. Prior to joining Wilder Research in 2012, Ruth worked in media relations and development operations at Greater Twin Cities United Way. She received her bachelor's degree with honors from the University of Minnesota, Morris, where she studied Spanish, Biology, and Management. Her experience includes research in Ecuador (microfinance) and India (sex ratio) and an internship with a social business in Kolkata, India. Ruth's research interests include migration, sustainable community development, and how nonprofits, businesses and other organizations contribute to social change. She is a leader in the Minnesota Rising network and board member of the Young Nonprofit Professionals Network—Twin Cities.

Nancy Hartzler is Communications Manager for Wilder Research responsible for communications strategy and media relations. She oversees branding; event planning, and print, website, and digital communications. Nancy joined Wilder Research in 2006. Previously she held communications positions at Greater Twin Cities United Way, Minneapolis YWCA, and 3 M Corporation. She has a bachelor's degree in Journalism from the University of Minnesota.

Chapter 5
Aligning Local and Regional Data to Achieve a More Inclusive Economy: A Northeast Ohio Model

Emily Garr Pacetti

Abstract What drives economic growth in our communities and how can we ensure that more people benefit from that growth? While economic growth has been the focus of many U.S. cities and regions since the Great Recession, it is the second question that is gaining much-needed attention in recovery years. Answering either question is complicated by the lack of ability to access, analyze and apply data across diverse stakeholders and geographies. This chapter is for practitioners and policymakers interested in coordinating data across multiple stakeholders and geographies, and is particularly relevant for those interested in addressing inequality through more equitable economic development efforts. The chapter surfaces one example of a model in which cross-sector partners identified ways to improve labor market outcomes for all residents, especially lower income residents, across an 18-county region: first by using data and research to identify economic challenges and opportunities, and second by coordinating a plan of action across diverse sectors and jurisdictions. The chapter discusses the process that Northeast Ohio, and specifically the Fund for Our Economic Future, experienced as one example of cross-sector partners struggling to build—and re-build—a competitive economic base that benefits all people in its various communities. Its lessons have relevance for others trying to do the same in their own local, national or global contexts.

Keywords Northeast Ohio · Fund for our economic future · Economic development · Great recession · Inequality · Partnership · Cleveland

E.G. Pacetti (✉)
The Rockefeller Foundation, New York, USA
e-mail: epacetti@rockfound.org

E.G. Pacetti
Fund for Our Economic Future, Cleveland, OH, USA

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5.1 Introduction

Many communities throughout the United States were severely affected by the Great Recession, which began approximately ten years ago.[1] Over that decade, much of the emphasis on recovering from the downturn was placed on regaining jobs lost, without regard to what kind of jobs, what part of the region they went to, or who filled them.

As the national labor market tightens and more people find work (the national unemployment rate was roughly halved in six years, from a high of about 10% in 2009 to about 5% in 2015), local and regional leaders are rightly seeking more comprehensive and lasting solutions to persistent, structural economic development challenges that supersede the next recession, and those that inevitably will follow. These macro-turned-micro challenges are complex and varied. They include the uneven concentration of job growth within certain neighborhoods, regions and industry sectors, rising income inequality, declining shares of the total population that are employed, increasing irregularity and vulnerability with the growth of the independent workforce, mediocre productivity growth and a corresponding loss in wages for the typical worker.[2] At the same time, unemployment is near record low, the pace of job growth is as high as it has been since the 1990s and there is a spirit of optimism, social and environmental responsibility, entrepreneurship and re-invention among new generations entering the workforce.

This chapter features Northeast Ohio as a region that, due largely to the severity of previous recessions, recognizes the long-term nature of economic development, and the need to build on short-term successes to achieve and maintain a healthy economy that works for all residents. In 2006, public, private and non-profit partners in Northeast Ohio came together to support a comprehensive indicator project, *What Matters to Metros* (formerly the *Dashboard of Economic Indicators*) to better understand the drivers of economic growth in American metropolitan areas, and situate local priorities accordingly. *What Matters to Metros* is not remarkable due only to its data-driven approach, but how partners used the data to inform and align action across various geographies and industry sectors. Led by a collaboration of funders called the Fund for Our Economic Future ("the Fund"), partners applied the information to an ongoing strategic process that engaged public, private and non-profit sector leaders in the following: identifying economic

[1]Refers to the 2007–2009 recession as defined by the National Bureau of Economic Research (NBER), available at http://www.nber.org/cycles.html.

[2]The best source I have found for U.S. metro area economic trends is the Brookings Institution's Metropolitan Monitor, from which many of the trends referred to here are derived. In its latest version (Shearer et al. 2016), data are available between 2009 and 2014 for variables related to growth (jobs, gross product (GMP) and aggregate wages), prosperity (averages wages per job, GMP, productivity) and inclusion (share of the population employed, median wages and poverty rates relative to local area income). See also Berube and Holmes (2016) for income inequality; EIG (2016) for spatial inequality across cities and neighborhoods; and Dourado and Koopman (2015) for growth of the independent workforce.

growth goals, agreeing on priority areas like more inclusive entrepreneurship and business growth, establishing accountability and tracking progress. Geographically, the Fund understood the need to identify priorities and data in ways that reflected the realities of an 18-county region, including 4.4 million urban, suburban and rural residents in and around four major metropolitan areas: Cleveland, Akron, Youngstown and Canton, Ohio.

Data are key to knowing whether a region is making progress. Only since 2005 have American cities and regions like Northeast Ohio been able to track progress on broad range of socio-economic related variables, due in large part to the American Community Survey released annually by the U.S. Census Bureau. U.S. localities are therefore in a unique position globally in that they are able to count on reliable, albeit imperfect, local area data to help inform decisions in (close to) real-time. Prior to 2005 for example, we would not have had the ability to track U.S. residents' incomes or poverty rates at the neighborhood, city, county or metro level, from a standardized dataset in more frequent intervals than every ten years.

Despite advances in public data availability at smaller geographies, however, communities struggle with how to access, analyze and apply such data in their work. Data, particularly economic data, often come in inconsistent, unstandardized slices from multiple sources. Challenges loom, like how to affect trends where you may not be able to see changes in one, five, or ten years' time; or how to decipher between trends that one can influence, versus global, national or regional trends that are far more responsible for some of the outcomes that may be in question (see de Souza Briggs et al. 2015). With broader availability, there is also increased risk that data will be mis-managed, misinterpreted and/or misdirected.[3] In order to leverage data to its fullest potential practitioners, policymakers and advocates must be specific about the data gaps in our strategies that inhibit us from achieving a more inclusive economy. We must look toward frameworks and solutions that are strong enough on their own that resonate globally, while still being responsive and adaptable to various social, political, economic and environmental contexts that play out every day in our—very different—local communities.[4]

As more and better data become available to more people, there is an opportunity for communities of every political stripe and growth trajectory to learn from each other on how to improve data gathering for a common purpose. Many communities are doing just that as it pertains to more inclusive economic development. Cross-sector networks such as those in the Living Cities' Integration Initiative, the Federal Reserve Bank of Boston's Working Cities Initiative (currently active in small industrial communities in Massachusetts, Rhode Island and Connecticut) and the Brookings-Rockefeller Project on State and Metropolitan Innovation are such examples. These efforts represent communities that use data to help deliver more

[3]See brief reflection by Shepherd (2016) on the potential and risk of big data influence decision-making at both micro and macro levels.

[4]See also Lui (2016), which highlights five principles for "remaking economic development," the first being to set the right goals (pp. 20–21).

sustained economic growth that benefits all residents, but especially low-income residents. Although I have had the privilege of witnessing the pitfalls and the successes in each of these national-scale approaches as both researcher and evaluator, I have been most involved in the efforts of Northeast Ohio. It is this example that I bring forward because I believe the work we did together is truly of consequence to other such efforts to pursue more inclusive economic development.

5.2 Identifying "What Matters": Using Data to Help Set Priorities

Local priorities—be they economic, health, environmental, political or social-must align to the geographic level where change happens. But first, what are those priorities? The process to identify and measure priorities—if there is a process—and who leads and participates in that process, varies substantially by community. The process itself can help or hinder the ability for a small, local community to ultimately connect their intervention to regionally significant outputs and outcomes.[5]

In Northeast Ohio, a top priority has been and remains economic growth. Since the 70s, Northeast Ohio has struggled to gain footing in a new economy given its relative dominance in a declining manufacturing sector and related supply chain. In some way it has succeeded by reinvention and innovation, but it has not been a smooth, easy or necessarily inclusive journey.

Unsurprisingly then, many Northeast Ohioans know that "economic growth" is a long-term aspiration rather than a short-term target. Beginning in the mid-2000s, in order to help determine where forward-looking economic development efforts and investment should be focused, the Fund, in partnership with The Federal Reserve Bank of Cleveland and Cleveland State University, conducted periodic analyses to identify how different indicators perform across the nation's metropolitan areas.[6] The objective was twofold: to understand more about how U.S. metros like those in Northeast Ohio performed on various socioeconomic indicators, and how such performance related to measures of economic growth, be it GDP, per capita income,

[5]For more on local consensus building around social and economic inclusion priorities, see de Souza Briggs et al. (2015) and Mallach (2014).

[6]Previous editions can be accessed at www.thefundneo.org/what-matters. *The Dashboard of Economic Indicators* was originally designed by Randall Eberts, George Erickcek, and Jack Kleinhenz in 2006 as a working paper for the Federal Reserve Bank of Cleveland. Subsequent refinements are largely attributable to Ziona Austrian, Iryna Lendel, Afiah Yamoah and Merissa Piazza of the Cleveland State University, with the latest analysis [retitled *What Matters to Metros* (2013)] authored by Emily Garr Pacetti. Deviations from past models include the period of growth, defined here as change over time between 1990 and 2011, in place of a subset of growth years as the dependent variable; and an extended variable list including indicators related to health, the arts, housing, and sustainability that had not been considered in previous iterations. For a detailed methodology, please refer to *The Dashboard of Economic Indicators* (Austrian et al. 2009).

productivity or job growth. Economic inclusion, the process by which all residents regardless of income, race or ethnicity, are connected to the economy, was and still remains at the heart of the research. Similar to what was uncovered in the original *Dashboard* (Eberts et al. 2006), one theme remained true in the most recent version of the rebranded *What Matters to Metros* (Pacetti 2013): the pursuit of social goals like racial inclusion and income equality are likely to help sustain economic growth, not deter it.[7]

The research helped to inform decision-making and investment at a regional scope and scale. Between 2006 and 2015, the research guided over one hundred million dollars of investment in areas such as business growth and innovation, talent development, and economic and racial inclusion.[8] *What Matters to Metros* sought to answer questions such as: What factors characterize economically vibrant communities across the U.S.? What investments should be prioritized? How does Northeast Ohio stack up to other metro areas from year to year on the things that matter most? The research was then substantiated and importantly, challenged by the perceptions of the region's residents.[9] It was also periodically supplemented with the most up-to-date analysis on what the competitive industries are in the region and how they are trending.

The most recent analysis, *What Matters to Metros* (Pacetti 2013) underscores the disconnect between income and job growth, based on data from 115 mid-sized U.S. metro areas between 1990 and 2011. The study found that contrary to popular belief, many metro areas that experienced the most robust job growth over the past two decades were characterized by a high incidence of poverty, inequality, crime, and lower health insurance coverage in the post-Recession era than other metro areas (see Table 5.1, a statistically significant, positive correlation between Employment Growth in column 1 and Economic Polarization in row 2).

The finding challenged a popular assumption that job growth is inevitably associated with residents' income growth. It suggests instead that jobs in many high-growth areas were low quality and/or low-paying jobs, with no clear association with gross metropolitan product or productivity. The findings led key leadership in Northeast Ohio and elsewhere to acknowledge that there are many types of

[7]Originally envisioned as a "dashboard" from which to track the region's progress year to year, the research contained many indicators that were, by their nature, slow to change. This prompted the Fund to focus more on its usefulness as a tool to help identify what is important to the economy in a given period of time, i.e. "what matters" to metros.

[8]For examples, see "A Regional Agenda to Advance Northeast Ohio" (The Fund for Our Economic Future 2011) and "Growth and Opportunity: A Call to Action" (Schweitzer et al. 2014).

[9]Initially referred to as "Voices and Choices," this engagement and feedback effort evolved from a broad-based community campaign to understand the public's priorities, to a more targeted outreach exercise with key stakeholders, communities, academics and community leaders, who helped guide the research year-to-year. Note: There was and is no silver-bullet engagement strategy that the Fund employed, and there was broad recognition that engagement activities could always be more robust, more long-term and more directly applied to resulting strategies. Resource constraints tend to complicate this task. For more discussion and examples of failed and successful community engagement efforts, see Barnes and Schmitz (2016).

Table 5.1 Results from *what matters to metros* (Pacetti 2013)

	Growth indicators *(dependent variables)*			
Factor groupings *(independent variables)*	Employment (1990–2011)	Gross metropolitan product (1990–2011)	Productivity (1990–2011)	Per capita income (1990–2010)[a]
Education and innovation		3.73[c]	8.59[c]	6.68[c]
Economic polarization	2.33[b]			−3.40[c]
Self-employment, entrepreneurship and inclusion	6.95[c]	7.49[c]	5.21[c]	2.01[b]
Business costs	−8.60[c]	−8.56[c]	−3.91[c]	
Dynamics of place				
Connectivity			2.16[b]	4.14[c]

[a]Based on logged per capita income and controlled for 1990 levels
[b]95% Significance
[c]99% Significance
Note Numbers displayed as t statistics

"growth"; and in order to sustain growth that ultimately benefits residents' pocketbooks, communities must also invest in and promote good quality employment opportunities, especially those for residents that have historically been left behind.[10]

Subsequent analyses by the Brookings Institution also demonstrate a weak correlation between traditional economic growth measures (e.g. jobs, GDP) and inclusion in U.S. metro areas—be it racial or economic inclusion (Shearer et al. 2016). Economists such as Paul Krugman have emphasized the weakness of the correlation as well, stating that we must be cautious in asserting a relationship between equality and growth where there may in fact be none.[11]

Importantly, new research finds that inequality and social fragmentation has an impact on *how long* growth is sustained, if not growth itself (Benner and Pastor

[10]Through a series of discussion forums, the Fund's research reached more than 800 regional and national civic leaders. The discussions focused on the observation that job growth cannot be a region's only measure of success and led to additional conversations and strategic planning about how to better link economic growth and equitable opportunity. Ultimately, the research led the Fund, in partnership with the Federal Reserve Bank of Cleveland and others, to a "Growth and Opportunity" agenda (Pacetti 2014; Schweitzer et al. 2014), that reinforced connections among workforce and training efforts ("job preparation"), employer demand ("job creation") and the spatial and social disconnect between jobs and workers ("job access"). For more information, see http://www.thefundneo.org/growth-opportunity.

[11]A Conversation between Paul Krugman and Janet Gornick, Equality Indicators Conference, City University of New York (CUNY), Institute for State and Local Governance. October 1, 2015. An alternative vision is offered in Treuhaft et al. (2011).

2013, 2015).[12] To quote one of the authors' original hypotheses: "what if paying attention to equity—building it into economic strategies from the get-go—could actually help prosperity be more sustainable as well as more widespread?" After analyses of employment in 184 largest metro areas in the U.S., they find that the most significant negative impact on the length of growth spells is a metro's initial level of inequality. They suggest that to achieve more inclusive and robust, sustained growth, the first step involves "restoring a sense of common destiny—in which first metros and then the nation become more connected across income, race and place" (Benner and Pastor 2015: 27, 55).

Such research poses questions about how communities might catalyze an era of growth that (if it is not faster) is smarter, shared and more sustainable. Difficult but essential questions for communities include:

- What defines "economic growth" for our community?
- Who benefits from the outcomes of that growth?
- What affects growth trends, and how do we (residents, local, state and federal government, civic, business and philanthropic leaders) adjust our strategies to ensure that growth benefits all members of the community long-term?

Questions about what drives economic growth in our communities and what we can do to ensure that everyone benefits from that growth, are at the center of local economic development planning today, spurred by both structural and cyclical changes in the labor market. During the recovery years, for example, job growth was disproportionately concentrated at the higher and lower ends of the wage spectrum, with fewer in between. Between 2013 and 2015, that trend now seems to be shifting to a growth in middle and high-wage jobs, paying between $12 and $24 per hour, and $46 per hour and higher respectively.[13]

While many communities succeed in identifying common priorities—in this case a more inclusive regional economy—it often remains an elusive goal unless and until they begin to track progress towards them, and establish some basic level of shared accountability. This is as true for small, local, low-budget non-profit

[12]Benner and Pastor (2013) conducted an exercise for 184 metro areas with a population of 250,000 or above, and found that the capacity of regions to maintain growth and withstand recessionary shocks was positively associated with various measures of equity (lower racial segregation, lower income inequality and less political fragmentation). The data are backed up by previous empirical investigations (Benner and Pastor 2012; Carlson et al. 2012) and reinforced in their recent book (Benner and Pastor 2015).

[13]Analysis by Shierholz (2016), based on Bureau of Labor Statistics data between 2007 and 2015. The analysis compares job losses and gains during the recession (2007–2009) to those in the recovery (2009–2013) by pay per hour. It finds that during the Recovery period, low wage jobs (jobs that pay $10 per hour or less) and high wage jobs (jobs that pay between $47 and $50 per hour) increased disproportionately to middle wage jobs. The exception was jobs paying $51 per hour or higher.

programs, city mayors' offices and regional economic development efforts as it is for CEOs of large international corporations and international development organizations.[14]

5.3 Pursuing "What Matters": Establishing Shared Goals and Accountability Across Diverse Jurisdictions and Stakeholders

5.3.1 Geography Matters

Once stakeholders collect data and identify priorities, they must ensure that priorities align at the geography where one wants to affect change. For example, if you want to increase labor force participation regionally, you must have a consistent way to measure it locally in order to know whether or not—and where—progress is being made. Unfortunately, the "where" is often overlooked in the national discourse on economic opportunity, despite increasing recognition that geography matters to socioeconomic outcomes.

Central to the data challenges of measuring economic inclusion is a misuse of, if not misunderstanding of, economic geography. Markets are not confined by political boundaries. Regions are often patchworks of rural, urban and suburban neighborhoods that are geographically, politically and socioeconomically distinct; however residents' economic choices are not bounded by where they live. Residents produce, consume and operate in a universe that crosses the political and jurisdictional boundaries of census "block groups," workforce investment boards, municipalities, counties, states and countries. Therefore, a solid understanding of where economic opportunity is located in a region, is essential to understanding who is or is not connected to it.[15]

Northeast Ohio's $229 billion economy depends not on one city, but the network of production and consumption across 18 counties.[16] The region's largest county, Cuyahoga, accounts for about one-third of the region's population yet on its own consists of more than fifty municipalities, each politically distinct but economically interdependent, Cleveland being the largest.

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[14]See Shepherd (2016) for micro and macro examples.

[15]For this reason, the best proxy we have for economic regions, or market areas, is at the metropolitan level. A metropolitan statistical area ("metro area") is defined by the Office of Management and Budget as a geographical region with a relatively high population density at its core (minimum population of 50,000 in core urban area) and close economic ties throughout its surroundings. It constitutes one or more counties with a high degree of social and economic integration (as measured by commuting to work) with the urban core.

[16]Based on latest estimate from Moodys.com, as reported by Team NEO (2016).

Without strong connections between neighborhoods and the regional economy, the region risks ending up with aggregate growth even while pockets of poverty remain stagnant or in decline.[17] A recent analysis of distressed zip codes, cities and counties between 2010 and 2014 bears this out. The study, conducted by the Economic Innovation Group (EIG), emphasizes spatial inequality across cities and counties, finding that "even the technology-intensive knowledge economy hubs that have charged U.S. economic growth over the past decade-plus have struggled to generate prosperity that is broadly shared across neighborhoods." (EIG 2016: 31) Such metros include places such as Charlotte, Austin and San Diego and even places such as Denver and Minneapolis that on other measures of income inequality metro-wide—may seem more evenly spread.

The interconnection between local and regional economies in the U.S. is perhaps more important now than in any other period in recent history (**see Box 5.1, Local Assets, Regional Economies**). If better understood, markets can be leveraged to benefit local communities otherwise systematically disenfranchised from the regional economy. First, jurisdictions must work together to understand and connect trends at both the micro and macro levels. As communities come together around specific priorities and goals, they are then understandably challenged by the question of how to track progress across jurisdictions.

Box 5.1. Local Assets-Regional Economies

"*During the 2000s, the distance between where people live and where people work increased dramatically as jobs spread out from the urban core. In 2010, 43% of jobs in a sample of the nation's largest 100 metropolitan areas were located at least ten miles away from a central business district, compared to 23% within three miles* (Kneebone 2013). *Notably since 2000, the number of poor in the suburbs outpaced —and soon outnumbered—those in the city, spurred by foreclosures, abandonment and cheaper housing stock* (Kneebone 2013; Kneebone & Garr (Pacetti) 2010; Raphael and Stoll 2010). *By 2012, the number of jobs within a typical commute distance fell by seven percent, disproportionately affecting poor and minority residents, for whom that number fell by 17%* (Kneebone and Holmes 2015). *Often, such trends mean higher, long-term infrastructure costs (read: higher taxes), labor market inefficiencies (connecting the 'right' jobs to the 'right' workers) and longer commutes. Just as these challenges are regional, so are the solutions. Unfortunately, too many efforts to address 'opportunity' are isolated from the*

[17]See Pacetti et al. (2015) for a detailed analysis of job growth in Northeast Ohio, highlighting the outward growth of jobs away from city centers over the last two decades and the increasing disconnect between jobs and workers. Such disconnects in cities, as measured by commute times, are associated with a significant decrease in workers' economic mobility (Chetty et al. 2014). For more on the importance of connecting regional and local economic development efforts generally, see Weissbourd (2004), Weissbourd et al. (2009), Carlson et al. (2012), Lynch and Kamins (2012), Pacetti (2013).

> *regional economy, treating neighborhoods and cities as if they were islands rather than part of a complex web of regional markets and relationships.*"
> —Adapted from Pacetti (2014)

Northeast Ohio exemplifies a community trying to understand (in this case) economic growth, what drives it, who benefits from it, and where those benefits are incurred. We continue with the Northeast Ohio example to illustrate how one community aligned partners with varied but complementary skill sets around common goals, using data tracking systems that would benefit their respective urban, suburban, and rural service areas and constituencies.

5.3.2 Setting Concrete Goals

In 2013 private sector and philanthropic leaders from across Northeast Ohio came together to develop a regional economic competitiveness strategy.[18] Key objectives included: understanding the current economic trajectory of the region and potential alternative scenarios, setting short, long, and medium-term goals to improve that trajectory, and developing a strategy to achieve those goals.

Once the economic trajectory of the region was understood by partners, the hard work of goal setting began. What emerged were four, well-defined goals (Fig. 5.1). Due in part to post-recession research that showed job growth alone was insufficient to achieve a healthy economy (discussed above), there was broad acknowledgement that actions must address not only the average prosperity of the region, but also take steps to increase economic opportunity in distressed communities. Consequently, beyond establishing what might be considered standard economic growth goals around aggregate jobs, gross product and per capita income, partners included an additional measure of labor force connectedness: the number of census tracts considered "distressed" across the region. Economically distressed tracts were defined as tracts (a proxy for neighborhoods) where less than 65% of residents between ages 25 and 64 were working or looking for work, and where median household income

[18]The group was made up of representatives of small and large philanthropic organizations, community foundations, hospitals, educational institutions, banks, and leading companies. It included representation from non-profit intermediaries such as NorTech (focused on innovation), JumpStart, Inc. (entrepreneurship), MAGNET (advanced manufacturing), BioEnterprise (biotechnology), Team NEO (business development) and other business development organizations throughout an 18 county region that focused on business retention and attraction. Team NEO worked in parallel with a state-led effort called JobsOhio.

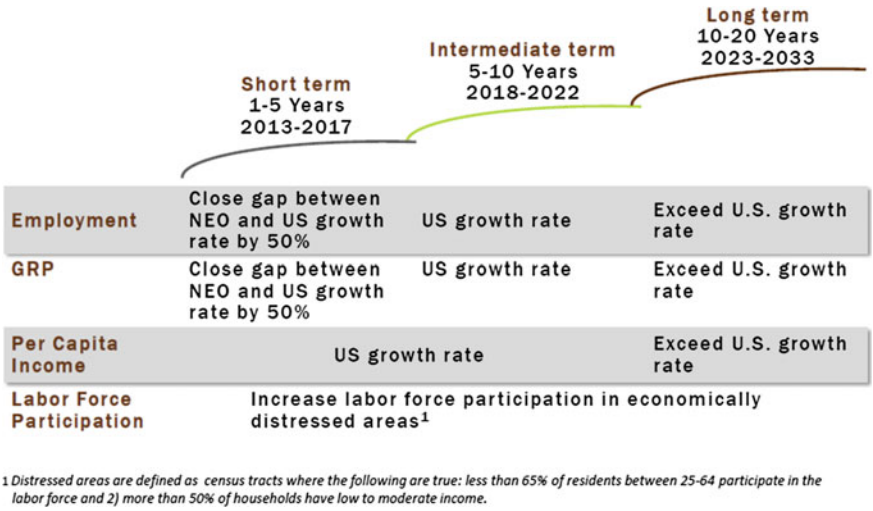

Fig. 5.1 Goals framework: *example*. *Source* Reproduced with permission from The Fund for Our Future and Team NEO, Regional Strategy Task Force

fell in the bottom quartile regionally.[19] Based on 2008/2012 aggregated census data, approximately 5%, or 200,000 of the 4.4 million residents living in Northeast Ohio, lived in distressed areas, spread across ten counties.[20] It is indicative of poverty trends today that while about half of the distressed population was concentrated in one or two large urban areas, a significant share also lived in suburban and even rural tracts, affecting the majority of counties across the 18-county region and reinforcing this to be "everyone's issue" not just a central-city one.

By including a region-wide labor force participation metric as a topline goal (see Fig. 5.2, Labor Force Connectedness), partners acknowledged that if certain pockets of the region remained disconnected from the economy it was to nobody's benefit, and thus everyone's charge to improve it. This was far more innovative and

[19]Population was limited to residents between the ages of 25–64 in order to provide an accurate assessment of those who were working age without confounding them with retirees and/or students. Standard labor force participation rates typically measure the population 16+ and may skew the perception of communities with disproportionately high or low student or elderly populations (the latter of which is the case for Northeast Ohio, which has a disproportionately older population). A notable drawback of this measure is its inability to measure progress year-to-year due to its dependence on smaller geographic data -census blocks or tracts that require an aggregation of (pooled) data over two, three or five years from the American Community Survey. A benefit is that even as residents may "move out" of distressed neighborhoods—presumably moving on to better opportunities, the tracking of "number of distressed areas" would adjust accordingly, as tracts are periodically readjusted based on population—the focus being on the share of the overall population who lives in these places.

[20]Examples of community-specific profiles and maps of economically distressed areas in Northeast Ohio are available at: http://www.thefundneo.org/growth-opportunity/neighborhood-profiles.

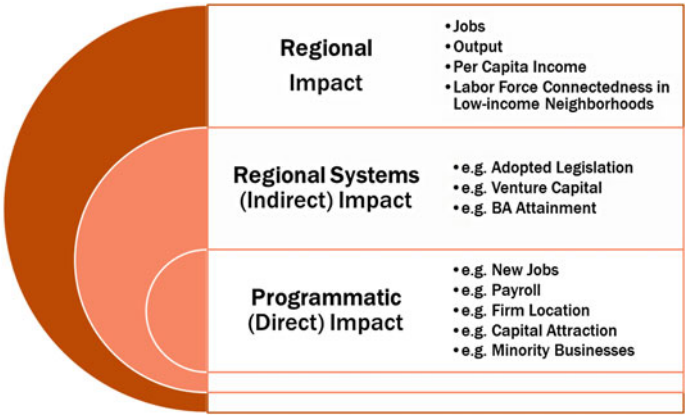

Fig. 5.2 Cascading metrics concept

meaningful than any localized metric such as labor force participation rates in one neighborhood or one city. It was able to be measured both at the regional level through an aggregation of counties and/or metropolitan areas, as well as the city and neighborhood (tract) level through the American Community Survey.

The four goals—jobs, gross regional product, per capita income and labor force connectedness—were ambitious, but painstakingly benchmarked against the U.S. economy to see what was realistically achievable for the region over the short (1–5 years), medium (5–10 years) and long-term (10–20 years). Rather than set specific target levels, which would vary depending on the macro economic climate, partners were careful to set goals relative to the U.S. economy, and translate those into absolute numbers year-to-year (see Fig. 5.1, Goals Framework). Note that specific data points that emerged from these goals are not shared here. Inevitably, however, target levels were more effective than percentage increases as a way convey economic growth goals to the general public (e.g. 200,000 additional jobs by 2020, or 20–30,000 additional jobs per year), albeit less statistically accurate. These targets were subject to revision as economic circumstances shifted either upward or downward year-to-year.

5.3.3 Tracking Progress

Once partners established benchmarks for each measure, they used an approach they called "cascading metrics" to determine how their goals connected to their respective programmatic, institutional or jurisdictional purviews (Fig. 5.2). The approach enabled communication across various industry sectors, an understanding of a shared agenda and goals, each actor's role in achieving those goals and their level of accountability.

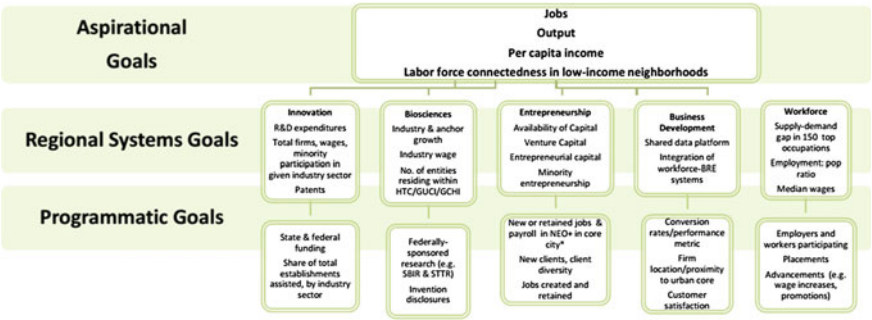

Fig. 5.3 Cascading metrics example

The cascading metrics model is a model which connects the high-level goals that describe **Regional Impact** to various "Systems" (e.g. workforce development, manufacturing, advanced technology), to specific organizations and programs. These enumerated goals are the essential link that enable organizations and initiatives to understand their contribution to the broader goals of any strategy. **Regional Systems Impact**, in this case, represents a small number (3–5) of regional indicators per priority area, that convey how the region is doing in distinct sectors of the economy. The assumption is that together these systems can affect regional outcomes. In Northeast Ohio's case, priority areas included innovation, biosciences, entrepreneurship, business development and workforce (Fig. 5.3). These indicators are those that organizations can put our fingers on but may not be able to attribute to any one organization, network of organizations (referred to here as intermediaries), or initiative. **Programmatic Impact** is more refined, and includes measures of impact that are connected to specific organizations, intermediaries or initiatives, and linked to some level of accountability. This would be the level at which partners heavily engage, in order to understand how they can contribute to the larger Regional Systems goals—and by extension, Regional Impact.

Importantly no one organization, public or private, should be under the illusion that the movement towards or away from a regional goal, such as net job growth or gross metropolitan product (aka output), is attributable to a particular intervention. Rather, progress at this level is the result of many variables, some within and many outside of any one organization's or sector's control. Consistent with the collective impact literature, the theory is that as time progresses the articulation and adaptation of shared goals across organizations will increase the likelihood of achieving them.[21] And if regularly revisited, the approach would enable partners to identify

[21]Collective Impact was first introduced in a 2011 and is based on the premise that large-scale social change requires broad cross-sector coordination, rather than isolated interventions of individual organizations. The article describes five conditions for collective success: a common agenda, shared measurement systems (emphasized here), mutually reinforcing activities, continuous communication, and backbone support organizations. See Kania and Kramer (2011).

problem areas or gaps in the strategy, course-correct as needed, and adapt and respond to unanticipated challenges.

The Fund was integral to establishing and advancing the continued tracking of progress across regional systems, in partnership with the business community. It has used the model to identify geographic areas that have been disconnected from growth, better target interventions and continue pushing on "what matters" to the regional economy and its residents.

However as with many of the most productive collaborations, the Fund's efforts and those of its partners are often hard to sustain. While the partnership has continued to check back on goals and involve partners in the achievement of milestones set forth year-to-year, it has been hard to establish an incentive structure that can be maintained across organizations with any kind of regularity. As it stands and despite its success in bringing diverse actors to the table, Northeast Ohio is far from achieving its four regional strategic (growth) goals, let alone a more inclusive economy. Cleveland, Northeast Ohio's most populous city, was cited as one of the country's most "distressed cities" in the post-recession era according to EIG's recent Distressed Communities Index, underscoring the lack of connectedness between hard-hit areas and broader regional growth.[22]

Nevertheless, the process that took place in Northeast Ohio—of identifying goals and establishing shared measurement across jurisdictions and stakeholders—holds as an impressive model from which other communities can learn from and adapt to their changing environment and needs. In confronting economic trends such as those described above, Northeast Ohio faces many of the same struggles that communities across the country face with regard to the persistent application of data to inform strategy: resource-intensive community engagement, the ability to connect the communities they are trying to serve to broader regional objectives, the ability to keep influential actors at the table over time, and the ability for stakeholders to be held accountable for what they set out to achieve—individually as well as collectively.

Fortunately, regional partners across Northeast Ohio know that economic gains that are both sustained and shared do not happen overnight. This, combined with increasing recognition among residents of the need to connect struggling communities to the regional economic growth objectives (—growth that is in fact, fueling Northeast Ohio's sure yet slow recovery) is a tremendous achievement. Most importantly, the region knows where it stands and it knows where it wants to go.

[22]See Russell (2016). "In An Improving Economy, Places in Distress," *New York Times*. February 24, 2016. The data represents aggregate trends over the 2010–2014 time frame.

5.4 Toward an Inclusive Economy in U.S. Cities & Regions

Of course, an inclusive economy cannot just be measured by economic growth, no matter how you define it (e.g. jobs, GDP, productivity or labor force connectedness). The Rockefeller Foundation asserts that an inclusive economy, whether at a local, regional, state or national scale, exhibits the following five characteristics (of which growth is only one)[23]:

- *equitable* where more opportunities are available to enable upward mobility for more people;
- *participatory* where people can participate fully in economic life and have greater say over their future;
- *growing* where an economy is increasingly producing enough goods and services to enable broad gains in well-being and greater opportunity;
- *sustainable* where economic and social wealth is sustained over time, thus maintaining inter-generational well-being; and
- *stable* where individuals, communities, businesses and governments have a sufficient degree of confidence in the future and an increased ability to predict the outcome of their economic decisions.

By its nature, a more inclusive economy implicates a diversity of actors across sectors and geographies. How to measure progress towards such an economy requires those actors to be honest, diligent and persistent about identifying the goals they want to achieve, tracking their contributions toward those goals, and adjusting strategies accordingly.

In retrospect, Northeast Ohio's efforts to build consensus around a long-term regional agenda are truly remarkable. The use of data to inform strategy and pursue that strategy in a coordinated way—across diverse interests and geographies, is unparalleled among economic development approaches in the U.S. At the same time, no community—Northeast Ohio included—has yet been able to fully translate measurement to the achievement of its long-term objectives. This effort and ones like it are difficult to scale, or don't engage partners from the myriad of sectors necessary to enact change.

As communities across the country look to reframe the economic development conversation from one of "growth" to more comprehensive, meaningful and lasting economic inclusion, communities must be able to understand how to link what they want to achieve locally, to the broader regional economic landscape. This entails trusted partnerships across sectors and geographies, relevant data and a realistic roadmap for success.

[23]See Irons and Berube (2016), based on the Rockefeller Foundation framework, currently in development.

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Author Biography

Emily Garr Pacetti is Associate Director at the Rockefeller Foundation in New York City, focused on helping cities and regions build more inclusive economies, particularly in the U.S. Prior to joining the Foundation, she spent four years working with the Fund for Our Economic Future in Cleveland, Ohio, a collaboration of foundations, business and non-profit leaders dedicated to making the region more economically competitive and inclusive. A former Fulbright Fellow, she also brings experience in regional labor market analyses gained at The Brookings Institution Metropolitan Policy Program and The Economic Policy Institute in Washington, D.C., where she tracked the geographic distribution of poverty, income and jobs in the 2007 Recession and slow-growth recovery. Garr Pacetti has a master's in public administration from Harvard Kennedy School of Government, a master's in urban studies from El Colegio de Mexico in Mexico City, and a bachelor's in political communications from Emerson College. She is the author of "Growth and Opportunity: A Framework for Stronger, More Equitable Local and Regional Economies" and "What Matters to Metros™: Foundational Indicators for Economic Competitiveness."

Chapter 6
Getting to Groundbreaking, but not Build Out: From Formation to Failure in a Regional Housing Indicators Collaborative

Meg Holden

Abstract Getting to Groundbreaking (G2G) is a housing indicators project formed in 2013 that brought together home builders, industry associations, municipalities, the regional government, and academic urban researchers around a common interest: to understand what works in housing development regulation and planning across the Metro Vancouver region of British Columbia, Canada. The project aims were to inject new, credible information into the discussion of regulation of land and housing development. The project investigated trends in the provision of housing, surveyed opinions and practices amongst municipalities, homebuilders and the public, and collected information on new innovations in regulating the provision of housing. The G2G 2014 report detailed the cost, timing and regulatory best practices involved in the development approvals process for new town houses, and the G2G 2016 report examined these factors related to woodframe apartment buildings. The Metro Vancouver region is marked by high regulatory costs and long time frames for housing development, with considerable variability at the municipal level. However, G2G data does not indicate any relationship between lower regulatory costs and less time in the regulatory process and a lower cost of housing. In the context of the politically charged debate about the cost and regulation of housing, we detail the collaborative industry-researcher-government multistakeholder partnership approach taken by G2G and discuss the divergent interests in data transparency, and the politics of participation and control that pervaded the G2G project. In 2016, the G2G partnership broke down as a result of these unresolved questions, leaving unclear how much collaboration can be expected to offer the practice of urban indicators work in a heated political terrain.

Keywords Housing · Development charges · Impact fees · Partnership · Metro Vancouver · Housing affordability

M. Holden (✉)
Simon Fraser University, Vancouver, Canada
e-mail: mholden@sfu.ca

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6.1 Introduction

This chapter tells the story of an effort to create a regional housing development process indicators reporting system in the Metropolitan Vancouver region of British Columbia, Canada. The community of reference for this effort is a new network of local actors, consisting of unlikely collaborators often seen as sitting on opposite sides of the metaphorical decision making table. This effort emerged in the context of a regional, municipal and development planning system that is one of the strongest in North America (Harcourt et al. 2007), and a metropolitan region facing some of the highest levels of residential development activity and residential development value appreciation on the continent as well. Among the numerous loci of blame for the housing affordability crisis that has ensued is a costly and timely development planning process. Yet the extent to which these costs contribute materially to the end cost of housing, and who bears this cost, is hotly debated in Vancouver (Gordon 2016; for the case of San Francisco, see Ruiz and Smooke 2014).

Home builders and developers, municipal development staff, affordable housing advocates and urban housing researchers all share an interest in better understanding the extent to which the costs incurred within the development approvals process play a material role in unaffordable housing in the Metro Vancouver region. The Getting to Groundbreaking (G2G) project emerged to build a network by which all these actors together could create a collaborative research and indicators reporting system to support this understanding. G2G was founded in 2013, operated for three years, produced two reports, and disbanded in 2016. This chapter provides an account of the genesis, process, results and ultimate network failure of the G2G initiative. In addition, we offer reflections from the signs of distress and conflicting values and priorities of the participants around the collaborative G2G table that created new insights into the challenge and opportunities for the use of indicators in a politically-contentious policy vacuum.

6.2 Background and Context: Housing Development Regulation in Vancouver and the Housing Affordability Crisis

Housing policy in Metro Vancouver has reached a turning point. The benchmark or "typical" price for detached, single family housing in the region is now over $1.5 million; for apartments it is over $500,000. Debate over housing affordability is super-charged with anecdotes and innuendo. Supply and demand side arguments are thrown about, and the heated discussion over regulation of vacant housing and foreign investment has pitted the real estate industry against government, and government against foreign investors, while the media laments the loss of the millennial generation to more affordable regions of the province. With 40,000 new

residents arriving each year, lower than average incomes, and the most expensive housing of any Canadian city, new ideas and interventions are needed in order to maintain livability in the region and create sufficient, quality, affordable homes for all residents.

While many macroeconomic and political-economic drivers of housing unaffordability have been posited and tested, revealing the larger context in which housing price escalation is occurring (Hulchanski and Shapcott 2004; Dalton 2009), relatively neglected have been the micro-scale municipal context contributors to housing development activity (housing diversity) and costs (housing affordability). Rising development costs have been clearly linked to the preference among developers to build predominantly for higher income home buyers (Conference Board of Canada 2010)—and even to the justification of these higher end developments as a key means to finance community amenities, infrastructure, and affordable housing alternatives elsewhere. Equally legitimate is the argument that increasing affordable housing options farther away from town centres and rapid transit serves to worsen automobile dependency, traffic congestion, and to threaten quality of life for moderate income households, at the same time as it increases infrastructure cost burden (City of Calgary 2013; Thompson 2013).

Among the factors criticized for the high cost of housing in the Vancouver region are the costs of planning: the time it takes, the cost of charges, compliance with regulations and other process-based measures in the course of development. The role of the municipal housing development policy context, including fees, approval processes and schedules, and institutional relationships and structures for collaboration with the residential development industry, are all pieces of the housing development diversity and housing affordability equation. A sizeable body of research examines the relationships between such factors of planning and housing outcomes, internationally (e.g., Ihlanfelt 2007; Glaeser and Ward 2009; Ruming et al. 2011). For example, in the Australian context, research by Ruming et al. (2011: 258) examines "the experiences and perspectives of individual developers, state and local government planners, regarding housing affordability, funding approaches for local infrastructure, the capacity to pass charges to purchasers, and implications for the design, quantity and location of new housing." They find that planning requirements can affect the cost of housing production and thus the price of completed homes in many ways: from the location and quantity of residential development opportunities in different parts of the city, to the style and density of housing design, to the cost of contributing to local infrastructure and amenities. In Canada, a report from conservative research organization the Fraser Institute posits that a "negative relationship" exists "between regulation and the growth of housing stock" (Green et al. 2016).[1]

The role of these factors becomes particularly significant in regional contexts like that of Vancouver, due to the diversity in approaches to housing development policy amongst the region's 21 municipalities, one electoral area and one treaty

[1]Data on regulation in this study is based upon survey responses from home builders.

First Nation. Recent research conducted by the Metro Vancouver housing policy division reveals that the 15 largest municipalities in the region are, in sum, using a range of over 250 municipal measures to increase affordability, with an additional 30 measures pending adoption (Eberle et al. 2011; Metro Vancouver 2016). While the development and home building industries are quick to point out the constraints that municipal policy and process put on affordable housing supply, municipalities are just as quick to respond that developers continue to profit from development. Indeed, development is currently being approved at historically high levels in Metro Vancouver municipalities (Canadian Press 2016; Connolly 2016).

Following an earlier phase of "roller coaster" growth in Vancouver in the early 1980s, Development Cost Charges (DCCs)[2] were introduced by the Province "to encourage the fair treatment of all firms in the development industry, to reduce uncertainty and to eliminate the appearance of arbitrariness" in the municipal application of fees (Skaburskis 1991: 84). Skaburskis (1990) examined the impact of DCCs on housing cost. The impact of DCCs on housing price at that time was shown to depend upon market conditions; with the kinds of conditions prevalent in Vancouver suggesting that these levies can bring about progressive income redistribution. He notes the secondary effect of these impact fees, namely that they affect different municipalities differently. In a centre-periphery urban growth model, this kind of policy regulatory structure has tended to privilege sprawl and exclusionary development on the urban periphery and density and potentially inclusionary development in the urban core. Metro Vancouver, however, is a polycentric region, in which each of the 21 municipalities has its own growth centre and own planning and development process.

The experience of DCCs gave municipalities confidence in their need for the means to finance growth and ensure a continued quality of life which will maintain demand for new homes. Since the 1990s, municipalities introduced a plethora of new processes, fees and charges to the home development process. Lampert and Denhez (1997: i) found that these costs vary widely across the 26 Canadian municipalities in 10 Provincies and 2 Territories they studied and represent up to $65,000, or close to 20% "of the value of typical modest new single detached and row dwellings in many municipalities." The means by which different municipalities handle the financing and provision of infrastructure varied too; for example, while developers in most parts of Canada install infrastructure within their subdivisions to the municipality's specifications, "there are significant differences among municipalities in the way that developers and municipalities share the costs of financing and installing the required external services" (Lampert and Denhez 1997: i–ii). A study commissioned by CMHC called "Municipal Planning for Affordable

[2]Development Cost Charges (DCCs) (Development Cost Levies within City of Vancouver) are permitted by British Columbia Provincial legislation in order to recuperate the costs incurred in providing new infrastructure in municipal developments. DCCs can be spent on a restricted range of items, specifically water, sewer, drainage, roads and parks. DCCs are a fixed rate charge established by municipal by-law and are levied as part of a subdivision or rezoning on the number of new lots only.

Housing," involved workshops conducted in six urban regions across Canada to compare the utility of six new planning mechanisms aimed at improving affordability of housing (Tomalty et al. 2000). This study found the value of these measures to vary based upon the size and type of housing development, market conditions, surrounding density, and type of policy measure. They found that the mix of approaches used in municipalities often suffered from the lack of an integrated framework to ensure correspondence, coordination and mutual reinforcement of all measures taken.

These studies in the 1980s and 1990s did not include, but noted the additional costs represented by "the important political aspects" (Skaburskis 1990: 175) of charge and policy structures. Such aspects are listed by Lampert and Denhez (1997: v) as: "lengthy land development and approvals process"; "contentious building and land development requirements… including: unnecessary expensive requirements in building codes; requirements for deposits and letters of credit" and "changes in the rules with respect to taxes and charges that apply to the housing industry."

The fuller suite of charges and policy considerations imposed in housing development today includes goals other than efficient land development, paying for growth, and encouraging the private provision of affordable housing. The picture is complicated by changes to the core-periphery model of urban expansion. Typical models of the impact of planning on housing costs are based on a core-periphery view in which land prices decrease with distance from the urban core and price jumps are experienced as agricultural land at the periphery 'flips' to urban uses. What difference does it make to model these effects in a polycentric urban region, with shifting plan and policy priorities as well as diverse resident preferences for low, medium, and high density housing choices? Other goals supported by 15 years of regional land use planning in the Vancouver region include: to promote social mixing and particular ideals of urban design and urban form (though not always well-defined), to encourage energy efficiency and resource conservation, to promote alternatives to the automobile in transportation choices, to preserve green space and heritage, and to support public art and urban 'creativity.' The 'wish list' is growing, but the understanding of how to measure and track our progress toward these goals is lagging behind.

This situation opens up a window for new possibilities to move forward under conditions that no one would claim to be ideal, making the need for accountability, transparency and evaluation, as well as a network-based approach, essential and clear. Private sector housing developers are increasingly being called upon to engage in the provision of more affordable housing in order to contribute to a range of housing options and to meet housing needs of communities. At the same time, municipal development policy and planning structures in place work to ensure quality in developments, incentivize innovation and desirable density and housing forms, and provide enhanced amenity. There is a fine line to be tread here, balancing the values of flexible negotiation versus predictable, clear rules; entrepreneurial municipal governments and regulatory municipal protectors of the long-term public interest; and between the municipal, citizen, private and non-profit sectors in housing provision and housing outcomes. Current research into

what is needed to permit the private sector to play a more significant role in the provision of affordable housing in Canadian cities points to the important role of municipalities in "creating a positive planning and policy environment" (Tsenkova and Witwer 2011: 52). A network approach based on an up-to-date and solid foundation of key information can shed light on the complex situation of need in our municipalities and make apparent the different roles that different actors can play most productively toward solutions.

It is in this context that the need for a project like Getting to Groundbreaking emerged. The research questions that launched the G2G project involve investigation of the equity and public value dimensions of the emerging charge, timing and regulatory structure of housing policy approaches in the region. What are the implications of a variable and often unpredictable policy and regulatory context for housing development in the region's municipalities, for the housing type produced, for future investment in housing by the private sector, and for the provision of infrastructure and amenities in our growing region?

6.3 The Inception of Getting to Groundbreaking (G2G)

In 2013, the Greater Vancouver Home Builders Association approached Simon Fraser University Urban Studies researchers for research support in realizing a new project that would compare practices in housing development processing in different municipalities of Metro Vancouver. Initially, the GVHBA thought of this project as a "report card" for municipalities on their performance with respect to the efficiency and cost of their development approval processes. At the same time, the GVHBA recognized the need to engage municipalities as partners in this effort and sought to persuade municipalities of mutual value in doing the work. Creating a network in order to guide the project was the solution decided upon.

The GVHBA describes itself as a member-based residential construction industry representative, offering a liaising role between industry members and municipalities, as well as information transfer, networking, training, and association recognition. The member-composed board structure of GVHBA gives it a strong stake in putting the housing affordability crisis in Metro Vancouver on a path to resolution. In the interests of adding clarity to this debate, and instituting a culture of transparency on both sides of the home building and housing approvals processing equation, the GVHBA recognized the need for an arm's length, research-based review of municipal housing development processing. An additional value of this research partnership for the GVHBA is that its members have a need for this kind of research in order to operate competitively and efficiently in the diverse municipal contexts in the region. SFU Urban Studies entered into Getting to Groundbreaking as research arm and network convenor, with a view to designing a project that could offer objectivity, credibility, and accountability to the experience of housing development processing from both municipal and home builder perspectives.

(i) ***Project Objectives***

The project was designed as a network partnership between the home building industry, represented by both the GVHBA and the Urban Development Institute (UDI),[3] the local authorities of the Metro Vancouver region, and housing researchers. The network structure for this partnership was considered essential due to the political sensitivity of municipal policy and financial sensitivity around private sector residential development economics. On the one hand, this situation called out for an objective third-party approach to the research in the interests of credibility and validity. Confidentiality and integrity could be assured by University-based design and implementation of the survey and associated data collection and analysis accountable to University research ethics regulations (SFU Department of Research Ethics Approval Number 2013s0346). On the other hand, the situation called for personal access, close reading of context, and understanding of relationship dynamics within the development industry in particular, as well as in the relationships between developers and municipal housing policy environments. There was also a need for confidentiality of research findings in the case of the residential development industry data in particular. The network structure engaged the GVHBA and its members on a regular, ongoing basis, via working sessions and formal committee meetings. It also was structured to engage municipalities via presentations to standing committees of the regional government comprised of municipal members, one-on-one engagement with individual municipalities, and regular meetings of the project advisory group.

The specific project objectives of G2G were the following:

- To promote transparency and accountability in the regulation and promotion of a full-spectrum of housing development in the Vancouver region;
- To build a long-term database of the contributions of municipalities and housing developers to a healthy, diverse and adequate housing supply in Metro Vancouver that supports municipal and regional goals;
- To report annually on key indicators, innovations, and areas in need of improvement in municipal housing policy context and conditions, in municipal-development sector relationships, and housing development outcomes;
- To support a culture of predictability and continuous improvement in housing development supply to meet demands and affordability and sustainability aspirations of municipalities and the region; and
- To generate a process in improving housing development information and policy innovation that is scaleable and transferable to other urban regions.

[3]Non-partisan, non-profit development industry and related professions association with a local chapter in Vancouver.

(ii) ***The advisory group***

A multistakeholder advisory group was formed as the decision making body for the project. Membership was sought from the diversity of perspectives in key roles related to new housing provision in the Metro Vancouver area. As such, members came from the GVHBA, UDI, private residential development industry, regional and municipal housing policy staff, the non-profit housing sector, and academic housing researchers. Terms of Reference and Data Confidentiality agreements were drafted and reviewed by this group. These included the following items:

1. The specification of intellectual property and data products produced by the study;
2. Information and responsibilities regarding mandatory University Research Ethics guidelines;
3. Access and dissemination rights to research data for board members; and
4. Board member responsibilities and requirements for consent for the publishing of data.

The intent of establishing these agreements with the advisory group was to ensure a collaborative review and decision making process in reporting on project data such that individual members of the project advisory group would be satisfied with the contents of the reports before the reports were published. Additionally, these agreements were intended to ensure that no member of the advisory group could prevent another member from making project data public if they gave notice to the group about their intentions, provided that ethical standards for research were maintained.

(iii) ***The project name***

While the GVHBA initially wanted the project to be explicitly named the Report Card, the research team wanted to avoid the perception that the GVHBA was passing judgment on municipalities. Looking for nuance and scope, the research team suggested: From Hammers to Homes, referring to the double meaning of hammers as a necessary tool in home building and also as a particular kind of figurative impact of government regulation. Industry members objected on the practical point that the subject of the analysis was not the hammer-holding stage of home building but instead the preceding period of project planning. Planners on the advisory group suggested the title Planning to Build. This did not meet the approval of members from the industry. A call for anonymous title submissions was made to advisory group members. The winner was ‘Getting to Groundbreaking’, acclaimed by all members as suitable because the portion of the development process being considered was precisely that component that preceded ground-breaking for the initiation of a new home building project. The G2G acronym became the project’s de facto name.

(iv) ***Data Collection***

G2G data collection methodology was structured around an annual survey of Metro Vancouver municipal development planners on residential development policies, charges, and approval times. This survey was designed with input from all parties involved in the partnership, via secondary research, and based upon a number of existing partial templates. Additional secondary research was conducted in tandem with survey development, including desk research into the housing stock and development activity and the policy context in each municipality.

The survey included a hypothetical residential development permit application scenario. The first scenario, for the 2014 report, proposed a 22-unit townhome development. The second scenario, reported in 2016, proposed a four-storey 60-unit woodframe apartment building. Both scenarios represent housing forms that are being constructed in considerable numbers in almost every municipality throughout Metro Vancouver. These scenarios were developed as specific and realistic points of reference in the survey in order to standardize interpretation of the survey questions with regard to development charges and timing of the approval process. The survey was piloted with two willing municipalities, presented for vetting by the project advisory group, and then revised and prepared in a web survey format, customized somewhat for the different policy context of the 17 largest municipalities in the Metro Vancouver region.[4]

The research instrument for municipalities consisted of four parts, with the survey designed to elicit objective responses and a follow up interview designed to solicit qualitative perspectives. Part I asked about the housing and planning goals of the municipality and how the regulatory and incentive structure seeks to help meet these goals. Part II asked about the specific design requirements, charges, and processing time associated with three scenario applications, and perceptions of effectiveness and 'bottlenecks' or barriers in this structure. Part III asked about the suite of housing policies and related measures in place and their perceived effectiveness in producing diverse and affordable housing options. Part IV asked for perceptions of the quality of relationships within the system, perceptions of best practices in other municipalities, innovations in-progress, and reflections on the local appetite for greater harmonization.

The survey/interview research instrument for home builders paralleled this structure, asking about the scale and type of home building activity of the firm, the extent to which their activities seek to meet regional housing goals, and the requirements and timing responses of a key municipality in which they work. Home builders also provided their assessment of the effectiveness of the suite of housing policies and related measures in municipalities in which they work, and reflected on their perceptions of the quality of relationships, best practices, desirable innovations, and on their business. The pairwise survey design for this research was key to

[4]Vancouver, Surrey, Burnaby, Richmond, Coquitlam, Delta, Langley Township, North Vancouver District, Maple Ridge, New Westminster, Port Coquitlam, City of North Vancouver, West Vancouver, Port Moody, Langley City, White Rock, Pitt Meadows.

permitting the triangulation of municipal responses with responses from the development industry regarding charges, timing, tools and contextual factors at play in housing diversity and affordability results.

For survey respondents, members of the GVHBA were sampled based upon their recent experience with the development scenarios provided, and their experience working in more than one municipality in the region, to provide breadth of perspective.

6.4 Research Results and Reactions

The research resulted in two reports, published in 2014 and 2016. Some key highlights of research findings are presented next.

(i) ***Meeting the region's demand for new homes***

G2G analyzed new housing completion data published for municipalities in the region to determine the change in the mix of new housing being built in recent years. We compared these results against the estimated housing demand modelled in the Regional Growth Strategy (Metro Vancouver 2011). This demonstrated, overall, a slight shortfall of new housing being built compared to regional demand estimates, with Vancouver building far beyond this estimate, other municipalities, notably Surrey, building less, and others building about on target (see Fig. 6.1). Overall, this also showed that the majority of new homes being built region-wide, and in 11 out of 18 local government areas, are apartments rather than ground-oriented homes (see Fig. 6.2).

(ii) ***The impact of fees and charges***

The cost of fees and charges imposed by the development approvals process on new developments was tabulated. We also compared development approvals processing timelines. A challenging, iterative process ensued to determine how to reach an agreeable way to report on this data, because municipal respondents provided best case scenario answers, for those development applications that were able to navigate the complexities of development approvals optimally, whereas developers provided their actual results, which usually were not optimal. Debate also ensued, particularly with respect to the timing of the approvals process, about whether applicants or municipalities typically were responsible for process delays, for a host of reasons.

The results of the fees tabulation (Fig. 6.3) demonstrated a variation between municipalities of over $25,000 per unit. The municipality with the highest fees, Surrey, is experiencing a rapid development rate as it urbanizes from a traditionally suburban municipality with primarily greenfield style tract housing development. The least costly municipality for development fees, Port Moody, is a geographically small municipality predominated by medium density infill development. When we

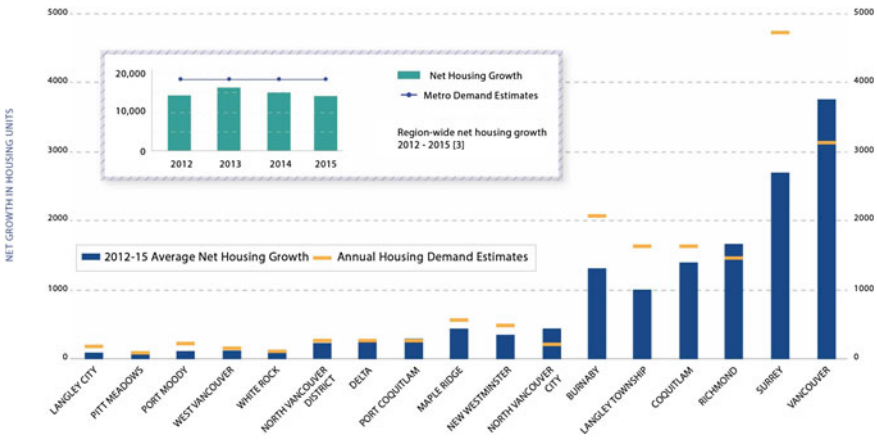

Fig. 6.1 Net housing growth and housing demand estimates in Metro Vancouver, 2012–2015

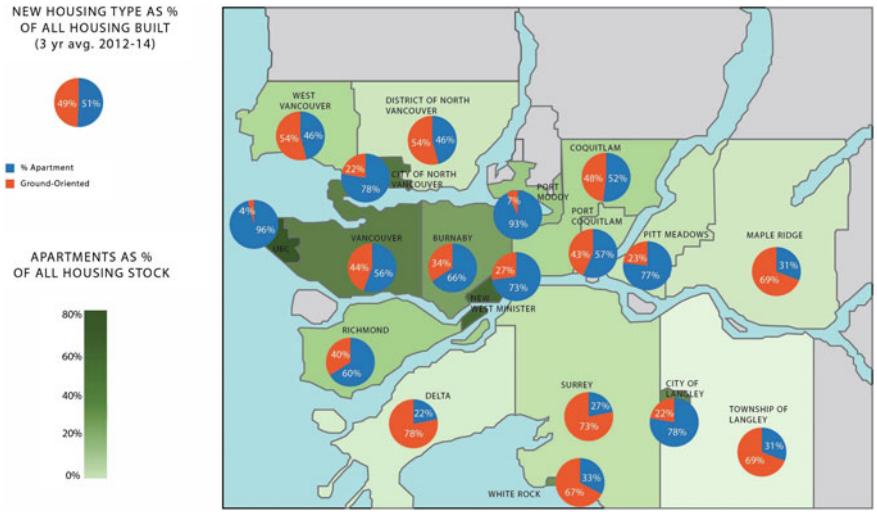

Fig. 6.2 Map of Metro Vancouver showing the proportion of apartments in new housing and in the housing stock

compared the benchmark price of a new home to the cost in fees and charges in each of these municipalities, we found an inverse relationship: in the municipality with the highest fees and charges, home buyers pay lower prices for new townhomes than they do in the municipality with the lowest fees and charges. The difference in median price for a new townhouse was over $136,000 per unit.

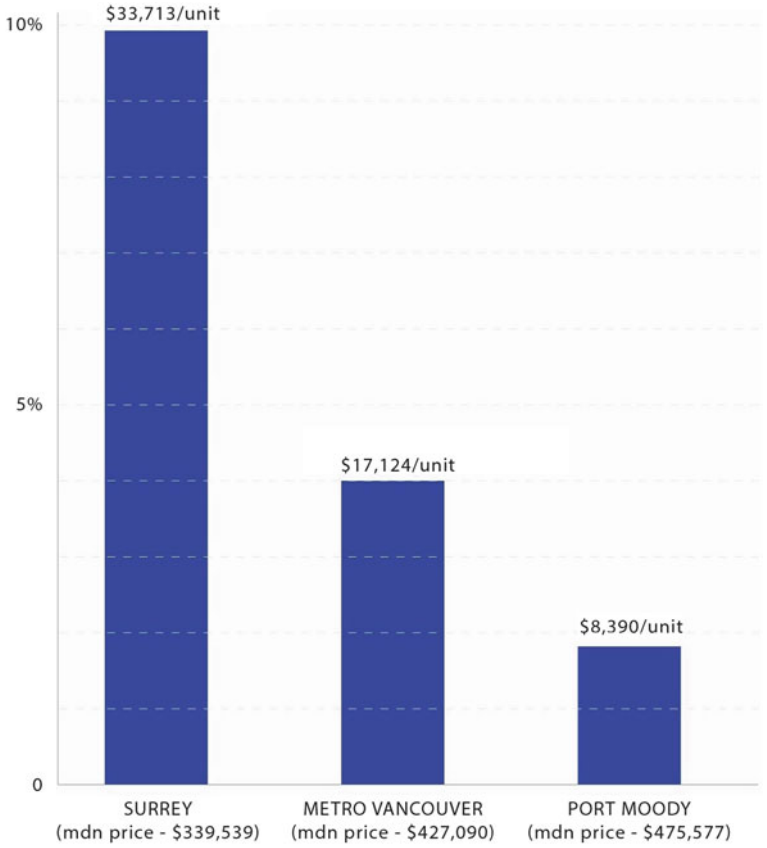

Fig. 6.3 Highest, lowest, and metro average fees and charges, with median selling price of new townhouse

(iii) ***What aspect of development approvals has the biggest impact on your business****?*

G2G research demonstrated that when considering the differential impact of higher fees and longer processing time (Figs. 6.4 and 6.5), home builders were more concerned about the impact of long processes on their business. We heard from survey and interview responses that home builders are willing to pay municipal charges for development permitting, but feel that excess time spent in the permitting process is a severe detriment to their ability to supply housing. They responded that extended processing times were causing reduced profit margins, postponing land acquisition, and building less overall.

At the same time, if delays were driving developers as an industry to take their home building activity elsewhere, we would see the queues decreasing in the municipalities with the longest backlogs. This is precisely what is not happening.

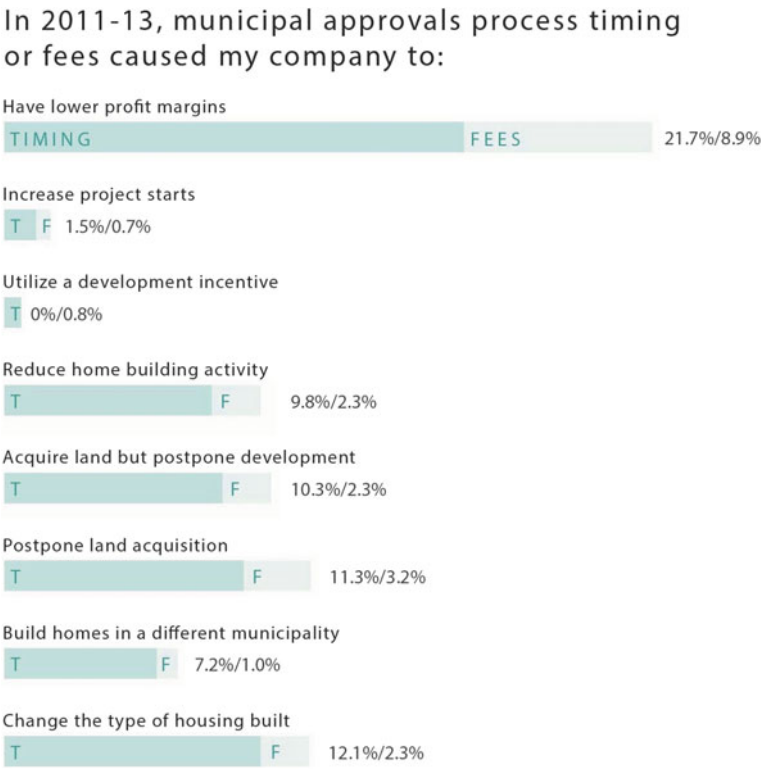

Fig. 6.4 Home builder survey responses: In 2011–13, municipal approvals processes timing or fees caused my company to …

What stands out from our research, instead, is that the municipalities with the most development applications are also the municipalities struggling to keep up with the pace of diligent scrutiny and review (Canadian Press 2016). Ergo, without budget or staffing increases, it takes them more time to complete these reviews and grant permits to worthy housing development projects. Moreover, municipal planners emphasized that taking the time to plan for development ensured a successful home building result overall. One planner expressed that rather than an imposition of cost and time to good housing outcomes, "planning is the foundation!"

(iv) ***The Housing Partnership Index***

The desire to construct a report that provided value to both municipal development approvals offices and home builders drove the construction of a Housing Partnership Index for the first round of G2G (Fig. 6.6). Through our process of research and review, the G2G advisory group had developed a shared understanding that what makes a municipality a great place for homebuilding is not a simple formula of low fees and quick processing times. The Housing Partnership Index tried to take this into account through a four point, normalized weighting of scores for (1) total fees

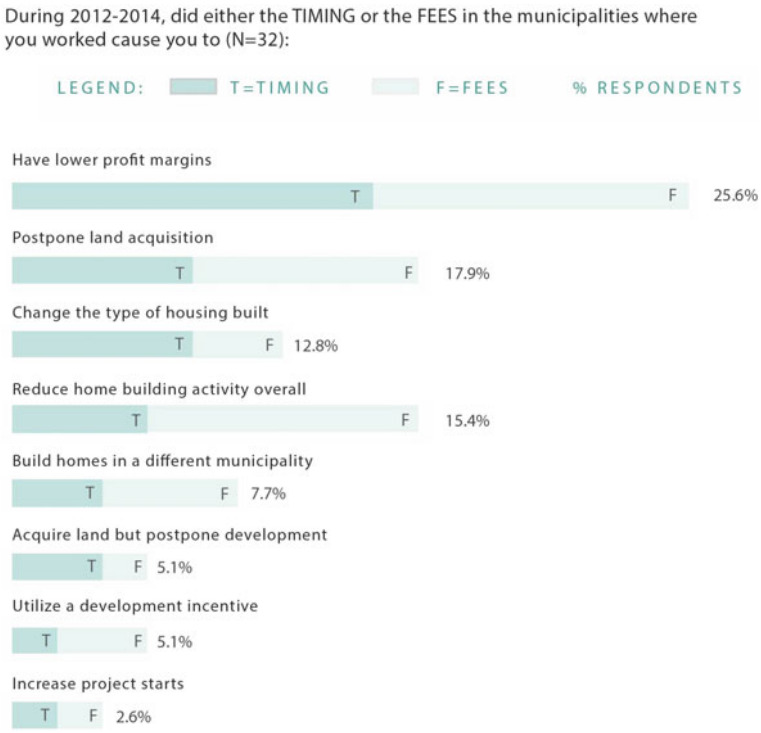

Fig. 6.5 Home builder survey responses: during 2012–2014, did either the TIMING or the FEES in the municipalities where you work cause you to …

and charges, with attention to predictability; (2) overall processing time, with attention to the use of concurrent application processing; (3) estimated score for municipal culture as per qualitative home builder survey response to the request "Describe the culture of the municipalities where you work"; and (4) estimated score for municipal survey response to the question "What factors make your municipality unique when it comes to the residential development approval process?" Because the four items in the index were equally weighted, half of the index score is specific to the housing typology being specifically considered (in this case, townhouses) and half refers to development approvals in general.

The results of this index demonstrated that a municipality's reputation for development processing can come from a number of different efforts specific to different municipal contexts. In Langley Township, for example, a relative abundance of greenfield land and a large number of townhouse development applications in the past three years make the process more streamlined and efficient. Richmond fares well for an effective website and digital communications. Vancouver's good results here were driven by the recognized professionalism and dedication of staff and a high level of clarity of regulations. Port Moody, with very little greenfield land, scored well for lower fees and charges.

Fig. 6.6 Results of the 2014 housing partnership index

This construction reflected the expectation and hope of G2G project advisors that participants in building homes and regulating home building, in Metro Vancouver, saw the costs and benefits of this process as a longer term process than a one-shot-deal. The value of a longer-term partnership orientation, even for industry, was clarified well by a comment from a project advisor:

> … many [builders] have longer time horizons. Like planners, they want projects that are livable with good amenities - because that sells. In addition, if they are known as good builders, they are more likely to get a positive response from municipalities and communities when they propose future projects, which may mean faster approval processes. (G2G project advisor)

(v) *Report Card versus Best Practices*

To take this focus on continuous improvement and engagement one step further, we sought feedback from both municipalities on best practices in the housing development approvals process, as well as ratings of performance on each of these. The best practices that were recommended by both groups included instrumental components of good process, but also elements reflecting a willingness to learn, communicate, reflect on complexities, and attempt to account for some of the intangible values of productive and professional relationships. The additional step of rating municipal performance on these practices demonstrated the places where municipalities and home builders both recognized that improvement was needed, such as improving public engagement and providing clear policy, as well as where there was a mismatch of priorities, such as around the empowerment of municipal staff on specific development files (Fig. 6.7).

Best Practices	How important is it? Municipalities	How are municipalities doing? Home Builders
Improving public engagement	★★★★★★★	👍👍👍
Providing clear policy	★★★★★★★	👍👍👍👍
Providing pre-application meetings	★★★★★★	👍👍👍👍👍👍👍
Providing predictable fees and charges	★★★★★★	👍👍👍👍👍
Building efficient patnerships for development	★★★★★	👍
Having file champions and coordinated teams	★★★★★	👍
Offering concurrent processing	★★★★	👍👍
Enforcing completeness of applications	★★★	👍👍
Empowering municipal staff	★★	👍👍👍👍👍👍
Providing accessible and complete information online	★	👍👍

Fig. 6.7 Recognized best practices and municipal and home builder ratings

6.5 G2G: First Launch to Network Failure

Following the lengthy negotiations around the design of the research instruments and framing of results in the report, the launch of the inaugural report provided the next real test of the strength of the network partnership. It was the test on which the network ultimately failed. The siting, structure and content of the launch event was a matter of considerable negotiation. The ultimate decision was to hold the event early in the morning, downtown, at a University venue. Initially planned as a press conference, the choice was made to stage the event as a panel discussion, followed by a "media scrum." This was done as a compromise between the desire for an event intended to communicate the project and its outcomes and to generate interest in G2G among industry members of the GVHBA and UDI and one intended to communicate the project to the local media. The panel consisted of Holden, whose responsibility was to present a project overview, its outcomes and recommendations, a local government manager, to offer his view of the utility of the project and his own rationale for municipal engagement with G2G, and comments from the CEO of the GVHBA, who also served as moderator of the panel. Rather than provide an opportunity for questions from the public audience of about 200, the decision was made not to engage in any panel or audience discussion following the initial remarks. Instead, reporters were invited up to the stage for more privately fielded questions.

The event itself was successful, in terms of attendance, including a good mix of industry people, municipal people, researchers, elected officials, and some interested members of the public. Most left somewhat confused by the lack of opportunity to discuss the findings of the report at all. It was on the question of how the

report was represented in the local media that the major dispute arose. Box 1 provides a vignette of what in retrospect was a critical turning point toward the eventual termination of the project, a year and a half later.

Box 1. Turning point toward network failure

Everything was ready. The GVHBA was staffing the registration table. Urban Studies brought paper copies of the report, slides and notes for presenting the report's findings. Holden was setting her presentation up at the front of the conference room. The Executive Director of the GVHBA approached, anxiously. He asked: "Did you see the cover of the Business Section of the Sun this morning?" referencing the major city newspaper.

The advisory group had discussed an embargo until the day of the launch, and that the GVHBA would focus on the community newspapers, where they had contacts, whereas Urban Studies would focus on the Sun, where they had contacts. Holden had spoken with a Sun reporter in advance of the launch, let him know about the embargo, and encouraged him to come to the launch.

"Oh, is it good?" Holden asked, thinking: All coverage is good coverage for public awareness raising, right?

The man's countenance deepened. "No." He persisted: "How did he get his hands on the report?"

"I spoke to him," Holden replied. "I told him about the embargo."

His eyes became livid. "He broke the embargo?"

Media coverage of the initial G2G report was widespread. The *Vancouver Sun* article that caused such consternation to the GVHBA was entitled: "Housing development approval processes, costs differ greatly across Metro Vancouver" (Constantineau 2014). It led with the line: "Researchers used four measures to produce a Housing Partnership Index that lists the top 10 Metro Vancouver communities for townhouse development."

The *Surrey North Delta Leader* community paper, invited to the launch by the GVHBA, ran the headline: "Report targets high home building fees, red tape" (Nagel 2014). The first line was: "A new study makes the case for reforms to streamline municipal development approvals and restrain fees to help home builders keep pace with housing demand and control prices." The first quote, from the GVHBA President, read: "This is about red tape and getting rid of inefficiencies."

Following the launch of the first G2G report, the research and advisory groups took stock of the project, conducted a limited internal evaluation of their efforts, and renewed the research instruments for round two. The housing typology selected for the second round of research was four-storey woodframe apartments. Resistance to participation from municipalities was higher with this round, and interest in participation from home builders was low. Following numerous delays, the second report was prepared and released.

Media coverage of the second G2G report, released a year and a half after the first report, was muted. In the *Province* newspaper, the GVHBA (De Wit 2016) penned a guest column entitled: "Cut red tape to get new homes built." The sub-header read: "MEETING DEMAND: Finding ways to streamline municipal approval process could help bring prices down."

Immediately following the release of this report, the GVHBA informed SFU Urban Studies that the organization was no longer willing to participate in the Getting to Groundbreaking project. With this removal of the founding partner, the project advisory group determined the project itself should be terminated.

G2G, then, after a three year period of intensive collaboration, with productive results and perhaps a needed outlet for considerable tension related to the role of municipal approvals processes in home building activity and outcomes in Metro Vancouver, failed. In the remainder of this chapter, with a view to improving researchers' expectations of multistakeholder partnerships and network approaches to collaborative urban and community indicator efforts, we look into some of the factors that contributed to this failure.

(i) ***Results: Initial excitement, deteriorating support***

G2G received a number of congratulatory comments on the first round of the project. The first report compiled a wealth of diverse data, with a great deal of potential to offer comparability, the identification of best practices across the region, and learning. G2G received the welcome feedback that the report struck a respectful balance in terms of presenting results that did not "take sides" between municipal and home builder perspectives and that thus did not alienate potential future participants. At the same time, the results themselves were seen as little more than the "tip of the iceberg"; that required a good deal more longitudinal support in order to have real value for housing development processing policy and practice in the region.

Comments were collected following the release of the first G2G report in order to inform the revision of the process for follow-up research. As a result, the project advisory group made the following determinations to revise the project:

- The survey was shortened considerably.
- Follow-up interviews with survey participants were determined to present an excessive demand upon participants' time, and were not repeated.
- Communication that this initiative is meant to be a positive learning/sharing experience, not negative comparison, was considered imperative.
- The format of the release event needed changing, to stimulate discussion and consideration.

G2G researchers and project advisors participated in communication work during its start-up phase, in order to garner support and survey and interview completion from a broad base of municipalities and home builders. This work, while successful for an initial round, was not ultimately sustainable. No project advisors were willing to take on this essential, ongoing communications work.

Table 6.1 Divergent interests in goals for the G2G network partnership

Home builder interests in the project	Municipal interests in the project
Are we building sufficient homes to meet expected demand?	Is there demand for this form of housing in this community?
What are the costs of process timing and fees? How are these having an impact on home builders?	Will reduced processing times and/or fees result in any payoffs for municipalities, like increased housing supply and housing affordability?
What is the variation in processing times and fees & charges in municipalities?	What are the legitimate causes of these variations?
Do home builders' and municipal objectives conflict or align on matters of municipal and regional interest?	How is home builder concern for e.g. design, quality, and equity reflected in this report?
How can efficiency (certainty, transparency) be achieved in this process?	How does the process add value to projects and to overall planning goals?
What elements are most time consuming?	What legislated and ethical requirements do municipalities have to meet in this process?
What are best practices that both municipalities and home builders can agree to?	How can municipalities learn from peers in terms of innovation in this area?

Without widespread and continuous commitment to this communications effort, municipal support for further iterations of the project, which was never high, dwindled further. It was rumoured that municipalities that participated in the first round would not do so again, because it was too time consuming and did not benefit them. It was also not clear that the survey was collecting high quality information in all cases, or that the people with the best information were receiving the request to participate. The ultimate goal of the project was not clear; in fact, what the interim evaluation made clear was that there was no agreement on a single goal for the project (Table 6.1). Identification of best practices was seen to be a laudable goal that could receive more emphasis in the continuation of the project, but it was not clear how to turn these results into advice suitable for implementation across the diversity of municipalities and home building companies. The real value of comparing conditions and contexts in different municipalities of the region was called into question.

Without a regulatory or other kind of incentive to continue on the path to partnership, this deeper understanding of the divergence in goals for the project between industry and municipalities suggested it would be difficult to sustain the work.

(ii) ***Results: The Politics of Participation in Indicator Projects***

G2G called into play a distinct politics of participation in research into indicators of performance on development processing. Participation in the G2G effort drew out strongly divergent senses of the motivations and drawbacks for this kind of work, from both home builders and municipalities. The consensus from home builders

and industry representatives was that municipalities had no standing to refuse to participate in G2G because of the need for transparency among public bodies and also the sense among those in the industry that there were obvious improvements to development approvals processes that could be made, with just a bit more scrutiny. From this view, to fail to participate in this politically-neutral, information-seeking effort would be to solicit embarrassment. To industry, municipalities ought to recognize that development activity was key to the quality of life they could offer, and seek to minimize their expenditures of tax dollars on things that would inhibit this activity.

From the municipal perspective, by contrast, the G2G effort was extremely political and, in fact, ran the risk of simply pitting municipalities against one another in a zero sum game for faster and cheaper processes that might lower the bar for the quality of outcomes over all. Regardless of what municipalities might do to improve their work, it was the nature of the development industry to always seek for it to be done faster and more cheaply, so there was no way for municipalities to "win" via participation. Indeed, the results of the first round of research did appear to have a "backfiring" impact on the industry, as one of the municipalities, White Rock, determined from the results that their fees were too far below the regional average, and increased them. There was political capital to be gained in this direction, too, because this demonstrated the confidence of the municipality to capture the windfall from development in order to help pay for the infrastructure and amenities needed locally in the public interest.

One municipality, Maple Ridge, responded to the release of the first report in the way the G2G advisory committee had hoped: it struck a new development advisory committee of both industry and municipal representatives and made progress on the practices identified in the G2G report (Fig. 6.7) the committee's agenda for its first year.

6.6 Discussion and Conclusion

The G2G effort was an innovative and collaborative effort in generating new indicators via a network partnership, that shed new light on a complex and highly politicized debate about planning, housing development, affordability, and quality of life in the Metro Vancouver region. In its first three years, the project generated considerable excitement among partners, as well as consternation and a desire to control the results. It generated useful data, some of which contradicted widely-held views about the relationship between the cost of fees and charges and the cost of housing. It drove some changes in policy amongst the Metro Vancouver municipalities, although not always in expected ways. It generated a better informed debate about the role of housing development approvals processes in housing activity outcomes.

Everyone involved in G2G recognized the project as contentious from its outset. No one on the G2G advisory group table held illusions about any neutral status of the data being collected. It was the presentation, juxtaposition, and interpretation

that was the stuff of negotiation from the start. The checks and balances provided by the diverse perspectives of different members of the partnership network were the way in which this indicators effort sought to guard against different "cooking" methods of data that could never be "raw" (Bowker 2005). The research team, in this politicized domain, played not so much the neutral moderator's role as the role of "poultice" for the festering frustrations of both municipalities and home builders. The project and its research provided a focal place to air frustrations about this set of tangled issues, which had not previously had a public outlet. We cannot say, following the failure of the network and the project after its first three years, that the project successfully persuaded anyone that a collaborative approach could be an effective and productive means to improve the governance of housing planning and development, nor that the possibility of consensus might exist between industry and municipal perspectives.

From a research perspective, our work provides ample evidence that, in the Metro Vancouver region, residents' quality of life benefits from the existence of a robust regulatory and planning framework. Regional planning, official community planning, neighbourhood planning, and long-term policy processes work to meet increasing expectations and provide opportunities for municipalities, residents and home builders to engage in big picture, long term thinking. The residential development approvals process fits within this larger structure to navigate the layers of expectations for an individual development approval process. Notably, the research demonstrated that the efficiency and cost of the impacts of municipal housing development processes and policy cannot be considered to pertain automatically to affordability. There are no guarantees that cost savings from reduced expenses in the development process are passed on to home buyers (Sherlock 2013). G2G research demonstrated, if anything, an inverse relationship. At the heart of the question of good regulatory process for homebuilding is the distribution of risks and rewards between the public (local government) and the private sector (the home building industry).

In efforts such as G2G, which crack open politically-fraught questions with the promise of neutral data and collaborative analysis, it is important to keep in mind Donald Campbell's Law (1979): "The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor." The call for better indicators and more data can be a call to exert control and standardization over a situation that needs something other than more discipline in order to improve. Some enter into indicators partnerships in order to attempt to manage complex processes from afar, by disciplining under-performance as determined by quantitative, though still subjective, targets (Craglia et al. 2004). This kind of new managerial approach flies in the face of the real work of collaboration in a partnership of equals, which demands a sense of willingness to seek new knowledge and understandings that may threaten existing ones, and to forego the will to control outcomes completely.

6.7 Coda: The Network, Post-failure

Following the termination of the project, the GVHBA approached SFU researchers with the idea of nominating the project for a Land Award, a competitive award given by the Real Estate Foundation of BC, an early project funder. An application was prepared collaboratively and submitted, nominating the GVHBA as the project initiator. Following its deliberations, the Real Estate Foundation of BC decided not to award the project the prize. They provided the following reason:

> The Land Awards were created to celebrate projects that demonstrate leadership, innovation and collaboration in sustainable land use. The Getting to Groundbreaking series demonstrates each of these qualities and the committee was particularly impressed by the depth and detail of the reports, and the connections drawn between development, sustainability and affordability. Ultimately, the judges felt that the reports were excellent examples of best practices, but fit very closely with GVHBA's portfolio of work.

There is a clear irony in the divergent perception of this project as, from the GVHBA perspective, too risky and beyond direct control, and from an external perspective, too overtly self-serving of this industry association's goals.

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Author Biography

Meg Holden, Ph.D. is a social scientist whose research investigates the promises and results of sustainability planning in cities around the world. She is an Associate Professor of urban studies and geography at Simon Fraser University in Vancouver, Canada. Meg served as a board member of the Community Indicators Consortium from 2011 to 2016 and she currently serves as editorial board member of the journal *Applied Research in Quality of Life* as well as the Springer book series on Community Quality of Life and Wellbeing. Meg is the author of *Pragmatic Justifications for the Sustainable City*: *Acting in the common place* (Routledge, 2017). Meg obtained the Ph.D. in Public and Urban Policy from the New School for Social Research.

Part II
Community Indicators Identifying Different Types of Disadvantage

Chapter 7
Environmental Justice in Australia: Measuring the Relationship Between Industrial Odour Exposure and Community Disadvantage

Lucy Dubrelle Gunn, Billy Greenham, Melanie Davern, Suzanne Mavoa, Elizabeth Jean Taylor and Mark Bannister

Abstract Community impact and environmental justice issues are examined across metropolitan Melbourne, Australia, using 2008–2011 self-reported odour complaint data as a direct measure of odour pollution exposure. Differences in pollution exposure and indicators of socio-economic disadvantage were compared across areas using spatial clustering and statistical analyses. Results found that odour affected areas have greater socio-economic disadvantage supporting the existence of environmental justice issues in metropolitan Melbourne. Commonly used buffers of 1 km surrounding polluting facilities under-represent odour affected areas. Findings have implications for urban planning and policy in establishing separation distances between residential and industrial zones in new and existing developments where guidelines are lacking.

L.D. Gunn (✉) · B. Greenham · M. Davern · S. Mavoa
McCaughey VicHealth Community Wellbeing Unit, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, VIC 3010, Australia
e-mail: lucy.gunn@unimelb.edu.au

B. Greenham
e-mail: billyg@pgrad.unimelb.edu.au

M. Davern
e-mail: mdavern@unimelb.edu.au

S. Mavoa
e-mail: suzanne.mavoa@unimelb.edu.au

E.J. Taylor
Centre for Urban Research, Royal Melbourne Institute of Technology, Melbourne, VIC, Australia
e-mail: elizabeth.taylor@rmit.edu.au

M. Bannister
Environment Protection Authority Victoria, Melbourne, VIC, Australia
e-mail: mark.bannister@epa.vic.gov.au

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7.1 Introduction

7.1.1 Background

The environmental justice movement is a response to the disproportionate burden of pollution and environmental hazards affecting the health and wellbeing of poor and minority populations, and the lack of voice and protection afforded to them through legal and political systems (Mohai et al. 2009). Early research examined the location of polluting facilities in African-American and Hispanic communities (USGAO 1983) which was later expanded to a national study by the United Church of Christ's Commission for Racial Justice investigating race, ethnicity, and income (Chavis and Lee 1987). Since then descriptive, spatial, and regression analyses have been used to test for correlations between polluting facilities and socio-economically disadvantaged areas in the US and other countries (Maantay 2002; Schlosberg and Carruthers 2010). Much research has used air inventory data as measures of air pollution with no focus on odour. Furthermore, little research exists using odour complaint data, although many countries collect and use these data for determining odour issues (RDWI Air Inc. 2005; Kaye and Jiang 2000; Nicell 2009; Schauberger et al. 2006).

7.1.2 Existing Environmental Justice Methods: Advancements and Limitations

Spatial coincidence is a form of proximity-based analysis using the location of polluting facilities based on administrative boundaries such as census tract, municipality boundary, or postal/zip code area as a measure for exposure (Chakraborty et al. 2011). Spatial coincidence has a number of limitations: it assumes polluting facilities have equal effect; ignores the type and quantity of polluting facilities present; and does not account for cross-boundary exposure or "edge effect problems," which over-simplifies results (Bolin et al. 2002).

Proximity-based analysis uses a buffer around a polluting facility and negates the edge effect problem of buffers crossing into administrative boundaries without polluting facilities (Mohai et al. 2009). Proximity-based analyses also have limitations, mainly because true pollution exposure from proximity is complex and difficult to measure (Maantay 2002). Nevertheless, buffer zones are commonly set at 1 mile or a range of values from 500 m up to 5 km (Chakraborty et al. 2011). Buffer zones of different sizes can also lead to different exposures and research results, therefore it is important to evaluate the sensitivity of buffer distances

(Sheppard et al. 1999). Furthermore, exposure to pollution might be unequally distributed or influenced by a range of factors including: meteorological conditions; such as wind speed and direction; the type and quantity of facility and pollution being emitted; and site conditions such as the height of smoke stacks affecting the measurement of exposure (Maantay 2002).

Risk-based analysis is another approach that measures the dispersion of pollution with plume based methods being an example (Chakraborty and Armstrong 1997; Mohai et al. 2009). Limitations associated with risk based analysis are difficulties in sourcing data and the use of complex methodology which can make them challenging to use. Hence, even though the approach has provided methodological advancements, it can be difficult to establish a causal link between pollution exposure and health outcomes (Maantay 2007).

7.1.3 Odour Pollution Exposure

Although difficult, the measurement of odour pollution is important as odour is understood to be a stressor of wellbeing even though long term physical effects remain unclear (EPAV 2015a). Odour is pervasive and can lead to headaches, nausea, stress, and can restrict the daily activities of people to such an extent as to warrant regulation (Nicell 2009; Shusterman 1999). Furthermore, half of all air pollution complaints in the US are related to odour (Henshaw et al. 2006). Odour can be measured objectively through the use of field assessments, portable olfactometers or scentometers that are used to detect and measure odour dilution. A complexity of odour monitoring and measurement is that odour is subjectively observable and can be construed as a nuisance or annoyance by some people and not concern others. Consequently, the health risk presented by odour is determined by a detectable threshold – this means that when it is noticeable, it is having an impact. This provides a rationale for using odour complaints as a strong proxy measure of odour exposure that circumnavigates issues of objective measurement, which do not account for the true spatial extent or offensiveness of odour which can be perceived to be more or less offensive by different people (Nicell 2009). Consistent with this understanding, this study employs the use of georeferenced individual level odour complaints as a direct measure of odour pollution exposure in the Australian context.

7.1.4 Spatial Correlation Between Polluting Facilities and Odour Pollution Exposure

The spatial distribution of odour complaints can be used to define an estimated buffer zone for odour pollution exposure. This allows the buffer to be data driven

and implicitly accounts for long term meteorological, topographical and site conditions. Many residential areas in Australia are co-located with industrial zones releasing noxious gases and odour from industries such as tanneries, wool scouring, blubber rendering, meat processing, timber and paper mills, paint manufacturing, and petroleum refineries among others (Byrne and MacCallum 2013). In many locations, close proximity of residential areas to several odour polluting facilities makes establishing the cause of the odour difficult. However, the number of odour complaints surrounding industrial zones yields a clear indicator of odour pollution exposure useful for measuring environmental justice issues within and across different communities.

In Australia, previous research into environmental justice issues has focused on lead emissions from mining in Mt Isa (Mackay et al. 2013) and the metal smelters at Port Pirie (Taylor and Schniering 2010) while more recent research has used national pollution inventory data (Chakraborty and Green 2014a, b). However, Australian research has not examined the spatial correlation between odour complaints, polluting facilities and socio-economic disadvantage.

Analysing the spatial distribution of odour complaints could reveal the extent of odour exposure and identify whether odour-affected communities differ from the rest of the population based on socio-economic characteristics. Furthermore, greater understanding about the spatial distribution of odour could be used to devise future pollution mitigation strategies and inform urban planning and policy about separation distances between industrial and residential zones. This is particularly important for urban development areas where encroachment occurs between industrial and residential zones in response to increased population growth and urban sprawl development.

7.1.5 Study Objective

This study examines the distribution of odour exposure measures using georeferenced individual level odour complaint data, indicators of socio-economic disadvantage, and the location of polluting facilities within metropolitan Melbourne, Australia. Results are used to evaluate the extent of environmental justice issues in the Australian context and provide recommendations for urban planning policy.

7.2 Data and Methods

7.2.1 Odour Complaint Data and Pollution Data

The Environment Protection Agency Victoria (EPAV) is a statutory authority established in 1971 under the *Environment Protection Act 1970*. It makes

regulatory decisions under the Act and is responsible for concordant compliance and enforcement (EPAV 2015b). The EPAV provided self-reported data on odour complaints and the location of polluting facilities from 2008 to 2011. The EPAV provides a 24-hour hotline with complaints of noise and odour recorded with georeferenced location across the State of Victoria, Australia. 9215 odour complaints were reported across the 3 year period, and for 4517 of these reports, the polluting facility causing the odour was confirmed by an EPAV field trip.

Polluting facilities data included georeferenced locations of 117 scheduled and 29 problem premises. Scheduled premises are large facilities requiring EPAV licenses and work permits aligned to activities that potentially cause adverse environmental impacts while problem premises have previously been issued a pollution abatement notice by the EPAV. Eleven smaller premises that were non-scheduled or not problem premises were also included in the polluting facilities dataset. Industries of the 157 polluting facilities included landfills, sewerage treatment, composting, food and other animal intensive activities, with a smaller number relating to petroleum, chemicals and aerosols.

7.2.2 Indicators of Socio-economic Disadvantage

Six indicators of socio-economic disadvantage were used to understand the characteristics of communities affected by odour pollution. These included vulnerable age, which was defined as people aged less than 15 or greater than 65 years of age to represent people most susceptible to negative health impacts from pollution (Medina-Ramón and Schwartz 2008).

Household income determines the economic status of a household and influences quality of life and provides the resources to cover basic necessities such as food, shelter and health care. Vulnerable income was defined as the percentage of household incomes in the lowest 3 deciles for Victoria corresponding to between $A400 ($A20,800 annually) and $A799 per week ($A41,599 annually).

English proficiency describes an individual's ability to use a common language for communication. Being unable to communicate is a barrier to completing everyday activities and can lead to social isolation. Being able to communicate is particularly important for self-reported pollution monitoring. Poor English proficiency was defined as the percentage of total respondents from the 2011 ABS Census indicating their standard of spoken English was "Not well" or "Not at all."

The Socio Economic Indexes for Areas (SEIFA) are compiled by the Australian Bureau of Statistics (ABS). SEIFA are area level indexes that rank areas on the basis of relative socio-economic advantage or disadvantage. Area level indexes aid comparisons between areas based on disadvantage and are useful in determining the existence of environmental justice issues. Area level socio-economic disadvantage indicators were derived from the 2011 ABS *Census of Population and Housing 2011* (ABS 2011) at the Statistical Area Level 1 (SA1) for metropolitan Melbourne.

SA1 is the smallest unit for Census data and includes between 200 and 800 people with an average of 400 people and an average size of 1 km^2. It is also the geographic level on which SEIFA data are recommended for use in contextual analyses such as this (ABS 2013). To minimize bias, 288 SA1s with population counts less than 20 or missing SEIFA data were removed (Chakraborty and Green 2014a). Analyses were conducted using 8781 remaining SA1s. SEIFA included in analyses are the Index for Relative Social Disadvantage (IRSD), Index for Economic Resources (IER) and Index for Educational Opportunities (IEO) (ABS 2013).

7.2.3 Methods

7.2.3.1 Clustering Methods

Odour complaints were spatially mapped then clustered using two common techniques: K-Means and Nearest Neighbour Hierarchical (NNH) clustering (Levine 2010). The NNH technique clusters data on a pre-set minimum number of data-points with clusters formed based on a threshold distance parameter between data-points. The K-Means technique clusters data into groups based on a pre-set number of clusters determined a priori. The main drawback of this technique is that determining the number of clusters is arbitrary and often unknown. Both techniques were used, however the NNH technique was preferred as it does not require the number of clusters to be specified a priori. Visual inspection and preliminary cluster formation on the odour complaint data confirmed that this approach fitted the location of odour complaints well (Fig. 7.1).

Initially, NNH clusters were examined based on a minimum number of data-points including: 10; 20; 50 and 100 odour complaints. These values were trialled because the optimal number of odour complaints needed to determine clusters was unknown. Visual inspection of clusters formed using 10 odour complaints revealed that these clusters were too small to be representative of a community affected by odour. In comparison, clusters formed using a minimum of 100 odour complaints covered an area that was too large and didn't capture the localized issue of odour. Convex hull clusters formed using a minimum of 20 and 50 odour complaints appeared to visually fit the data well. Convex hull clusters describe polygons representing all odour complaints contained within a cluster. Once these clusters were identified cluster analysis was completed using Crimestat IV software with distance parameters tested across the full range of settings (Levine 2010).

7.2.3.2 Statistical Approach

Three statistical tests were completed to determine whether people exposed to odour were more socio-economically disadvantaged than people living in areas less

Fig. 7.1 **a** Clayton South, metropolitan Melbourne, Australia: Nearest Neighbour Hierarchical clusters based on a minimum of 20 odour complaints, Clayton South, metropolitan Melbourne. **b** Clayton South, metropolitan Melbourne, Australia

exposed to odour. Tests included: the Spearman rank correlation test; t-tests comparing communities with and without exposure to odour; and t-tests comparing the number of odour complaints within communities.

Relationships between the number of odour complaints, polluting facilities and the socio-economic disadvantage indicators were examined using the Spearman rank correlation test (Chakraborty and Green 2014b). In these analyses, the number of polluting facilities impacting on SA1s within a 1 km boundary were included to adjust for the "edge effect problem" (Chakraborty and Green 2014a).

The use of t-tests to compare means in areas with and without odour exposure follows established methods used previously (Chakraborty and Green 2014a). SA1s intersecting with NNH clusters were selected using polygon containment and used to represent odour exposed areas (Chakraborty et al. 2011) with remaining SA1s representing areas less exposed to odour.

T-tests were also used to compare differences in the number of odour complaints (odour intensity) and socio-economic disadvantage indicators. Odour intensity is measured using three groups: SA1s with no odour complaints; SA1s with ≤ 20 odour complaints; and a high exposure group containing SA1s with >20 odour complaints. An absolute threshold value of 20 was chosen as a reasonable number of minimum influence particularly when percentiles can change between samples making it harder to translate into policy contexts (Lamb and White 2015).

7.3 Results

7.3.1 Clustering of Odour Complaint Data

GIS analysis revealed single odour complaints made from unique residential locations. However for some residential locations, multiple complaints were made suggesting that some households are more engaged in reporting odour offences than others. The impact of multiple complaints from single residential locations on the formation of clusters was also examined. Slightly larger clusters were formed when using unique odour complaints than clusters based on all available data including multiple complaints. This is consistent with the requirement for a cluster to grow to satisfy the NNH clustering criteria. Due to the similarity in clusters, only clusters associated with all available odour complaint data, including multiple complaints, were considered further.

A case study from the Clayton South area is presented in Fig. 7.1. This area is characterized by landfills, market gardens, compost areas and industrial zones known to cause odour problems. Convex hull clusters based on a minimum of 20 odour complaints with a R5 = 0.75 distance threshold setting in Crimestat IV yielded the best clusters visually. However, clusters based on a minimum of 50

odour complaints with a L5 = 0.05 distance threshold setting were also appropriate. The clusters based on a minimum of 20 odour complaints shown in Fig. 7.1a cover more odour complaints and area than clusters based on a minimum of 50 odour complaints, shown in Fig. 7.1b.

Figure 7.1 reveals a greater intensity of odour complaints in the north and south east residential areas surrounding the Clayton South industrial zone corresponding to the suburbs of Clarinda, Clayton South and Dingley Village. There are few odour complaints in the south west area, due to it being non-residential and zoned as 'other land uses,' which include golf courses and market gardens.

The maps and odour clusters indicate the extent of odour exposure and the separation distances potentially required to mitigate odour impacts. Figure 7.1 shows that a 1 km buffer around polluting facilities does not fully capture odour clusters. However, for some polluting facilities a 1 km buffer can be sufficient and appears to be related to the size and type of the polluting facility as shown in Fig. 7.2. Figure 7.2a shows odour complaints and clusters associated with the Hallam Road Landfill. Figure 7.2b shows several facilities in the Alphington area relating to the Amcor paper processing plant which closed in late 2012. In the Bellfield area shown in Fig. 7.2b, odour complaints relate to a food packaging manufacturer.

Separation distances may be more difficult to determine for large industrial zones with multiple polluting facilities, as the source of odour pollution is likely to come from multiple sources. Nevertheless, odour complaint clusters offer insight into the areas and distances from the source that are exposed to odour. For the Clayton South area, the odour complaint clusters are better captured using a 2 km buffer from the centre of the polluting facilities as shown in Fig. 7.3.

7.3.2 Maps of Socio-Economic Disadvantage Indicators

Figure 7.4a–c shows that residents in Clarinda and Clayton South have greater disadvantage compared to the south eastern suburb of Dingley Village. Communities affected by odour have unique socio-economic disadvantage characteristics and this is evident in other industrials zones across metropolitan Melbourne including Hobson's Bay and Dandenong South (not presented).

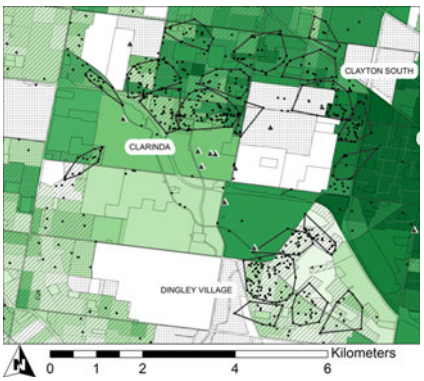
Vulnerable income shown in Fig. 7.4d is proximally related to the industrial zone and surrounding odour complaint clusters. Figure 7.4e shows that the Clarinda and Clayton South areas have higher proportions of poor English proficiency compared to areas in Dingley Village. However, vulnerable age has a greater range of values across the SA1 areas shown in Fig. 7.4f and it is not clear whether disadvantage exists for this indicator.

Fig. 7.2 **a** Hallam Road landfill in Lynbrook, metropolitan Melbourne, Australia. **b** Amcor site in Alphington, metropolitan Melbourne, Australia

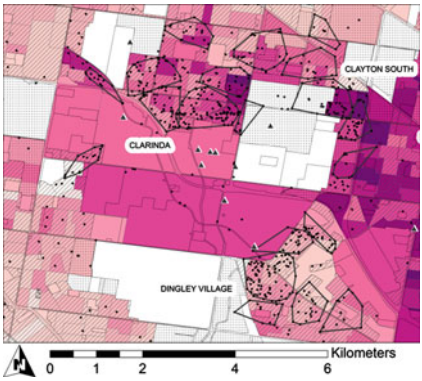
Fig. 7.3 2 km circular buffers surrounding polluting facilities, Clayton South, metropolitan Melbourne, Australia

7.3.3 Correlations of Odour Complaints, Polluting Facilities and Socio-Demographic Disadvantage Data

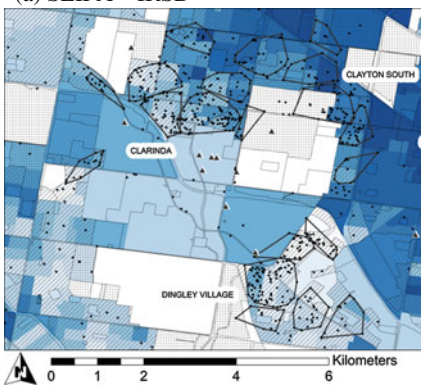
Table 7.1 provides results for the Spearman's rank correlation tests. Significantly negative correlations are present between the number of odour complaints, the number of polluting facilities and the 3 SEIFA indexes. Remaining results suggest higher percentages of people with low incomes or poor English proficiency live in areas with large numbers of odour complaints or polluting facilities. The correlation between the number of odour complaints and vulnerable age is significantly negative ($r = -0.030$) indicating that the proportion of people aged below 15 and greater than 65 years is lower in areas where odour complaints were made. However, the correlation between vulnerable age and the number of polluting facilities ($r = 0.010$) was not significant.



(a) SEIFA – IRSD

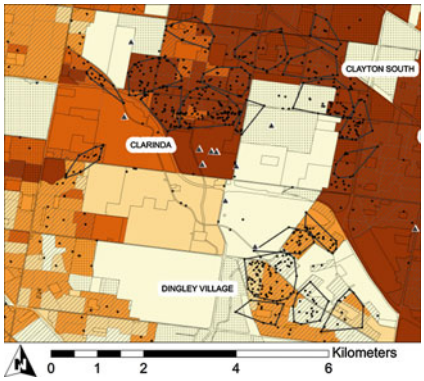


(b) SEIFA - IEO

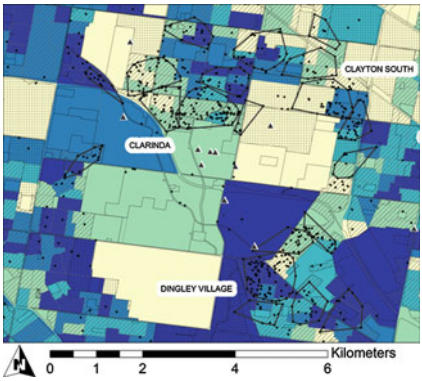


(c) SEIFA – IER

(d) Vulnerable Income



(e) Poor English Proficiency



(f) Vulnerable Age

Fig. 7.4 Maps of socio-economic disadvantage indicators, Clayton South, metropolitan Melbourne, Australia

Fig. 7.4 (continued)

7.3.4 Comparison of Means t-Test for Areas with and Without Odour Exposure

Table 7.2 shows that mean values for the SEIFA indexes are significantly lower for the SA1 areas associated with odour complaints and significantly higher for vulnerable income and poor English proficiency. These results indicate that odour complaints are correlated with areas with low household income, and poor English language skills. No significant differences were found for vulnerable age and areas affected by odour and those that are not.

Table 7.1 Spearman rank correlation test of odour, pollution and socio-economic disadvantage indicators

	Number of odour complaints	Number of polluting facilities
Number of polluting facilities	0.144**	–
SEIFA-IRSD	−0.071**	−0.082**
SEIFA-IEO	−0.064**	−0.092**
SEIFA-IER	−0.049**	−0.029**
Vulnerable income	0.029**	0.053**
Vulnerable age	−0.030**	0.010
Poor English proficiency	0.076**	0.087**

** p-value < 0.01; N = 8781

Table 7.2 Comparison of means using t-test for areas with and without exposure to odour

Variables	Melbourne	Outside odour cluster	Within odour cluster	Mean difference	t-test: p-value
Panel (a) Clusters based on a minimum of 20 odour complaints with a distance threshold of R5 = 0.75					
SEIFA-IRSD	1020.12	1020.96	997.29	23.66	0.000
SEIFA-IEO	1033.71	1034.71	1006.52	28.19	0.000
SEIFA-IER	1007.30	1007.76	994.57	13.19	0.006
Vulnerable income	22.79	22.75	23.88	−1.13	0.000
Vulnerable age	31.66	31.65	31.91	−0.26	0.593
Poor English proficiency	0.05	0.05	0.08	−0.02	0.000
Number of SA1s (n)	8781	8423	358	–	–
Panel (b) Clusters based on a minimum of 50 odour complaints with a distance threshold of L5 = 0.05					
SEIFA-IRSD	1020.12	1020.55	997.66	22.88	0.004
SEIFA-IEO	1033.71	1034.29	1003.20	31.08	0.000
SEIFA-IER	1007.30	1007.52	995.74	11.78	0.086
Vulnerable income	22.79	22.77	24.05	−1.28	0.000
Vulnerable age	31.66	31.65	32.10	−0.45	0.495
Poor English proficiency	0.05	0.05	0.07	−0.02	0.000
Number of SA1s (n)	8781	8602	179	–	–

Table 7.3 Comparison of means using t-tests by number of odour complaints

Variables	No exposure group 1	Medium exposure group 2	High exposure group 3	Trend[a] *p*-value
Threshold for the number of odour complaints	0	<20	≥20	
SEIFA-IRSD	1022.61	1005.09	989.29	<0.0001
SEIFA-IEO	1009.43	993.34	996.31	<0.0001
SEIFA-IER	1035.64	1023.42	990.46	<0.0001
Vulnerable income	22.74	22.97	24.72	0.008
Vulnerable age	31.71	31.34	31.61	0.307
Poor English proficiency	0.05	0.06	0.07	<0.0001
SA1s (n)	7605	1100	76	–

[a]Trend *p*-values calculated using STATA 13 and the nptrend command for testing linear trend across groups

7.3.5 *Comparison of Means t-Test by Number of Odour Complaints*

Table 7.3 shows significant differences between the means of all socio-economic disadvantage indicators except for vulnerable age. The mean values for the SEIFA-IRSD and SEIFA-IER are higher for SA1s with no odour complaints, but decline for SA1s with ≤20 odour complaints and decline further for SA1s with the highest intensity of >20 odour complaints. These results suggest that socio-economic disadvantage is associated with more odour complaints.

The reverse pattern occurs for the indicators of vulnerable age and poor English proficiency. As odour complaint intensity increases, so too does the proportion of people with vulnerable income and poor English proficiency. For the SEIFA-IEO, there are significant differences between groups. Areas with no exposure have higher mean SEIFA-IEO values (Group 1 mean = 1009.43) relative to the two remaining groups of ≤20 and >20 odour complaints, where mean differences are marginal (Group 2 mean = 993.34 and Group 3 mean = 996.31). There are no significant differences between groups for the mean values for vulnerable age.

7.4 Discussion

This research confirms the disproportionate distribution of vulnerable community members in areas affected by odour pollution within metropolitan Melbourne. Residents affected by odour pollution were co-located with polluting facilities in areas of greater socio-economic disadvantage, with low household income and poor

English proficiency. Furthermore, this research confirms that odour complaint data provides a useful proxy measure of odour pollution exposure, with spatial clustering using the NNH clustering technique a useful method for identifying areas and residents affected by odorous facilities.

Two sets of clusters based on a minimum number of 20 and up to 50 odour complaints were found to fit the odour complaint data well. The cluster results established odour-affected areas and demonstrated that they are co-located with polluting facilities and industrial zones. Both sets of clusters were associated with greater socio-economic disadvantage in the Clarinda and Clayton South areas compared to Dingley Village for all indicators except for vulnerable age. Results also indicated that for some polluting facilities, a buffer of 1 km was sufficient for measuring the extent of odour exposure, but could be insufficient in the presence of multiple odour polluting facilities. Instead a 2 km buffer offered better coverage for the Clayton South area. This finding supports the use of variable separation distances based on the quantity, type and magnitude of the pollution problems co-located with residential areas.

Environmental justice issues were confirmed using three statistical tests confirming significant correlations between the location of polluting facilities, odour complaint clusters and socio-economic disadvantage indicators. Statistical differences in socio-economic disadvantage indicators were also confirmed for areas affected by odour compared to those without. The final test confirmed the presence of a trend based on the intensity of odour complaints. Statistical testing consistently demonstrated that areas impacted by odour have greater socio-economic disadvantage for all 3 SEIFA indexes, vulnerable income and poor English proficiency. Notably, the relationship with vulnerable age was not consistent reflecting a more even distribution across metropolitan Melbourne for this indicator.

Areas with the greatest levels of socio-economic disadvantage were associated with more than 20 odour complaints. However, a lack of monotonic trend in vulnerable income was similar to the findings of Pastor et al. (2005) who suggested these income results could be a function of the denser urban environment. In support of this, maps demonstrated clear differences between specific areas (i.e. Clayton South and Dingley Village) for the indicators of vulnerable income and SEIFA-IER, with less disadvantage evident in Dingley Village. These results are consistent with previous findings where socioeconomic status was a significant indicator of disproportionate proximity and exposure to environmental hazards and polluting sources in vulnerable communities (Chakraborty et al. 2011). However, results also provide evidence that socio-economic disadvantage differences between small areas can be averaged out when using larger administrative area data confounding results for environmental justice studies. Consequently, these results support the use of data visualisation techniques and emphasise the importance of scale in assessing environmental justice issues, particularly with localized problems such as odour.

7.5 Limitations

This research provides evidence that environmental odour pollution disproportionately affects people from lower socio-economic backgrounds and with poor English proficiency. However, there are limitations to the research. It is possible that self-reported odour complaint data might not accurately represent exposed odour areas despite providing insight into the spatial scale and dispersion of odour. The objective extent of odour remains unknown and complicated by the complexities of measuring and characterizing odour (Nicell 2009) particularly when combining spatial phenomena with data measured using administrative boundaries. These issues are covered in discussions of the modifiable area unit problem previously raised by Baden et al. (2007). In this study, and to assist with simplicity, the polygon containment method was used for selecting small areas while areal apportionment has been considered superior by others (Mohai and Saha 2006). Furthermore, the distribution and number of odour complaints included in this study are related to a 3 year timeframe and we recommend shorter timeframes be examined to uncover the relationship between pollution releases, meteorological conditions, odour complaints and other relevant factors (Schauberger et al. 2006).

7.6 Conclusions and Implications

Using clusters to represent communities affected by odour is a novel approach to measuring pollution exposure and could be expanded in future research to include alternate clustering methodologies such as Ripley's K or DBScan to assist in the identification of the best scale for measurement. Furthermore, other techniques such as spatial regression could negate issues of discretely differentiating odour affected communities, recognizing that odour exposure might decline gradually according to distance from the source (Chakraborty et al. 2011).

Longitudinal analyses are also recommended in future research. These analyses could help measure the impact of planning decisions on residential and industrial areas given that polluting facilities have been shown to move over time, with increasing scale and concentration escalating amenity impacts and decreasing land values in addition to impacting health and wellbeing (Taylor 2013). Such research could provide empirical evidence for commonly adopted regulations such as those in Canada where 5 written complaints from separate households over a 90 day period is considered representative of an odour problem (Nicell 2009).

Complementary analysis techniques and the use of differing types of odour data could also lead to more robust results in defining separation distances between polluting facilities and residential areas (Nicell 2009). Our results suggest that the spatial extent of odour exposure may be related to the size, type and quantity of polluting facilities which warrants further investigation for developing regulations.

In summary, this study provides evidence of the existence of environmental justice issues in metropolitan Melbourne demonstrated through clustering

techniques and the applied use of socio-economic and community indicators. Odour exposure measured using odour complaints were associated with indicators of socio-economic disadvantage in communities affected by odour pollution. The findings of this study should be used to facilitate dialogue between policy makers, researchers and communities to inform land use planning and policy development towards avoiding future co-location and encroachment between residential areas, new developments and industrial zones.

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Author Biographies

Lucy Gunn, Ph.D. is a Research Fellow at The McCaughey VicHealth Community Wellbeing Unit, The University of Melbourne. Her role covers research and consultancy projects with a focus on using statistical and spatial methods to evaluate the impact of built environments on the health and wellbeing of people and communities. As a researcher and consultant with Community Indicators Victoria, Lucy has worked with a range of government and community partners, including the Environment Protection Authority Victoria. Lucy's remaining role is with the Centre for Research Excellence in Healthy, Liveable, Communities where she provides policy related evidence for understanding which built environments are supportive of health in designing healthy cities. Lucy's current research interest focuses on exploring nonlinear relationships between the built environment and health, with knowledge on this to be used in the development of hypothetical built environment interventions and economic evaluations.

Billy Greenham is an Urban Planner with a strong belief in sustainable development and the positive impact planning can have. Billy completed the Masters of Urban Planning at the University of Melbourne. His thesis on the topic of Environmental Justice lead to this further work in the field. Billy maintained his research role with the University of Melbourne while returning to his home region to work as a planner in Local Government.

Dr. Melanie Davern is Director of Community Indicators Victoria and Senior Research Fellow at the McCaughey VicHealth Community Wellbeing Unit within the School of Population & Global Health, University of Melbourne. Her research interests focus on community and individual wellbeing with specific expertise in policy focused research, the development and use of community wellbeing indicators as a measurement tool for policy development, program evaluation, knowledge translation and community engagement. Melanie has extensive expertise in the development and construction of community wellbeing indicators, worked closely with a range of government and community partners and is passionate about using data as a catalyst for action.

Suzanne Mavoa, Ph.D. is a Senior Research Fellow and geographic information systems (GIS) team lead in the McCaughey VicHealth Community Wellbeing Unit at the University of Melbourne. She also holds a part-time appointment at the SHORE and Whariki Research Centre, Massey University, New Zealand. Her research focuses on improved geospatial methods to measure the environment and people's exposure to the environment. These research and methods have been applied across a number of areas of public health, geography, transport and urban planning.

Elizabeth Taylor, Ph.D. is a Vice Chancellor's Post-Doctoral Research Fellow in the Centre for Urban Research at RMIT University. Her interests are in policy-focused research across urban planning, housing markets, property rights and locational conflict and her research often makes use of Geographical Information Systems (GIS). An increasing research focus is car parking policy. Elizabeth's publications have explored the housing market implications of urban containment policies; the contested role of research in planning practice; and the 'Not in My Back Yard' (NIMBY) phenomenon. The latter includes food, waste and animal-based land uses that expose contradictions in the distribution of rights associated with production and consumption.

Mark Bannister, M Environ Sci. is a Senior Analyst at Environment Protection Authority Victoria. His work has involved regional scale and long term air quality modelling, understanding hazardous waste markets and the impact of regulation and the application of environmental justice principles through the use of demographic data, pollution reporting and air quality data. More recent work has focussed on supporting policy and analytical approaches to regulation reform.

Chapter 8
Addressing Disparities and Improving the System of Care for Veterans Through the Community Assessment Process

Samantha Green and Melanie Espino

Abstract A disproportionate number of U.S. military veterans experience homelessness and housing instability. It is estimated that more than 47,000 U.S. veterans are homeless on any given night, and while veterans represent 7% of the overall population, they represent 11% of those experiencing homelessness (HUD 2015). The City of New Orleans has effectively ended homelessness among veterans and many communities including Houston, Phoenix and Salt Lake City are not far behind. These communities have addressed the issue by providing permanent supportive housing and building partnerships between the United States Department of Veterans Affairs (VA) and the homeless services system. Yet ensuring all veterans in the community remain housed requires knowledge, coordination and partnerships beyond the VA and the homeless service providers. Community indicator projects have the potential to gather community-level data and build regional partnerships in an effort to serve all veterans, address disparities, and help communities move away from a crisis response system toward a system of prevention and improved community wellbeing. The San Mateo County Veterans Needs Assessment was developed in an effort to address the growing need of ageing veterans and the high proportion of veterans experiencing homelessness. Developing a veteran's indicator project for social change is challenging in the current climate. There are barriers to identifying veterans in the general population and developing common indicators across programs and systems. Yet there is the potential for communities to improve mainstream and civilian data systems, and enhance services and outcomes for veterans through community assessment.

Keywords Veterans needs assessment · Homelessness · Community assessment · Applied survey research

S. Green (✉)
Applied Survey Research, Watsonville, CA, USA
e-mail: samantha@appliedsurveyresearch.org

M. Espino
Actionable Insights, LLC, San Jose, CA, USA

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8.1 Introduction

It is estimated that more than 47,000 U.S. veterans are homeless on any given night and while veterans represent 7% of the overall population, they represent 11% of those experiencing homelessness (HUD 2015). On average, homeless veterans have served their country for more than three years and yet they are without a place to call home.

Since 2008 a primary focus of the Obama Administration has been the goal of ending veteran homelessness. Since that time, nearly 79,000 HUD-VASH housing vouchers have been provided to over 400 Public Housing Authorities (PHAs) nationwide (HUD 2015). President Obama's recent budget includes a total of $674 million for VA programs that prevent or end homelessness among veterans, including $300 million for Supportive Services for Veterans Families (SSVF). Using resources like these, the City of New Orleans has effectively ended homelessness among veterans and many communities including Houston, Phoenix and Salt Lake City are not far behind. These communities have addressed homelessness among veterans by providing permanent supportive housing and by building partnerships between the VA and the homeless services system.

Preventing and ending veteran homelessness requires knowledge and partnerships beyond the VA and the homeless continuum of care. Community indicator projects have the potential to gather community level data and build regional partnerships in an effort to serve all veterans, address disparities, and help communities move away from a crisis response system.

The San Mateo County Veterans Needs Assessment was developed in an effort to address the growing need of aging veterans and the high proportion of veterans experiencing homelessness. For many, the project began with a single indicator: veterans represent 12% of the population experiencing homelessness, yet less than 6% of the overall county population. Embedded in this one indicator was a story about the challenges facing a heroic group of individuals, the strain of local service providers and gaps in a dedicated system of care. The San Mateo County Veterans Needs Assessment tells the story of county veterans and identifies ways in which the county can strengthen the safety net and provide services before veterans find themselves in shelters, hospitals, and county jails.

This chapter details the challenges of engaging in a veteran indicator project for social change, including barriers to identifying veterans in the general population, developing common indicators across programs and systems to help understand local veteran populations, the need for interim proxy measures and methods for developing relationships between community programs, local, state, and federal agencies. It explores the potential for communities to improve mainstream and civilian data systems, enhance services and outcomes for veterans and share findings and suggestions collected from service providers, veterans and veteran family members through the community assessment process.

8.2 Background

San Mateo County is located in the heart of Silicon Valley, just south of San Francisco and north of San Jose. It has a large coastal region, bordering both the Pacific and San Francisco Bay. While the county has escaped some of the challenges other Bay Area communities have experienced since the Tech Boom, the cost of living is still incredibly high.

The county is home to roughly 740,000 residents (U.S. Census Bureau 2014). At the time of the assessment, veterans represented roughly 6% of the county population (U.S. Census Bureau 2014). While a small percentage of the overall population, there were clear indications the veteran population was in need of additional support. Veterans represented 12% of the population experiencing homelessness in the county and were frequently presenting in community hospitals and county courts.

In 2014 San Mateo's County Manager's Office and Human Services Agency partnered with Applied Survey Research (ASR), a social research firm, to conduct the San Mateo County Veterans Needs Assessment. In 2013, the County Manager's Office had worked with county supervisors to recommend setting aside $100,000 a

Fig. 8.1 Applied Survey Research's community assessment process

year in Measure A sales tax revenue to improve local veterans services. The Veterans Needs Assessment was developed to determine how best to use the allocated funding. The assessment was designed for action, defining the current state of county veterans, assessing the existing system of services, determining areas of unmet need and developing steps for future action.

The needs assessment process was based on Applied Survey Research's five-step community assessment model (see Fig. 8.1). The following sections outline the process undertaken in each of the five steps.

8.3 Collaboration

The San Mateo County Veterans Needs Assessment began with the development of a steering committee of community stakeholders. Developing a diverse group of committed community members is essential for moving data to action. The steering committee included representatives from various state and county agencies, area non-profits and community groups. Members included individuals from the Veterans Administration, the California Department of Veterans Affairs, various veteran advocacy groups and veteran serving agencies. Members represented each of ASR's six identified domains of community wellbeing: education, health, economy, physical environment, public safety, and social environment. Many members were themselves veterans who resided in San Mateo County. The steering committee met to develop key indicators, and prioritize primary data collection opportunities. They also oversaw the community convening once data collection was underway.

For many of the service providers who participated in the steering committee, the meetings were the first opportunities to meet and interact with one another. Meetings were not only used to develop the Needs Assessment but to strengthen partnerships and the existing system of care. Committee members had the opportunity to discuss the system of care in an open setting, not only identifying their current challenges but working in interdisciplinary teams to address those challenges within the current system.

8.4 Data Collection

Objective and subjective measures are essential to community assessment. This is particularly true of projects dedicated to community improvement as it is people's perceptions that drive action (Hall 2013). Essential to the San Mateo Veterans Needs Assessment project was assessing and developing a system of care that worked for people. A perfectly designed system that isn't useful or sensitive to those it is intended to serve would be useless. Therefore, data collection included both quantitative and qualitative methods.

8.4.1 Primary Data

Focus groups and key informant interviews with veterans and stakeholders were included in the study in order to better understand their perspectives on veterans' needs, the services and supports available to veterans, and their suggestions on addressing veterans' needs. Key informants were identified based on their broad perspective on veterans' needs with a focus on the systems-level issues that impact access to services. Focus group participants included veterans and their family members. Participants represented veterans from the Korean War, Vietnam War, Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF) and Operation New Dawn (OND) as well as those who served in peacetime. The age range of participants was broad and nine out of the thirty-six veterans who participated were female. The research questions that guided both the interviews and focus groups were simple, and included:

- In your opinion, what are the biggest issues facing veterans in San Mateo County?
- What are the biggest or most important gaps in the support/services available to veterans in San Mateo County?
- What are barriers to veterans accessing support/services? What would it take to eliminate those barriers?
- Are there any groups or subpopulations who may not be taking advantages of supports/services?
- What do you think are the biggest issues that need to be addressed at the systems level?
- What are the issues for individuals connecting to services or navigating the system of care?
- Have you seen good examples/models in other places that address veterans' services that you feel would work in San Mateo County?

8.4.2 Secondary Data

Secondary data collection included data and indicators familiar to most community assessment projects. Data were collected on population demographics, housing, employment, education, health, and public safety. While "big data" and access to public databases have made data collection on special populations attainable, gathering reliable data on populations which are statically rare remains challenging.

- Population and Demographic Data: The U.S. Census Bureau is the primary source of data on veteran populations in the United States. Indeed, the VA also relies on these data. Census and ACS data are available on veterans and Public Use Microdata Sample (PUMS) make regional analysis possible. However, detailed information on the population are limited to age, gender, service era,

employment, income and disability status. Information on household status, sexual identity, and other basic demographics are not available from the US Census for this subpopulations. Due to the small population of veterans in San Mateo County, data smaller than the county level have a significant margin error, often larger than the data estimates. Therefore, these data are not reliable for service planning.

At the time of the report, the County of San Mateo and CalVet (California Department of Veterans Affairs) did not have access to the number of veterans exiting the military and reentering the county as veterans. Basic information on residency of those leaving the military is maintained by the Department of Defense. While these data have their limitations, in that the place of discharge may not correspond to where each veteran will ultimately reside, having consistent data on the number of new veterans in the county can help to better define the population and support local outreach and prevention efforts.

- Housing: Data regarding the housing of veterans is limited. According to the VA, fewer than 13% of veterans have used housing benefits. Housing benefits for veterans include home loans for veterans (regardless of disability status), service members and surviving spouses for purchasing homes without a down payment and refinancing of home mortgages. It also provides loans and grants to those with service-connected disabilities for building adapted homes, purchasing adaptive equipment and making home modifications. However, a high percentage of San Mateo County residents are not homeowners but renters and data on veterans rentals, including those accessing housing support, were limited.
- Homelessness: Data on local homeless veterans were more readily available. The recent focus and available funding for homeless veterans has driven not only service but data collection. Data from the county Homeless Management Information System (HMIS) was collected and analyzed for the project. Data collection was inconsistent across all programs entering data in HMIS, particularly those that did not target services to the population.
- Employment and Education: Employment and education data relied heavily on U.S. Census and ACS data. Regional education and employment programs working with veterans were unable to report on the number and characteristics of those they served.
- Health and Social Support (Including Veterans Benefits): Veteran health and benefit data were gathered from the VA using a Freedom of Information Act request (FOIA). The FOIA provides that any person has a right of access to federal agency records, except to the extent that such records are protected from release by a FOIA exemption or a special law enforcement record exclusion. It is VA's policy to release information to the fullest extent under the law. The VA has a decentralized system for handling FOIA requests, therefore the FOIA requests were addressed directly to the VA medical and benefits offices serving San Mateo County.

Information on both county and VA benefits are limited. While the VA was able to provide information on the health of county veterans, the request for information on residents' VA claims was unfulfilled at the time of this report. Additional information on the number of residents' receiving assistance, by type, and the demographics of those with benefits may help to address some of the kinds of assistance the county and community organizations can or should provide. Additionally, data on pending claims may help those working locally to understand the challenges veterans face in seeking those services and help them to outreach to those who are not currently receiving assistance from the VA. Information on veterans receiving mainstream support services did not exist at the time of the study. This lack of data made it impossible to assess whether or not the needs of the community are being addressed and what proportion of the population is already connected to county services.

- Public Safety and Criminal Justice Systems: San Mateo County benefited from a Veterans Treatment Court, one of 20 that existed in the country at the time. The program was able to report the number of veterans served by the program in the two years it had been operating but was unable to report on program outcomes. Data from the county jail and state prisons were not available at the time of this report. Additionally, information from the Probation Department and Department of Children and Family Services are not collected for veterans. Therefore, levels of local legal and criminal justice involvement are unknown.

8.5 Reporting and Primary Findings

In the end, the San Mateo County Veterans Needs Assessment included 87 pages of primary and secondary data, community resources, and identified best practices. The Assessment and the future work of the community present an interesting challenge. The focus on a relatively rare population presented challenges to current data collection but provided an immediate opportunity for improvements in outreach, education, data collection, and community understanding. Additionally, while San Mateo County's overall population continues to grow, the veteran population is declining. The Department of Veterans Affairs (VA) estimates that the veteran population of San Mateo County will drop more than 50% by 2025, similar to nationwide projections. At the national level, the number of military veterans has declined gradually since its surge at the end of World War II. During World War II an estimated 12% of the U.S. population was in the armed forces. As of 2004, less than 1% of the U.S. population was in military service (Population Reference Bureau 2004). The assessment process and system improvements must be targeted not only to a small population but also to a population that will decrease with time. This has major implications to staffing and resource allocation.

Participants in the project recognized the need to quantify the number of veterans in the community by the type and scale of needs. In addition to this, they sought to

know what benefits or assets these individuals were accessing. However, based on the available data, such estimates remain unknown. Therefore, the greatest need identified was the need for additional data and improved tracking of services and requests for assistance.

That being the case, available data identified four broad needs within the community, which were seen through both qualitative and quantitative measures. These included identification and outreach, housing and homelessness, behavioral health services, and cultural competency—especially as it related to new and returning veterans and women.

From the data collected, it became clear that not all veterans wished to be identified and many do not know whether or not they qualified as veterans due to different definitions and program participation criteria. While the Veterans Needs Assessment project stemmed out of the known issue of homelessness for veterans, housing was expressed as an issue for all community members involved in the project. Veterans and service providers reported the need for additional supports and services for veterans with behavioral health needs. Veterans who were reached in high-end service programs, including homeless shelters, housing programs and court diversion programs, reported that their paths began with unmet mental and behavioral health needs. Finally, while quantitative data suggested they veterans were similar to the overall population in diversity of makeup and even along most outcomes, they reported that they felt different and services needed to recognize that difference.

Based on the secondary quantitative data and primary qualitative data that were available, the County of San Mateo identified a list of existing needs of the community, including:

- Education and Outreach
  - Education and anti-stigma campaigns
  - Outreach and information about services and benefits
- Improved Access to Benefits
  - VA claims assistance
  - Improved timeliness of VA medical and mental health appointments
- Incarceration and Justice System
  - Criminal record expungement (such as through Veterans Treatment Court)
  - Training on veteran informed service and trauma informed care for law enforcement
- Education and Employment Training
  - Assistance for veterans seeking to access/utilize GI Bill
  - Increased support for veteran students
  - Assistance transferring military skills and experience into civilian careers
  - Assistance with reintegration into work settings after service or disabling events

- Housing and Economic Supports
  - Assistance for veterans with housing vouchers looking for homes
  - Increase affordable housing stock dedicated to veterans and all community members
  - Supportive group housing environments for veterans
- Behavioral Health Care
  - Specific information about VA mental/behavioral health services and benefits
  - Supportive services for the reintegration into civilian life for returning veterans
  - Increased access and availability of PTSD services
  - Increased access and availability of alcohol and drug treatment
  - Targeted Behavioral Health Services for depression and suicide
- Female Veterans Needs
  - Outreach and services specific to the needs of women veterans
  - Services tailored to and sensitive to Military Sexual Trauma (MST).

8.6 Action

8.6.1 Community Convening

San Mateo County held the Veterans Summit prior the release of the full report. The purpose of the summit was to convene stakeholders from across the County, present them with the preliminary findings of the report, and collect information about their perception of the existing needs of local veterans. San Mateo County invited known stakeholders from veteran-serving agencies and also welcomed the general public. One hundred and seven guests from various sectors participated, including elected officials and their representatives, representatives from County and state government, non-profit leaders, Veterans Affairs staff, and interested community members. Participants were presented with preliminary findings, heard from a panel of veteran community members, and met in small working groups to discuss quality of life domains. At the end of the session, participants were asked to consider the top two most pressing needs requiring community action. Participants were also asked how they would like to engage in the process for improving quality of life for veterans in their community.

8.6.2 Veterans Commission Formation

In November of 2015 the San Mateo Veterans Commission was formed. The commission was developed to monitor the needs of the population and the system

of care, and move from data to action. As of 2016 the commission had begun work to increase partnership and collaboration with veteran-serving agencies and departments, improve the outreach with County Veterans Service Officers reaching into the community, and improve education and identification of veterans through posters, flyers and the "If you served, you earned" campaign. The have also worked toward focused outreach to female veterans, increased trainings to community providers on role of Veterans Service Officers in assisting veterans in the community, and improving data collection across all county departments. As part of the improved data collection and outreach, the county implemented the veterans ID project, issuing 115 veteran IDs in one month.

8.7 Conclusions and Lessons Learned

The Veterans Needs Assessment was developed to determine how best to use the allocated funding. The assessment was designed for action, defining the current state of county veterans, assessing the existing system of services, determining areas of unmet need, and developing steps for future action.

8.7.1 Coordination

Through the process of needs assessment, it became clear that both service providers and focus group participants were aware of the disjointed nature of services offered to veterans in San Mateo County. Focus group participants reported that they were often unaware of services and veteran-serving organizations in the County, and many reported obtaining information on existing programs and supports from other veterans rather than service providers. Participants spoke of the difficulty of navigating their way through services because there was no single point of entry or connection between programs. Also, while service providers knew that they were serving veterans, many did not know how many or who those veterans were, due to inconsistent data collection and reporting.

Coordinated systems of care that aim to serve the needs of the target population will operate at two levels, the system level (which will provide coordination) and the program level (which will interact directly with veteran clients). The system would integrate both public and private organizations and provide services effectively and with equity. Such coordination requires a common goal of serving the identified population and leadership to guide the process. Coordinated systems often rely upon an organizing body that represents service providers as well as those it seeks to serve.

8.7.2 Leadership

Through the efforts of the Needs Assessment, the County of San Mateo has established its role within the emerging system, developing a new group of community stakeholders and building leadership. Furthermore, support from state and county agencies, elected, and local advocacy organizations provide the group with authority and legitimacy needed for systems change.

This leadership is needed to help facilitate the process of integrating independent programs into one service network. Such leadership helps to build partnerships and assist organizations in learning about services and systems and builds relationships with professionals in the broader community. Developing a strong partnership with the VA, the primary service providers for veterans in the nation, is essential. The VA has a significant role to play but by their own statutes do not service everyone who identifies as a veteran. Coordination between local service providers and mainstream support systems will help veterans with connecting the benefits and services they need. This will increase the overall capacity of the system, and perhaps help to alleviate the strain on mainstream benefit systems with budgets that are continuing to be cut.

8.7.3 Program Measures

A coordinated system requires that the services provided are targeted to the needs of the community. The system must have the potential to assess whether or not those needs are met through the services provided and determine if those needs are changing over time. Indicators, and a system for regular monitoring of progress, are an integral tool to improving long-term outcomes for the population.

Through the process of this Veterans Needs Assessment, it became clear that many services and organizations providing services to veterans did not have a consistent or effective way of tracking the number of veterans they served and many were unable to assess the number of clients who identify as veterans in San Mateo County. Departments within the County, such as Health, Behavioral Health and Recovery Services, Human Services Agency, and Superior Court were among the organizations that had limited data on the veterans in their care. However, this is true in most communities. State agencies like the California Department of Veterans Affairs were unable to obtain information on the number of services members exiting the military and entering the County. While the VA is developing their system of care and increasing transparency, gathering local data from the national agency was still difficult and required a FOIA request.

8.7.4 Communty Assessment

Future indicator projects should understand the time that is needed to map a system of services that is not yet integrated, building timelines that not only allow for the system of care to reveal itself but also for data requests from disparate local, state and national agencies to be processed. These requests take time and the persistence of leadership to follow up and advocate for their needs.

It is essential that communities have regular access to data on the entire veteran population in order to be able to regularly monitor the system of care and the strategies used to increase wellbeing. Common measures across agencies are essential for communitywide understanding and to help bring meaning to the data. Meaningful, timely data is essential to addressing needs with the nuances necessary to effectively help individuals while providing services in a systematic and cost-effective way. Community indicator projects have the potential to address this need. However, they cannot be seen as data reports but projects intended for action.

8.7.5 Relevance

It is essential to recognize that homelessness and unstable housing place individuals' physical and emotional health at risk. Individuals experiencing homelessness experience higher rates of preventable illnesses, have longer hospitalization stays, and die much earlier than those with stable housing. It is estimated that those experiencing homelessness stay four days (or 36%) longer per hospital admission than non-homeless patients (Hwang et al. 2011). A study conducted by the National Health Care for the Homeless Council found that the average life expectancy for a person without permanent housing was between 42 and 52 years, more than 25 years less than the average person in the United States (O'Connell 2005). We have a duty to improve the system of care and end homelessness in our communities.

The San Mateo County Veterans Needs Assessment is unique in a number of ways. While it was developed with a focus of addressing the disproportionate number of individuals experiencing homelessness who were veterans, it focused on the broader population of veterans in the community. This perspective is essential to the work. The current amount of federal funding targeted to those who are homeless or at risk of homelessness presents communities with an opportunity to address the needs of local veterans in a meaningful way, especially when the funding is focused on prevention. Identifying veterans among those served by general human services agencies and connecting them to veteran-specific services means less strain on mainstream systems, and it also means improved assessment, evaluation, and provision of services.

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Author Biographies

Samantha Green is a Project Manager with Applied Survey Research, a Bay Area research firm dedicated to helping build better communities through data. Her work links program performance and population outcomes in an effort to improve community wellbeing. Interest areas include social disparities affecting health, housing and education. She has worked throughout California on the issue of homelessness among children, youth and young families. She has most recently engaged in a collaborative study of youth homelessness in America with Chapin Hall at the University of Chicago. She previously taught a course on homelessness at the University of California at Santa Cruz, engaging youth in data and community action.

Melanie Espino is co-founder and principal of Actionable Insights, LLC in San Jose, California. Ms. Espino leads strategic planning efforts, program evaluations, and assessment projects concerning community health, school wellness, Latinos, children 0–5, and youth. Ms. Espino's recent work includes data collection and qualitative research for Community Health Needs Assessments on behalf of several Bay Area consortiums of non-profit hospitals, and strategic planning and reporting for member hospitals. In addition to leading community assessment projects such as the 2014 Veterans Needs Assessments in San Mateo County, she does evaluation planning for non-profit and government organizations seeking to measure their impact and make data-driven decisions.

Chapter 9
Economic Issues for Women in Texas

Jennifer Lee and Frances Deviney

Abstract As opportunities have opened for women, they have made strides in many societal domains. However, women remain more financially insecure than men by many measures. The greater likelihood of living in poverty and lower incomes creates insecurity not only for women, but for an increasingly large share of families that depend on their incomes. Texas is one of the largest states in the United States with a population of over 26 million. Analyzing Census and state agency data, the article identifies four "building blocks" of economic security for women: child care as a work support, education as a pathway to greater opportunities, health insurance as a critical protection, and housing as a financial anchor. Educational attainment and health insurance rates have improved for women, while housing and child care continue to be financial challenges. The analysis points to areas of investment that can help communities strengthen the economic security of women, and by extension, their families.

Keywords Texas · Women · Poverty · Economic security · Educational attainment · Housing · Gender inequity

9.1 Using Data to Address Community Challenges

Community indicator projects can use data in multiple ways, including analyzing data to identify or prioritize problems, setting common targets or goals across a community, and measuring progress. One particularly powerful use of data lies in the disaggregation of data by a relevant characteristic (e.g., age, race/ethnicity, gender) to focus attention on s particular demographic group of interest (e.g. seniors, Latinos, women). Disaggregating data and observing disparate outcomes can help to identify barriers for specific populations and provide more meaningful

J. Lee · F. Deviney (✉)
Center for Public Policy Priorities (Austin, TX),
on behalf of Texas Women's Foundation, Dallas, TX, USA
e-mail: deviney@cppp.org

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information that can be used to refine policies, programs and practices so that they are more targeted, efficient, responsive to community needs, and ultimately more effective. This report is part of an ongoing project focused on the economic security of women and girls in Texas, which uses data to identify key issues, provide a common language and metrics for policy change, and engages communities across Texas around changing both policies and resources available to improve the economic security of women and girls.

9.2 The Women and Girls of Texas

The story of Texas women mirrors the story of Texas—dynamism, fierce independence and growing influence. In the past 40 years, the population of women and girls in Texas has more than doubled, reaching 12.6 million (U.S. Census Bureau 2012s) Women and girls are a critical part of Texas' success, and securing a bright future for women and girls is important not only for their sake, but for our families, our communities and our state.

Most women in Texas live in cities, the engines of the Texas economy. Texas claims three of the 10 largest cities in the United States, (U.S. Census Bureau 2012s) and five of the 10 fastest growing cities (U.S. Census Bureau 2012u). Eighty-five percent of the women and girls of Texas live in urban areas, (U.S. Census Bureau 2012b, Table B01002; U.S. Census Bureau 2012q, Table S0101) and half live in just three metropolitan areas: Dallas, Fort Worth and Houston (U.S. Census Bureau 2010, 2012a, Table B01001). Women in Texas are also younger than women in the nation as a whole. Slightly more than half of women and girls in Texas are under the age of 35, compared to age 39 in the U.S (U.S. Census Bureau 2012b, Table B01002). In Texas' urban areas, the median age is younger than 33 (U.S. Census Bureau 2012p, Table GCT0101).

Texas has long been a magnet for women and men from all over the country and world seeking economic opportunities and a better future. Opportunity and openness to newcomers has led to Texas boasting one of the most diverse populations in the nation. About 17% of women and girls who call the state home were not born in the United States (U.S. Census Bureau 2012c, Table B05003). Of these, almost 40 percent are U.S. citizens (U.S. Census Bureau 2012c, Table B05003). An additional 22 percent of women and girls were born in another state in the U.S. but, as the saying goes, "got here at fast as they could" (U.S. Census Bureau 2012d, Table B06003). Forty-five percent of women and girls in Texas are non-Hispanic white; 12% black or African-American; 5% Asian; and 1% some other race. Thirty-seven percent of women and girls are Hispanic or Latina[1] (U.S. Census Bureau 2012t). A young, diverse, and growing population of girls and women is a powerful asset for Texas if we commit resources to help them reach their highest potential.

[1]Hispanics may be of any race.

9.2.1 The Female Face of Poverty

Texas women are 1.2 times more likely to live in poverty than a man (U.S. Census Bureau 2012h, Table B17001). For a family of one parent and two children, that means living with an income below $18,769 a year (U.S. Census Bureau 2012j)—far below what's necessary to live a comfortable life, enjoy a feeling of security from day to day, and have confidence that you can provide your children with the opportunities they deserve. Poverty affects girls and women throughout their lives. Girls who live in poverty are less likely to complete high school and more likely to have children when unmarried (Magnuson and Votruba-Drzal 2009). Women and girls who live in poverty are more likely to experience health problems, such as asthma, diabetes and heart disease (Magnuson and Votruba-Drzal 2009). And many women in Texas who are not "officially poor"—a mom with two kids whose income is above $19,000 a year—still struggle to make ends meet.

Women are more likely to live in poverty because they tend to work in industries that are historically underpaid, while at the same time are more likely to shoulder the responsibilities of raising children. Women raising children alone are especially vulnerable. Single parents are almost twice as likely to be women, and a single mother is almost twice as likely as a single father to live in poverty (U.S. Census Bureau 2012j, Table B17012). More than half of households in Texas who live in poverty are headed by single women (U.S. Census Bureau 2012j, Table B17012). And it's not that single moms aren't working—61% of single moms work at least 30 h per week (Ruggles et al. 2010). Furthermore, more women and girls of color in Texas live in poverty. Although Hispanic females make up 37% of women and girls in Texas, they make up 56% of women and girls living in poverty (U.S. Census Bureau 2012h, Table B17001).

Many existing policies and programs were designed assuming that one adult could earn enough income to support an entire family, and one adult could bear the full-time responsibility of raising children. Now, most families require two adults to both work and raise children, but many families still rely on a single adult for support. New policies and programs are needed to reflect the reality of the Texas economy and the families we have in the state. All families have the same need for economic security and the same high hopes for their children. Texas can and should be a place that works for every one of our families—single-mother families included (Tables 9.1 and 9.2).

Table 9.1 2013 Federal poverty thresholds

Family size	One person	Two people	One adult and two children	Two adults and two children
Max. yearly income for household (or less)	$12,119	$15,600	$18,769	$23,624

Note Family size of one assumes person is under 65 years old; family size of two assumes two adults under 65; family size of three assumes one adult and two children; family size of four assumes two adults and two children

Source U.S. Census Bureau, Poverty Thresholds for 2013

Table 9.2 2012 Texas poverty rate by family type

Family type	Two-parent (%)	Single father (%)	Single mother (%)
Poverty rate	11	22	41

Note CPPP analysis of American Community Survey, 2012 ACS 5-Year Estimates. Table B17012

9.3 Working Women, Working Families

Working women are not a new phenomenon that arose in the latter part of the 20th century. Women in Texas have always worked—whether at home, in the field or in a business. But the shift of more Texas women working outside the home for pay has been substantial in recent years. Forty years ago, only 40% of Texas' married-couple families with children had both parents in the labor force. Today, that percentage has grown to 67% of married-couple families (Glynn 2010).

9.3.1 Women and Wages in Texas

Women make up 63% of low-wage workers, earning minimum wage or less in Texas, largely because jobs with a high concentration of women tend to be among the lowest-paying jobs, such as home health aides and child care workers (U.S. Bureau of Labor Statistics 2013a, b). The wage gap persists in all occupations, from traditionally lower-wage jobs, such as nursing aides (85 cents to a dollar) to higher-wage jobs like engineering (84 cents to a dollar) (U.S. Census Bureau 2012r, Table S2402). More than half of Texas families have women as either the primary or co-breadwinner in Texas families (Glynn 2010) and that rate is growing. When women earn less, the financial security of Texas families is negatively impacted.

9.3.2 Women's Earnings Critical Part of Families' Earnings

In 2010, 39% of mothers in Texas were "breadwinners"—that is, they earned half or more of their family income. An additional 20% of mothers were "co-breadwinners," meaning they earned 25 to 49% of a family's income (Glynn 2010). Although these women do not earn the majority of a family's income, co-breadwinners contribute a critical portion of a family's economic resources, without which a family's well-being would suffer significantly. The percentage of families with breadwinning or co-breadwinning mothers has increased in the past 40 years from 34 to 59% of all Texas families with children (Glynn 2010). Co-breadwinning women have long been important contributors to family incomes in Texas. The greatest increases are seen in married-couple families, where the percentage of female breadwinners has almost

quadrupled in the past 40 years (Glynn 2010). Single breadwinners have also increased in importance, and today half of breadwinning women are single (Glynn 2010).

The increasing role of women as breadwinners is driven by several important factors, including: (1) stagnating wages for men (Greenstone and Looney 2011); (2) the increasing cost of living; and (3) an increase in single-mother families (now at one out of every four Texas families with children (U.S. Census Bureau 2012e, Table B11003). That makes the types of jobs women have and the wages they are paid more important for Texas' overall family financial security than ever before.

9.3.3 The Wage Gap Between Men and Women

Unfortunately for women and their families, working women still do not earn as much as men, a circumstance known as the "wage gap." Lower earnings for women contribute to higher poverty rates and impede women's ability to build economic security, from saving for retirement or emergencies, to accessing health care and providing basic enrichment opportunities for their children (such as books in the home). In Texas, media earnings for full-time workers in 2012 are $44,521 for men and $35,363 for women separately, indicating the wage gap for full-time workers amounts to a $9,158 difference in earnings per year (U.S. Census Bureau 2012l, Table B20017).[2] Another way to think about the wage gap is that women typically earn 79 cents for every dollar that men earn. Women would have to work more than 10 extra hours per week to "catch up." When you include both full-time and part-time workers, the gap grows even wider, (U.S. Census Bureau 2012m, Table B20002) as women are more likely to work part-time because of child rearing or other caregiving responsibilities.

9.3.4 Why Does the Wage Gap Exist?

Many women work in traditionally low-paying jobs (U.S. Government Accountability Office 2011). Women are overrepresented on the lowest end of the pay scale—in Texas, 63% of the 452,000 workers earning minimum wage or less are women (U.S. Bureau of Labor Statistics 2013a). Jobs with a high concentration of women also tend to be among the lowest-paying jobs. For example, home health and personal care aides in Texas earn an average annual wage of $17,430, and the vast majority of these aides are women (U.S. Bureau of Labor Statistics 2013a).

[2]Earnings are defined as the sum of wages, salary income and net income from self-employment.

Many women leave paid work for unpaid work and family care, reducing their earning potential long-term. Both single and married women are more likely than men to take time off work to care for sick children, elderly parents or a new baby. Even if the choice to temporarily leave work is a positive choice for the family, time off from work in order to take time at home typically results in reduced earnings, and negatively impacts future employment and social security pay (Budig and England 2001).

Only a portion of the wage gap is explained by type of job or women temporarily leaving the workforce. Even taking into account differences in occupations, work experience and educational attainment, some of the wage gap remains unexplained (Blau and Kahn 2007). Recent research shows that unconscious biases by both male and female hiring managers may in fact contribute to women's lower salaries (Moss-Racusin et al. 2012).

9.3.5 Why Does It Matter?

Women's earnings are increasingly critical for their family's economic security. And for many families, when women's earnings don't cover basic expenses, they must make tough choices about what kind of care their child will receive, the food they put on the table, and the safety of the home and neighborhood they live in. Financially secure women make financially secure families and communities-and that makes for a financially secure Texas.

9.4 Education: A Pathway to Economic Security

Education is the primary pathway to better-paying jobs and economic security. When women can access education, the return on investment is high: with each step up in their education, women in Texas tend to earn more (U.S. Census Bureau 2012n, Table B20004). Texas women with bachelor's degrees earn nearly twice what women with high school diplomas earn (U.S. Census Bureau 2012n, Table B20004). Women have made large gains, and now out-perform men on many measures of educational achievement. More girls are graduating from high school than boys, more women are enrolling in college, and more women are getting college degrees (Texas Education Agency 2012). In the past 40 years, the percentage of women in Texas with a college degree has more than tripled, and similar percentages of women and men now have college degrees (U.S. Census Bureau. 1970 Census of Population and Housing, Texas; U.S. Census Bureau 2012g, Table B15002).

9.4.1 Texas Women in College

The majority of women in public higher education in Texas enroll in two-year colleges. Sixty-three percent of female students enroll in two-year colleges, compared to 59% of male students, representing almost 117,000 more women who depend on public, two-year colleges. (Texas Higher Education Coordinating Board 2013). Due to the wage gap, education debt leaves women with additional financial hardship. Women who attend public colleges borrow on average $13,110, slightly more than men ($12,784) (U.S. Department of Education, 2008).[3] Because women earn less than men after college, student loan repayments are a larger part of earnings, hurting their ability to build assets and economic security. The biggest "leak" in the education pipeline happens between enrolling in college and competing a degree. Fewer than half of women in Texas who enroll in college complete a credential within six years. (Texas Higher Education Coordinating Board and Texas Education Agency 2014). One promising practice is for women to take high school and college-level courses at the same time, so the transition to higher education is more seamless. South Texas College in McAllen has been a leader in this strategy, more than tripling the number of degrees and certificates earned by women in the last 10 years (Texas Higher Education Coordinating Board).

9.4.2 If Women Are Making Gains in Education, Why Aren't They Doing Better Overall?

For all the progress that women have made, there are still many barriers. Texas is losing far too many students—both female and male—in a phenomenon called the "leaky pipeline." Tracking students over time, only 23% of eighth-grade female students in Texas completed a higher education credential within 11 years (Texas Higher Education Coordinating Board and Texas Education Agency 2014).

We know that a woman with an associate's degree, bachelor's degree or other higher education credential is much less likely to live in poverty, (U.S. Census Bureau 2012i, Table B17003) so it's critical for girls and women to move successfully through the education pipeline. Supporting girls' education and unlocking their potential is a smart strategy for Texas, and no one should be satisfied until all our students—women and men—attain the skills they need to achieve economic security.

Even with more women getting degrees, women in Texas today tend to earn less than men, even when they have similar levels of education. In fact, women with higher levels of education often earn less than men with lower levels of education. Working women with an associate's degree or some college coursework earn $2020

[3]Averages include all amounts greater than zero.

Table 9.3 Pipeline to college

Timeline	Fall 2001	2005–2007	2006–2011	2012
	Begin in 8th grade	Graduate high school	Enrolled in TX higher Ed.	Achieved TX higher Ed. credential
Female	100%	71%	56%	23%
Male	100%	67%	47%	16%

Note. Texas Higher Education Coordinating Board and Texas Education Agency (2014)

Table 9.4 Median earnings by gender and educational attainment

Educational attainment	Less than high school	High school diploma only	Some college or associate's degree	Bachelor's, graduate or professional degree
Female	$18,891	$27,276	$34,347	$52,531
Male	$26,265	$36,367	$46,470	$75,766

Note Median earnings for full-time, year-round workers ages 25 and over in 2012
Source Compares full-time, year-round workers ages 25 and over. Population Reference Bureau analysis of data from U.S. Census Bureau, 2012 American Community Survey, Public Use Microdata Sample

less than men with only high school diplomas (Population Reference Bureau 2012a) (Tables 9.3 and 9.4).[4]

A variety of factors, including low-paying jobs and family demands that fall more heavily on women, are behind this disparity. But as women's earnings become increasingly important to Texas families, it's critical that education's return-on-investment remains high for both men and women. In one in five married-couple families with children, the woman contributed an equal or greater amount to the family's income (Glynn 2010). And for the 750,000 single moms in Texas, (U.S. Census Bureau 2012e, Table B11003) earnings are imperative because they are the only reliable source of income for the family.

9.4.3 Increases in College Costs Have Made the Education Pathway Steeper for Women

From fall 2003 to fall 2012, the total cost of college in Texas doubled (Texas Higher Education Coordinating Board, Overview).

To help pay for their education, many female students in Texas get jobs and borrow money. Both men and women worked an average of 20 h per week while attending four-year colleges and 28 h per week while attending two-year colleges[5] (U.S. Department of Education 2008). But women in both public four-year and

[4]Compares full-time, year-round workers ages 25 and over.

[5]Averages include all amounts greater than zero.

two-year colleges tend to borrow larger amounts than men to finance their education (U.S. Department of Education 2008).

Working and borrowing can strain students' resources and create challenges for women who want to reach the next step in their education. Although jobs can provide valuable experience and skills, too many working hours contributes to poor academic performance and a decreased likelihood of finishing a degree (The Forum for Youth Investment 2011).

Borrowing to pay for education can lead to a personal debt burden that hinders the beginning of students' working lives. In Texas, 17% of all students default on their student loans within three years of entering repayment. (US Department of Education 2013). Because more women enroll in college than men, borrow larger amounts for their education, and tend to earn less after college, the ability to pay off student loans is a critical issue for the women of Texas.

9.5 Child Care: A Critical Work Support for Women

All women should be able to take the steps they want to move up the economic ladder. But without reliable and affordable child care, applying and interviewing for jobs, working or furthering an education present challenges. With access to child care, women have one of the basic building blocks in place to strengthen the economic security of their families.

9.5.1 Women and Child Care

There is a lack of access to financial assistance for child care in Texas. Child care subsidies increase the ability of low-income mothers to work. Procedural problems can cause eligible families to lose assistance, so simplified processes and longer eligibility periods would improve stability of child care (Adams and Matthews 2013). When women have access to child care, they are more likely to work, stay employed for longer periods of time and increase their wages. Women who are consistently employed over time are more likely to increase their wages and move up the economic ladder. Tracking women's work experience over time, single mothers were twice as likely to remain employed over a two-year period if they used child care centers. Women who had a high school degree or less were almost three times more likely to still be employed after two years if they used center-based child care (Boushey 2002). Reducing child care costs would lift more people out of poverty. The "poverty line" does not currently measure the effects of expensive family budget items such as child care. If work expenses such as child care and transportation were included in the poverty calculation, the U.S. poverty rate would increase by almost two percent (Short 2013).

9.5.2 Women Face Difficult Trade-Offs Between What They Earn and the Cost of Child Care

The rising cost of child care creates difficulties for working families. Earnings from paid work outside the home may immediately be eaten up by child care costs, effectively making work unaffordable. The lack of affordable child care can force women out of the job market, including those who want or need to work. The burden of costly child care is especially heavy for single mothers in Texas. Costs vary depending on multiple factors, including the age of a child, the type of child care provider and whether or not the care is part-day or full-day. Taking these variations into account, the typical cost of child care for a full-time, working parent in Texas is about $5000 per year per child. (Ray Marshall Center 2012)[6] A typical single mom in Texas earns slightly less than $24,000 per year, meaning that care for one child represents 21% of a single mom's income. (Ray Marshall Center calculations; U.S. Census Bureau 2012k, Table B19126).

9.5.3 Child Care Subsidies and Pre-K Programs

Programs that support the child care needs of working, low-income mothers are often limited and fail to reach many Texas women who would benefit from them. One example is the Texas Workforce Commission's subsidized child care program for low-income, working parents. Low-income families pay a reduced amount for child care, dependent on their income, and the state reimburses child care providers at a set rate. Parents can then work, attend school or participate in job training (Texas Workforce Commission 2013). However, many more families need assistance than state and federal funds can currently support. Only eight percent of families in Texas that need the support actually receive financial assistance through subsidized child care.[7] (Ray Marshall Center 2010).

Lack of funding is an issue, but simplifying and streamlining eligibility policies would support access (Adams and Matthews 2013).

Public pre-kindergarten programs decrease child care expenses, with the added benefit of providing critical early learning opportunities for young children. But more children could benefit from access to pre-K programs. Many families with

[6]A "typical" median rate was derived by weighting rates for the age of child, full/part-day care and type of child care facility, by representation in the state. Yearly cost is based on child care needs for 250 days per year.

[7]Subsidy eligibility varies by workforce board. To estimate statewide subsidy receipt, the average monthly number of children receiving subsidies for early care was compared to the number of children under 5 living at less than 185 percent of the federal poverty guidelines (FPG). Out of the 28 workforce boards, 24 set their basic eligibility higher than 185% FPG, three set eligibility at 185% FPG, and one set eligibility lower than 185% FPG. Therefore, this is a conservative state estimate.

eligible young children are not aware of pre-K programs or live in a school district where public pre-K is not available. Scheduling and transportation challenges for half-day pre-K also act as barriers to enrollment. The Texas Education Agency estimates that more than 31,000 children who are eligible for pre-K programs are not currently served.[8]

9.6 Health Insurance: A Financial Shield for the Unexpected

In Texas, one in every four females lacks health insurance (U.S. Census Bureau 2012m, Table B2700n). Uninsured women and girls are no less likely to get an ear infection, have a car accident, develop breast cancer or decide to start a family than an insured individual. And when life throws a curveball, difficult situations can escalate to financial catastrophes.

When the uninsured need doctors, health care costs more, both for the individual and the community. Uninsured women and girls are less likely to receive the care that can detect something like cervical cancer or a problematic pregnancy at an early stage than those with insurance. Catching health problems at a later stage is more dangerous for women and more costly to treat. On average, the uninsured end up paying at least a third of the full cost of care out of their own pockets, but the remainder that would typically be covered by an insurance company results in higher insurance premiums or taxes for everyone (Families USA 2009).

9.6.1 Women and Health Insurance

98% of Texas women over 65 are insured. Senior women are the most likely age group to have health insurance. Medicare protects most individuals over age 65 from living without health insurance (U.S. Census Bureau 2012o, Table B27001). Almost 500,000 girls under 18 do not have health insurance in Texas. However, the percentage of uninsured children has gone down over the past 10 years because of programs like Medicaid and the Children's Health Insurance Program (CHIP). The percentage of girls under 18 who are uninsured (15%) is less than half the percentage for women age 18 to 34 (36 percent uninsured) (U.S. Census Bureau 2012o, Table B27001). Women between the ages of 18–34 are the least likely to have health insurance in Texas. 36% of women lack health insurance during the primary childbearing years when good health and access to prenatal care are important for babies' health (U.S. Census Bureau 2012o, Table B27001). Many

[8]See footnote 7 above. TEA estimates the percentage of eligible pre-K students not served by comparing enrolled, low-income kindergartners to pre-kindergartners.

women work in jobs in which health insurance is not available as a benefit, or they are paid too little to purchase insurance on their own. However, subsidies offered through the Affordable Care Act should help more women in Texas purchase private health insurance coverage.

9.7 Housing: The Anchor of Economic Security

Stable housing serves as an anchor for families, while a lack of stable housing leads to negative health and educational outcomes for children (Cunningham and MacDonald 2012). Because housing is the single largest expense in most families' budgets, the cost of housing directly impacts economic stability. When housing costs increase faster than incomes, the rest of a family's budget is affected, and for Texas women in particular, this forces tough choices between paying the rent, buying food or paying for safe child care. Families that spend 30% or more of their income on housing are considered "housing-cost burdened." This threshold is widely used as a measure of hardship by housing assistance programs and of risk by mortgage lenders (Schwartz and Wilson 2007). Single mothers who rent or own their homes are more likely to be burdened by housing costs than single fathers and married couples (Population Reference Bureau 2012b).[9]

9.7.1 Women and Housing

Texas women are more likely than men to rent their homes. 53% of single women rent their homes, and 47% own them. The rate is flipped for single men-53% own their homes, and 47% rent. 80% of married-couple families in Texas own their homes. (U.S. Census Bureau 2012f, Table B11012). Housing costs are especially burdensome for single mothers in Texas. Families that spend 30% or more of their income on housing lack the security of knowing they can pay for other necessities. Based on this measure, 35% of single mothers who own their homes are burdened with housing costs. 63% of single-mother renters spend 30% or more of their income on rent (Population Reference Bureau 2012b). For many women, the home they own is their largest financial asset, but more Texas women than men live in "asset poverty." Assets give families a financial cushion to get through unexpected events, and are an important source of collateral for loans. However, women in general have fewer financial assets than men. Single female-headed families are less likely to own their homes than male-headed families, and they tend to earn less money. (U.S. Census Bureau 2012f, Table B11012). Therefore, more women live

[9]Housing costs for homeowners include mortgage payments, real estate taxes, various insurances, utilities, fuels, mobile home costs, and condominium fees.

Table 9.5 Homeowner status by family type

Family type homeowner status	Married-couple families (%)	Single-father families (%)	Single-mother families (%)
Renters	36.7	41.8	63.3
Homeowners	17.1	24.8	35

Note Population Reference Bureau analysis of American Community Survey data, 2012. Housing costs for homeowners include mortgage payments, real estate taxes, various insurances, utilities, fuels, mobile home costs, and condominium fees

in "asset poverty," meaning they do not have a financial cushion to live for three months at the poverty level with a sudden loss in income. One in three single female-headed households in Texas lives in asset poverty (Bay Area Council Economic Institute 2012) (Table 9.5).

9.8 Conclusion

We hope this report serves as a catalyst to learn more about the economic challenges and opportunities that Texas women face. By sharing this information with community leaders and working with elected and appointed officials, nonprofit organizations, businesses and foundations, the economic security of women across the state can be strengthened.

Texas Women's Foundation believes that strong women make a better world. Texas women are already a vital part of what makes Texas great, but as we've seen in this report, many women, especially single women with children, are more likely to encounter barriers on their road to achieving and building economic security. This struggle is not due to women not working hard enough, but to barriers to success that continue across our communities and state.

Supporting women's educational success is highly important. Women have taken advantage of educational opportunities opened to them, and they have made significant gains. But it's clear that barriers still exist beyond school that reduce the financial benefits of education for women. We can do more to support women as they advance through education and the workplace to ensure that working women are not penalized for having children.

Other building blocks of women's economic security match common items in a family budget: child care, health insurance and housing. Health insurance helps to protect women's financial security when a health emergency strikes. Younger, working-age women who are trying to start careers, families and post-school lives on secure financial footing are the least likely to have health insurance. The lack of affordable child care prohibits more women than men from reaching their full

earning potential. And the rising cost of housing eats up a larger share of the family budget from year to year, and is especially burdensome for single mothers.

Each community of women in Texas faces its unique challenges, but there are many common issues that impact women across the state. Whether or not these building blocks are in place affects not only women's ability to be economically stable, but to move up the economic ladder.

When working on a community indicators project focused on a specific demographic group, such as women and girls, it is important to highlight indicators that can be affected by policy and practice. Other data may be useful to provide context around a specific issue, but the key indicators should be those that can be improved through a community's efforts.

Although the project described here includes data at the statewide level, the comprehensive project also included nine reports with data produced at the metropolitan level, reflecting the size of Texas and the desire of communities for local data. Connecting local data to a larger geographic area can be an effective strategy for community engagement, especially when policy change is required at multiple administrative levels, but it requires a balancing of the availability and comparability of data at multiple geographic levels, as well as the capacity to analyze additional data. Investing in the building blocks of economic security helps Texas women be economically secure and magnifies the ripple effect that benefits families and communities. We hope this report will spark a desire to learn more about issues affecting women, encourage you to share what you've learned, and motivate you to act to improve the economic security of women in your community. Breaking down data by gender or other demographic factors (e.g. age, race/ethnicity) can illuminate the specific challenges or opportunities that exist and provide information that policymakers and community organizations can use to better meet the needs of all in their communities.

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Author Biographies

Jennifer Lee is a Research Associate at the Center for Public Policy Priorities (CPPP), an independent public policy organization that uses data and analysis to advocate for solutions that enable Texans of all backgrounds to reach their full potential. Lee joined CPPP in 2013. Before coming to CPPP, she was an Education Pioneers Fellow with The New Teacher Project and Houston ISD. She earned a Bachelor of Arts in History from Wellesley College in 2007 and a Master of Public Affairs from the LBJ School of Public Affairs, University of Texas at Austin in 2013. Before returning to graduate school, Lee was the Associate Editor at the educational publisher Eye On Education. Her co-authored report "Economic Issues for Women in Texas" was produced by CPPP on behalf of the Texas Women's Foundation, the research and advocacy arm of Dallas Women's Foundation. Texas Women's Foundation focuses on issues that impact women across Texas, produces research studies and reports, and coordinates collective action.

Frances Deviney, Ph.D., is an Associate Director and Program Director of the Research and Planning team at the Center for Public Policy Priorities (CPPP), an independent public policy organization that uses data and analysis to advocate for solutions that enable Texans of all backgrounds to reach their full potential. As an Associate Director, Dr. Frances Deviney coordinates the Organizational Development work and oversees many of CPPP's data-based advocacy projects, including the Texas KIDS COUNT project and the Better Texas Family Budgets tool. Before coming to the Center in 2005, she conducted education research at the Southwest Educational Development Laboratory and was Legislative Director for a Texas State Representative. She earned her BA in Psychology from Vanderbilt University and Doctorate in Developmental Psychology from The University of Utah. Her co-authored report "Economic Issues for Women in Texas" was produced by CPPP on behalf of the Texas Women's Foundation, the research and advocacy arm of Dallas Women's Foundation. Texas Women's Foundation focuses on issues that impact women across Texas, produces research studies and reports, and coordinates collective action.

Chapter 10
Comprehensive Sustainability Indicators: The Houston Sustainability Indicators Program

Lester O. King

Abstract The goal of the Houston Sustainability Indicators (HSI) program is to develop a system of indicators best suited to monitor development in the City of Houston. Considered as a process model, HSI was developed to cover the following four objectives: (1) Prioritizing issues (2) Examining interrelatedness in urban development (3) Conducting spatial analysis through the use of Geographic Information Systems (GIS) and (4) Public education, stakeholder participation and public policy development.

Keywords Houston · Houston sustainability indicators · GIS · Principal components analysis · Comprehensive sustainability indicators · Distressed neighbourhoods · Policy indicators

10.1 Introduction

This article presents the process for the development of sustainability indicators for the City of Houston. The resulting indicators derived from this process were used to report urban sustainability performance at three (3) different spatial levels within the City: the municipality, district level and community level. Additionally an exploratory research procedure was applied to the indicators at the community level to make comparisons between communities. This research addresses some of the problems, in the practice of developing indicators. These are: (1) the development of a more systematic procedure to choose indicators and subsequently explore their usefulness beyond serving as a gauge (Dalal-Clayton and Bass 2002); (2) The lack of comprehensiveness of indicators making coverage of the complexity of urban areas possible (Wiek and Binder 2005); and (3) The lack of agreement on the benefits of utilizing indicators (Holden 2006a). Specifically, the discord between

L.O. King (✉)
Rice University, Houston, USA
e-mail: lok1@rice.edu

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policy impact and knowledge offered to a variety of stakeholders (Brugmann 1997a, b; Pinfield 1997).

The Houston Sustainability Indicators Project (HSI), is the case study examined in this article. Following this introduction, we present an assessment of the systematic nature of the model procedure employed by HSI. Then we review the comprehensive nature of the HSI model, presenting the final list of indicators chosen for the case study of Houston. The next section reviews the importance of utilizing indicators by demonstrating three important uses of indicators. These are: (1) indicators serving as a tool for *public communication and public participation*; (2) indicators serving a more *technical and managerial* role, and (3) indicators serving to achieve *political objectives* (Pinfield 1997). It is important to point out that although this chapter highlights three uses of indicators, sustainability indicators can also serve other important functions to achieve the goals of development within human settlements such as: problem recognition and awareness; justificatory function; as well as providing normative guidance (King 2016; Neuman 2005).

Data used in HSI is primarily managed within a Geographic Information System (GIS). The benefits of utilizing this software include the ability to create applications to manage data; design maps for visual communication; and consolidation of spatial[1] and attribute[2] data. The HSI project currently consists of 25 indicators in 9 thematic areas. Reporting is conducted at three different levels of analysis (City level, where n = 1; District level, where n = 11; Community level, where n = 88). Data was collected from 1990 to present and will be collected annually into the future. The HSI indicators data includes a mixture of demographic, economic, cadastral and environmental types of data. This project integrates data from several sources including: federal data sources—US Decennial Census, US Geological Survey (USGS); state data sources—Texas Commission on Environmental Quality (TCEQ), Texas Education Agency (TEA); regional data sources—Houston-Galveston Area Council (HGAC); local data sources—City of Houston (COH), Harris County; and private data sources—InfoGroup. Data is collected in several different formats, not necessarily conforming to our preferred levels of analysis, which is the smallest level available. For example data may be collected at the parcel, block-group, census tract or county level. To manage the myriad data formats, the HSI team developed separate geodatabases roughly corresponding to the year each report is produced (2012–2015). Separate GIS applications are then developed for each year and each theme in HSI.

In reflecting on the details of constructing the HSI project, this chapter presents a model to develop sustainability indicators, which goes beyond linear measurement reporting. The HSI model can be used to identify underlying structures between sustainability indicators, which in turn helps to explain interactions in the complexity of the built environment (Moussiopoulos et al. 2010).

[1]Spatial data refer to measures such as distance, location, area measures etc.

[2]Attribute data refers to measures such as population counts, median housing value etc.

10.2 Systematic Procedure

The systematic procedure to develop the HSI project was conducted in 3 steps (Table 10.1). The model includes a normative operational component to integrate stakeholders; a systematic procedure to bridge the ecosystem elements of complex urban environments; and a function to evaluate the effectiveness of the indicators (Wiek and Binder 2005).

The uniqueness of each locale therefore can be reflected in the goals and objectives reached by all of the stakeholders in that system (Normative component). After indicators are chosen a virtual system is created, which has objective evaluation criteria based on applied statistical methodologies (Systematic component). Of course it is essential that the goals and objectives be periodically reviewed and the value of the indicators assessed (Evaluation component). The HSI model procedure ensures that the efforts of stakeholders are integrated and protected, since the Delphi methodology, described below, allows for joint decision making with the possibility that participants may change their opinion based on feedback from the opinions of others in the group. This generates equity in and amongst the suite of indicators within the system. The HSI procedure may be used as a model for other cities to follow. There exist other indicator project models, which present specific indicators for municipalities to follow such as ISO 37120 (2014). However the important contribution HSI presents is procedural. HSI is a procedural model, which allows for unique indicators to be developed by each locale since it is important to support local stakeholders to achieve their own goals, aspirations and needs according to the original definition of sustainable development (WCED 1987).

10.2.1 Normative Component

First we developed a *Draft Indicator Set* based on consolidation of two informational sources. The first source was a review of a meta-analysis study to identify the

Table 10.1 Three step HSI model procedure for sustainability indicators development

HSI model	
Components	Procedure
Normative component	**Step 1**: Define Indicators—Integrate Stakeholders
	Methodology: Decision management technique—Delphi exercises
Systematic component	**Step 2**: Explore interrelatedness between indicators
	Methodology: Exploratory research technique—Components analysis
Evaluation component	**Step 3**: Reporting and evaluating city and community performance to understand and explain urban complexity
	Methodology: Stakeholder feedback—Communicate findings through diverse media outlets and presentations to stakeholders

25 most frequently used indicators in a random sample of varying sized indicator projects in North America (SCS 2011, see Table 10.2). The second source was a review of indicators developed by the UN Commission on Sustainable Development (UNCSD).

There were 100 indicators in the UNCSD (2007) set. In comparison, the SCS national survey identified 27 most commonly used indicators. From these two sources 22 of the indicators were listed in both sources.

Three expert panels were convened for three separate half-day workshops to review and come to consensus on the most pressing sustainability priorities, policies and strategies appropriate for the City of Houston. Using the Delphi[3] methodology as the decision management technique, participants were supplied with the *Draft HSI Indicator List* along with data on development patterns using the *Draft HSI Indicators*. Experts were led in this exercise to form consensus on the ideal themes/topics that should be utilized to represent the most pressing sustainability priorities. The results from the expert panel workshops were consolidated to determine the *Final HSI Indicator Set*. Nine of the *Final HSI indicators* can be attributed to both the UNCSD (2007) indicators and the (SCS 2011) national survey.

Two different indicators frameworks were combined to develop the HSI indicators. These are the *Theme-SubTheme* framework and the *Category* framework. Both themes were chosen to ensure comprehensiveness of the final indicators. The *Theme-SubTheme* framework assists with comprehensiveness from a more normative perspective. This is achieved through the capability of allowing for recognition of sub layers within themes, which means stakeholders can identify indicators to monitor the progress of various strategies within one theme (UNCED 1992). This framework allows for the integration of multiple themes. Themes are representative of the most important aspirations of Houstonians and issues facing the city. The *Category* framework also achieves comprehensiveness, but from a more structural perspective. This is achieved in the HSI project by striving to balance the numbers of indicators identified within the sustainable development pillars of economic development, social development and environmental development. Table 10.3 presents the indicators selected for the HSI project.

10.2.2 Systematic Component

The majority of indicator studies display simple descriptive statistics to show each indicator's performance in the target city or country. Indexes are also a commonly

[3]Delphi methodology starts by first collecting and then consolidating participant responses to questions or a decision making challenge. The next stage is to present these responses back to participants showing divergence and convergence of opinions. Participants are then given another opportunity to amend their choices based on feedback from the opinions of the entire group. This procedure is continued iteratively for 3–4 iterations.

Table 10.2 Most frequently cited indicators from 20 city-regions in the US, Canada and the UK (SCS 2011)

Categories	Boston	Bay Area Alliance	Issaquah	Tuscon	Santa Monica	Missoula	Calvert-Henderson	Fraser Basin	Seattle	Calgary	Baltimore
City Count	23	21	20	20	20	19	19	19	18	16	16
Educational Achievement and Performance	X	X	X	X	X	X	X	X	X	X	X
Community Engagement	X	X	X	X	X		X	X	X	X	X
Employment/Unemployment	X	X	X	X			X	X	X	X	X
Land Use	X	X	X	X	X	X	X	X	X		X
Water Conservation	X	X	X	X	X		X	X	X	X	X
Affordable Housing	X	X	X	X	X	X			X	X	X
Crime	X	X	X	X		X	X	X	X	X	X
Air Quality—PM	X	X		X	X	X	X	X	X		
Cost of Living	X	X	X	X	X	X	X			X	X
Health Care: Access	X	X	X	X	X	X	X	X	X	X	X
Homelessness/Poverty	X	X	X		X	X	X	X		X	X
Waste Production		X	X		X		X	X	X	X	
Commuting		X	X	X	X	X			X	X	
Ecological Footprint	X		X	X	X		X	X	X	X	
Income Distribution	X	X		X		X	X	X	X	X	
Public Transportation	X	X	X	X	X	X		X			X
Air Quality—Ozone	X	X		X	X	X					X
Ecological Health	X		X	X	X	X	X	X	X	X	
Green Space	X	X	X	X		X		X	X		X
Recreation Area	X		X	X	X	X		X			X
Air Quality—Toxics	X	X			X	X	X		X		
Demographics	X	X			X	X	X	X	X	X	X

(continued)

Table 10.2 (continued)

Categories	Boston	Bay Area Alliance	Issaquah	Tuscon	Santa Monica	Missoula	Calvert-Henderson	Fraser Basin	Seattle	Calgary	Baltimore
Economic Diversification	X	X	X	X			X	X		X	X
Health Care: Affordability	X	X	X	X	X	X	X	X	X		
Obesity/Weight	X		X		X	X	X				

Categories	Chicago	Pasadena	Hamilton	Cincinnati	Minneapolis	NRDC—Smarter Cities	Ontario	FOF—British Cities	SustainLane	Total
City Count	15	14	13	11	11	10	10	8	8	
Educational Achievement and Performance	X			X	X		X	X		16
Community Engagement	X		X	X	X	X				15
Employment/Unemployment	X	X	X		X		X	X		15
Land Use	X	X	X	X			X			15
Water Conservation		X	X		X	X			X	15
Affordable Housing	X		X		X		X		X	14
Crime	X		X	X	X					14
Air Quality—PM		X	X			X	X		X	13
Cost of Living	X			X	X	X				13
Health Care: Access	X			X						13
Homelessness/Poverty	X	X			X	X				13
Waste Production		X	X	X		X		X	X	13
Commuting		X				X	X	X	X	12
Ecological Footprint		X			X	X		X		12
Income Distribution	X		X	X			X			12
Public Transportation	X	X		X					X	12
Air Quality—Ozone	X	X	X			X			X	11

(continued)

Table 10.2 (continued)

Categories	Chicago	Pasadena	Hamilton	Cincinnati	Minneapolis	NRDC—Smarter Cities	Ontario	FOF—British Cities	SustainLane	Total
Ecological Health					X			X		11
Green Space		X				X		X		11
Recreation Area		X	X				X		X	11
Air Quality—Toxics	X	X	X					X		10
Demographics	X									10
Economic Diversification	X						X			10
Health Care: Affordability				X						10
Obesity/Weight		X	X	X	X		X			10

Table 10.3 Houston sustainability indicators Final Indicator Set

Social indicators					
Theme	SubTheme	Indicator	National Survey	UN (2007)	Livability Literature
(I) Social Demography	Population Growth	(1) Population growth rate		x	
	Education	(2) Graduate degree attainment rate	x	x	
	Community Involvement	(3) Voter Participation	x		
(II) Poverty	Income Inequality	(4) Ratio of share in income of highest to lowest quintile	x	x	x
	Income Poverty	(5) Proportion of population living below poverty line	x	x	
	Healthcare Delivery	(6) Percent of population with health insurance	x	x	
(III) Livability	Cost of Living	(7) Proportion of persons spending more than 30% income on housing costs	x		x
	Quality of Life	(8) Proportion of persons living within ¼ mile to a public park			x
	Health and Nutrition	(9) Proportion of persons living more than 1 mile from large supermarket			x

(continued)

Table 10.3 (continued)

Social indicators					
Theme	SubTheme	Indicator	National Survey	UN (2007)	Livability Literature
Economic Indicators					
Theme	**SubTheme**	**Indicator**			
(IV) Economic Development	Employment	(10) Employment—population ratio	x	x	
	Macroeconomic Performance	(11) Primary Jobs/Green Jobs			
	Earnings	(12) Median income	x		
(V) Consumption and Production	Waste Generation and Management	(13) Generation of waste	x	x	
	Energy Use	(14) Annual energy consumption, total and by main user category		x	
(VI) Transportation	Access	(15) Proportion of population living within ¼ mile to transit stop	x		x
	Demand	(16) Total Vehicle Miles Travelled	x		
	Mode	(17) Modal split of passenger transportation		x	x
Environmental Indicators					
Theme	**SubTheme**	**Indicator**			
(VII) Atmosphere	Air Quality	(18) Ambient concentration of air pollutants	x	x	
	Climate Change	(19) Emissions of greenhouse gasses	x	x	

(continued)

Table 10.3 (continued)

Social indicators					
Theme	SubTheme	Indicator	National Survey	UN (2007)	Livability Literature
(VIII) Fresh Water	Water Quality	(20) Presence of faecal coliforms in freshwater		x	
	Water Demand	(21) Water use intensity by economic activity		x	
	Water Resources	(22) Proportion of total water resources used		x	
(IX) Land	Flooding	(23) Percentage of population living in the floodplain		x	
	Land Cover	(24) Land use change	x	x	
	Classification	(25) Jobs/Housing Balance			x

utilized strategy to simplify reporting. The use of indexes requires employing normative weights to the different indicators to construct the index. Weights are a normative construct and hence may not meet the demands of a rationally objective systematic procedure. The HSI model does not make use of normative weightings, but utilizes an exploratory research technique called *principal components analysis* to objectively assess interrelatedness among the indicators in the study. This produces a more systematic and objective system for index weights. The importance of understanding interrelatedness between the indicators in this study gives further insight into important phenomena existing between the 88 distinct communities in the study city. This HSI procedure ensures the integrity and reliability of an objective system by separating between normative contributions and systematic findings.

Principal components analysis was used to group the large number of indicators into clusters showing commonalities among the data. These clusters were given names by the research team to describe the unique ranking of indicators in each cluster and what the indicators with the highest weights in each group can tell us about the communities. Findings from the components analysis (Table 10.4) revealed five (5) distinct clusters of data. The clusters were titled: Wealthy Areas, Inner City Areas, Growth Areas, African American Areas, and Single Land Use Areas. The first cluster 'Wealthy Areas' is described here. Table 10.4 shows the cluster of nine high ranking indicators, which included Median Income (+), Health

Table 10.4 Components analysis

Indicators	Components/ Clusters				
	Wealth Areas	Inner City	Growth Areas	African American	Single Land Use Areas
MedianIncome	**.947**	.054	.100	.056	.016
HealthSpending	**.934**	.040	.046	.185	-.014
BelowPoverty	**-.893**	.118	-.073	.071	-.119
House+TransCosts	**.871**	-.314	.017	.098	.078
MedianValueHouse	**.834**	.324	-.037	.193	.007
WhitePersons	**.831**	-.023	.109	-.066	.016
MastersDegree	**.802**	.366	.065	.323	.086
Unemployment	**-.690**	-.297	-.137	.203	-.098
TransitUse	**-.534**	.406	.011	.505	-.106
VMT	-.133	**-.889**	.027	-.239	-.041
TransitAccess	-.108	**.826**	-.067	.324	-.066
OpenSpace	-.044	**-.772**	-.018	.039	.135
IntersectionDensity	-.011	**.738**	-.138	.108	.053
FoodDesertPersons	-.110	**-.722**	-.073	.075	.014
HighDevelopment	-.137	**.716**	.043	-.223	-.157
DistanceToCBD	.226	**-.671**	.440	-.217	.250
HousingInCenters	.404	**.635**	-.030	-.004	.123
ParkAccess	.155	**.617**	-.163	.076	.007
WaterUsePerHouse	.208	.052	**.867**	.083	.088
PopGrowth90-10	.190	-.203	**.815**	-.033	-.029
PopDensity	-.026	-.023	**.809**	-.017	-.102
PopClosetoWaste	-.207	.064	**.397**	-.093	-.048
HispanicPersons	-.305	-.240	-.107	**-.783**	-.154
Voting	.336	.090	-.122	**.688**	-.157
BlackPersons	-.455	-.421	-.112	**.545**	.184
LandUseMix	.028	-.227	-.223	.014	**.767**
PoorStreets	.207	.446	.182	.098	**.535**
HouseCost>30%Incom	-.182	.066	-.206	.000	**-.485**

Notes

Indicators Not shown due to low component clustering: %Jobs Primary; Other Races; Air Exceedances; Low-Mid Dev; Population Flooded; Adequate Storm Sewers

Components Analysis: PCA with Varimax orthogonal rotation. Explained Variance: @60%. KMO: 0.707

Care Spending (+), Poverty (−), Housing + Transportation costs (+), Median Housing Value (+), Concentration of White Persons (+), Masters Degrees (+), Unemployment (−), Transit Use (−). This cluster can be used to identify 'Wealthy' communities or their, their antithesis, 'Distressed' communities. These findings show that 'Wealthy' or 'Distressed' communities in Houston should be defined by more than simply *Median Income* alone, since eight other indicators correlate strongly with *Median Income* when analyzing all the measures across all the

communities in Houston. Further it can be stated that when compared to the entire set of indicators measured across all the communities in Houston, this cluster of nine indicators are the strongest predictors to identify concentrations of Wealth and concentrations of Distressed communities.

To understand how the 88 communities in Houston ranked according to the 'Wealthy Areas' cluster, in terms of the continuum from most Wealthy to most Distressed, we ran another analysis to build a rationally objective index. We calculated *component scores* for each of the 88 communities. To determine the component score for a community, the community's measure on each indicator is multiplied by the component weight for that indicator. The sum of these weight-times-data products for all the variables yields the component score in the Wealthy/Distressed Index ranking shown below in Table 10.5 and Map 10.1.

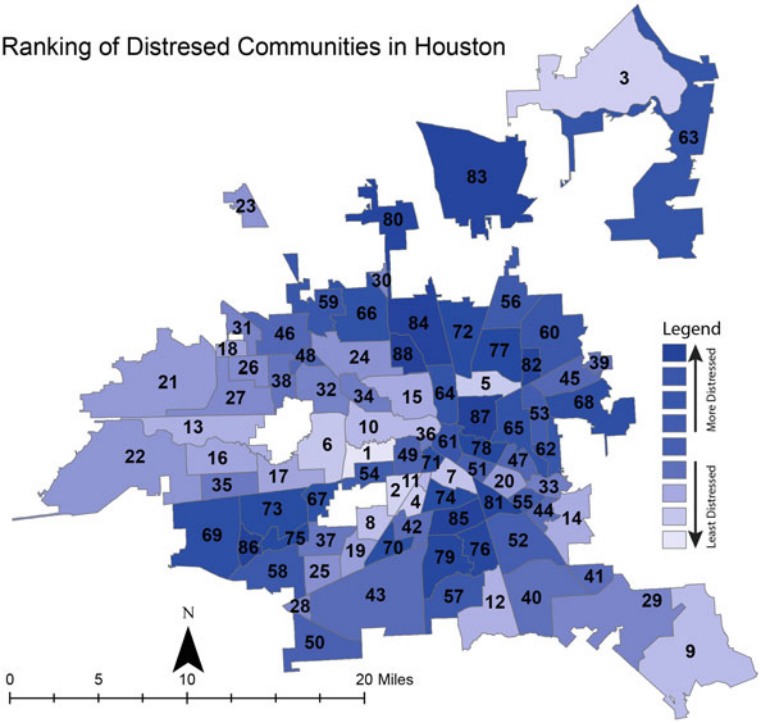
Table 10.5 Factor scores

Component 1—Wealthy Areas		Wealthy Index Ranking of Communities	
Median Income	0.95	Rank	Communities (#1-Most Wealthy to #88-Most Distressed)
Average Spent Healthcare	0.93	1	AFTON OAKS/RIVER OAKS AREA
Per Below Poverty	−0.89	2	UNIVERSITY PLACE
Housing + Transportation Costs	0.87	3	LAKE HOUSTON
Median Value Houses	0.83	4	MEMORIAL
% White	0.83	5	KINGWOOD AREA
% Masters Degrees	0.8	6	GREENWAY/UPPER KIRBY AREA
% Unemployed	−0.69	7	GREATER UPTOWN
% Using Transit	−0.53	8	BRAESWOOD PLACE
		9	CLEAR LAKE
		10	WASHINGTON AVENUE COALITION/MEMORIAL
		79	SUNNYSIDE PARK
		80	GREATER GREENSPOINT
		81	GULFTON
		82	SETTEGAST
		83	INDEPENDENCE HEIGHTS
		84	OST/SOUTH UNION
		85	GREATER THIRD WARD
		86	WESTWOOD
		87	GREATER FIFTH WARD
		88	KASHMERE GARDENS

Neighborhoods were ranked according to the Data clusters

Cluster score for community j and cluster k: $Fij = \sum_{k=1}^{p} WjkXik$

where F—community score; *i*—community; *j*—cluster; W—component score coefficient; *k*—variable; X—standardized score; *p*—number of items in correlation matrix



Map 10.1 Ranking of Distressed communities in Houston

10.2.3 Evaluation Component

To determine the value of HSI and its contribution to sustainable development in Houston, feedback from stakeholders is critically important. We presented the outcomes to stakeholders during a workshop, which was also open to the general public. Stakeholders were invited to review performance measures and re-evaluate the effectiveness of the indicators. The HSI team served as support staff only during this workshop. The goal of the workshop was to empower stakeholders to take ownership of the system of indicators; and to educate stakeholders and the general public using the performance results of their communities relative to the indicators. At the end of the session stakeholders presented their findings to the general public who attended the workshop. Some of the feedback we received included: several participants appreciated the comprehensiveness of the sustainability indicators; participants also appreciated the comparisons between communities.

The HSI team also reported results to several city departments and to elected officials. We were invited to participate in developing indicators to monitor the first General Plan in Houston, which is still under development. Several of the HSI indicators were adopted in the Houston General Plan. We were also invited to serve

as external reviewers to the Parks Department and the development of District Park plans. The Houston Parks Board has invited us to support their efforts to review performance measures for the planning and development of largest park and trail system in the city to date.

The HSI project is communicated to the general public using a variety of strategies including: a web-based data visualization portal; presentations at community meetings; radio (Houston Public Media 2015); television (KPRC 2013) and newspaper reports and articles (Sarnoff 2013; Rudick 2013). In short, the strategy here is to prepare reports bi-annually on the various themes within the indicators database. Subsequent to new reports published, findings are communicated in as many different media as possible. Although data is updated annually, the indicators are scheduled for update with stakeholder review and participation every five years.

10.3 Policy Impact and Knowledge Increase

The Houston case study is an ideal example demonstrating the many different functions sustainability indicators programs can serve: *Political and Operational*; *Problem Recognition and Awareness*; *Justificatory*; *Monitoring Control and Reporting*; *Normative Guidance*; *Communication and Opinion Forming* (King 2016). It is important to state that the success of indicator programs should not be measured by direct contribution to policy making alone. Research exists to suggest that today's policy making is primarily influenced by economic elites and business lobbies when compared to other groups (Gilens and Page 2014). A more appropriate evaluation for indicator programs may consider the following roles:

(1) The *Public communication and Participation* role of educating stakeholders.
(2) The *Technical and Managerial* role of assessment of existing conditions and evaluation tool to focus actions.
(3) The *Political objective* role of performance measurement for accountability to planning decisions and goals (Pinfield 1997).

In this section we review the success of the HSI project in meeting its own stated objectives, which are (1) Prioritizing issues (2) Examining interrelatedness in urban development (3) Conducting spatial analysis through the use of Geographic Information Systems (GIS) (4) Public education, stakeholder participation and public policy development.

Sustainability indicators are an ideal format to communicate the prioritization of issues in an urban area. HSI utilized a combination of convening stakeholders to contribute to a decision management workshop to decide on ideal indicators. Then through a systematic and very objective methodology, we were able to demonstrate the most important issues and how they relate and compare to other also important issues. Last but not least, through social media, traditional media, workshop presentations, and neighborhood group meetings, we were able to communicate findings on major issues facing Houstonians. An important take-away form the HSI

project is that urban areas exhibit a complex relationship between several internally complicated forces, therefore a simple index rating of 'Most sustainable', or 'Most Green' should be carefully justified by purveyors of such titles. HSI successfully utilized a more objective approach to ranking communities according to issues. Again, the HSI model does not make use of normative weightings, but utilizes an exploratory research technique called *principal components analysis* to objectively assess interrelatedness among the indicators in the study. Thereby producing a more systematic and objective system for index weights. This methodology for data mining lends itself to produce results that are more reliable.

Robust scientific methodologies were employed to explore the interrelatedness of the HSI indicators. The HSI project was the first and currently only comprehensive report developed in the City of Houston to address the state of development within and between electoral districts (King 2013). HSI is also the only source for reporting comprehensive development patterns between the 88 communities in Houston (King 2014a). These reports have facilitated a major gap in providing intelligence within and between communities in Houston. There now exists a comprehensive scientific methodology to assess communities according to demographics, economics, public services and the state of development. Many studies focus on individual indicators or thematic studies built around a few discrete measures, however HSI presents a methodology to demonstrate interrelatedness of indicators and thereby increase knowledge of connected phenomena in urban management and how this in turn affects individual communities.

Building the data into a GIS system to manage the indicators allows for efficient visual depiction of communities and study areas (Ghose and Huxhold 2002). It also allows for the efficient creation and extraction of data at the neighborhood level, which is difficult to obtain from many sources. The National Neighborhood Indicators Partnership (NNIP) is an umbrella organization that has organized indicator programs around the US and strives to encourage programs to make data available to the benefit of the general public. HSI is collaborating with NNIP to this end, for the city of Houston. This relationship is expected to further leverage the ability for HSI to more efficiently support local groups with access to data and intelligence of community dynamics.

Public participation, education and policy development are all difficult to measure since direct and indirect opportunities grow organically from indicator programs (Holden 2006b). Communication using several varied media outlets is a good strategy not just to publicize data, but seizing the opportunity to educate the general public on the epistemology of sustainable development. The Houston Planning Department invited the HSI team to assist with the development of indicators for the first Houston General Plan in 2015. Many of the indicators identified as part of the HSI project were adopted by the planning staff to be used directly in the General Plan. Although this is clear evidence of linear policy uptake, it should be stated once more that there are several other important functions, roles and purposes indicators can perform in addition to direct linear policy impacts. For example, the HSI team collaborated with the World Business Council for

Sustainable Development (WBCSD) to identify ideal indicators to monitor alternative energy usage and management among various classes of buildings in Houston (King 2014b).

10.4 Conclusion

This research demonstrates a few important contributions to the literature on sustainability indicators. The most important contribution is the applied methodology to separate between normative contributions and objective, empirical findings. Normative contributions tend to be heavily political and biased within many urban areas. It is important for stakeholders who are politically active to participate, but less so for these participants to manipulate findings based on normative pre-conceived notions. The benefit of utilizing a large number of indicators is the possibility of generating wider knowledge of the comprehensive performance of an urban area (Science for Environment Policy 2015). This is further buttressed by employing methodologies to understand interrelatedness between different themes represented by indicators. HSI demonstrates a methodology to accomplish this goal of soliciting new understandings of connections and interrelated processes within and between our communities.

Urban sustainability has matured into a very complex system of management of social, physical, institutional and policy environments. In our society the three competing interests of social, market and environmental perspectives, each have a stake in these changing diverse environments and as such should be the gauge by which to balance the environments. Using social, market and environmental perspectives as the gauge for balance we can apply community discourse to achieve that goal. However we should keep in mind that the process itself would be dependent on the distribution of power and organized interests (Kaiser et al. 1995).

The benefits of utilizing the HSI procedure as a model for sustainability indicators development are clearly demonstrated in the preceding research analysis. Relationships in urban development measures can be combined in a systematic format under the rubric of sustainability. The publication and wide dissemination of these results is part of the ideal procedure for the HSI model. This supports the empowerment of citizens to better enable analysis of urban development patterns.

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Author Biography

Dr. Lester King is a scholar of urban studies and environmental policy, specializing in urban sustainable development planning. His research interests focus on community sustainability with specific expertise in strategic planning and the development and use of community sustainability indicators as a measurement tool for development planning, program evaluation and community engagement. Dr. King has extensive expertise in the development and construction of community wellbeing indicators, has developed partnerships with a range of government, community partners and business partners and is passionate about using comprehensive data to fully understand community and urban dynamics.