SOCIAL CAPITAL AT THE COMMUNITY LEVEL

In *Social Capital at the Community Level*, John Halstead and Steven Deller examine social capital formation beyond the individual level through a variety of disciplines: planning, economics, regional development, sociology, as well as non-traditional approaches like engineering and built environmental features. The notion of social capital in community and economic development has become a focus of intense interest for policy makers, practitioners, and academics. The notion is that communities with higher levels of social capital (networks, trust, and norms) will prosper both economically and socially. In a practical sense, how do communities use the notion of social capital to build policies and strategies to move their community forward? Are all forms of social capital the same and do they all have a positive influence on the community? To help gain insights into these fundamental questions *Social Capital at the Community Level* takes a holistic, interdisciplinary or systems approach to thinking about the community.

While those who study social capital will acknowledge the need for an interdisciplinary approach, most stay within their disciplinary silos. One could say there is strong bonding social capital within disciplines but little bridging social capital across disciplines. The contributors to *Social Capital at the Community Level* have made an attempt to build that bridging social capital. While disciplinary biases and research approaches are evident there is significant overlap about how people with different disciplinary perspectives think about social capital and how it can be applied at the community level. This can be from neighborhoods addressing a localized issue to a global response to a natural disaster. This book is an invaluable resource for scholars, researchers and policy makers of community and economic development, as well as rural sociologists and planners looking to understand the opaque process of social capital formation in communities.
John M. Halstead is Professor of Environmental Economics at the University of New Hampshire, Durham, New Hampshire, USA. He received his PhD in Agricultural and Applied Economics from Virginia Polytechnic Institute and State University, MS in Resource Economics from the University of Massachusetts-Amherst, and BA from the University of Notre Dame.

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“This is an important and timely book. By focusing on community social capital, the contextual nature of the variable and its implications for social justice are illuminated. The authors confront potential of social capital for increasing as well as decreasing inequality and poverty theoretically, empirically, and with concrete cases.”

– Cornelia Butler Flora, Charles F. Curtiss
Distinguished Professor Emeritus of Sociology, Agriculture and Life Sciences, Kansas State University

“The field of community development witnessed something of a ‘paradigm shift’ with the emergence of local asset-based strategies. None of these has proven to be as significant as that of social capital formation. This book is the very first comprehensive assessment and discussion of social capital in the context of community development practice and thus constitutes a major contribution.”

– Mark Lapping, Distinguished Professor, Edmund S. Muskie School of Public Service, University of Southern Maine

“Social Capital at the Community Level is a unique contribution to social capital and community development literature. Bringing together scholars from four disciplines, the book provides new insight into how social capital works at the local level and how it affects important economic and social outcomes (small business development, poverty reduction, trust). It is a must-read for those involved in local community development and rural wealth creation efforts.”

– Bruce Weber, Professor of Applied Economics, Oregon State University
The community development research and practice series

Volume 7

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As the series continues to grow with the seventh volume, it is our intent to continue to serve scholars, community developers, planners, public administrators, and others involved in research, practice and policymaking in the realm of community development. The series strives to provide both timely and applied information for researchers, students, and practitioners. Building on a long history since 1970 of publishing the Community Development Society’s journal, Community Development (www.comm-dev.org), the book series contributes to a growing and rapidly changing knowledge base as a resource for practitioners and researchers alike. For additional information please see the series page at www.routledge.com/books/series/CDRP/.

The evolution of the field of community development continues. As reflected in both theory and practice, community development is at the forefront of change, which comes as no surprise to our communities and regions that constantly face challenges and opportunities. As a practice focused discipline, change often seems to be the only constant in the community development realm. The need to integrate theory, practice, research, teaching, and training is even more pressing now than ever, given rapidly transforming economic, social, environmental, political and cultural climates locally and globally. Current and applicable information and insights about effective research and practice are needed.
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SOCIAL CAPITAL AT THE COMMUNITY LEVEL

An Applied Interdisciplinary Perspective

Edited by John M. Halstead and Steven C. Deller
For Deb, Jeremy, Amy, and Emily

JMH

For Melissa, Andrew, and Camille

SCD
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CONTENTS

List of Illustrations xiii
Acknowledgments xvi
List of Contributors xvii

Foreword xx
Mark R. Warren

1 Social Capital and Community Development: An Introduction 1
John M. Halstead and Steven C. Deller

2 A Brief History of Social Capital Research 14
Shannon H. Rogers and Patricia M. Jarema

3 The Built Environment of Communities and Social Capital 31
Kevin M. Leyden and Abraham Goldberg

4 Social Capital, Communities, and the Firm 44
Bjorn Markeson and Steven C. Deller

5 Social Capital, County Information Networks and Poverty Reduction 81
Stephan J. Goetz and Yicheol Han

6 Measuring Social Capital at the Neighborhood Scale through a Community Based Framework 103
Shannon H. Rogers and Kevin H. Gardner
ILLUSTRATIONS

Figures

1.1 Co-authorship network: bridges among disciplines 6
2.1 General representation of bonding vs. bridging social capital 21
4.1 Regional social capital archetypes 55
4.2 Small business concentration index 69
4.3 Spatial clustering of small business concentration index 69
5.1 The concept of a polycentric spatial structure 87
5.2 In-entropy by type of connection 89
5.3 Poverty rates for the United States (1959–2012) 90
5.4 Change in poverty rate, the United States (2001–2011) 91
5.5 Map of percent (a) out-migrants and (b) out-commuters 92
5.6 Movement of people in Alabama and Georgia; (a) migration and (b) commuting 93
5.7 Migration and commuting entropy measures 95
6.1 Research methods used 106
8.1 Framework of a social-ecological system 137
8.2 Geographic distribution of the number of membership organizations and associations, per 10,000 persons (1990) 140
8.3 Geographic distribution of third place establishments, per 10,000 persons (1990) 141
8.4 The net loss of forested land cover in the period of 1990-2000 (an index) 145
8.5 Geographic distribution of housing growth in wildland areas in the period of 1990-2000 149
10.1 Socioeconomic and diversity predictors of social capital and business civic engagement with 2005-09 population controlled

10.2 Socioeconomic and diversity predictors of social capital and business civic engagement with 2005-09 poverty rate controlled

Tables

2.1 Various definitions of the term “Social Capital”

4.1 Business implications of regional social capital and implicit institutions

4.2 Entrepreneurship metric relationships

4.3 Small business concentration index

4.4 Correlations across entrepreneurship priorities and social capital

4.5 Modeling of small business concentration

5.1 Definitions of variables and descriptive statistics

5.2 Regression parameter estimates

6.1 Principles of community based participatory research

6.2 Focus group guiding questions

7.1 “What makes you feel like you are part of a community?”

7.2 Percentages: “How much do you trust different groups of people that may be involved in your community?”

7.3 Mean Scores: “How much do you trust these groups to make decisions in your community?”

7.4 Percentages: “How much do you trust government to make good decisions?”

7.5 Mean Scores: “How much do you trust government to make good decisions?”

7.6 Involvement in local action in past 12 months

7.7 Percentage of people participating in social activities

7.8 Obstacles to becoming involved in community

8.1 Ecosystem services as defined by the millennium assessment

8.2 Description of variables used in two vectors of social capital measurement

8.3 The net loss of forested land cover as a function of social ecological system

8.4 Wald F test results examining the combined effect of social capital measures on the net loss of forested land cover

8.5 Regression results scenario 2

8.6 Wald F test results examining the combined effect of social capital measures on housing growth in the WUI in the period of 1990–2000

9.1 Natural disasters, information and communication technology, and trust. dependent variable: change in trust

9.2 Climatic and geologic disasters, information and communication technology, and trust. Dependent variable: change in trust

9.A Summary of statistics of all variables
9.B Definitions and sources of variables 172
9.C List of Countries 173
10.1 Indices for business civic engagement and social capital variables (N=1303) 182
10.2 New destination and matched towns compared—means (standard deviation) 183
11.1 Brief summary of chapters in this volume 192
ACKNOWLEDGMENTS

We would like to thank Judith Newlin, our Editorial Assistant at Taylor & Francis, for her constant encouragement, reminders, and assistance in pulling the book together, as well as her patience with our academic sense of deadlines. Thanks also to Nicole Solano and Fritz Brantley at Routledge for helping make this project possible. We also are grateful to Rhonda Phillips at Arizona State University, Editor of the Community Development Research and Practice book series at Routledge, for shepherding us through the submission and approval process. Finally, our thanks to an outstanding team of contributors to this volume, for their willingness to join in the effort, as well as their many home universities and experiment stations.

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FOREWORD

Beyond Place: Social Capital Theory and Practice Twenty Years Out

This volume on social capital and community development comes at an important time. It provides an opportunity to reflect on the contributions of social capital theory about twenty years out. Robert Putnam began publishing his work on social capital in the early to mid 1990s. As the authors of this volume note, the content of these ideas was not entirely new to scholars and practitioners in community development. But Putnam’s work, perhaps because of its scale and comprehensive nature, and perhaps also because of its timing, had an impact that cannot be overstated. Place-based strategies for community advancement were on the rise, as were asset-based strategies. Putnam offered a grand theory into which community development could find an important place. For many it represented the reassertion of the value of civil society—and of the worth of relationships and of community—in the face of the power of the state and the market. Suddenly policy-makers had to consider the effects of public policy on a community’s social fabric, not just on the economic or social prospects of individuals. Notions of community building, so close to the concerns of community development scholars, were now reaching a broad audience.

I had the opportunity to be a part of Putnam’s team of graduate students at Harvard University who helped work on the *Bowling Alone* project. This was an exciting time for me as a member of this team and also in my own research. I used social capital theory in my dissertation and first book, *Dry Bones Rattling* (Warren 2001) where I showed how the social capital gathered around religious congregations provided a critical resource for community organizing efforts that sought to build power for low-income communities. Effective organizing by the Texas Industrial Areas Foundation network, the subject of my study, built and used social
capital to win campaigns to construct more affordable housing, create job opportunities, increase equity and quality in public education, and improve neighborhood safety. The network’s local organizations built broader forms of power in support of community development and equity goals by linking congregations across metropolitan areas, creating bridging forms of social capital across race and class lines.

I also had the opportunity to be co-organizer of a Ford Foundation sponsored conference held in 1999 on the role of social capital in combatting poverty. This was an early effort to consider the value of social capital to community development with a particular focus on low-income communities and communities of color. Like the editors of this volume, we saw the need to bring scholars together across disciplinary boundaries and to struggle with the definition and measurement of social capital. We published the conference papers in an edited volume (Saegert, Thompson, and Warren 2001) where my co-editors and I argued for considering social capital building at three levels: bonding, bridging and institutional. We showed the need to create and connect bonding and bridging forms of social capital with social connections to public institutions in a larger project of social transformation. We warned that social capital could not address poverty or foster community development on its own, but did provide a critical resource for community organizers and antipoverty activists.

The editors of this volume have asked me to reflect on the contributions of social capital theory to community development in the years since that early work. I remain as excited about the generativity of social capital theory as I did before, but perhaps I am more sober about its ultimate power if social capital remains organized and studied primarily at the local level. On the one hand, research has demonstrated the vital role that social capital plays in local community well-being, as the findings of this volume continue to show. We now understand better what factors promote or inhibit the development of social capital and its impact on a range of important outcomes for families and communities. One could produce similar volumes on social capital and education or on social capital and public health as well; and we would see evidence for its impact in these and other areas vital to well-being for families.

Indeed, this volume marks a further advance in this endeavor. Chapters in this volume show the contribution of social capital to community planning and to land use policy, for example. Many of the chapters advance understanding of the contexts and processes that enhance social capital. For example, we learn from chapters three and six how the built environment shapes social capital. In chapter three, Kevin Leyden and Abraham Goldberg demonstrate the impact of the way a community organizes itself spatially on the opportunities and incentives for collectiveness in a neighborhood or community. In chapter six, Shannon Rogers and Kevin Gardner show the effects of walkability on trust. Chapter nine by Mark Skidmore and Hideki Toya even shows that disasters can be events that provoke an increase in social trust at the national level, especially when people are connected through information technology.
In chapter four Bjorn Markeson and Steven Deller engage an important and longstanding debate concerning social capital and its “dark side.” Social capital can be used for purposes that support broad collective values and community enhancement. However, like any resource, groups can use social capital to advance their own interests in competition with or in suppression of other groups. Markeson and Deller, however, want us to further appreciate that there can be unintended negative consequences of social capital even when the stated aim is positive. In this case social capital is shown to promote and support small business development but sometimes to impede it as well.

Despite the continued demonstration in this volume and elsewhere of the importance of social capital to community development, my assessment today is more cautious. We have seen the development of broader social, economic and political trends that have profoundly impacted the state of our communities on the ground in local areas. Communities have been wracked by the megatrends of growing economic inequality, of mass incarceration, of large-scale immigration to old and new destinations, of gentrification in so many big cities, and of the kind of political gridlock that has prevented significant new public investments in low-income families and communities. Families struggle to advance when the only available work does not pay a living wage and when their children have no choice but to attend failing schools. When families are driven out of their neighborhoods by gentrification or by Hope XI redevelopment of their homes in public housing, we have little evidence that they are doing better; they may well be doing worse.

In my view, young people of color in low-income communities are at the epicenter of these megatrends. Nearly half of all black and Latino children grow up in or near poverty, often in neighborhoods of concentrated poverty with high rates of violence and inadequate services. They attend under-resourced schools, which fail them at high rates. As a result, in many cities half of all black and Latino boys fail to graduate from high school. Most will be condemned to lives of poverty and the males likely to imprisonment. Fully two-thirds of black men without a high school degree will serve time in prison at some point in their lives (Western and Pettit 2010).

We know, of course, that social capital can play an important role in supporting young people. Individual youths do better in school when surrounded by supportive adults in the form of bonding social capital in their families and in their churches, and sometimes in the form of bridging social capital by mentors from more affluent communities. Moreover, youth outcomes are better in communities with higher levels of social capital, including low-income communities (Sampson 2012). These are important findings and suggest the need to redouble efforts to build and use social capital at the local level.

However, twenty years out, we also need to ask the bigger question about the strength of social capital in the face of the larger forces mentioned above. How much of a difference is social capital making? Is it fulfilling the promise of social transformation? Nearly twenty years ago, Xavier de Souza Briggs (1998) highlighted the difference between social capital that helps people get by and social
capital that helps people get ahead. He was focusing on the individual, but the
distinction can also be raised to the collective level: social capital that helps improve
community wellbeing so they can get by and social capital that helps transform the
community context in a way that truly helps them get ahead.

What kind of social capital can serve as a resource to transform the community
context and that can begin to address larger trends of low-wage employment, mass
incarceration and educational failure? In my view, we need forms of social capital
that reach beyond single neighborhoods to create networks of trust and cooper-
ation across metro areas. Beyond that, we need forms of social capital organized
nationally to confront powerful national (if not global) forces. For social capital
scholars this means studying not just how much social capital exists nationally, but
whether and how social capital is organized to advance community development
goals. Let me offer some ideas in answer to this question through the organized
form of social capital I know best and the form that I believe has a critical role to
play, that is, community organizing.

Contemporary community organizing finds its roots in the work of Saul Alinsky
in Chicago in the 1930s but also draws from and is enriched by other organizing
traditions, including settlement houses, the civil rights movement and the labor and
immigrant rights movements. Community organizing is an intentional strategy to
build and use social capital to increase community wellbeing through change
strategies directed mainly at public institutions like local government and school
districts. These are political but nonpartisan efforts and directly address questions of
inequity and injustice. Community organizing that works primarily in and through
faith institutions like local congregations, parishes, mosques and synagogues
represents one of the largest and most prominent types. In my study of Texas
Industrial Areas Foundation network mentioned earlier, I showed the effectiveness
of building and using bonding social capital around faith institutions. I also
highlighted the critical importance of bridging ties because low-income com-
munities need the active support of whiter and more affluent communities to
create the power to win new policies, new resources and stronger responsiveness
from public institutions like schools or city governments.

Recent research by Richard Wood and others has confirmed and more strongly
demonstrated the role that faith based community organizing plays in community
advancement. As a field, it has grown by extending its presence to cities and towns
across the country and by engaging a broader range of institutions within its
alliances—e.g. unions, public schools and a variety of community based organi-
izations. It now encompasses 4,500 institutions, of which 3,500 are congregations,
with a reach to 5 million Americans (Wood, Partridge, and Fulton 2012). Moreover,
faith-based organizing is perhaps one of our strongest venues for building bridging
social capital at the metro level. The local organizations in this field typically span
metro areas and are intentionally founded to include members of diverse faith,
racial and socioeconomic communities.

Yet these processes are fraught with tension, as Terry Besser and Nancy Miller
discuss in chapter ten of this volume. Bridging ties do not simply cross lines of
differences, as most social capital theorists often treat it. These lines of difference are marked by power differentials. In order to build bridging social capital of the type that may be vital to community development, organizers have to address race and class hierarchies and all the attendant stereotypes and prejudices that continue to exist, if truly collaborative and trusting relationships are to be formed. We might also conclude from Putnam’s research and the findings of chapter ten that the creation of these trusting ties takes a long time.

However challenging, bridging social capital is critical to advancement of community development goals. Social capital organized at the neighborhood level is fundamentally limited in the face of racial segregation that creates communities of concentrated poverty. How do we create the public will necessary to significantly increase public investment in low-income communities if people in more affluent communities have no connection to those in poorer ones? Trans-racial bridging initiatives help overcome the isolation of neighborhoods shaped by concentrated poverty and take us beyond place considered as neighborhood. They also correspond to the changing economies of our urban areas, coinciding with the increasing regional and polycentric nature of local economies. In other words, strategies and policies to advance the well-being of low-income communities require a cooperative effort and metro-wide approaches founded upon bridging forms of social capital.

However, if we take the increasing importance of larger trends seriously, then social capital theory and practice must go beyond place considered as metro-area locality as well. We must think of bridging ties connecting local residents (and social capital builders) across localities to the national level.

First of all, let me say that I continue to value local organizing. It is the critical foundation for first engaging people in community and public life. It has become too easy for the new elites of our world to live globally and ignore their local realities. For most people, especially families with children and especially those in low-income communities, the quality of their local life has a huge bearing on them. Social capital at this level makes a measurable difference to people in their daily lives, and that remains an essential point. Nevertheless, the larger trends that shape local life must be addressed at the national (if not global) level.

Unfortunately, as is well known through the work of Theda Skocpol, professionally managed advocacy groups dominate the citizen lobby at the national level, while community organizing has remained primarily a local affair. Advocacy groups typically have mailing list members, while it is the community organizing groups that have active participants connected to each other in rich social capital networks. Recently, though, many locally based organizing groups are responding to changing circumstances and attempting to create alliances that stretch across localities. The PICO organizing network has been prominent in doing so, both at state and national levels. PICO invested time and energy into creating stronger connections between participants from its fifty or so local affiliates in order to build the trust necessary to launch national campaigns. As a result, PICO was a key player in the reauthorization of the State Children’s Health Insurance Program (SCHIP),
with its leaders sitting in the front row when President Obama signed the renewal into law. PICO proceeded to play a prominent role in the coalition that helped pass the Affordable Care Act. More recently, it has attempted to bring its local affiliates together to work for comprehensive immigration reform.

In another significant example, many local community and youth organizing groups have joined together with civil rights advocates to create several national alliances directed at the school to prison pipeline (STPP). The STPP refers to the connection between harsh school disciplinary policies that push students, especially black and Latino males and those with special needs, out of school and into the criminal justice system. National alliances like the Dignity in Schools Campaign and the Alliance for Educational Justice have worked to affect federal policy, leading to the Departments of Justice and Education issuing joint guidelines designed to halt the STPP. The 2014 guidelines warn against harsh and racially disparate school discipline and encourage districts to adopt positive behavioral and restorative justice policies. The national alliances, however, do not direct all their efforts at the national level. They are also designed to strengthen organizing at local and state levels. In other words, they work to build social capital in mutually reinforcing ways at multiple levels.

We have a pressing need to study these and other kinds of social capital building efforts across localities. How are local strategies that foster face-to-face relationship building being adapted to create networks based upon shared values and trust at the national level? What is the role of social media and other new technologies in creating these ties or in reinforcing the ties forged in intermittent face-to-face settings? What kinds of institutional forms exist nationally—faith-based or otherwise—that provide foundations for building and utilizing social capital? How do bridging forms of social capital created nationally address the kinds of challenges of race, class and power identified in research on local bridging ties? Do they contribute to creating the public will to invest in our poorest communities? In the end, to what extent do national connections enhance local efforts and create a context for greater progress in community development?

Scholars have only begun to address these questions. In reality, much of the relevant research concerns the question of internet usage and social media. It was once thought that online connections would undermine face-to-face relationships. We now know that online connections can supplement and enhance face-to-face cooperation. This work is important because, if community organizers are going to build social capital nationally, they will likely need to supplement high-cost, less frequent opportunities for face-to-face meetings with low-cost, ongoing opportunities via the internet and social media.

As I noted at the beginning of this forward, social capital theory excited many scholars and practitioners because it showed that relationships matter, that community had value, and that ordinary people had a space in civil society from which to challenge the pressures of the state and the market. This excellent volume provides a comprehensive current assessment of the coherence and value of social capital theory. Its chapters continue to demonstrate how social capital can
make a difference to local communities. They help us refine our understanding of the conditions in which, and the processes through which, social capital can be built.

The social connections among ordinary people at the local level remain deeply important to the well-being of communities. However, if we also believe that social capital provides the foundation for social transformation in the face of powerful market forces and unresponsive government, then scholars face the challenge to bring their theory and methods to bear on social capital building beyond the neighborhood to the national level. Twenty years out, these are some of the exciting questions that confront social capital scholars and that I believe will contribute to the next generation of research on community development.

Mark R. Warren

References

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“An individual’s social origin has an obvious and important effect on the amount of resources that is ultimately invested in his or her development. It may thus be useful to employ a concept of “social capital” to represent the consequences of social position in facilitating acquisition of the standard human capital characteristics”

(Loury 1977: 176)

“…social capital [has] become all things to all people, and hence nothing to anyone…”

(Woolcock 2001: 69)

Since Loury’s early attempt at providing a conceptual definition of social capital, research on social capital and community well-being has produced an enormous number of academic peer reviewed publications, books, and popular press articles. This literature has tended to focus on specific dimensions of social capital, especially as viewed through a limited academic disciplinary lens. Yet, there is still a lack of consensus on what social capital is, why it happens, and how it is relevant from a public policy perspective. As we shall discuss in this chapter, the fields where social capital research has occurred—including sociology, planning, public administration, political science, management, and economics—have often worked in relative isolation from one another.

In this book we have attempted to synthesize different viewpoints by drawing from a range of disciplines dealing with community resource issues (economics, planning, political science, development policy, natural resources, environmental engineering, and sociology), calling on our authors to address common questions about social capital formation, research, and policy. While the social capital literature is expanding into many diverse fields, we attempt to provide a unique focus on smaller and/or rural communities.
The Evolution of Social Capital Research

When we ask the basic question of why some communities thrive and prosper while other seemingly similar communities struggle, stagnate, and decline, economists, sociologists, political scientists, and planners often arrive at vastly different conclusions. At the practitioner level these differences have at times gelled into interdisciplinary answers. Thirty years ago the notion of leadership was front and center: the “successful” community had a set of “sparkplugs” that would champion the community and move it forward. Significant energy went into efforts to foster community leadership with backing from a range of public and private institutions, such as the Kellogg Foundation.

More recently, both academics and practitioners have come to realize that leadership is but one part of a larger, more complex piece of the puzzle. Community scholars (sociologists in particular) spoke in terms of “social infrastructure” (Swanson 1996) or “entrepreneurial infrastructure” (Flora and Flora 1993). These community scholars were finding that effective leadership within a community was a necessary but not sufficient condition for viable community and economic development. Notions of the ability of the members of a community to come together to effect change moved to the forefront of thinking about community and economic development. Within planning the idea of grass roots initiatives was gathering broader interest. The idea emerged that to be effective, leaders needed to engage the broader community in identifying issues and concerns as well as potential policy ideas and strategies. The notion of community engagement was taking hold.

Questions became more refined and complex as community scholars and practitioners began to think more broadly about these notions of “social” and “entrepreneurial” infrastructure. How do communities come together to address community issues? How do we ensure that all elements of the community participate? Why are some communities more inclusive in decision making processes than others? How does the community address conflicts that arise within its decision-making process? Are community members with economic and/or political power willing to work within a framework of engagement? How can a community deal with apathy? In essence, do community leaders invite everyone to the table and do people show-up when invited? Furthermore, are the conversations around the table civil and proactive?

As this discussion was coalescing, political scientist Robert Putnam published his seminal book *Bowling Alone: America’s Declining Social Capital* (1995). His basic premise centered on the notion that people are increasingly isolating themselves from the community and becoming more apathetic where community issues are concerned. If they are invited to the table to discuss community issues they are electing not to attend or participate. Perhaps most important is that Putman (1995: 67) made the term “social capital,” which he defines as “features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit” a general term of art. When one compares
Putnam’s notion of social capital, Swanson’s (1996) “social infrastructure,” or the Floras’ (1993) “entrepreneurial infrastructure,” we find that it appears that some researchers simply substituted the word “capital” for the word “infrastructure”.

Indeed, there is not even agreement when the term “social capital” was first used within the current context. In Chapter 2 of this volume Rogers and Jarema note that the first use of the term “social capital” has been attributed to the work of the economist Glenn Loury (1977), the educator Lyda Hanifan (1917) and the journalist and founder of the New Urbanism movement in planning Jane Jacobs (1961). But the notion of the social fabric of the community being an important building block in the context of “capital” flowed from the work of Jacob Mincer and Gary Becker and the idea of human capital much earlier. Here there is a stock and flow of capital (human or social) that can be invested in or drawn down. Alternatively one could think of the “capital” as an “asset” that can be expanded upon, depleted, or even allowed to deteriorate. Staatz (1998: 2) suggests social capital facilitates social cohesion, claiming that it acts “to increase the ‘liquidity’ of social interaction…much like an expansion of the money supply.” Schmid and Robinson (1995: 66) view social capital as a productive asset, “like money in the bank, [social capital] makes assets more productive and saves costs—besides being valuable in itself”, as does Woolcock (2001: 67) who wrote “the basic idea of ‘social capital’ is that one’s family, friends and associates constitute an important asset, one that can be called upon in a crisis, enjoyed for its own sake and/or leveraged for material gain.” Others, however, find the notion of social capital to have a much richer history.

Putnam (1995) attributes the first use of the concept as it is widely used today to Lyda Hanifan, a West Virginia rural educator writing in 1916. Farr (2004) suggests that the origins may go further back to the education writer John Dewey. While the contemporary notion of social capital is widely attributed to the work of Granovetter (1985), Coleman (1988), and Putnam (1995), the concept can be traced back to the social progressive movement of the early 20th century or imagined by the likes of deTocqueville, Hume, Smith, and Mill. Yet, it was not until the work of Coleman (1988) and Putnam (1995) that social capital rose to prominence in popular and academic literature. While various writers have focused on particular aspects of Putnam’s three-legged stool definition of social capital—“networks, norms, and trust”, the root of the current interpretation of social capital can be linked back to the work and philosophy of Thomas Dewey, particularly critical pragmatism, as well as Bellamy’s understanding of cooperative associations and radical political economy. The key difference between the current understanding and that of the 19th century philosophers is that the earlier writers were looking at capital from the social point of view whereas today’s writers generally focus on the capital aspect of the issue. Specifically, social capital can be viewed as an asset that can be invested in and drawn down.

Regardless of the origins of the concept, or even the term, the role of social capital in community and economic development has become prevalent in many local policy discussions. Mattessich (2009: 49) suggests that “Social capital or
capacity lies at the heart of community development.” As outlined in detail by both Phillips and Pittman (2009) and Shaffer, Deller, and Marcouiller (2004) one could think of community development as the building of local capacity and institutions that are necessary to effect change. This can range from improving local perspectives about a sense of place and ownership of the community to building an engaged citizenry and institutions (e.g., volunteer organizations, chambers of commerce, local government capacity). Within this context, one could reasonably argue that building social capital within the community is at the heart of community development (Mattessich 2009).

Of course not all communities are ready to undertake economic growth and development efforts. Having certain levels of local capacity is a necessary, but not sufficient, condition before communities can successfully undertake economic growth and development initiatives. This capacity is embodied in a community’s social capital. If there is not a sufficient or minimum level of effective leadership, citizen engagement and local institutions in place, economic growth and development efforts are likely to stumble.

If community and economic development scholars and practitioners are to be more effective at crafting policy options for communities it is important that they have a working understanding of the current thinking around social capital. If Mattessich (2009) is correct that social capital is at the heart of community development, and hence a precondition for economic growth and development, then an inclusive approach to thinking about social capital is a prerequisite to effectively working within a community.

The problem that we face, unfortunately, is that social capital is such a broad concept that it does not clearly fit into economics, sociology, political science, or planning. At this point in time, it is our contention that there is no well-developed, coherent theory of social capital—at least no theory which crosses disciplinary boundaries. Svendsen and Svendsen (2008) speak in terms of social capital being a “troika” blending sociology, political science and economics, and their book attempts to draw a common paradigm from these disciplines. Nonetheless, because of the inherent interdisciplinary nature of social capital a pure theory of social capital is elusive. On the one hand this interdisciplinary perspective provides opportunities to think about the community in a more holistic manner. In practice, we know that neither the economist, the sociologist, the political scientist, nor the planner has “the answer” to the challenges communities are facing. In practice we must view the community from a holistic or systems approach which requires an interdisciplinary perspective.

One of the problems of a holistic or systems approach is that the complexity can become overwhelming in short order. To make sense of this complexity, scholars and practitioners of community and economic development often begin from a specific disciplinary perspective. Tackling the community system from the perspective of an economist, sociologist, political scientist, or planner but with a broad appreciation of the complexity of an interdisciplinary systems approach, allows our thinking and understanding of the community to move forward. The
challenge to community and economic development scholars and practitioners is that the different disciplinary perspectives approach and think about the problem in very different ways. We see this in the different components of social capital that various disciplines tend to emphasize. Sociologists, for example, tend to focus on the social norms and informal rules of behavior, political scientists on the institutional structures that can foster and facilitate social capital, and economists on how social capital can influence transactions costs or the “cost of doing business.” Planners tend to be most interested in how to move the community forward. While each disciplinary approach brings a piece of the social capital puzzle to the table, it is unclear if those pieces are fitting together in a coherent manner.

While most social science scholars and practitioners can agree on broad concepts of social capital (e.g., Putnam’s three legged stool), differences in thinking and approaches across the different disciplinary perspectives become clear when we move from the abstract to the more concrete. These differences are not only conceptual but practical in the sense of how theoretical and applied research is conducted. A recent report by the United Nations University argues that the lack of consensus in definition and measurement of social capital is primarily due to a lack of interaction between disciplines, stating that “[t]he social capital of social capital researchers is low between disciplines” and that “the extent of collaboration between disciplines is not as rich as it is expected to be (or it ought to be)” (Akcomak 2009: i, 17). The parochial nature of the body of social capital work is demonstrated by the tendency of authors to principally cite literature from within their own disciplines, as illustrated in Figure 1.1.

The highlighting of these differences with the end goal of finding common ground in our thinking about social capital is a driving motivation behind this edited volume. By learning to appreciate different disciplinary perspectives and finding common ground we can move community and economic development forward. As we gathered collaborators for this project, it was our intent to have them structure their chapters in a way which would allow a general comparison and synthesis of approaches, regardless of the nature of individual case studies. All authors followed a theme in addressing their individual disciplinary approaches, specifically:

- Why does social capital happen?
- Does it matter?
- Can policy influence it?

Each chapter’s authors address the levels at which social capital “occurs”—individual, community, and the larger society—from their own disciplinary viewpoint, addressing issues such as: Does social capital change at the different levels? Does social capital matter at the different levels? These questions are relevant whether the chapter deals with individual communities, countries, or some intermediate geographic scope of study.
Challenges of Studying Social Capital

As noted above, the different disciplinary perspectives tend to concur on the broad pillars such as trust, networks, and norms. When we try to move to more concrete perspectives that can provide community and economic development scholars and practitioners with a more solid foundation for policy actions, however, fissures in our understanding become apparent. Working definitions of social capital vary significantly across disciplines and even across different authors within the same disciplines. While these differences can help to make us think more broadly, they can also make policy options at the community level murky, confusing, and at times contradictory. From a research perspective the lack of a widely accepted concrete definition creates numerous difficulties.

The study of cause and effect of social capital within community and economic development is difficult because we lack the ability to compare and contrast a “treated” set of communities with a “control group” set of communities. Some empirical research demonstrates that the act of studying social capital in a community (see Friedman and Fraser, Chapter 7) itself changes the level of social capital; in effect, almost a form of Heisenberg’s uncertainty principle where simply
observing a thing changes it. By studying the community, such as in the form of a case-study, we change the nature of the community that we wish to study and better understand.

Another related problem outlined by Durlauf (2002) centers on the inability to separate cause and effect with social capital and community outcomes. For example, suppose we are interested in better understanding the role social capital plays in business development (see Markeson and Deller, Chapter 4) or poverty reduction (see Goetz and Han, Chapter 5); it is difficult to determine if the act of business development or poverty reduction builds social capital or if cause and effect flows the other way. Skidmore and Toya (Chapter 9) find that social capital helps a community mitigate the effects of natural disasters, but at the same time experiencing natural disasters can increase social capital in a community by pulling people together in a time of crisis. This is a plausible conclusion particularly in light of Granovetter (1973; 1985) and Uzzi’s (1996; 1999) description of the nature of embeddedness of economic action. In a sense the development of social capital and community well-being is “circular and causative” or jointly determined. From a holistic or systems approach to thinking about community and economic development all pieces of the system directly and/or indirectly influence each other. From a policy perspective how do we disentangle cause and effect?

Perhaps a more practical problem is that social capital cannot be directly measured for analysis (Durlauf and Fafchamps 2006). While we can describe it and “know it when we see it,” measuring social capital, however defined, can usually only be done indirectly. If we return to Putnam’s three legged stool of “networks, norms and trust” how can we quantify, for example, “norms”? Rogers and Gardner (Chapter 6) attempt to measure trust directly, but in so doing demonstrate that this is an extremely expensive process, and broad generalizations from it are problematic. In social capital research we ask community residents to express their opinion about different dimensions of social capital within the community (see Friedman and Fraser, Chapter 7). As noted by Rogers and Jarema (Chapter 2) the Saguaro Seminars at Harvard University organized by Putnam conduct the Social Capital Benchmark survey of 30,000 people in 40 communities across 29 U.S. states.

We can measure the number of non-profits, religious, or membership organizations within a community as proxies for social capital formation (see Markeson and Deller, Chapter 4, Jarema and Halstead, Chapter 8). There are two problems with this approach in addition to the concerns around cause and effect. First, there is no theoretical justification to select one set of metrics over another; in statistical terms, this is a specification problem. While theory can point researchers in a certain direction, the final metric selection is often arbitrary. Second, the growing wealth of empirical research suggests that results and policy implications can be very sensitive to which metrics are selected. While some (Deller and Deller 2010) suggest that by sifting through these empirical results following an inductive style of reasoning one can indeed gain insights, others (Durlauf 2000) argue that the lack of consistency or robustness of results points to fundamentally fatal problems with the research.
This leaves the role of social capital in community and economic development in a somewhat confused state. Is the interdisciplinary nature of the research and policy discussions a strength or a weakness? Through all the ‘noise’ of inconsistent ways of thinking about and studying social capital are we triangulating on a more solid understanding of what roles social capital plays in community and economic development or is all the ‘noise’ an indicator that we cannot hope to untangle the web of cause and effect? Should we follow the advice of Svendsen and Svendsen (2008) and embrace the study of social capital as being a “troika” and as a result embrace the ‘noise’ that comes along with truly interdisciplinary work? Have scholars of social capital simply bitten off more than they can chew?

In this book we hope to shed light on some on these dilemmas and provide insights into where different disciplinary perspectives can triangulate to the extent that more informed policies can be offered at the community level. We hold out hope that the notions of social capital can provide a framework to think about community level issues. We tend to concur with Mattessich (2009) who maintains that working to build social capital is at the core of community development and a prerequisite to economic development.

**Overview of the Book**

This book represents a collection of applied case studies by researchers with different disciplinary backgrounds and research perspectives, addressing social capital issues ranging in scope from a few small communities to the world at large. We asked each author to think about what social capital means from their unique disciplinary perspective and how one can think about social capital within a community and economic development perspective. Clearly each research effort is unique in that community and economic development means different things in different settings.

In Chapter 2, Rogers and Jarema provide a review of research in social capital over the past several decades, organized by both theoretical and empirical issues (e.g., measurement). They draw attention to both consistencies and inconsistencies in the theoretical and empirical literatures. A complete and comprehensive review of the literature would amount to a standalone book so this review is intended to highlight the key points of the literature. In addition each chapter has a review of the literature relevant to its particular topic. We hope to have acknowledged the majority of key authors and contributions through the course of the book.

In Chapter 3, Leyden and Goldberg address the notion of how the “built environment” of the community can directly influence levels and types of social capital within the community. They suggest that the growth of car-centric suburban sprawl has fostered a decline in social capital for many communities. In the extreme the only thing that ties a community together is a common zip code. Leyden and Goldberg suggest that land use patterns and the “walkability” of a community can have significant effects on social capital. In this chapter they discuss how the way a community organizes itself in a spatial sense affects the citizens of...
the community's connections to each other and to the places they live. In essence, the authors are speaking to social capital within the notion of the New Urbanism movement in America. Leyden and Goldberg make the case that a person's willingness to get involved in their community, as well as the level in which they feel socially connected to others in their community, is about far more than individual choices. It is also about the built environments of the communities citizens plan and maintain as human beings.

The role of social capital in small business development is explored in Chapter 4 by Markeson and Deller. While many authors think of social capital as relationships between individuals Markeson and Deller refocus the discussion on relationships between businesses by blending the notions of social capital and business clusters. They focus on the notion of community support or social capital in small business development. They outline a theoretical framework to suggest that communities with higher levels of social capital should have a better “business climate” and are more conducive to small business activity. They also note that social capital can flow in two directions, one fostering an environment conducive to business activity and one dampening businesses’ desire to take on risky enterprises. For example, a community with a strong chamber of commerce, technical schools, and supportive government policies (positive social capital), but within that community “failure” is socially unacceptable. In this hypothetical community there are two elements of social capital (institutions and norms) that are moving against each other: why would a local business person pursue a potentially risky venture if failure of the venture will lower the status of the person in the eyes of the community?

They liken the business to traveling along a highway, using the analogy of starting a business as going from point A to point B along a highway that is regulated by certain rules such as speed limits. If social capital is a highway, implicit institutions are the rules of operating on that highway such as the speed limit. Even if the highway is four-lanes and well maintained (high social capital), a low speed limit (non-supportive implicit institutions) will slow down drivers (business owners). They blend that theory and empirical testing to determine the compatibility of social capital metrics within the neoclassical economic model. This chapter draws a particularly interesting dichotomy between social capital “infrastructure” and the institutions that affect the development and use of social capital.

Goetz and Han examine the notion of networks within social capital and how commuting and migration impacts those networks in Chapter 5. On the one hand increased commuting and migration flows could weaken networks and social capital by reducing the sense of ownership, membership or belonging to any particular community. On the other hand, Goetz and Han suggest that increased labor flows through commuting or migration can enhance information flows. In essence through increased flows new information and knowledge can be injected or transferred across networks. They examine the social capital network embedded within social capital (the ties and bonds that exist among people living in a particular community or county), and explicitly spatial networks of relationships
among people that arise due to county-level commuting or migration flows. Noting that migration and commuting are usually studied independently when in fact they may be connected, they examine the roles that these two different types of networks—commuting and migration on the one hand and social capital on the other—may play in changing county-level poverty rates over time. Their avowed contribution is to examine how social capital, which itself may enhance flows of information that could bring about economic improvement, may interact with other forms of information flows—those embedded in migration or commuting networks—and enhance (or stifle) those flows.

Rogers and Gardner address the consideration of social factors in design and planning of land use and community structure in Chapter 6. Using community level studies, they empirically address the issue of walkability and its effects on trust at the neighborhood level. Using community based participatory research (CBPR), the authors examine the relationship among measures of social capital and the built environment within the context of sustainability in New Hampshire municipalities (Manchester and Portsmouth). Focus groups conducted involved municipal officials, community decision makers, and other representatives from local interests for each municipality. A survey was then conducted in the communities to examine the relationship between walkability and the built environment and social capital measures. The approach allowed avoidance of the problems with using proxies for social capital (e.g., third places, infrastructure, or other measurable variables which provide the environment to create social capital but don’t measure it directly). The authors were able to tie the physical infrastructure (characteristics which promoted walkability) with the actual social capital measure (respondents’ levels of trust). A major “take away” from the chapter is the costs associated with building a survey-based primary data set in studying social capital. Rogers and Gardner conclude that this type of work is feasible but at great cost.

In Chapter 7, a further exposition of the community-level, survey-driven approach to social capital policy is employed by Friedman and Fraser. Their focus is from a community level planning scale, and how outcomes are affected by levels of social activity and trust. Planners’ work is first and foremost in the public interest for the management of collective goods, and social capital is a promising focus area in the pursuit of this mission. The authors examine how social capital can be used to garner program, policy, and regulatory changes within the community or region in order to improve environmental and community outcomes, and present results of a watershed-level case study. A range of policy options for community design are presented as means to foster increasing social capital stock. The importance of regular community surveys, which include questions to establish and monitor levels of social capital, is part of the process for planners to become “social capital entrepreneurs” (Briggs 2004: 157)—those willing and capable of building networks. Social capital can be a key principle in Smart Growth and sustainability efforts.

In Chapter 8 Jarema and Halstead use a natural resource policy approach to estimate whether third places as proxies—“conduits”—for social capital affect land
Jarema and Halstead use an ecoregion-scale study to examine how social capital stocks affect land in the study region. The research project developed models that quantify social capital at the county level and two different measures of land use change: housing growth in the wildland-urban interface, and the net loss of forested land cover. This research uses many of the metrics employed in previous chapters that examine social capital and combines these variables with technologies in remote sensing and Geographical Information Systems to estimate the two patterns of land cover change.

Using ecological boundaries to identify the study region of the Eastern Temperate Forest Ecoregion, the research discussed here is a regional, cross-sectional analysis. Spatial regression models (similar to those used by Markeson and Deller and Goetz and Han) are used to arrive at nonbiased, efficient estimators. Drawing parallels to Goetz and Han’s chapter, the regression models are estimated to provide insight into the question of whether or not community level social capital can be aggregated up to the county level efficiently and, perhaps most important, examines whether social capital plays a mediating role in managing ecosystem services in a sustainable manner. Also examined is whether commonly used measures of county level social capital are the appropriate measures of social capital in the context of managing ecosystem services or whether there are other measures of social capital that are better predictors of this relationship.

Skidmore and Toya note in their study of social capital in Chapter 9 that norms of trust tend to be stable over time, and are embedded in culture. However, significant shocks can lead to changes in societal trust. Their empirical work examines how natural and human-induced shocks alter trust levels. Specifically, they investigate the relationship between natural disasters, terrorist incidents, information technology, and societal trust. Their research uses cross-country panel data to examine whether the potential effects of disasters on trust depend, in part, on information technologies. Emerging information and communication technologies facilitate information transfer and communications between affected and non-affected citizens, thereby enabling people to work together in disaster preparations and response and thereby building social capital.

In Chapter 10, Besser and Miller’s work in “destination communities” examines how social capital is related to a community’s population size, which is of particular interest to researchers in rural communities. Moving from this discussion, they examine in detail how changing ethnic diversity in these communities affects overall social capital stocks, both of bonding and bridging capital. Key questions in their analysis were whether racial and ethnic diversity affected social capital and business civic engagement in small rural prairie towns. The authors also investigate whether the “legacy of inequality” from the previous decade affects the relationship between diversity and social capital. They also introduce the role of a number of theories from the sociology literature which are not directly addressed in the economics, public administration, or planning efforts in this volume.
In our final chapter, we provide a summary of the book’s contents; from that point, we attempt to find the common thread through the disciplinary fabric as each author’s answers to the “three questions” are assessed. To paraphrase Woolcock’s quote that began this chapter, social capital has become one thing to economists, another to political scientists, something else to sociologists and as a result meaningless in a community and economic development setting. The holistic or systems approach to thinking about social capital within the local community becomes so cumbersome it risks becoming meaningless. We are not that pessimistic. We hope that by the end of this book we can see a way that social capital can become something specific that cuts across these different practitioners’ disciplines, and hence something with which we can make a common cause and move ahead with a richer, applied understanding of social capital.

References


A BRIEF HISTORY OF SOCIAL CAPITAL RESEARCH

Shannon H. Rogers and Patricia M. Jarema

Introduction

The interpretation of the term “capital” has evolved and broadened considerably since it was first used around the beginning of the 17th century (Cannan 1921). “Social” is a relatively new adjective to describe a certain type of capital, only coming into common use in the past few decades. Research in the field of “social capital” has figuratively exploded in that time; a simple Google® search of the term “social capital” yields over 10 million hits. Two of the best known pieces on social capital, political scientist Robert Putnam’s book Bowling Alone and sociologist James Coleman’s article “Social capital in the creation of human capital” in the American Journal of Sociology have both been cited over 25,000 times (according to Google Scholar®). Accompanying these and other well-known treatises in social capital are myriad and varied research publications. It is not our intention, nor is it possible, for us to discuss all of these works. Rather, in this chapter, we attempt to provide an overview of some of the better known (and some less well known) of these pieces. While this review is not exhaustive, it is supplemented somewhat by the literature reviews provided in our other contributed chapters.


Individuals use social contacts to secure a job, collectively solve a problem, hire a plumber, or borrow a shovel. Communities rely on social groups to gather resources and attain goals such as reducing crime or building better schools. Natural resource managers use social groups and stakeholder groups to conserve and protect the environment. While the term “social capital” may be relatively new, the concept is not, as Halstead and Deller point out in Chapter 1.
As noted by Islam and colleagues (2006) there is no consensus on the intellectual origins of the term “social capital” either implicitly or explicitly. Durlauf and Fafchamps (2006) assert that the term “social capital” and its conceptual foundation as now used may have first appeared in economist Glenn Loury’s 1976 dissertation, which pondered the role that social status played in an individual’s ability to gain employment. Portes (1998), however, argues that the ideas underpinning social capital can be traced to the work of Durkheim and Marx and their foundational work in sociology. Woolcock (1998) suggests that the foundations of social capital can really traced back to work of Marshall and Hicks. In typical academic disciplinary debates, sociologists (e.g., Portes) and economists (e.g., Woolcock as well as Durlauf and Fafchamps) lay claim to the conceptual foundations of social capital. Woolcock (1998: 160) goes to the extent of arguing that economists of the time greatly influenced the laying of the foundation of sociology as a discipline: “…the Durkheimian, Weberian and Marxist traditions within classical sociology were all heavily influenced by the economic debates and issues of that period, and much of what we now refer to as ‘social capital’ lay at the heart of these concerns.”

But as noted in the introductory chapter by Halstead and Deller, Putnam (1995) and Woolcock (1998) acknowledge that Lyda Hanifan, an education writer and advocate also contributed to the study of social capital by using the term to describe “those tangible substances [that] count for most in the daily lives of people” (1916: 130). Planners, however, would argue that Jane Jacobs (1961), one of the founders of the “new urbanism” which is at the core of many perspectives on planning (also see the Chapters by Leyden and Goldberg as well as Rogers and Gardner), was the first to use the term “social capital” within its contemporary sense.

While these historical “debates” are at times interesting from an academic perspective, they can be a distraction for community and economic development scholars and practitioners who are most interested in broadening their thinking around social capital. Thus to simplify the discussion, for our intents and purposes the concept of social capital can be thought of as being introduced by sociologists Pierre Bourdieu (1986), James Coleman (1988), and political scientist Robert Putnam (1993; 2000). These three theorists outline the broad notions of what we today think of as social capital but with subtle and important differences. Definitions of the term vary widely; a sampling of definitions of social capital is presented in Table 2.1.

Contemporary social capital research evolved out of the theories and application of human capital as advanced by Nobel laureate economist Gary Becker. Here people invest in human capital (e.g., education) because people believe that the rate of return on that investment will be positive. In the simplest sense investment in education will lead to a higher paying job. But people do not live in isolation and are part of a larger community, or society, which impacts the returns on those investments. These investments must be made in light of local institutions, both formal and informal institutions. Here formal institutions can range from governmental entities to professional and business organizations and informal institutions can be networks of volunteers or concerned citizens. Perhaps more important these institutions can establish and enforce the rules of acceptable behavior within the
community. How society establishes these rules of behavior falls into the realm of political science and sociology. Indeed, Svendsen and Svendsen (2008) speak in terms of social capital being a “troika” of sociology, political science and economics.

Coleman (1988) extended his views from the concept of human capital and examined the importance of social capital in promoting the development of human capital. This is an important extension as human capital has a more extensive literature and history than social capital. Human capital, the skills and knowledge individuals possess, has been well articulated as an economic concept by Schultz (1961), who began a major shift in thinking of capital as more than physical equipment and arguably laid the foundation for thinking of less tangible concepts such as knowledge and skills (in human capital) and networks, norms, and trust (in social capital) as measurable components of an economy that have real value. Like other forms of capital, social capital can be useful for achieving community goals. In fact, Emery and Flora (2006: 21) describe a community capitals framework that includes seven different types of capitals—natural, cultural, human, social, political, financial, and built. In defining the social capital component of the framework they see it as reflecting “the connections among people and organizations or the social ‘glue’ to make things positive or negative happen.”

The Components of Social Capital

As research on social capital progressed, three common components emerged: social networks, trust, and social norms. These are sometimes thought of as Putman’s three legged stool. Farr (2004: 27–28), in somewhat of a dissenting opinion about the overarching focus on the trust component, worries that “sympathy hides in the shadow of trust in the contemporary moral psychology of social capital” and researchers may need to examine this element in its own right, in relation to trust. He argues that “sympathy, not trust...captures the ‘civic virtue’ that allows me to act with and toward others” and that there is much theoretical and empirical work to be done. Nonetheless, these three components form the core of the common definition of social capital and the subsequent research methodologies employed by scientists in diverse fields such as sociology, economics, management, health care, policy, regional science, and planning. This is evidenced in the heavy focus on trust in virtually every research effort in this volume.

Bourdieu, Coleman, and Putnam

The evolution of these three concepts begins with sociologist Pierre Bourdieu’s theory on social capital. Bourdieu is credited with expanding upon Karl Marx’s theory of capital, focusing on defining two new sources of capital, cultural and social. He defined cultural capital as having two states, the objectified state and the institutionalized state. Photos, paintings, and songs are sources of objectified cultural capital that are institutionalized into education (Bourdieu 1986). As noted in Table 2.1, Bourdieu (1986: 247) defined social capital as:
TABLE 2.1 Various definitions of the term “Social Capital”

<table>
<thead>
<tr>
<th>Source</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Hanifan (1916: 130-31)</td>
<td>the network of social connections that exist between people, and their shared values and norms of behavior, which enable and encourage mutually advantageous social cooperation. Collins English Dictionary</td>
</tr>
<tr>
<td>Hanifan (1916: 130-31)</td>
<td>…that in life which tends to make these tangible substances count for most in the daily lives of people, namely, goodwill, fellowship, mutual sympathy and social intercourse among a group of individuals and families who make up a social unit… If he may come into contact with his neighbor, and they with other neighbors, there will be an accumulation of social capital, which may immediately satisfy his social needs and which may bear a social potentiality sufficient to the substantial improvement of living conditions in the whole community. The community as a whole will benefit by the cooperation of all its parts, while the individual will find in his associations the advantages of the help, the sympathy, and the fellowship of his neighbors.</td>
</tr>
<tr>
<td>Loury (1977: 100)</td>
<td>…naturally occurring social relationships among persons which promote or assist the acquisition of skills and traits valued in the marketplace an asset which may be as significant as financial bequests in accounting for the maintenance of inequality of our society.</td>
</tr>
<tr>
<td>Bourdieu (1986: 247)</td>
<td>The aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition—or in other words, to membership in a group—which provides each of its members with the backing of the collectively-owned capital, a “credential” which entitles them to credit, in the various sense of the word.</td>
</tr>
<tr>
<td>Coleman (1988: 98)</td>
<td>[it] is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors—whether personal or corporate actors—within the structure. Like other forms of capital, social capital is productive, making possible the achievement of certain ends that in its absence would not be possible. Like physical capital and human capital, social capital is not completely fungible but may be specific to certain activities. A given form of social capital that is valuable in facilitating certain actions may be useless or even harmful for others.</td>
</tr>
<tr>
<td>Baker (1990: 619)</td>
<td>…a resource that actors derive from specific social structures and then use to pursue their interests; it is created by changes in the relationship among actors.</td>
</tr>
<tr>
<td>Schiff (1992: 161)</td>
<td>…the set of elements of the social structure that affects relations among people and are inputs or arguments of the production and/ or utility function.</td>
</tr>
<tr>
<td>Burt (1992: 9)</td>
<td>…friends, colleagues, and more general contacts through whom you receive opportunities to use your financial and human capital.</td>
</tr>
</tbody>
</table>
“The aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition—or in other words, to membership in a group—which provides each of its members with the backing of the collectively-owned capital, a ‘credential’ which entitles them to credit, in the various sense of the word.”
Within this definition, there are two concepts of prime interest. The first is the notion of credit that is extended to the meaning of capital. Bourdieu describes capital as having properties of something that can be accumulated and later traded for something else. He also posits that this capital can be transformed into other types of capital such as financial or physical forms of capital. A durable network of relationships also requires further explanation as subsequent theories of social capital are built on this concept. Bourdieu maintains that a durable network of relationships is not a given, rather it is something that is established through repeated social interactions and reinforced through obligations. Bourdieu describes durable obligations as feelings of gratitude, respect, and friendship. Coleman and Putnam later described trust and reciprocity as the elements that reinforce relationships.

James Coleman (1988) maintains that social capital can be defined by its function. He describes various scenarios of social relations ranging from the New York City wholesale diamond market (where a person’s reputation around trust and honesty is vital to the business model) to a sense of security felt in a Jerusalem community. While physical capital is tangible and can be described by the function that a machine may provide, social capital may be described by the function that social relationships provide. Where Bourdieu’s theory of social capital focused on social stratification and how the individual benefits from establishing and maintaining social connections, Coleman (1988) expanded this theory to examine the function of social capital, particularly how these functions benefitted social groups. Adam and Roncevic (2003) describe Bourdieu’s definition of social capital to focus on egocentric outcomes and Coleman’s definition focuses on sociocentric outcomes of social capital.

Robert Putnam focuses on the benefits of social capital extended outwards to the community and society. Putnam examined the differences in civic attitudes in geographic regions in Italy (1993) and in the United States (1995). Being a political scientist, he was interested in the notion of civic-attitude or civic-mindedness, such as what factors influence individuals to become engaged in democracy. This discussion is set in the context of perceived growing apathy in social or civic engagement. He hypothesized that social capital, the interaction of individuals, resulted from forming trust and reciprocity between individuals and is a factor in creating a civically minded society. In a perpetual cycle of social interaction and the establishment of trust, social networks and social norms are developed. The social networks form the facilitation of information and the social norms dictate the “attitudes and expected behaviors” of the community and region. Putnam concluded that dense social networks—an abundance of socially connected groups—improve the efficiency of society by facilitating coordinated collective action used in achieving community goals.

**A Dichotomy in Social Capital: Bonding vs. Bridging**

In general, researchers divide social capital into two broad categories: bridging and bonding. Bonding capital relates to ties which build greater community cohesion,
while bridging social capital includes ties that “bridge” organizations and communities (Emery and Flora 2006) (see Figure 2.1). Putnam uses slightly different terminology in discussing how social allegiances or relations are organized as horizontal and vertical. In comparing Northern Italy with Southern Italy during the governmental reform of 1976–1977 Putnam notes that governmental reform was more successful in the North due to the greater sense of civic responsibility felt in Northern Italy. Putnam argues that a community or regional sense of civic responsibility is built from an abundance of horizontal community relations. The horizontal relations that Putnam describes are analogous to the bonding relations described by Emery and Flora (2006). Bonding capital occurs as social relations between members of a community that belong to a common social group, religious denomination, or sporting team; Putnam describes this social allegiance as horizontal relations. Vertical bonds are built by connecting social groups and organizations with hierarchal groups such as governing agencies. The vertical bonds described by Putnam are much like the bridging described by Emery and Flora (2006). Regardless of the terminology used to describe social allegiances community members volunteering their time to meet socially results in the development of cooperation, collaboration, mutual assistance, and trust. These virtues become community resources which can be used in collective action. As Besser and Miller (and others before, e.g., Durlauf 1999) note in their chapter, one type of capital may be expanded to the exclusion of the other i.e. an increase in bonding capital may lead to a decrease in bridging capital.

It should be noted that much of the literature on social capital describes how social relations are used to develop resources that are beneficial for the group, community, or region. There is a “dark” side to social capital, however, that demonstrates the negative outcomes associated with developing social relations. There are examples of social relations that are used to reinforce behaviors that are not beneficial to society such as gangs, and organized crime. These social groups are examples of individuals engaging socially, building trust and reciprocity, building and strengthening bonding (or vertical ties), and perhaps establishing bridging ties (or horizontal ties).

Social Capital and Collective Action

Another stream of research which flows into the development of social capital theory and research is Mancur Olson’s theory of collective action. Olson (1965) explains how small groups of people efficiently further the common interests of the group. He provides a cost-benefit economic analysis and describes the social and psychological incentives for individuals to contribute to the achievement of a group interest. Examples of group theory provided in Olson’s work include the processes by which labor, trade, and union groups further group interests. Olson related and applied group theory to the problems that arise from public goods and common property goods (e.g., Hardin 1968). Institutions, groups, and social norms have a tremendous influence in the production of quasi-public and or public goods.
Environmental resources, such as clean air, water, timber, and environmental regulating services such as soil retention and flood retention are public goods; the production of these goods can be regulated through social capital and collective action. Social capital can inspire collective action around common goals (Abers 1998; Agnitsch et al. 2006) and lead to the dissemination of information about sustainability (Pretty and Smith 2004; Tsai 2008). Insight can also be taken from studies that have examined social capital and the natural environment (Pretty and Smith 2004) and social capital and collective action (Abers 1998; Agnitsch et al. 2006). For example, when it comes to the conservation of biodiversity, social capital can be used to disseminate new information on how to preserve natural resources through the use of networks and levels of trust among those in the networks. Pretty (2003) has shown that social capital can be a catalyst for collaboration around natural resource management and collective action that promotes sustainable development. He states “[w]here social capital is high in formalized groups, people have the confidence to invest in collective activities, knowing that others will do so too. Some 0.4 to 0.5 million groups have been established since the early 1990s for watershed, forest, irrigation, pest, wildlife, fishery, and microfinance management” (2003: 1912).

Elinor Ostrom (1998) discusses the empirical evidence and theoretical developments across disciplines focused on explaining how individuals and groups overcome social dilemmas. Ostrom’s research provides a theoretical framework from which empirical analyses, such as Putnam’s analyses, can examine relationships between collective action and an array of public goods (such as ecosystem services). Ostrom describes the structural variables that result in an increase of net benefits due to cooperation amongst people. These structural variables were later expanded upon by Rudd (2000) who combined elements of a social capital framework with rational choice and group theory. Rudd examined how social capital theory and
group theory connect individual-level behavioral choices with collective decision making within an ecological framework.

Rudd (2000) observed that individuals in a community gather information by observing phenomena or copying behaviors demonstrated by other individuals. Collier (1998) described the costs associated with transferring the information gathered through social relations to net benefits gained by the community. For example, in a rural farming community neighboring farmers may discuss and demonstrate a cultivation method and ‘pool’ this new information into a community resource such as a grange. Other examples could be the demonstration of using internet resources, leading to the demonstrated behaviors being pooled to create community resources such as a public Wi-Fi and infrastructure improvements in public areas across the community.

What makes social capital “the glue” that holds the community together, as described by Emery and Flora (2006), is the self-perpetuating cycle that reinforces trust, reciprocity, social norms, and deference across communities. As individuals interact and share information, trust is generated. Through repeated interaction a reputation is developed and expectations of reciprocity of trust and acceptable behaviors (social norms) are developed. Coordination and facilitation of information is increased with deference, the acknowledgment of expertise and experience. The structural variables of social capital (Collier 1998) relate to Ostrom’s (1998) theory of collective action by reducing the cost of facilitating information transfer and increasing community resources such as crops or infrastructure improvements.

Rudd’s (2000) example describes the process by which constructs of social capital relate to the theory of collective action. The theories on social capital identify the components of social capital and how social capital developed in small groups of individuals extend to the larger community creating resources for all community members and the region. Empirical analyses seek to quantify these components of social capital to examine the effect that social capital has on a number of different socio-economic outcomes, environmental outcomes, and in governance or regulating quasi-public goods. One of the challenges seen throughout the social capital empirical studies is developing measures of social capital that are consistent within a discipline, much less across disciplines. It may be that the best measures of social capital are driven by both research question(s) and scope. In the following section we discuss the development of social capital measures.

Taking Social Capital into the Field: Quantifying Social Capital Indicators

Looking at the different empirical analyses that examine social capital across academic disciplines it is interesting to note the differences in research focus, from impacts on social capital formation from large-box retailer location, to development of collective action and generalized trust, and on to confidence in governmental institutions. It is also interesting to note that while all of these studies
have examined social capital, the measures of social capital differ across the studies and particularly across academic disciplines.

This brings light to some of the important questions asked in research on social capital: How are the constructs of social capital quantified? Are there “best” measures of social capital? If there are “best” measures of social capital do these measures differ between scope and scale of research? Empirical research that examines social capital is continually debating these questions both within and across disciplines. As researchers and practitioners continue to examine these questions more closely there appears to be some commonality in moving from social capital theory to empirical analyses. The following sections discuss some of the progress researchers have made towards quantifying social capital and analyzing the role of social capital in many different forums.

**Social Networks and Social Infrastructure**

The three main theorists on social capital offer both different definitions of social capital and theoretical frameworks on which to base empirical research. Coleman and Putnam have a “macro” view of social capital as they examined benefits of social capital to the community and society, while Bourdieu focused on the benefits that an individual received from using his or her social network. There are common elements among these three theorists. Each theorist includes three similar components in their theories of social capital: a social network, trust, and social norms.

Social networks reinforce the social norms and sense of trust and reciprocity that Bourdieu, Coleman, and Putnam regard as components of social capital. For individuals to engage in social interactions, become members in groups and associations, and participate in collective action, a sense of trust is required as well as the acknowledgment that trust will be reciprocated. It is only after trust is developed and reciprocated that individuals will invest in social relationships to be used for either individual or collective gains. Foley and Edwards (1999) specify that trust and reciprocity are developed between individuals as they interact but trust and reciprocity are also a function of the social fabric of the community, the social infrastructure. They describe that the barber, police officers, neighborhood churches, PTA, realtor agencies, and newspaper all convey the social norms of the neighborhood. Coleman (1988) describes an example of a mother that moves her family from Detroit to Jerusalem because in Jerusalem she has a greater sense of security where she feels comfortable allowing her children to walk to the park, school or the store without her supervision. The social norms in Jerusalem differ from Detroit; in Jerusalem, children’s safety is a responsibility of the community as well as individual parents. The concept of social infrastructure and social norms are also seen in Bourdieu’s (1986) description of institutional capital and cultural capital. Both physical and organizational structures such as barbershops, schools, and business organizations form Bourdieu’s institutional capital or Foley and Edwards’s social infrastructure. The physical and organizational structures create social norms, which dictate behavior, which Bourdieu refers as cultural capital.
Foley and Edwards (1999) describe social infrastructure as organizations, business establishments, public servants, and community members. Describing the process of building social networks and social infrastructure leading to outcomes of trust, reciprocity, and cooperation identifies the constructs of social capital, although empirical researchers are conflicted on how to treat these constructs of social capital. If the social network provides benefits to individuals, groups, and communities, what are the sources to the formation of the social networks? All three theorists, Bourdieu, Coleman, and Putnam, identify that trust amongst individuals is an essential component to establishing a social network and the continual interaction of members reinforces social norms. Yet, which comes first, the social network or the sense of trust? Some of the researchers in the current text also puzzle over the direction of causality in their empirical work.

Answers to these questions may be addressed through the empirical measurement of social capital. If trust and social norms are considered products or benefits of social capital then the empirical research is not concerned with quantifying trust but should focus on the structure of the social networks and social infrastructure as the source of social capital (Woolcock 2001). The assumption is that trust is embedded in the social network. Woolcock (2001) draws a parallel with human capital by describing inputs to education as measured by a state’s contributions to the education system, for example, as sources of human capital. In contrast Woolcock describes test scores as a measure that indicates outcomes of human capital. Therefore, in Woolcock’s argument research that examines social capital should quantify the investments in social capital, the existence and density of social networks, rather than the perceived level of trust—which is an outcome of social capital. The density of social networks defines the social infrastructure and empirical researchers have specified these investments in social capital to include membership organizations, political organizations, business organizations, recreation and leisure groups and organizations, religious organizations, bars and small sit down restaurants, local grocery stores, fitness clubs, post offices, and coffee shops (Rupasingha, Goetz, and Freshwater 2006; Tolbert, Lyson, Irwin 1988; Oldenburg 1999). Putnam (1993; 1995) adds civic mindedness as a component of social capital. In empirical works the civic mindedness component of social capital is operationalized as the percentage of voting age residents that voted in the most recent election (Woolcock 2001).

Woolcock’s (2001) assessment of empirical measurement of social capital is not without criticism. William Rohe (2004) describes social capital as a meta-construct. Social capital links civic engagement, interpersonal trust, and effective collective action. Rohe criticizes research that measures only “organizational capital” as missing several components of social capital. Here the argument becomes that no matter how many organizations a region or community has it does not guarantee that individuals are participating in and among these organizations. Therefore, it becomes imperative for empirical analyses to define both the research question and the scale of the research. Some empirical analyses are focused on asking questions that pertain to how or why individuals in a community are drawn to volunteer
their time to participate in social organizations (see Chapters 6 and 7) while other research has a macro focus on the relationships between social capital and a host of outcomes such as environmental quality, economic resilience, migration, and educational attainment. This conundrum will become evident in some of the studies in this book which of necessity use secondary or proxy data for social capital measurement.

Regarding the use of proxies to capture the effects of social capital on various dependent variables, Oldenburg (1989) emphasizes the benefits to communities of strong third places, which are easily measurable and quantified. His work, *The Great Good Place*, defines third places not as work or home but rather community infrastructure and local businesses that provide areas for individuals to gather (e.g., bars, cafes, coffee shops, barber shops). From Paris’s street cafes to Berlin’s beer gardens, Oldenburg shows that European countries have a rich history of informal community space in which individuals can interact and share a sense of belonging. He argues that individuals who have access to and utilize such spaces enjoy companionship, friendship, and other mental health benefits. In contrast, America’s suburban neighborhoods lack such spaces and thus the benefits they offer (see Leyden and Goldberg, Chapter 3). The policy implications of this comparison are unclear.

**Quantifying Social Capital: Empirical Examples**

In order to build social capital measures into theoretical and empirical models, means of quantifying social capital are necessary. The Saguaro Seminar (2010), an initiative of Putnam at Harvard, gives three of the most significant reasons for measuring social capital. Making an often-intangible concept more tangible is one of the reasons. By attempting to measure social capital, scholars are developing language and metrics with which to discuss and compare the activities that may build social capital. Another reason for measurement has to do with the performance-driven nature of today’s world. By measuring social capital investments, more social capital can be “created” through community building projects that demonstrate results. The third reason for measurement importance is that of learning how to build more social capital. There are many human interactions that create social capital, so measuring it will allow researchers to determine which interactions are the most effective.

Durlauf (2002: 477), while acknowledging the inherent potential in social capital research, is somewhat skeptical of the measurement efforts to date, worrying that “the concept [social capital] itself has proven to be too vague to permit analysis whose clarity and precision matches the standards of the field.” He presents a variety of critiques of past studies, and suggests that researchers look to the social psychology literature for empirical research.

Methods for measuring social capital are evolving as more researchers contribute to the field. Instruments from the social sciences disciplines have been applied to the measurement of social capital, including surveys, interviews, and focus groups.
these methods both quantitative and qualitative information are elicited. Putnam’s Saguaro Seminar has worked diligently since the publication of *Bowling Alone* to articulate ways to measure social capital. As a follow-up to his book, Putman and his researchers administered the Social Capital Benchmark survey, which surveyed approximately 30,000 people, in 40 communities across 29 states in America. The extensive phone survey asked individual respondents questions about the 11 facets of social capital, which cover trust (social and inter-racial), diversity of friendships, political participation (conventional and protest), civic leadership and associational involvement, informal socializing, giving and volunteering, faith-based engagement, and equality of civic engagement across the community. In 2006 the Social Capital Community Survey was administered as a follow-up to the 2000 survey by returning to 11 of the original 40 communities and adding 11 new ones.

The World Bank has carried out extensive work on developing methods and indices for measuring social capital. Specifically, the Social Capital Thematic Group within the World Bank has two tools for assessing social capital: Social Capital Assessment Tool (SOCAT) and the Social Capital Integrated Questionnaire (SOCAPIQ). SOCAT is an instrument designed to collect information about social capital at the household and community organizational levels. It is both a quantitative and qualitative tool and includes a community profile and asset mapping, a community questionnaire, a household questionnaire, an organizational interview guide, and an organizational profile score sheet. The Integrated Questionnaire for the Measurement of Social Capital (SOCAPIQ) is a tool that aims to generate quantitative data on various dimensions of social capital. The tool functions as part of a larger household survey (such as the Living Standards Measurement Survey or a household income/expenditure survey). SOCAPIQ considers six dimensions of social capital: groups and networks; trust and solidarity; collective action and cooperation; information and communication; social cohesion and inclusion; empowerment and political action. These issues of measurement of social capital indicators arise in each of the studies presented in the subsequent chapters of this book.

**Summary**

As noted in the introductory comments to this chapter a comprehensive review of the social capital literature from an interdisciplinary perspective would be a massive undertaking and beyond the scope of this overview. Rather it is our hope that this chapter provides both a useful discussion of the “major” works in the literature and an overview of approaches and problems in applied social capital research. While most authors have tended to emphasize one element of social capital to either draw attention to the issue and/or flesh out specific nuances there are significant overlaps in the different notions of social capital.

For example, Pennington and Rydin (2000: 234) summarize the multitude of social capital definitions with a list of key aspects of the concept:
• level of trust
• extent of networks
• density of relationships with networks
• knowledge of relationships
• obligations and expectations about relationships, leading to reciprocity
• forms of local knowledge
• operating norms
• existence and use of sanctions to punish free-riding

Narayan and Cassidy (2000: 65) suggest that the three determinants of social capital, community solidarity, empowerment and sense of belonging, have eight different dimensions:

• membership in informal groups, and networks within particular characteristics
• everyday sociability
• community participation and neighborhood connections
• family connections
• trust and fairness norms
• crime and safety
• subjective well-being
• political engagement

In the end much of the academic decision now focuses on trying to better understand the nuances of different elements of social capital. But are we left as Woolcock (2001: 69) suggests “…social capital [has] become all things to all people, and hence nothing to anyone…”? We would disagree and suggest that as these nuances are debated we come to a better understanding of what social capital means and does not mean in a community and economic development setting.

Notes
1 See www.hks.harvard.edu/programs/saguaro
2 See http://web.worldbank.org

References


In this chapter we discuss how the way we organize our communities affects our connections to each other and to the places we live. We make the case that a person’s willingness to get involved in their community, as well as the level in which they feel socially connected to others in their community, is about far more than individual choices. It is also about our environments, or more specifically the built environments of the communities we plan and maintain as human beings.

In the first section of this chapter we define the built environment and introduce important characteristics that can differentiate communities from each other. More specifically, we compare traditional-style settlements to those characterized as suburban sprawl. Traditional-style communities incorporate regularly visited destinations like housing, shops, restaurants, schools, and places of worship into a single geographic area affording people the opportunity to walk, cycle, or take public transportation to get where they are going. This form of development is considered “traditional” given its predominance prior to the second half of the 20th century. Interestingly, the “traditional” style is sometimes referred to as being part of the New Urbanism movement in America. New Urbanists include a growing number of academics, developers, planners, and policy-makers who think American communities should revert back to the traditional style of development that has remained very much in fashion across most European cities. Suburban sprawl, on the other hand, isolates regularly visited destinations from each other into different geographical zones that people mostly access by using a privately owned automobile. As car-ownership proliferated in America, so too did this model of development.

Our second section describes social capital and highlights the changing social patterns that began during the second half of the 20th Century. This social capital literature offers important clues to suggest the possibility that aspects of the built environment in communities can affect individual and community-level social capital. The third section is the nucleus of our chapter, where we examine the
influence of the built environment of communities on social capital through a review of recently published studies. Interestingly the findings are mixed, but mostly supportive of the idea that a community’s built environment does impact how connected people feel towards others in their communities and how actively they participate in community affairs. Our observations about public policy and future research are offered in a concluding section.

Defining the Built Environment

Communities can be described along dimensions ranging from their size, history, economic conditions, climate, governance, and surrounding natural environment. They also vary based on what urban planners refer to as the built environment. The built environment is a function of how land is modified (and re-modified) by humans. Museums and concert halls, shops and supermarkets, schools and religious institutions, parks and sports facilities, movie theaters and restaurants, and roads and sidewalks are all elements of the built environment. The layout and size and closeness of the buildings and roads are important aspects of the built environment, as are transportation options and the availability of amenities to residents and visitors. Places differ aesthetically as well; these differences in the character and beauty of communities are often also influenced by the decisions of people and government.

As unique as the history and climate, no two communities have identical built environments. Common characteristics, however, emerge allowing for important distinctions to be expressed. One such distinction is whether a community has a “mixed-use” or “single-use” development pattern. Mixed-use communities integrate a diversity of housing types (e.g., single family homes, apartments, and townhomes), shops, restaurants, pubs, businesses, places of worship, parks, schools, and public buildings within the same geographic area of a city. In mixed-use settlements it is common for buildings to serve more than one primary purpose. Apartments can exist above retail spaces. Lower-end rental units can exist on the same street as higher-end single-family homes and corner stores. Given its high-density, the space between buildings is negligible, but designated park areas, again within the same geographic area of a city, offer green spaces and ventilation.

Single-use development patterns in communities are wholly different. The defining characteristic is that amenities are segregated from each other into different geographic areas of a city or into zones. Single-use development clusters buildings together that have similar functions to each other. Even housing options are separated from each other into different geographic areas based on type and value. It is a low-density form of urban or suburban design, where public parks and courtyards are deemphasized in favor of private back yards.

Transportation infrastructure is typically related to whether a community is characterized as mixed-use or single-use. Because it is a higher density style of development, transportation in mixed-use communities can be “multimodal” or “walkable” or “pedestrian-oriented.” Walking and biking are practical forms of transport when daily needs can be attained or met within a common geographic
area at short distances. Therefore, mixed-use places typically foster accessible and safe sidewalks and an active sidewalk life (Jacobs 1961). Public transportation is also more feasible and a likely option. The mere existence of sidewalks alone, however, does not guarantee the walkability of a community. It is when they are safe, interesting, and connected to accessible destinations that sidewalks make walking a viable primary form of transportation (D’Arcy 2013).

Single-use development, on the other hand, does not typically afford as many transportation alternatives. Due to the low-density and physical separation of amenities and destinations, walking and biking are less practical for getting around. Distances are often too great and the speed of traffic makes walking and cycling uncomfortable and dangerous. Public transit options are also typically limited in single-use communities. This is because bus and rail systems cannot operate with as much efficiency or cost-effectiveness when low-density settlement patterns are dispersed across the landscape (Cervero 1998). There are just too few people and they are too spread out. Therefore, people are dependent upon a private automobile in order to gain access to society and to attain their daily needs, including groceries. In many cases residents of such places are “car-dependent.” They need a car or to be driven in one to be part of their community. Cars, of course, still exist in mixed-use communities, but residents and visitors are not dependent upon them. Sidewalks are deemphasized in car-dependent communities relative to the construction and maintenance of roads and parking lots.

In the United States, communities that are mixed-use with multimodal transportation options are typically found in traditional downtowns and the neighborhoods that immediately surround them. Following a tradition that dates back to the earliest settlements of human civilization, many such communities were built on a grid-like pattern (Brown et al. 2008). Prominent examples include many of the inner ring suburbs of Chicago, the historical downtown district of Charleston, South Carolina, and Upper East Side of New York City. Many older University towns are also mixed-use and pedestrian-oriented. It is a traditional style of development that in the modern era is consistent with images of old European cities or “Main Street America.” In this chapter, we refer to these settlements as the “traditional” style.

The single-use, car dependent community is a newer form of development that became the dominant model during the post-World War II era, especially with the rise of suburbia. The infrastructure of these communities was built in response to the proliferation of the private car, the expansion of single-family home ownership, and a favorable public policy environment. The car allowed people to develop land that had been primarily untouched or used for farming. Consistent with images of the American suburb, single-use, car-dependent development is recognizable by housing subdivisions, collector roads, strip malls, large parking lots, and big-box retail chains.

The classifications made within this section allow important distinctions to be made. Categorizing the built environment, however, risks over-generalizations. Some places take on characteristics of mixed-use development with the layout of the buildings, but are not pedestrian-oriented due to concerns about crime or a lack
other characteristics. Other places take on characteristics of single-use development patterns
in that single family homes are dispersed into subdivisions, but public transit extends
to a nearby depot. Rural places by their nature are low-density, but many offer places
like general stores and cafes for people to gather and walking trails or shared trans-
portation options to overcome the distance for people without access to a car.
Despite the nuance, people are typically able to identify which type of built environ-
ment best describes their neighborhood when given an opportunity.

Researchers have found that these differences are not without consequence. Aspects of the built environment have been found to predict outcomes as import-
ant as air and water quality, physical activity and health, car-accidents, and mental
illness (e.g., Frumkin, Frank, and Jackson 2004). Whether (and how) the built
environment affects social capital is the subject of this chapter. The following
section offers the context to this important question.

**Social Capital: Outcomes and Trends**

In his landmark book *Bowling Alone*, political scientist Robert Putnam most prom-
minently characterized the concept of social capital as the trust that develops in a
society through repeated (and often impersonal) contacts. Because the same two
strangers in a community might continue to encounter each other over time, there
is a personal incentive for each of them to behave in a way that meets social
expectations. If that incentive is shared by all people in a community, then it fosters
an environment of reciprocity and shared responsibility for the well-being of each
other and the well-being of the community.

Social capital thrives in places where people are actively involved in community
life. Active participation in political and civic organizations serves as a mechanism
to build interpersonal connectivity and it inspires a shared desire to maintain and
improve the broader community. Volunteer work and participation in religious
groups and organizations serve a similar end. Even gathering with friends and
neighbours is important for both individuals and the well-being of the community.

Putnam’s research helped promote a cross-disciplinary research agenda that
provides overwhelming evidence for the importance of social capital. For example,
levels of social capital have been linked directly to academic performance (Leana
and Pil 2006), high school drop rate rates (Croninger and Lee 2001), homicide rates
(Rosenfeld, Messner, and Baumer 2001), feeling safe from crime (Kruger et al.
2007), using personal checks rather than cash for economic transactions (Guiso,
Sapienza, and Zingales 2004), macro-level economic growth (Neira, Vázquez, and
Portela 2009), adolescent smoking and obesity (Evans and Kutch 2011), individ-
ual psychological distress and depressive symptoms (Song 2011; Haines, Beggs, and
Hurlbert 2011), suicide rates (Helliwell 2007), and even individual life-satisfaction
(Helliwell and Putnam 2004). And there are additional findings and comprehensive
reviews (e.g., Sampson et al. 2002). Broad evidence supports Putnam’s assertion that
“social capital makes us smarter, healthier, safer, richer, and better able to govern a
just and stable democracy” (Putnam 2000: 290).
Disturbingly, almost all social capital indicators in the United States simultaneously and dramatically declined during the second half of the 20th century. Using a series of nationally representative data sets, Putnam observed that levels of participation in political activities such as volunteering for political campaigns, attending political rallies or speeches, and attendance to meetings of town or school affairs decreased significantly. Although we saw increases in voter turnout during the 2008 and 2012 presidential elections, it remains to be seen whether it will translate into a broad reversal of political activity trends described by Putnam.

A similar pattern was found in relation to community life. Memberships to civic organizations remained consistent over the latter half of the 20th century; however, there were dramatic reductions in meeting attendance and service as an officer or committee member. For many Americans, group membership became limited to writing a check and putting it in the mail. The connections people have with religious groups and institutions also changed. Church memberships and regular attendance to service declined, as did participation in Bible study groups and socials. Americans even spent less time being social with friends and family. A cause (or effect) of this societal disengagement is the growing rate of the percentage of people who do not agree that people are trustworthy (Putnam 2000). Again, trust is the essence of social capital.

Putnam’s findings are troublesome and shocking. The tradition of America as a nation of joiners has long been lauded by domestic and foreign observers alike. Alexis de Tocqueville famously wrote:

“Americans of all ages, all conditions, and all dispositions constantly form associations. They have not only commercial and manufacturing companies, in which all take part, but associations of a thousand other kinds, religious, moral, serious, futile, general or restricted, enormous or diminutive. The Americans make associations to give entertainments, to found seminaries, to build inns, to construct churches, to diffuse books, to send missionaries to the antipodes; in this manner they found hospitals, prisons, and schools. If it is proposed to inculcate some truth or to foster some feeling by the encouragement of a great example, they form a society.”

(de Tocqueville 1840: 106)

de Tocqueville’s observations offer a stark contrast to the social patterns Putnam described. Modern Americans are not nearly as social with each other and are less connected to their communities than earlier generations. Society changed. Oddly enough, modern technologies have allowed us to be more connected to each other than ever before. However, it is not clear whether the interpersonal connections fostered through social media participation are an adequate replacement for regular face to face contact.

It is unlikely that a singular cause for the broad disengagement from public life exists. Putnam posits that increased pressures of time and money on families, long commutes, television and computer usage, and generational change are all
contributing factors. But, these relationships are left for others to test. It is within this context that researchers have tried to identify other societal changes that may have caused the declining rates of social capital. Understanding these relationships is paramount. Identifying factors that can encourage or hinder social capital will offer the first steps to a strategy on how to combat its decline in America. In the next section of this chapter we explore the relationship between changes in the built environment and changes in social capital, as one such possible culprit.

The Built Environment and Social Capital

The suburbanization of the United States is well-documented. What is underappreciated, however, is just how quickly it happened and the extent to which daily life actually changed as a result. Using data from the Census Bureau, researchers found that about 15 percent of Americans lived in suburbs in 1940 (Hobbs and Stoops 2002). That figure doubled in just 20 years. By the year 2000, half of the population was living in suburbia.

The Federal Highway Administration offers some enlightening statistics that demonstrate significant changes to driving habits that accompanied suburbanization. In 1945, the average amount of travel in a vehicle per person in America was about 1,800 miles (Federal Highway Administration 2013). By 1980, that figure leapt to 6,700 miles. In the mid-2000s, the average travel per year in a vehicle crested at 10,000 miles.

The expansion and connectivity of the interstate highway system enabled longer commutes, making it less necessary to live near work. Using data from the American Community Survey, it was found that in 2009 an astounding 75 percent of the nation’s workers drove alone to work in a private car, truck or van (McKenzie and Rapino 2011). An additional 10 percent also travelled in to work in a private vehicle in a carpool. The average commute time is about 25 minutes and a meager 15 percent of the American workforce walk to work or take public transit.

Although there is some debate on the topic (Oliver 2001) there is at least circumstantial evidence to suggest that these changing development patterns are indeed partially responsible for the decline of social capital. The suburbanization of America coincided with the broad disengagement from civil society. During the exact same time that rates of public trust and volunteerism and participation in civic and social life declined, the dominance of the traditional mixed-use, pedestrian-oriented neighborhood gave way to the single-use, car-dependent suburban subdivision. In some respects the American dream had been redefined, but was there a cost? Are these changes responsible for the reduction of social capital? Understanding whether or not (or how) the built environment influences social capital is critical because it can lead to insights into whether social capital can be enhanced as future land-use decisions are made.

Although an important question, the role of the built environment in understanding social capital has received surprisingly little attention from researchers. Some have isolated commuting to work as a proxy measure for the built environ-
ment. The assumption, likely a reasonable one, is made that longer commutes by car are associated with living in single-use, car-dependent suburban community. Putnam offers that “the evidence suggests that each additional ten minutes in daily commuting time cuts involvement in community affairs by 10 percent—fewer public meetings attended, fewer committees chaired, fewer petitions signed, fewer church services attended, less volunteering, and so on” (Putnam 2000: 213).

The inverse relationship between commute time and social capital is given empirical strength by research that examined data from Atlanta, Boston, and Los Angeles. It was found that the proportion of residents in a community that drove to and from work has “a strong and statistically significant relationship to whether or not an individual has a neighborhood social tie. Every 1 percent increase in the proportion of individuals driving to work is associated with a 73 percent decrease in the odds of an individual having a neighborhood social tie” (Freeman 74, emphasis added).

Other studies have reached similar conclusions (e.g., Besser et al. 2008). More recently, Rahn (2009) examined 49 different communities across the country and confirmed that long commutes have a negative impact on important social capital indicators. In places where higher percentages of residents commute over 45 minutes by car, there is a statistically significant decline in public trust (Rahn 2009). Most remarkable is that trust was measured community-wide rather than individually. This indicates that living in a community where long commutes are prominent can harm trust, even if an individual is not one of the commuters. Why attend a public meeting or community group if no one else is there?

It is worth noting that these studies only look at commuting to work. In places that do not emphasize or enable active transport (or public transport), long drives or long waits in traffic are a normal part of simply shopping or running errands such as taking children to activities or school. These trips too may decrease the opportunity time people have to get involved in their communities or with others.

Beyond limiting measurements of the built environment to commuting, some researchers have taken a more comprehensive approach (e.g., Leyden 2003; Wood et al. 2008; Rogers et al. 2011; Carlson et al. 2012; Rogers, Gardner, and Carlson 2013). Some use survey research to assess peoples’ perceptions of the built environment in their community. Others use macro-level data to apply a built environment assessment for different communities. While the approaches differ, these studies are similar in that they focus on the entire urban form of communities or neighborhoods, rather than the more limiting measurement of commuting.

One prominent study compared several important indicators of social capital among residents living in traditional mixed-use, pedestrian-oriented communities with those living in suburban style single-use, car-dependent developments. It was found that being able to walk to more destinations (e.g., recreation center, church, pharmacy, work, and school) from the places people live significantly enhances social capital (Leyden 2003). This is true of indicators ranging from feeling others can be trusted to knowing neighbors to spending time in the company of friends and family.
Some studies that have tested the relationship between walkability and social capital indicators found conflicting results (e.g., du Toit et al. 2007; Hanibuchi et al. 2012). In the du Toit et al. (2007) study, the built environment is measured by the levels of density among residential buildings, the interconnectedness of streets, the extent of the mixture of commercial and residential proprieties, and the density of retail spaces. Creating an index of these measurements, the researchers did not find the built environment to have a significant relationship with several indicators of social capital including how often people interacted with their neighbours, how well people got along with neighbours, and whether people were willing to intervene in situations for the good of the neighborhood.

Reflecting the complexity of the relationship, one study found that different aspects of the built environment can either promote or hinder the development of social capital (Wood et al. 2008). The built environment was measured by the physical distance between peoples’ homes and different amenities such as shops, schools, parks, and bus stops. A second measurement created a neighborhood “upkeep” score by using a composite variable that accounted for how well (or poorly) gardens and streets were maintained, as well as general cleanliness. The study found that social capital was positively influenced by upkeep. It also found, however, that social capital rates worsened as the number of destinations in walking distance grew. Interestingly, both major built environment variables were assigned to study participants’ based on their home address, rather by their actual level of walking or biking for transport. Social capital scores, on the other hand, were determined using surveys, meaning that people answered a series of questions about levels of trust they feel towards others, their personal level of community involvement, whether they perceived their neighbours as friendly, along with several other important indicators.

An important distinction between these studies merits some attention. Leyden’s study used a subjective measurement of the built environment, allowing each study participant to self-declare the extent to which their neighborhood was walkable. The studies by the du Toit and Wood teams employed objective data sets including heavy use of the program GIS (geographical information system). Objective measures are extremely useful, no doubt, but some question has to be raised about their validity for actual neighborhood walkability. The actual street or sidewalk level experiences are left unaccounted for when limiting measurements to densities of buildings and connectivity. For example, if a street is overcome with gangs, or a sidewalk is built along steep hills or runs parallel to fast moving cars without a protective barrier, or if there are large sections of unrepaired broken concrete, then it is less walkable regardless of density. Subjective perceptions of walkability account for these important features of the built environment. Most likely, both objective measures and subjective perceptions are of relevance.

One strategy that has been used to explore the objective and subjective influences of the built environment is to pre-select neighborhoods that share similar street-level experiences. A research team from Texas A&M University and Silpakorn University in Bangkok, Thailand compared self-reported social capital
between residents in four different suburban neighborhoods of the same city (Rogers and Sukolratnametee 2009: 328). Although one seemingly fits the description more accurately, two of the four neighborhoods were built with traditional design elements including a grid-like street pattern, low-density, and front porches offering “eyes on the street.” The other two neighborhoods were built with more typical suburban “automobile centered designs including disconnected, curvilinear street patterns with long blocks, houses set back from the street, and highly visible garages.” Beyond these differences, the neighborhoods were similar in price-range, age, and region of the city allowing the built environment to be an isolated variable. The study found that social capital was more prominent among those living in the more traditional-style walkable neighborhoods. In particular, a composite measurement for “supportive acts of neighboring” like stopping by for company, talking about a personal crisis, and borrowing cooking ingredients was significantly higher. Also higher in the traditional-style neighborhoods was a composite measurement for “neighborhood attachment and social ties” that included how often they say hello to their neighbors and provide help when needed. Both findings accounted for several competing explanations of the differences. Interestingly, study participants who reported “needing a car to get around in the neighborhood” had depressed levels of social capital, regardless of the neighborhood in which they lived.

The influence of the built environment on social capital is particularly pronounced for people who do not have the means or ability to drive a car. In a highly influential book called “Suburban Nation”, architect and urban planner Andres Duany and his colleagues reasoned that seniors, among other groups, are particularly disadvantaged by single-use, car-dependent developments (Duany, Plater-Zyberk, and Speck 2000). This is because of their overreliance on the willingness of others to take them shopping or to engage in social activities if they are unable or uncomfortable with driving. It could be argued, of course, that seniors are most in need of feeling connected to others and stand to particularly benefit from active participation in society. Communities also benefit from their wisdom and time when they participate and volunteer.

In a study of older adults, it was found that living within a five minute walk (as determined by the study participant) to places like grocery stores, banks, community centers, restaurants, and religious institutions can significantly improve social capital (Richard et al. 2009). The more places seniors could walk to from their homes, the more likely they were to be socially active. Social participation used a composite score of activities ranging from volunteering to visiting with friends and family to taking classes and attending leisure activities. Perhaps most remarkable is that these findings held even when controlling for factors that might inhibit social participation, like health and vitality.

Ten years ago, Howard Frumkin and his colleagues explored the effects of suburban development on an array of issues. As part of their broader study, a section on social capital concluded:
“Despite some inconsistencies, this body of literature suggests that the way a neighborhood is built can have a major impact on the social capital of the people who live there. In particular, walkability, public places, and mixed use are associated with improvements in social capital.”

(Frumkin, Frank, and Jackson 2004: 180)

In some respects, this is as true now as it was then. Taken collectively, this section offers a body of research that suggests that car-dependent suburbanization was indeed a partial culprit for the declines in social capital in America. The findings are mixed and concerns have been expressed that studies that determine the impact of the built environment on social connectedness encounter problems of self-selection bias (Talen and Koschinsky 2013). However, there is general support for the notion that neighborhood design and the walkability of communities does impact levels of social capital. Communities that are pedestrian-oriented and offer a range of amenities allowing people to meet their daily needs within a single geographic area of the city foster a sense of trust and participation that Putnam and others have found to be important to people and their communities.

The relationship between the built urban form and social capital cries out for further, systematic empirical investigation (Oliver 2002). If a community’s built environment affects social capital and social capital affects so many other outcomes, then this is a relationship (complete with its nuance) that must be better understood. The concluding section offers some direction for researchers and community leaders.

What Next?

In this chapter we make the point that social capital matters to people and their communities. Levels of social capital appear to be affected by the nature of the built environment. How much the built environment matters in comparison to other factors is not certain, however.

This much is clear: society is better when people trust and feel connected to each other, actively participate in their communities’ social and civic institutions, and spend time with friends and neighbors. Researchers have found social capital to directly and positively influence both individuals (e.g., health) and the common good (e.g., crime). It is for this reason that the decline of social capital—and how to restore it—is so important to understand. In this chapter we have made the point that the built environment—the way our communities are planned, built and maintained—matters for levels of social capital. Single-use, car-dependent suburban communities have come to dominate American settlement patterns in the modern era; there may very well be profound unintended consequences accompanying this break from tradition.

There are significant public policy implications to this line of thinking and research. Despite growing awareness and empirical support for the notion that modern settlement patterns in America are partially responsible for declines in
social capital (along with other important outcomes), population growth is still largely being accommodated with more roads and more suburban subdivisions. This continuing trend is not necessarily caused by market forces or public preferences. The built environment of a community is the result of policy decisions and planning laws made by political and economic actors. Although likely well-intended, there are economic and political incentives to continue to create and maintain low-density communities that rely upon the private automobile as the primary mode of transportation. This said, change is definitely afoot; we are beginning to see the consequences of suburban sprawl more clearly and suggest remedies (e.g., Dunham-Jones and Williamson 2011; Jackson et al. 2013; and Benfield 2014). At a minimum, policy-makers are beginning to realize that there are health and environmental consequences to car-dependent development.

In concluding it is worth noting that there are emerging avenues of inquiry related to the concepts of the built environment and social capital that we have engaged with our colleagues. For example, we have found empirical evidence that the built environment of cities and city neighborhoods not only influences social capital (thus supporting the research above), but it also can impact the individual happiness of residents (Leyden, Goldberg, and Michelbach 2011; Goldberg, Leyden, and Scotto 2012). Using data from ten major metropolitan cities around the world, we find that the built environment is associated with happiness both directly, and as mediated by aspects of social capital. These findings are, of course, preliminary and need to be scrutinized by the research community. But they make sense; the built environment can affect social capital and both social capital and the built environment may impact happiness. For us, happiness- or subjective well-being-should be more closely considered by researchers and by government policy-makers. Policy-makers and researchers need to think far more about the effects of good land-use and transportation planning on people and their sense of community. The decisions of those who plan, build, and maintain our communities matters and can directly affect our quality of life.

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Community economic development, broadly defined, involves long-term investment in community assets or capital with the intent of improving the economic opportunities of community residents. Within this framework, notions of economic growth and development become intertwined yet at the same time conflicting. Growth is generally associated with more jobs, more businesses, more people, and higher income. On the other hand, development speaks to broader notions of what makes the community a viable place to live. Unbridled growth can often distract from what makes the community vital and attractive. These distractions can range from simple things like congestion to the more complex like the character of the community.

Increasingly, communities are pursuing what is often called sustainable economic development which balances traditional notions of growth with quality of life. This has moved many communities away from a simple recruitment strategy to entrepreneurship development and business retention and expansion, looking to smaller businesses that are locally owned and operated. These businesses tend to have stronger commitments to both their customers and their employees and the community (Deller 2010; Quintana and Pulignano 2006). By fostering local business growth over firm recruitment, communities are pursuing not only more sustainable policies but also growth that will be more consistent with community character (Eisinger 1988).

As outlined in Shaffer, Deller, and Marcouiller (2006), Deller and Goetz (2009), and Deller (2014) community economic development has moved through three waves of strategies: recruitment, small business development and retention, and collaboration and partnership building. The first wave, recruitment, can trace its modern roots back to the Mississippi Balance Agriculture with Industry (BAWI) policies of the Great Depression era where predominantly southern states attempted to lure primarily manufacturing firms in the northern states to relocate by offering cheap land and labor, low taxes, and limited regulations. Indeed, today
many people including elected officials still think of local business climate through the lens of the old BAWI-like strategies of the Great Depression.

This thinking was reconsidered after a number of studies in the late 1970s and early 1980s. Some researchers argued that most job growth came from new business starts and existing businesses growing in place and very little came from businesses moving from one location to another. This thinking sparked the second wave of community economic development strategies that focused on small business development, including entrepreneurship and business retention and expansion. Community economic development practitioners found that they could be more effective at promoting sustainable economic development by working with new business start-ups and businesses that were already within the community and were seeking to expand.

Eisinger (1995) argued that tremendous political pressures to “show results” pushed many communities back into pursuing recruitment strategies. Elected officials are driven by election cycles and small business development and retention policies seldom have the dramatic political payoff of the recruitment of one larger firm. Hence, there remains strong pressure to pursue recruitment and think about business climate in terms of cheap land and labor, low taxes, and limited regulations.

The third wave centers on building local and regional institutions that support community economic development. Here the idea of collaboration and public-private partnerships that work toward economic development and growth comes to the forefront. For many local communities this involves different local governments coming together to form a development corporation. Several communities, through the action of their local governments, can gain economies of scale and scope by working together. Many of these development corporations have members of the local business community actively involved in setting and reviewing policies and fundraising. The development corporation is the embodiment of the public-private partnership.

As part of the third wave of development strategies the notion of economic clusters, as advanced by Harvard business economist Michael Porter (1990; 1996; 1998a; 1998b; 2000; 2003), became popular in both the fields of practice and academic writings (Woodward and Guimarães 2009; Goetz, Deller, and Harris 2009). Some, such as Maskell and Kebir (2006), have argued that Porter and his advocacy of clusters has almost single-handedly spurred interest in rethinking economic development theory and policies. One important outgrowth of this new thinking is the concerted movement away from first wave mentality toward more strategic behavior in identifying the specific types of industry that should be promoted at the local and regional levels. Rather than blindly pursuing any type of business, communities began to focus on the comparative advantage of their region through these public-private partnerships. This necessitated thinking about the types of businesses, or industries, that are already present within their community and surrounding area.

At the same time, the notion of innovation as the driver of economic growth and development became clearer both from a purely theoretical perspective and
from a policy and practitioner perspective. One could say that the community economic development practitioner rediscovered the work of Joseph Schumpeter and the role of the entrepreneur and creative destruction in the economic growth and development process. Through what is known in economics as the “new endogenous growth theory,” firms have a profit motivation to invest in research and development because they can earn what economists call “monopoly rents” or “monopoly profits” if they can bring new products (technologies) to market before their competitors. Alternative, early adopters of new technologies have an advantage over their competitors and can earn a profit in the short-term. These new technologies, products, or even services replace older technologies, products, or services and the economy moves forward. This replacement effect of new technologies, products, or services is Schumpeter’s creative destruction.

Porter and others have argued that businesses that are part of an economic cluster tend to be more creative or innovative. Germane to this chapter is the fundamental role that small businesses play in clusters and cluster development (Pitelis and Pseirdis 2006). Within the rapidly growing cluster literature there is growing recognition and evidence that a cluster of small firms can be more innovative than large firms (Montana and Nenide 2008). Indeed, Sacchetti and Tomlinson (2006) note that within the spirit of Porter’s notion of clusters, economic development policy makers and practitioners favor placing a greater emphasis upon small–firm development and encouraging greater networking between firms within and across localities, thus reducing the risks of “strategic failure.” In a study of Japanese manufacturing, Ozawa (2000) argues that the Fordist approach of extreme vertical integration was rejected in favor of a network, or cluster, of small and medium sized enterprises (SME) which contracted with a larger central manufacturer. Examples would include Toyota’s decision to locate most of its suppliers within a one hour drive time as well as Fiat’s operations in Italy.

But the spatial proximity of firms within a certain industry does not create an innovation cluster as envisioned by Porter. These firms must have some level of give and take. There must be a relationship between them, some level of trust and sense of mutual purpose. One of the ways to think about the way that a cluster is networked together is through the idea of social capital. Social capital, or the resources that small business owners are able to access through their networks, has been shown to help business owners identify new opportunities (Bhagavatula et al. 2010), access and mobilize resources (Batjargal 2003) and gain legitimacy in the local community (Elfring and Hulsink 2003). None of these would be possible without the development of trust between given firms. Additionally, access to a broader network, such as in an innovation cluster, can increase a firm’s visibility and reputation within a community (Podolny 2001).

In this chapter we focus on the role of social capital in small business development. We do this by tackling two distinct tasks. The first is to provide a systematic review of the existing research on the relationship between social capital and business start-up. Part of our objective is to provide this review within the context of the practice of community economic development. The second task is to
explore how the relationship between social capital and local bonds of trust and
capital and local bonds of trust and reciprocity influences the activity of small businesses using data for U.S. counties.

Beyond these introductory comments the chapter is composed of four sections. We begin by outlining the relationship of small business development, and social capital
to local economic development and growth. Following this, we outline a basic model to understand how social capital affects firm costs and discuss the empirical strategy to address the anticipated problems of identification. We provide both
descriptive and analytical empirical analysis of our conceptual model that links social capital and small business activity.

Small Business, and Local Economic Growth and Development

The role of small business development within community economic development has been the subject of many academic, policy, and advocacy studies. But what exactly do we know and what do we think we know and what aspects of business development and community economic development do we readily admit we do not understand? If we are to advance community economic development policies centered on small business development and social capital it is important that we have an appreciation of our understanding of those relationships.

To do this we first look at the role of small businesses in growth and development, with special attention to differentiating between small businesses and entrepreneurs. We identify the problems of conflating small businesses and entrepreneurs and suggest a more appropriate understanding for purposes of this chapter; specifically that small business is one of several factors that make up the entrepreneurial environment of a community. Following this, we argue that social capital is an important aspect of that same economic growth and development.

How Small Business fits into Economic Development

Building on the Mississippi Balance Agriculture with Industry (BAWI) policies of the Great Depression, the focus of American economic development policy from the close of World War II through the late 1970s was directed toward large firms, which were believed to be the engines of economic innovation and growth (Acs and Audretsh 2003). In the late 1970s and early 1980s several researchers, most notably David Birch (1981), began to challenge that conventional wisdom by arguing that small businesses are more important to the creation of jobs than large businesses. While the results of many of these researchers and in particular Birch have been challenged on several fronts ranging from the fact that small firms have high failure rates (Brown, Medoff and Hamilton 1990), jobs created by smaller firms do not last as long as those created by larger firms (Davis, Haltiwanger and Schuh 1994), and issues of measurement of small firms (Davis, Haltiwanger and Schuh 1996), to the quality of jobs created by small relative to large firms (Brown et al. 1990), the shift in focus for many community economic development practitioners to small business development is undeniable.
The link between the role of small business in economic development and the classic theoretical work of Schumpeter (1942; 1961) was and remains appealing to academics, economic development professionals, and policy makers. Schumpeter’s entrepreneur is an innovator that facilitates the creative destruction that is necessary for economic growth and development (1942; 1961). While Schumpeter does not argue that his theoretical entrepreneur is necessarily a small business owner, these entrepreneurs appear to influence local economies in two main ways: by filling gaps in the local business environment and by creating an entrepreneurial seedbed.

Small firms filled gaps in the local business environment through their labor practices and their inherent flexibility, and hire workers from the secondary labor market (Bednarzik 2000). These jobs tend to be lower-skilled and lower paying (Solomon 1986), providing a way for marginalized workers to enter the economic mainstream (Acs 1999). In addition, small firms tend to invest in employee development at a higher rate than their larger counterparts (Bowles 1994). Finally, small firms are more flexible, giving them the potential to react to changes in market conditions, particularly in the case of manufacturing (Acs and Audretsch 1990, 1993). Specifically, small businesses have a higher rate of innovation per dollar and per employee (Robbins et al. 2000). Taken together, this evidence suggests that the presence of small firms leads to changes in the local market structure.

In addition to filling gaps in the local business environment small firms act as a seedbed for both entrepreneurial and cluster development. In particular, an individual who spends time working for a small firm may be more likely to become an entrepreneur and when networked together, small firms can develop into industrial clusters. For example, Elfenbein, Hamilton, and Zenger (2009) found that as the degree of small technology firms increases in a region, there is a commensurate increase in the number of scientists and engineers who claim an interest in being entrepreneurs seeking jobs in small firms. Additionally, weak ties between firms in high technology sectors have been shown to facilitate flexibility, innovation and quick decision making (Jansen et al. 2006). Further evidence from Giannetti and Simonov (2004) suggests that the entrepreneurial spirit can rub off on other individuals, in that areas with higher concentrations of small firms are associated with individuals moving from salaried work to self-employment and a tendency to be entrepreneurial (Mueller 2006). Thus small firms and self-employment act as an entrepreneurial context (McGranahan, Wojan and Lambert 2011) or a seedbed for entrepreneurship (Low, Henderson and Weiler 2005; Goetz and Rupasingha 2008) and cluster development more broadly. That is, the denser a community is with small businesses and innovative clusters the richer the environment for entrepreneurship. There is evidence that the effort that small firms invest in the development of their networks has a positive impact on their performance (Stam, Arzlanian, and Elfring 2013). In particular, in their meta-analysis of studies of social capital and entrepreneurship, Stam and colleagues find that weak ties and network diversity, forms of bridging social capital, are most important for small firm performance. As a cautionary note, Pe’er and Keil (2013) show in a study of Canadian manufacturing startups, that you cannot just insert a
small firm into a cluster and expect it to succeed. The relative quality of the firm’s human capital and total assets are very important to a small firm’s success in a cluster.

Moreover, an effective cluster is more than just comparable firms in a concentrated geographic area. Effective clusters are composed of a network of semi-cooperative firms, which may be large or small, that allows for the industry to mature into a regionally competitive sector. An example of this is the custom plastics industry in the area around Tomah, Wisconsin. Among this group of custom plastics firms, there is a sufficient level of trust and belief in common purpose such that if a particular firm is unable to perform a particular job, they are willing to refer the potential client to a competitor in the area. Note that competition is key because it is competitive forces that drive innovation and growth. But this networking and semi-cooperation allows for a level of maturing of the sector in and around Tomah. Another example of the central Wisconsin plastics group acting as an innovative cluster is the ability to come together and work with local technical colleges to form custom human capital development programs. Individually, each firm is too small to effectively work with the technical colleges but as a group, or cluster, they have the critical mass. By contrast, in the neighboring area around Eau Claire, Wisconsin, there was an attempt to develop a similar association of small custom plastics manufacturers, but the lack of trust led to the individual firms being unwilling to cooperate. Clearly there is more to an industrial cluster than spatial proximity; individuals must trust each other and be willing to both compete and cooperate (Saxenian 1996; Porter 2000). That is, there must be a degree of social capital in the region.

**Differentiating Small Business and Entrepreneurship**

Since the degree of local small business activity is, in part, a characteristic of local entrepreneurship, it is tempting to conflate the two, but not all small firms are entrepreneurial and not all entrepreneurial firms are small. Unfortunately, as outlined in detail in Goetz and colleagues (2010) and Low and Isserman (2013) the data that are available for analyzing entrepreneurship are a limiting factor. One fundamental problem is that there are no consistent definitions of entrepreneurship. This will become evident later when we outline three broad types of entrepreneurship, each of which captures one or more of the aspects generally associated with entrepreneurship. Unfortunately, the availability of appropriate data decreases with the generality of the definition. Thus there are little direct data available for any of the three archetypes of entrepreneur and secondary data must be used. Because we will focus on small businesses in this chapter, rather than “pure” entrepreneurship, it is important to clearly differentiate the two concepts.

While many entrepreneurial firms tend to be small, modern scholars of entrepreneurship such as Zoltan Acs and David Audretsch (1990; 1993) and Pierre-Andre Julien (2007) have refined our thinking so that almost all modern definitions of entrepreneurship have some combination of three comment elements: ownership,
risk bearing, and innovation (Low 2009). Unfortunately, there is still no commonly accepted theoretical definition as each scholar of entrepreneurship emphasizes slightly different elements. Indeed, Julien (2007) notes, there are different types of businesses that would clearly fit different definitions of entrepreneurship.

We find it useful to distinguish between three different prototypes of small business owners: (1) Schumpeterian innovators, (2) Julienian mundane, and (3) reactionary/necessity. This distinction is also made by Goetz et al. (2010) and Low (2009). Schumpeterian innovators are the embodiment of entrepreneurs as the dynamic engine of economic growth and development—they find a market niche and develop an innovation to fill it, or are able to bring the innovations of others successfully to the market. These types of small business owners are clearly entrepreneurial. On the other hand, a business owner who identifies a market niche and fills it, without a particular innovation, is a Julienian “mundane” small business owner. These types of new firms would be represented by businesses such as new restaurants, coffee shops, and clothing stores. Finally, reactionary/necessity business owners are those whose economic situation dictates that in an effort to earn enough money to survive, they need to start a new business. Examples of reactionary or necessity small business owners could include services such as lawn care, handyman, painting, and repair. Once full-time employment becomes available the small business is closed.

Given these three prototypes two issues come to light. First, not all small firms are entrepreneurial in the Schumpeterian sense. Second, due to the spectrum of motivations, the temptation to use these terms interchangeably is understandable. As noted above non-entrepreneurial small businesses still contribute to local economic development through the filling of gaps in the market, flexible action, and contributing to the overall entrepreneurial environment.

Since we will be limiting our investigation to the effects of social capital on local small firms, we will be using two different measures of small businesses. The first is a straightforward attempt to count the number of firms with a small number of employees. This count data for firms with fewer than nine employees is gathered from U.S. Census Bureau County Business Patterns and includes all county level firms categorized by the number of employees. A second method is an attempt to get at the Schumpeterian aspect of entrepreneurship is to look at the density of proprietorships in a county. While a density of occurrence of these types of firms can be an indicator of risk-taking and start-up firms it also catches a number of empty “shell corporations” set up for other purposes. One way to get around this is to look at proprietorship income as a share of total income. This measure is more likely to capture feasible startup firms.

Social Capital within the Economic Growth and Development Contexts

In the following section, we outline a more theoretical argument for why social capital should be considered an important element in small business development.
Prior to this, however, we define social capital and discuss how it affects local economic development and growth. Then, we relate how social capital interacts with development, and a number of difficulties associated with social capital research.

Social capital is as elusive a concept as entrepreneurship and has been defined in myriad ways over the years. Farr (2004) outlines social capital’s historical origins, noting that while the concept of social capital was discussed in the social progressive movements of the early 20th century, and imagined by the likes of de Tocqueville, Hume, Smith, and Mill, it was not until the work of Coleman (1988) and Putnam (1995) that social capital exploded in the academic and popular economics literature.

While various writers have focused on particular aspects of Putnam’s three-legged stool definition of social capital, “networks, norms and trust,” the root of the current interpretation of social capital can be linked back to the work and philosophy of Thomas Dewey, particularly critical pragmatism, as well as Bellamy’s understanding of cooperative associations and radical political economy. The key difference between the current understanding and that of the 19th century philosophers is that the earlier writers were looking at capital from the social point of view, whereas today’s writers generally approach the social from capital’s point of view. That is, there has been a shift from asking ‘how does capital affect the social?’ to the current ‘how does the social affect capital?’ This chapter takes the second perspective.

The current understanding of the nature of social capital relies heavily on the work of Granovetter (1985), Coleman (1988), and Putnam (1995). Putnam (1995: 67) defines social capital as the “…connections among individuals—social networks and the norms of reciprocity and trustworthiness that arise from them.” Putnam (1995) contends that trust is central to the theory of social capital (though Farr [2004] maintains that sympathy is the more important consideration, as noted in Chapter 2). Trust and social capital are inherently intertwined. Without trust there is no reciprocity, no consideration, and very feeble networks. We would expect individuals who associate with each other socially to have higher levels of interpersonal trust and trustworthiness. Fukuyama (1995) suggests that social capital is made up of the cultural values comprised of compassion, altruism, and tolerance. That is, to the degree that these values are shared in a given community, social capital links individuals together: they are the bonds that allow for collective action. Seen in this way, social capital is a useful concept for economists since it provides an additional way to deal with the “social dimension” of economic activity (Woolcock 2001).

The social dimension of economic activity is the essence of Granovetter’s (1985) concept of “embeddedness” which he uses to describe how economic action is rooted in a broader social context. Since economic agents are functioning in a broader social context they take into consideration more than the immediate payoff of a given interaction when deciding on a particular strategy or action (Granovetter 1973; Uzzi 1996; 1999). For example, two business owners may have a contractual
business relationship with one another and they also attend the same church or their children belong to the same sports team. This level of association suggests shared values and a familiarity, above and beyond arm’s length business interactions. Both Granovetter and Uzzi suggest that since the business owners associate with each other in a context outside of their business relations, they will take this social relationship into account due to internalized trust and outside social pressure to honor the contract when making business decisions.

Coleman (1988) studied the wholesale diamond market in New York City, which is operated by predominantly Jewish traders who have a high level of intermarriage, and belong to the same synagogues. This relationship facilitates sufficient trust between diamond traders, allowing them to exchange uncut diamonds for inspection without legal strictures. The community institutions themselves are sufficient to safeguard against theft. This increases efficiency in the wholesale diamond market by reducing the need for intricate insurance devices. The impact of this embeddedness is that there is a desire to maintain a level of approval from one’s friends and associates beyond a given context. At the very least it puts a restriction on how selfish one can be and still be accepted by one’s peers.

In addition to Putnam’s emphasis on trust and Granovetter’s focus on embeddedness, Coleman (1988) breaks social capital into three major aspects. First, obligations, including expectations and trust, through which individuals are committed to each other from past actions and trust that favors granted will be repaid. The second is a conduit for information where the reason for ties between individuals is the ability to access information above and beyond that of the individual’s expertise. The third aspect of social capital is the establishment of an enforcement mechanism for social norms.

A key piece of both the first and third aspects of social capital is the need for closure of social networks. Coleman (1988) makes the case that without closure, information about norms and trust does not flow freely enough to ensure social enforcement. For example, if two children are friends, but their parents are not, then the two sets of parents are not able to enforce social norms on their children. The same holds in business transactions. If there is not closure of the social network then it is more difficult to punish individuals for breaches of trust. Coleman contends that social capital has a place in economic thought alongside both physical and human capital. Whereas physical capital is the formation of tools to facilitate production and human capital is the formation of skills that facilitate production, social capital is the formation of relationships that facilitate production.

Since the development of relationships takes time, this suggests that community stability is an important aspect of social capital development because it can increase the instance of social network closure. Additionally, a high density of organizations in a community ought to increase the probability of social network closure. An example that Coleman uses is that of the Monotype Club of the New York Typographical Union. Originally formed as a social club, the Monotype Club became a resource for printers looking to hire monotype operators, and later was an important political organization in sustaining the Independent Party when it

52 Bjorn Markeson and Steven C. Deller
lost power in the New York Union (Lipset, Trow, and Coleman 1956). This explicitly shows how an organization created for social purposes also affects the economic and political realm. Because of these spillover effects, Coleman (1988) makes the case that there is insufficient investment in social capital since there is a public goods nature to it. That is, individuals only reap a portion of the benefit of cultivating higher levels of social capital and thus do not invest the socially optimal amount of time and energy into its development.

While much of the social capital literature relies heavily on conceptual storytelling, there have been attempts to build more formal models of social capital, including those that use game theory concepts to model network behavior (Jackson and Wolinsky 1995). Others, such as Rupasingha et al. (2006) model social capital similarly to Becker’s model of household allocation of time and theory of social interaction (Becker 1965). Additionally, Glaeser et al. (2002) propose a method by which individuals choose to invest in social capital formation. On the other hand, even though Granovetter’s (1988) original work was focused on how firms and small business owners use social capital, there has been little focus on how firms use social capital although there has been some interest in how social capital increases worker productivity (Gui 2000; Greve 2001; Sabatini 2008).

While specific investigation into how businesses use social capital is scarce, there is varied ecological empirical evidence of social capital’s regional impact. These studies tend to pick a given measure of social capital and test for impacts, but do not typically link themselves to models of microeconomic decision-making. Arrow (1971) and Fukuyama (1995) find that the degree of trust in a community strongly predicts the community’s economic success. Additionally, higher levels of civic engagement are associated with more efficient local governments (Putnam 1993), economic growth (Knack and Keefer 1997), and judicial efficiency and decreased governmental corruption (LaPorta, Lopez-de-Silanes, Shleifer, and Vishny 1997).

Social capital development can also be seen in empirical results measuring the impacts of community associations on community development. Across a variety of measures there is evidence that the level of participation in community associations such as religious institutions (Coleman 2003; Deller and Deller 2010), places of association (e.g., golf courses or coffee shops) (Isserman et al. 2009), and civic/social clubs (Putnam 1995) may have a positive effect on local development, though the level of significance varies. On the other hand, Isserman et al. (2009) find that when they focused on the characteristics of prosperous rural counties in the U.S., the factors most closely associated with higher levels of prosperity included a robust private sector, diversity of industries, strong social capital, and stable populations. Unlike the Glaeser et al. (2002) study, they define prosperity by looking at local levels of education, poverty, housing and unemployment, rather than the commonly used metrics of rural vitality—population, employment, and income growth.

Rupasingha et al. (2006) and Goetz and Rupasingha (2006) together look at how social capital is created in U.S. counties, and in particular the effects of especially large establishments, such as Wal-Mart, on its development. Rupasingha
et al. (2006) build a composite measure of social capital at the U.S. county level, based on associational density, voting rates, and non-profit activity. They find that ethnic diversity is negatively associated with social capital development, and that the income inequality is not highly correlated with associational density but is for social capital overall. Homeownership does not affect the level of associations, but a number of occupational characteristics do positively affect both associational levels and their social capital index.

This large body of social capital research suggests that two theoretical models are necessary to answer the research questions that we have set forth. The first must show that social capital varies by region. Glaeser et al. (2002) sufficiently demonstrate this through their model for why individuals invest in the accumulation of social capital and why there would be varying rates of investment in this accumulation. They suggest that the complementarities of social capital may lead to multiple equilibria, and different levels of investment in social capital, and that these differences are highly dependent upon initial conditions. Thus we have strong theoretical reason to believe that social capital will vary considerably between communities, which should be considered before looking for the impacts of social capital (Durlauf 2002). The second need is to suggest how social capital influences the local economic environment. This is proposed in the next section.

A Literary Model of Social Capital and Firms

In this chapter we propose a framework for how firms might use social capital. To do this, we will use a hypothetical firm as a point of reference. For our purposes, the exact nature of the firm is not important, though it might be easier to imagine a smaller local owned business. Consistent with neoclassical economic theory we will assume the firm works toward maximizing its profits, and that the price of a final good is out of the hands of the business owner—that is, they are a price taker in a purely competitive market—but the quantity sold is more specific to the firm.

But when we introduce the notion of social capital in the neoclassical model, we have something slightly different than pure competition. For example, one of the ways that social capital impacts the firm could be through the level of both market knowledge and social networks to which the business owner belongs. The more directly that the owner is tied to other people in the community the more successful they will be in purchasing inputs at the lowest possible price. In this chapter we will consider the effects of two aspects of social capital, a firm’s social capital and a region’s social capital. As outlined below, we argue that both individual and regional social capital are important to the development of firms.

Where a firm’s, or business owners’ and management’s, social capital reflects how well a firm is connected to other firms and community members, a region’s social capital reflects how the other firms and community members are connected to each other. Or, what is the network of business connections (social capital) at the community level and how is the business connected into that network? Thus there are four archetypical combinations of these two relationships (Figure 4.1): (1) an
unconnected firm in an unconnected region (Combination 1); (2) an unconnected firm in a connected region (Combination 2); (3) a connected firm in an unconnected region (Combination 3); and (4) a connected firm in a connected region (Combination 4). Higher levels of regional social capital are associated with richer networks of information, mutual trust, and reciprocity. Since firms have the most control over their cost structure, we offer a theoretical framework to think about how social capital at the individual and community level can influence the cost structure of the firm and hence the concentration of small businesses.

For simplicity, we split costs into fixed and variable costs. Fixed costs (like startup costs) are the same no matter what quantity the firm produces. On the other hand, variable costs increase as the firm produces more of its particular product.

We assume that a firm’s fixed costs, including startup costs, are made up of the firm’s capital (equipment, buildings, among others), social capital, and something we are going to call implicit institutions. We think of implicit institutions as a type of community risk aversion—they are the community’s unwritten “rules of the game.” Think of starting a business as going from point A to point B along a highway that is regulated by certain rules. If social capital is a highway, implicit institutions are the rules of operating on that highway such as the speed limit.

![Combination 1](image1)

![Combination 2](image2)

![Combination 3](image3)

![Combination 4](image4)

**FIGURE 4.1** Regional social capital archetypes
Even if the highway is four-lanes and well maintained (high social capital), a low speed limit (non-supportive implicit institutions) will slow down drivers (business owners). For example, in some communities there is significant pressure associated with failure. This pressure to succeed dampens enthusiasm to be associated with an unproven venture and leads to added costs—time, money, and emotional.

Therefore, if local implicit institutions are supportive of risk taking and entrepreneurial activity (high speed limit), then high levels of social capital (big highway) will make it easier to start a business by decreasing fixed costs. On the other hand, if implicit institutions discourage risk-taking and entrepreneurship then high levels of social capital will enforce that and make it more difficult to operate by increasing fixed costs.

As the level of social capital in a region increases, local norms (implicit institutions) are more rigidly enforced. As a result, in a community with norms supportive of entrepreneurial activity higher levels of social capital lead to lower fixed costs—that is, when better roads are paired with higher speed limits people will drive faster. On the other hand, in communities with non-supportive norms, higher levels of social capital make it harder to start a business through higher fixed costs—low speed limits on well-maintained roads force drivers to drive more slowly.

Regarding variable costs, in our formulation, social capital has an effect on both capital and labor costs. We assume that in respect to labor costs (wages), social capital increases ties of trust and reciprocity that the firm owner has to the community as a whole such that employees are more productive. Economists generally assume that more productive workers are paid higher wages and thus we suggest that a higher level of social capital leads to higher wages.

Additionally, we assume that increases in the region’s social capital lead to information sharing and network learning effects that increase worker productivity, leading to higher wages. Taken together higher levels of social capital lead to more productive and higher paid workers. Regions experiencing higher levels of social capital ought to also have higher numbers of smaller firms.

Similarly the cost of capital (how much a lender or investor will charge a business owner, generally thought of as the interest rate), is affected by both the firm owner’s social capital and the degree that a community’s implicit institutions support taking a risk on starting a small business. As a firm owner’s social capital increases, investors and lenders have additional information regarding the owner’s ability to repay; this increase in information is reflected in a lower rental rate (interest rate) of capital. Additionally, the entrepreneurial supportiveness of the region’s implicit institutions increases the willingness to lend and invest in a community, thus decreasing the costs of capital.

When taking all these elements together at the community level we see that there are four possible combinations (Table 4.1). First, we can have a community setting with high levels of social capital and supportive institutions. In our framework the community is said to be not only supportive of but encouraging entrepreneurial type activity. High levels of social capital and supportive institutions
allow for stronger flows of information which lower the transactions costs of starting a business. Second, we can have a community with low social capital and limited or even negative institutions. In these communities we would expect to see the firm’s transaction costs rise and the likelihood of new firms entering the community reduced.

We also have two combinations where the role of social capital and institutions are less intuitive. One is communities with low levels of social capital but having supportive institutions. Supportive institutions will create an environment that is more conductive to firms entering, and leaving, markets but it is not as clear what the concentration of small businesses will be. Communities with discouraging implicit institutions paired with higher levels of social capital will be associated with decreasing levels of entry and exit. This implies that social capital’s effect on firms depends upon a region’s implicit institutions.

What we see then is that we have different community characteristics that can be supportive of small business development (high social capital and supporting institutions) as well as those that are not supportive (low social capital and non-supportive institutions). If starting a small business is akin to going from point A to point B on our hypothetical highway, then the condition of the highway (social capital) is coupled with the speed limit (informal rules). For what we call supportive institutions, the costs of getting from point A to point B are comparatively low, so that we expect to see higher levels of entry and lower concentrations of small business. If the highway is narrow and in poor condition (low social capital) with restrictive speed limits or weight postings (non-supportive institutions) we would expect to see lower levels of entry and lower concentrations of small businesses.

Our Empirical Framework

To test our hypothesis that higher levels of social capital are conducive to enhanced small business activity we use U.S. county level data to explore statistical relationships. Data are drawn from a range of sources including the U.S. Census, the U.S. Bureau of Economic Analysis (BEA), County Business Patterns and a range of other publically available data. Additionally, since we will be estimating the model using spatial econometric techniques, we eliminate counties in Alaska and Hawaii so as not to skew the analysis due to their distance from neighboring counties.

TABLE 4.1 Business implications of regional social capital and implicit institutions

<table>
<thead>
<tr>
<th>Supportive Institutions</th>
<th>Non-Supportive Institutions</th>
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</thead>
<tbody>
<tr>
<td>High social capital</td>
<td>High levels of entry and exit</td>
</tr>
<tr>
<td></td>
<td>More small firms</td>
</tr>
<tr>
<td>Low social capital</td>
<td>Slightly higher entry and exit</td>
</tr>
<tr>
<td></td>
<td>Fewer small firms</td>
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</tbody>
</table>
The basic model that we estimate can be expressed as:

\[ SBC = \beta_1 DM + \beta_2 HC + \beta_3 EC + \beta_4 SC + \varepsilon \]

where \( SBC \) is small business concentration, \( DM \) are demographic factors that might influence small business activity, \( HC \) is human capital, \( EC \) is economic characteristics of the county, and \( SC \) are a range of social capital metrics. The error term, \( \varepsilon \), reflects noise in the data. The central hypothesis is that social capital \((SC)\) will have a positive influence on small business concentration \((SBC)\) or the coefficient \( \beta_4 \) will be positive. We do not offer any specific hypotheses about the relation of our set of control variables on small business concentration. The challenge is to develop appropriate metrics of each of these different elements of the model.

**Small Business Activity**

As outlined above and by Goetz et al. (2010) and Low and Isserman (2013) there is no “clean” measure of entrepreneurship or even small business. As such we test the robustness of our results by using a range of small business activity metrics. The first dependent variable will be both density of micro-enterprises and density of sole proprietorships. The use of proprietors as a measure of entrepreneurship has been used in regional studies (Parker 1996; Georgellis and Wall 2000; Shrestha et al. 2007; Glaeser 2007; Goetz and Rupasingha 2009; Acs et al. 2008; Henderson and Weiler 2009; Saxenian 1996; Schiller and Crewson 1997), as well as in country-level studies by Iversen et al. (2008), Blanchflower (2000; 2004), OECD (2000) and Parker (2005). More important for empirical work the density of non-farm proprietorships can be constructed from data readily available from the U.S. Bureau of Economic Analysis (BEA). The proprietorship dataset is part of the Regional Economic Accounts which publishes annual personal income data for all U.S. counties. This dataset also contains yearly accounts of county level measures of the number of non-farm proprietorships, total number of establishments, amount of non-farm proprietorship income, and total personal income.

U.S. proprietorship (self-employment) data available from the BEA are based on federal tax Form 1040 (Schedule C) for sole proprietorships and Form 1065 for non-limited partnerships, providing a full accounting of the self-employed. These data include individuals for whom their proprietorship is their sole income and individuals who may be otherwise employed, but have additional income from self-employment, and may include multiple filings by the same individual. Unfortunately, there is evidence that proprietorships that are either hobby or home based businesses make up approximately 50 percent of non-employer firms (Headd and Saade 2008). Since there is no way to drop these types of firms from the data set, using such data alone could vastly overstate the level of small business activity by conflating active businesses and hobbies. Therefore we also look at other related measures of small business activity.
Unfortunately, there is no consistent use of the term “micro-enterprise” in the literature. Definitions range from less than five employees (Deller and McConnon 2009) to less than 250 (Aquilina, Klump, and Pietrobelli 2006). Thus for the remaining measure, the density of micro-enterprises (which we are defining as one to nine employees) can be constructed from County Business Patterns (CBP) data available from the U.S. Census Bureau. The U.S. Census Bureau maintains a yearly account of firm count and number of employees at a county level. Thus by dividing the number of firms with one to nine employees by total county employment we can measure the density of micro-enterprises in a given county.

Combining the firm count data from the County Business Patterns and the proprietorship data from the BEA-REIS we have the following metrics for SBC small business concentration:

- Share of Businesses that Have Less than 9 Employees
- Number of Non-Farm Proprietors per 1,000 Persons
- Non-Farm Proprietor Income as a Share of Total Wage and Salary Income
- Non-Farm Proprietor Income per Non-Farm Proprietorship ($000)
- Per Capita Non-Farm Proprietorship Income ($000)
- Higher values of each of these are associated with higher concentrations of small business activity.

**Control Variables**

Our empirical model of small business concentration includes a number of control variables: DM are demographic factors that might influence small business activity, HC is human capital, and EC is economic characteristics of the county. We select these variables based on prior analyses of small business concentrations (e.g., Markeson and Deller 2012; Goetz and Rupasingha 2009). The variables include:

- **Demographic**
  - Share of the population under Age 18
  - Percent of the population aged 18 to 24
  - Percent of the population over Age 65
  - Percent of the population Asian
  - Percent of the population African-American
  - Percent of the population Latino

- **Human Capital**
  - Percent of the population over age 25 with a High School education or less
  - Percent of the population over age 25 with a Bachelor's Degree or higher

- **Economic Structure**
  - Unemployment Rate
  - Percent of earnings from Construction employment
Unlike our social capital measures, we offer no specific hypotheses concerning how these control variables may influence small business concentration.

**Measures of Social Capital**

In order to address the central question of the effects of social capital on small business activity, it is necessary to build a set of social capital metrics from secondary data. The reliance on secondary data is both necessary and common, due to both the nature of social capital and the availability of data. Social capital, like human capital, is not easily measured directly.

The use of secondary social capital data is well accepted in the social capital literature in two general forms. The first is as an index by pooling various social capital measures to try and capture both the range and definitional ambiguity of social capital (Rupasingha et al. 2006; Goetz and Rupasingha 2006; Rupasingha and Goetz 2007). Additionally, one can use a number of different measures of social capital to better understand the effects of specific aspects of social capital such as in the case of local crime (Deller and Deller 2012) or labor productivity (Sabatini 2005). The demonstrated effects of specific types of social capital are identified below. We have four groupings of social capital metrics: (1) associational; (2) religious activity; (3) cooperative organizations; (4) non-profits; and (5) a composite index offered by Goetz and Rupasingha (2006). We outline each in turn.

The first of these includes associational measures of social capital such as clubs and social organizations (Rupasingha et al. 2006; Putnam 1993; Knack and Keefer 1997; Deller and Deller 2010). Such organizations include social clubs, professional associations, golf courses, political advocacy organizations, churches, cooperatives, arts organizations, and bowling alleys. We normalize the number of organizations per 10,000 residents in a given county to help ensure that we are measuring the density of these associational measures rather than a more generic measure of county size. These data are available in the County Business Patterns dataset, using data for 2010. The specific sectors included in this study’s measure of social capital include:

- Bowling centers per 10,000 residents
- Civic and social associations per 10,000 residents
- Physical fitness facilities per 10,000 residents
- Public golf courses per 10,000 residents
- Religious organizations per 10,000 residents
- Sports clubs, managers and promoters per 10,000 residents
• Membership sports and recreation clubs per 10,000 residents
• Political organizations per 10,000 residents
• Professional organizations per 10,000 residents
• Business associations per 10,000 residents
• Labor organizations per 10,000 residents
• Membership organizations not elsewhere classified per 10,000 residents

Each of these measures is an attempt to capture the degree to which individuals come into contact with other community members. That is, the more that an individual associates with others, the more they share information regarding business and employment opportunities, social norms and problems they are encountering. Thus we would expect to see higher levels of business development associated with higher levels of associational density.

The second set of social capital measures we examine are measures of religious activity. We look at both the number of places of worship per 1,000 persons and the percentage of a population active in a religion. Churches and religious adherence are both widely discussed in the social capital literature (e.g., Smidt 2003) as places where members gather and network. In addition they are local institutions that often provide services such as food pantries, child care, clothing and thrift shops, and enforce social norms (Lee and Bartkowski 2004). Coleman (2003: 33) claims that “[i]t has become now almost cliché that religion in the United States generates more ‘social capital’ than any other American institution.” Specifically there are arguments suggesting that religious belief can shape entrepreneurial spirit (Dana 2009; 2010). Empirically, Rietveld and von Burg (2013) find that religious entrepreneurs in the Netherlands are more likely to be religious that other individuals. Audretsch and his colleagues (2013) find that some types of religious belief increase the likelihood of self-employment, others hinder it. For example, Muslims do not believe in incurring debt and will only finance business ventures through savings, either personal savings or those of family. This makes starting a business more difficult for many Muslims.

Again, in this research we expect to find that a higher concentration of places of worship is akin to the size of our hypothetical highway, and religious adherence is associated with the rules governing behavior on that highway. We suggest that higher concentrations of places of worship are associated with a denser network of potential connections, or social capital, and more small business activity. The effects of religious adherence levels, which capture the rules, are more difficult to predict. As noted by Audrestch et al. (2013) different religions have different beliefs (i.e., formal and informal rules of behavior) concerning business behavior. As such the end result is an empirical question.

The third set of social capital measures we look at uses a data set developed by the University of Wisconsin Center for Cooperatives. Cooperatives are a business model where the business enterprise is owned by the users of the cooperative. Cooperatives are not just found in rural areas which are traditionally home to agricultural, electric and phone cooperatives. Deller et al. (2009) find that cooper-
atives are present in almost every state in the U.S. That being said, there are significant geographical patterns to cooperative presence due to variation in state laws. Some states have a stronger tradition of promoting cooperatives as a business model and this is reflected through state statutes and spatial clustering.

There is reason to believe that cooperatives may assist in the creation of social capital. The International Co-operative Alliance (ICA) defines a cooperative as “an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.” The key to this is that the members must “unite voluntarily,” that is, there must be some level of trust and mutual goal sharing in order for a cooperative to be formed. Although empirical evidence is mixed—for example Stofferahn (2009) found that in North Dakota there was no link between cooperatives and social capital while Deller and Deller (2012) found little evidence that cooperatives were associated with lower levels of crime—we are interested in determining if there is a broad connection between cooperatives and small business development. There is reason to believe that since cooperatives are business-like in nature they may have business related social capital effects in local communities.

Although there are 17 different types of cooperative (by services provided) listed in the University of Wisconsin Center for Cooperative’s database, for this study we aggregate four types of cooperatives:

- Number of arts cooperatives per 1,000 residents;
- Number of child-care cooperatives per 1,000 residents;
- Number of educational cooperatives per 1,000 residents;
- Number of grocery store cooperatives per 1,000 residents.

There are two reasons for the focus on these four types of cooperatives. First, these cooperatives tend to be focusing on specific community needs. Thus, these cooperatives are more closely aligned with the explicit interest in measuring social capital. Second, these cooperatives tend to be smaller in scale and more focused on individual community needs.

The fourth set of social metrics we explore are non-profits. When looking at social capital there is reason to believe that there are clear differences between for-profit and nonprofit establishments, as non-profits are generally more concerned with making sure a service is available in the community regardless of the economic viability of the enterprise. Data from the National Center for Charitable Statistics provide detailed information on the number of nonprofits in a given county. The measure that we have included here is the number of registered non-profits in a county. Unfortunately, the nature of these non-profits is unclear. Wojan, McGranahan, and Lambert (2009) found in a study of nonprofits and rural governance that 64.4 percent of rural nonprofits in the National Center for Charitable Statistics system were unclassified. Thus the NCCS data likely over counts the number of non-profits in a given county. Despite these limitations, a larger number of nonprofits per 1,000 persons is expected to be associated with higher levels of social capital.
Our fifth and final measure of social capital is the social capital index originally development by Goetz and Rupasingha (2006). Rather than looking at individual measures such as number of associations, religious organizations, cooperatives, or non-profits, Goetz and Rupasingha used principal component analysis to combine several factors that could be associated with social capital into a scalar index. We recreate their county level social capital index for the year 2010. This particular index is a composite of the following variables:

- The sum of associations listed previously per 10,000 persons
- Census mail response rate
- Voter turnout in 2008
- Total number of non-profits per 10,000 persons

We create the index using the first principal component of the variables listed above. The advantage of using an index is that it incorporates a variety of different measures of social capital rather than focusing on any one particular aspect. The disadvantage is that it is more difficult to interpret what exactly is causing the effects that are associated with the social capital index. By looking at both a social capital index and individual measures of social capital we are able to look at each and also determine if there is an interaction effect when combining the various measures of social capital.

In aggregate we have six separate measures of social capital:

- Cooperatives concentration
- Places of worship (religions) concentration
- Percent of the population that is adherent to a religion
- Associations concentration
- Non-profits concentration
- Goetz and Rupasingha index

By examining all six metrics we can test for the robustness of the results and gain additional insights into the different elements of social capital.

**Estimation Methods**

Our empirical analysis proceeds in three steps. First, given the limitations of our data on entrepreneurial activity we compare and contrast the relationship between our five different measures of small business concentration (SBC). We do this in two ways. First we examine simple correlations using Pearson, Spearman, and Kendall Tau b correlation coefficients. Second, we use factor and principal component analysis to see if certain measures tend to contribute more to the variance of the whole set. We then follow the logic of Goetz and Rupasingha (2006) and use principal component analysis to build a scalar small business contraction (SBC) index. The second step of our empirical analysis used Pearson, Spearman, and
Kendall Tau b correlation coefficients to look for patterns between our measures of small business concentration and our measures of social capital.

The third step of our empirical work is the estimation of the full model outlined above. Prior work suggests spatial dependency in the data (Markeson and Deller 2012). For example, there may be spatial clusters or “hot spots” of small business activity or conversely “cold spots” where there is limited small business activity. Spatial dependency can also exist if the county as a unit of observation is too small. County boundaries are politically defined and may not relate to the relevant economic region. It could be the case that the small business activity that we are attempting to capture with our empirical analysis spills over into neighboring counties. In the presence of spatial dependency the use of traditional regression analysis could lead to biased and inconsistent or inefficient estimates depending on the nature of the spatial dependency.

To test for spatial dependency we employ the three most commonly used tests as suggested by Anselin (1988) and LeSage and Pace (2009): Moran’s I, the Lagrange Multiplier, and the Likelihood Ratio tests. Each of these tests look for patterns in the residuals from the ordinary least squares estimate of the model. The null hypothesis is that there is no spatial pattern in the regression residuals and as such no spatial dependence. Across all specifications of the model (which vary by dependent variable) and all three tests spatial dependency was found to be present, which strongly suggests that traditional regression analysis is not appropriate for this situation.

To correct for this problem we use the spatial autoregressive model:

\[ y = \rho W y + x \beta + \epsilon, \epsilon \sim N(0, \sigma^2 I) \]

Here the W matrix is what is referred to as a spatial weight matrix which captures the spatial proximity of counties. As counties become more distant from each other the values within the spatial weight matrix goes to zero. We use maximum likelihood to estimate our small business concentration model.

Results

The first set of results explores the relationship between the different measures of small business concentration, which are our proxy measures of entrepreneurship. This is composed of simple correlation as well as factor analysis. The second set of results focuses on the relationship between our measures of small business concentration and social capital. Here we use both simple correlation analysis as well as the more complete spatial modeling.

Correlation and Factor Analysis

The simple Pearson, Spearman, and Kendall Tau b correlation analysis is provided in Table 4.2 and as expected, each of the individual metrics is highly correlated. In
addition, the results are consistent across the different methods of assessing correlation. What is more interesting is that all of the individual metrics do not necessarily move in the same direction; specifically, some move in the opposite direction from one another. For the sake of discussion assume that the number of non-farm proprietors per one thousand persons within the county is our benchmark measure for local small business activity. This benchmark is positively

### TABLE 4.2 Entrepreneurship metric relationships

<table>
<thead>
<tr>
<th></th>
<th>SB1</th>
<th>SB2</th>
<th>SB3</th>
<th>SB4</th>
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<tbody>
<tr>
<td><strong>Pearson Correlations</strong></td>
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<td>SB1 Share of businesses that have less than 10 employees</td>
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<td>SB2 Number of non-farm proprietors per 1k persons</td>
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<td>SB3 Non-farm proprietor income as a share of total wage and salary income</td>
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<td>SB4 Non-farm proprietor income per non-farm proprietorship ($000)</td>
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<tr>
<td>SB5 Per capita non-farm proprietorship income ($000)</td>
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<td><strong>Spearman Correlations</strong></td>
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<td>SB1 Share of businesses that have less than 10 employees</td>
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<td>SB2 Number of non-farm proprietors per 1k persons</td>
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<td>SB3 Non-farm proprietor income as a share of total wage and salary income</td>
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<tr>
<td>SB5 Per capita non-farm proprietorship income ($000)</td>
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<td><strong>Kendall Tau b Correlations</strong></td>
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<tr>
<td>SB1 Share of businesses that have less than 10 employees</td>
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<td>SB2 Number of non-farm proprietors per 1k persons</td>
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<td>SB3 Non-farm proprietor income as a share of total wage and salary income</td>
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<td>SB4 Non-farm proprietor income per non-farm proprietorship ($000)</td>
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<tr>
<td>SB5 Per capita non-farm proprietorship income ($000)</td>
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</tr>
</tbody>
</table>

*** Significant at the 99.9 percent level
** Significant at the 95 percent level
* Significant at the 90 percent level
correlated with the share of total businesses with less than nine employees, and the ratio of proprietor income to wage and salary income as well as proprietorship income per capita or county population. These results are as expected. But this benchmark is inversely related to proprietor income per proprietorship. While the correlation coefficient associated with this latter result is statistically significant the coefficient itself is relatively small (-0.1708). Proprietor income per proprietorship along with proprietorship income per capita or county population is negatively correlated with the share of business that are small (nine or fewer employees). The size of the coefficient with the last result is also relatively small (-0.0506).

Before drawing any inferences from the analysis provided in Table 4.2 consider the results of the factor and principal component analyses provided in Table 4.3. Factor and principal component analysis accomplishes two tasks. First, it attempts to explore how each individual metric contributes to the whole of the correlation or covariance matrix across all metrics. For example, of our five metrics of small business activity, which contributes the most and which contributes the least to the correlation patterns? This can provide insights into which of our small business metrics may be the most “powerful” from a purely statistical perspective. Second, the weighting scheme that is generated can be used to build a scalar index that combines all of the individual metrics into one index, similar to the Goetz and Rupasingha (2006) approach with their social capital index. To explore the robustness of the results we use factor analysis building off Cronbach’s alpha, Harris factor analysis which is a noniterative approximation to canonical component analysis, and principal component analysis using the correlation matrix. The results of this analysis are provided in Table 4.3.

Notice that all the individual metrics have positive weights other than the share of businesses with fewer than ten employees in the Harris Factor Analysis. But the latter weight is small and does not contribute much to the overall analysis (-0.1390). Firm size based on employment, while positive, is also small (0.1754) in the principal component results. While there is not uniform agreement across the three methods there are two, perhaps three, metrics that seem to contribute the

<table>
<thead>
<tr>
<th>TABLE 4.3 Small business concentration index</th>
<th>FA: Alpha</th>
<th>FA: Harris</th>
<th>PC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of businesses that have less than 10 employees</td>
<td>0.4800</td>
<td>-0.1390</td>
<td>0.1754</td>
</tr>
<tr>
<td>Number of non-farm proprietors per 1k persons</td>
<td>0.7542</td>
<td>0.2940</td>
<td>0.4541</td>
</tr>
<tr>
<td>Non-farm proprietor income as a share of total wage and salary income</td>
<td>0.6910</td>
<td>0.5158</td>
<td>0.5535</td>
</tr>
<tr>
<td>Non-farm proprietor income per non-farm proprietorship ($000)</td>
<td>0.0754</td>
<td>0.7922</td>
<td>0.3170</td>
</tr>
<tr>
<td>Per capita non-farm proprietorship income ($000)</td>
<td>0.6989</td>
<td>0.9225</td>
<td>0.5968</td>
</tr>
<tr>
<td>Variation explained</td>
<td>0.5764</td>
<td>0.7412</td>
<td>0.4402</td>
</tr>
</tbody>
</table>
most to the whole set: non-farm proprietorship income as a share of total wage and salary income, per capita non-farm proprietorship income, and perhaps number of non-farm proprietorships per 1,000 persons.

When taking the correlation analysis (Table 4.4) together with the factor and principal component analysis (Table 4.3) it appears that firm count data (share of all businesses that are small and number of non-farm proprietorships) and proprietorship income data paint slightly different pictures of small business concentrations. There are several reasons for this result. First, the firm count data can overstate the number of viable businesses. For any variety of reasons one business owner may have more than one proprietorship. For example, a general contractor in the residential construction industry may have four separate businesses: the general contractor firm, a carpentry firm, a plumbing firm, and an electrical firm. For all practical purposes it is one business but by the way the business is structured it may appear to be four separate businesses. There may also be inoperative businesses that are included within the counts. Second, not all small business owners take pay in the form of proprietor income. Rather, many small businesses are structured where the owner is a paid employee and hence their income would show up as wage and salary income. Third, many small businesses, such as home-based businesses, really do not generate income to the owner. Many home-based craft businesses are designed to generate sufficient revenues to support the cost of supplies. In essence, many home-based businesses are hobbies where the goal of the business is to cover the costs of the hobby and not provide meaningful income to the owner. In addition, for tax purposes many of these businesses may not generate proprietor income but compensate the business owner in other ways such as covering the costs of a car or truck. These limitations to the data should not distract from the central hypothesis of the impact of social capital on small business activity but rather serve as a caveat to interpretation of our results.

The third piece of analysis that we draw from the correlation and factor and principal component analysis is the construction of a small business concentration index. To be consistent with Goetz and Rupasingha (2006) we use the weighting scheme that is generated with the principal component analysis. In descending order the index is composed of per capita non-farm proprietorship income (0.5969), non-farm proprietorship income as a share of total wage and salary income (0.5535), and number of non-farm proprietors per 1,000 persons (0.4541). Non-farm proprietor income per proprietorship contributes slightly to the index (0.3170) and share of businesses that are small defined by employment contributes little to the final index (0.1754).

Buffalo County, South Dakota has the smallest value of our small business concentration index followed by Wheeler County, Georgia and Sussex County, Virginia while Chase County, Kansas has the highest value of our index followed by New York County, New York (specifically the borough of Manhattan). While these extreme values seem to be scattered across the U.S. a simple mapping of the index suggests that there are definitive spatial patterns (Figure 4.2). Using the Local Moran’s I to test for the statistical significance of the patterns apparent in Figure
<table>
<thead>
<tr>
<th>TABLE 4.4 Correlations across entrepreneurship proxies and social capital</th>
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</thead>
<tbody>
<tr>
<td><strong>Pearson correlations</strong></td>
</tr>
<tr>
<td>Share of businesses that have less than 9 employees</td>
</tr>
<tr>
<td>Number of non-farm proprietors per 1k persons</td>
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<tr>
<td>Non-farm proprietor income as a share of total wage and salary income</td>
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<tr>
<td>Non-farm proprietor income per non-farm proprietorship ($000)</td>
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<tr>
<td>Per capita non-farm proprietorship income ($000)</td>
</tr>
<tr>
<td>Small business concentration index</td>
</tr>
</tbody>
</table>

| **Spearman correlations**                                  |
| Share of businesses that have less than 9 employees       | -0.1473*** 0.4324*** -0.0460** 0.2593*** 0.3064*** 0.2025*** |
| Number of non-farm proprietors per 1k persons             | 0.0043 0.1953*** 0.1369*** 0.3256*** 0.4512*** 0.2797*** |
| Non-farm proprietor income as a share of total wage and salary income | -0.0555** 0.2202*** 0.0894*** 0.1840*** 0.1483*** 0.0953*** |
| Non-farm proprietor income per non-farm proprietorship ($000) | 0.1812*** -0.3490*** 0.1056*** -0.0028 -0.0155 -0.0136 |
| Per capita non-farm proprietorship income ($000)           | 0.1491*** -0.1269*** 0.1791*** 0.2540*** 0.3069*** 0.1905*** |
| Small business concentration index                         | 0.0458** 0.0899*** 0.1417*** 0.2735*** 0.3522*** 0.2171*** |

| **Kendall Tau b correlation**                              |
| Share of businesses that have less than 9 employees       | -0.1135*** 0.2973** -0.0323* 0.1757*** 0.2040*** 0.1364*** |
| Number of non-farm proprietors per 1k persons             | 0.0039 0.1303** 0.0953** 0.2256*** 0.3152*** 0.1920*** |
| Non-farm proprietor income as a share of total wage and salary income | -0.0429* 0.1460*** 0.0609*** 0.1250*** 0.1003* 0.0646*** |
| Non-farm proprietor income per non-farm proprietorship ($000) | 0.1401*** -0.2340*** 0.0726*** -0.0030 -0.0088 -0.0087 |
| Per capita non-farm proprietorship income ($000)           | 0.1165*** -0.0860*** 0.1207*** 0.1732*** 0.2090*** 0.1279*** |
| Small business concentration index                         | 0.0360** 0.0599*** 0.0959*** 0.1869*** 0.2402*** 0.1462*** |

*** Significant at the 99.9 percent level
** Significant at the 95 percent level
* Significant at the 90 percent level
4.3 reveals that there are spatial “hot spots” along with “cold spots” (noted in the figure’s legend). Hot spots are spatial concentrations of counties with high values of the small business concentration index while cold spots are spatial concentrations of counties with low values of the index.¹

FIGURE 4.2 Small business concentration index

FIGURE 4.3 Spatial clustering of small business concentration index
Based on the Local Moran’s I we can confirm that some of the spatial patterns that appear in Figure 4.2 are indeed statistically significant. There are hot-spots in the northeastern U.S. from about Philadelphia northeast into northern New England and the San Francisco Bay area and parts of northern California. The largest swath of high concentrations of our small business index is from Texas north to the Canadian border including parts of Colorado, Wyoming and Montana. This latter finding may be explained for two reasons. First, because some the metrics included in our index are adjusted to population the sparseness of population in many of the counties in this part of the U.S. may be inflating some of the metrics. Second, the sparseness of employment opportunities may spur higher levels of small business activity. While this spatial clustering analysis provides some insight into the locational patterns of higher, and lower, concentrations of small business activity it also reaffirms the results of the Moran’s I, the Lagrange Multiplier, and the Likelihood Ratio tests of spatial dependency discussed above.

Consider now the simple correlations between our measures of small business activity and social capital (Table 4.4). Note that of the 108 individual correlation coefficients contained in Table 4.4, 96 are statistically significant. In addition, there is consistency across the Pearson, Spearman, and Kendall Tau b correlation coefficients adding to the confidence of the results. Of the 96 coefficients that are statistically significant 82 (85.4 percent) are positive, generally supporting our central hypothesis that higher levels of social capital are associated with higher concentrations of small business activity. The one metric of small business concentration that accounts for most of the negative correlation coefficients, results that run contrary to our central hypothesis, is proprietorship income per proprietorship. If we return to the correlations between our metrics of small business (Table 4.3) proprietorship income per proprietorship is the one metric that tends to be inversely related to our other metrics. While the preponderance of the analysis supports our central hypothesis, note that the size of the correlation coefficients tend to be small. No coefficient is greater than 0.5 and only four statistically significant coefficients are greater than 0.4. Finally, the Pearson, Spearman, and Kendall Tau b correlation coefficients do not account for or control for spatial dependency in the data.

Spatial Regression Analysis

The results of the fully specified model are provided in Table 4.5. First, note that the spatial lag parameter $\rho$ is statistically significant across all of the models. This result confirms our spatial analysis outlined above and suggests that our results are unbiased and consistent. Second, based on the adjusted $R^2$ the models explain between about 20 and 35 percent of the variance in the different metrics or measures of small business activity. This is fairly consistent with the results of Low (2009) but slightly lower than the results of Low and Isserman (2013).

In the interest of focusing on the variables of interest, our social capital metrics, the reader is first referred to the results documented in Table 4.5. In general, we find no systemic anomalies in our control variables.
Turning to the focus of our analysis, we address each of our social capital metrics in turn. It appears that a higher concentration of cooperatives, which are user owned businesses, has no role in helping us understand small business concentration. If we return to the simple correlation analysis (Table 4.4) cooperatives had the fewest correlation coefficients that were statistically significant. It could be that the types of cooperatives included in our analysis are in insufficient quantities to capture any relationships. It is also possible that, in theory, cooperatives are the embodiment of community members coming together to address some market need that is democratically controlled, the type of characteristics associated with social capital. In practice, however, cooperatives may be just an alternative business structure and as the cooperative matures the elements that make cooperatives unique fade. A credit union, for example, is a cooperative but people who join credit unions often view it as a substitute for a traditional retail bank and do not feel any unique sense of membership. The cooperatives included in our analysis may be subject to the same limitations.

We have two metrics of religion, the concentration of the number of places of worship and the percent of the population that is adherent to a religion. Unfortunately, these two measures appear to provide somewhat contradictory results. The concentration of places of worship has a positive and statistically significant impact on all of our measures of small business activity except for non-farm proprietor income per non-farm proprietorship. One must keep in mind that this latter metric, proprietor income per proprietorship, has generally moved in the opposite direction than expected. The predominance of positive coefficients supports our overall hypothesis that higher concentrations of religious organizations (places of worship) creates a denser network for small business owners. Returning to our analogy of a highway and the rules governing behavior on that highway (e.g., speed limits) our result here speaks to the size of the highway and we cannot draw any inferences about the rules governing behavior.

The result on the percent of the population that is adherent to a religion, however, tells a different story than church concentration. Of the six small business concentration metrics, a higher share of the population that is adherent to a religion has a dampening effect on four small business measures and a positive effect on two other measures. In our framework if the number of places of worship proxies the size of the highway then adherence proxies the rules governing behavior on the highway. It appears that greater adherence to a religion dampens small business activity. Recalling the findings of Audrestch et al. (2007) where different religions have different attitudes or beliefs (i.e., formal and informal rules of behavior) about business activity our measure, which aggregates different religions together, may be too coarse to capture these subtleties. The best that we can conclude is that religion does play a role in helping us understand small business activity but in subtle ways: more places of worship means a denser network of potential association or higher social capital networks but levels of adherence may dampen activity. Here we may have a more efficient highway but more restrictive rules of behavior on that highway.
TABLE 4.5 Modeling of small business concentration

<table>
<thead>
<tr>
<th>Share of businesses that have less than 9 employees</th>
<th>Number of non-farm proprietors per 1k persons</th>
<th>Non-farm proprietor income as a share of total wage and salary income</th>
<th>Non-farm proprietor income per non-farm proprietorship ($000)</th>
<th>Per capita non-farm proprietorship income ($000)</th>
<th>Small business concentration index</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Share of the population under age 18</strong></td>
<td></td>
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</tr>
<tr>
<td>1.072***</td>
<td>-20.504</td>
<td>0.160**</td>
<td>-17.758**</td>
<td>-9.126***</td>
<td>-7.208***</td>
</tr>
<tr>
<td>(0.0001)</td>
<td>(0.5616)</td>
<td>(0.0245)</td>
<td>(0.0002)</td>
<td>(0.0001)</td>
<td>(0.0001)</td>
</tr>
<tr>
<td><strong>Percent of the population aged 18 to 24</strong></td>
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</tr>
<tr>
<td>0.722***</td>
<td>-155.377***</td>
<td>0.104</td>
<td>30.499***</td>
<td>0.323</td>
<td>-3.671***</td>
</tr>
<tr>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.1116)</td>
<td>(0.0001)</td>
<td>(0.6657)</td>
<td>(0.0001)</td>
</tr>
<tr>
<td><strong>Percent of the population over age 65</strong></td>
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</tr>
<tr>
<td>1.265***</td>
<td>214.013***</td>
<td>0.412**</td>
<td>-6.681</td>
<td>-2.821**</td>
<td>-1.575**</td>
</tr>
<tr>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.1338)</td>
<td>(0.0002)</td>
<td>(0.0289)</td>
<td></td>
</tr>
<tr>
<td><strong>Percent of the population Asian</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>-0.036</td>
<td>-90.020**</td>
<td>-0.159*</td>
<td>8.561</td>
<td>-0.896</td>
<td>-1.513</td>
</tr>
<tr>
<td>(0.3447)</td>
<td>(0.0369)</td>
<td>(0.0660)</td>
<td>(0.3655)</td>
<td>(0.1026)</td>
<td></td>
</tr>
<tr>
<td><strong>Percent of the population African-American</strong></td>
<td></td>
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</tr>
<tr>
<td>-0.022**</td>
<td>-6.558</td>
<td>-0.058**</td>
<td>2.088*</td>
<td>-0.113</td>
<td>-0.345</td>
</tr>
<tr>
<td>(0.0022)</td>
<td>(0.4332)</td>
<td>(0.0604)</td>
<td>(0.5554)</td>
<td>(0.0550)*</td>
<td></td>
</tr>
<tr>
<td><strong>Percent of the population Latino</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>-0.032***</td>
<td>55.377***</td>
<td>-0.019</td>
<td>2.522**</td>
<td>0.724**</td>
<td>0.596</td>
</tr>
<tr>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.2643)</td>
<td>(0.0002)</td>
<td>(0.0010)**</td>
<td></td>
</tr>
<tr>
<td><strong>Percent of the population over age 25 with a high school education or less</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>0.142***</td>
<td>-5.361</td>
<td>0.080**</td>
<td>2.519**</td>
<td>0.797**</td>
<td>0.372*</td>
</tr>
<tr>
<td>(0.0001)</td>
<td>(0.5656)</td>
<td>(0.0001)</td>
<td>(0.0423)</td>
<td>(0.0002)</td>
<td>(0.0640)</td>
</tr>
<tr>
<td><strong>Percent of the population over age 25 with a Bachelor’s degree or higher</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.225***</td>
<td>159.933***</td>
<td>-0.074</td>
<td>12.109**</td>
<td>1.882**</td>
<td>1.108**</td>
</tr>
<tr>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.1624)</td>
<td>(0.0005)</td>
<td>(0.0018)</td>
<td>(0.0493)</td>
</tr>
<tr>
<td><strong>Share of income from wage and salary work</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-0.018***</td>
<td>11.737***</td>
<td>-0.126***</td>
<td>4.075***</td>
<td>0.393**</td>
<td>-0.417***</td>
</tr>
<tr>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0003)</td>
<td>(0.0001)</td>
</tr>
<tr>
<td><strong>Unemployment rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.349***</td>
<td>-166.412***</td>
<td>-0.261**</td>
<td>-7.995</td>
<td>-2.666**</td>
<td>-3.217**</td>
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<tr>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0015)</td>
<td>(0.0445)</td>
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<tr>
<td><strong>Percent of earnings from construction employment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.257***</td>
<td>92.513***</td>
<td>0.225**</td>
<td>-8.906**</td>
<td>-0.019</td>
<td>1.091*</td>
</tr>
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<td>(0.0001)</td>
<td>(0.0005)</td>
<td>(0.0012)</td>
<td>(0.9748)</td>
<td>(0.0569)</td>
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TABLE 4.5 Continued.

<table>
<thead>
<tr>
<th>Share of businesses that have less than 9 employees</th>
<th>Number of non-farm proprietors per 1k persons</th>
<th>Non-farm proprietor income as a share of total wage and salary income</th>
<th>Non-farm proprietor income per non-farm proprietors income ($000)</th>
<th>Per capita non-farm proprietorship income ($000)</th>
<th>Small business concentration index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of earnings from government employment</td>
<td>0.139***</td>
<td>20.722**</td>
<td>-0.093***</td>
<td>-6.570***</td>
<td>-0.875**</td>
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<td></td>
<td>(0.0001)</td>
<td>(0.0113)</td>
<td>(0.0001)</td>
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</tr>
<tr>
<td>Percent of earning from manufacturing employment</td>
<td>-0.022*</td>
<td>-65.827***</td>
<td>-0.166***</td>
<td>3.593**</td>
<td>-0.638*</td>
</tr>
<tr>
<td></td>
<td>(0.0224)</td>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0154)</td>
<td>(0.0126)</td>
</tr>
<tr>
<td>Percent of earnings from retail employment</td>
<td>-0.044</td>
<td>-31.076</td>
<td>0.288**</td>
<td>32.290**</td>
<td>4.261**</td>
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<td></td>
<td>(0.2262)</td>
<td>(0.4503)</td>
<td>(0.0005)</td>
<td>(0.0001)</td>
<td>(0.0001)</td>
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<tr>
<td>Mean household income</td>
<td>0.126***</td>
<td>91.008***</td>
<td>0.121**</td>
<td>17.337**</td>
<td>4.574**</td>
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<td></td>
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<tr>
<td>Cooperatives concentration</td>
<td>0.024</td>
<td>-2.162</td>
<td>-0.075</td>
<td>-1.428</td>
<td>-0.472</td>
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<td></td>
<td>(0.3077)</td>
<td>(0.9371)</td>
<td>(0.1751)</td>
<td>(0.6948)</td>
<td>(0.4535)</td>
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<tr>
<td>Places of worship (religions) concentration</td>
<td>0.013***</td>
<td>16.193***</td>
<td>0.014**</td>
<td>-0.928**</td>
<td>0.055**</td>
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<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0398)</td>
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</tr>
<tr>
<td>Percent of the population that is adherent to a religion</td>
<td>-0.101***</td>
<td>-65.422***</td>
<td>-0.062**</td>
<td>6.103**</td>
<td>0.285*</td>
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<td></td>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0928)</td>
<td>(0.0171)</td>
</tr>
<tr>
<td>Associations concentration</td>
<td>0.085**</td>
<td>84.112***</td>
<td>0.020</td>
<td>-1.158</td>
<td>1.356**</td>
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<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0928)</td>
<td>(0.0001)</td>
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<tr>
<td>Non-profits concentration</td>
<td>0.007**</td>
<td>19.047***</td>
<td>-0.013**</td>
<td>0.156</td>
<td>0.149*</td>
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<tr>
<td></td>
<td>(0.0133)</td>
<td>(0.0001)</td>
<td>(0.0594)</td>
<td>(0.7330)</td>
<td>(0.0596)</td>
</tr>
<tr>
<td>Goetz and Rupasingha index</td>
<td>0.002**</td>
<td>-0.246</td>
<td>-0.003</td>
<td>0.097</td>
<td>-0.003</td>
</tr>
<tr>
<td></td>
<td>(0.0014)</td>
<td>(0.7704)</td>
<td>(0.1205)</td>
<td>(0.3856)</td>
<td>(0.8759)</td>
</tr>
<tr>
<td>Spatial Lag $\rho$</td>
<td>0.010***</td>
<td>0.108**</td>
<td>0.217**</td>
<td>0.181**</td>
<td>0.111**</td>
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<tr>
<td></td>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0001)</td>
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<tr>
<td>AdjR$^2$</td>
<td>0.1992</td>
<td>0.3661</td>
<td>0.1968</td>
<td>0.2971</td>
<td>0.3526</td>
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</tbody>
</table>

*** Significant at the 99.9 percent level  ** Significant at the 95 percent level  * Significant at the 90 percent level
The concentration of associations, which includes such things as bowling alleys, public golf courses, labor, professional and business associations, adjusted to the population of the county, tends to have a positive impact on small business activity as hypothesized. Of the six measures five support our central hypothesis and only proprietor income per proprietorship metric is statistically insignificant. The concentration of non-profits generally supports our hypothesis but the results are more mixed. The results on share of businesses that are small, number of non-farm proprietorships per 1,000 persons, and per capita non-farm proprietorship income are positively associated with non-profit concentrations, but non-farm proprietorship income as a share of wages and salary income is negatively associated with non-profits. The remaining two metrics, including our principal component derived index, is statistically insignificant. Taking these results in totality our hypotheses are generally supported: higher levels of social capital are associated with higher levels of small business activity.

Our last measure of social capital is the Goetz and Rupasingha Index (2006) updated for 2010. Of the six measures of small business activity, the Goetz and Rupasingha Index are statistically insignificant for five. The only statistically significant result is for the share of businesses that are small, as defined by nine or fewer employees, in the manner that we hypothesized. These results are somewhat surprising because it is not consistent with the findings of Goetz and Rupasingha and their colleagues; however, they mirror results found by Jarema in Halstead in this volume (Chapter 8).

Conclusions

Increasingly, community economic development scholars and practitioners are looking to small business development to improve the local economy. At the same time, researchers and practitioners are coming to a better understanding of the importance of social capital in the development process. In this chapter we set out to accomplish two things, first to outline a neoclassical economic framework for how social capital can influence the creation of an environment that is conducive to small business development. The second is to begin an investigation of the relationship between the two.

If we think of the promotion of small business development as a strategy of trying to move the community along a highway from point A to point B we can see how social capital can play an important role. The movement along that highway is composed of two distinct elements: the condition of the highway and the rules that govern the use of the highway. A community with strong networks of association is said to have high levels of social capital and is akin to a well maintained four-lane highway. But implicit community institutions are the rules of operation on that highway, the speed limit. Even if the highway is four-lanes and well maintained (high social capital), a low speed limit (non-supportive implicit institutions) will slow down drivers (business startups). Within a neoclassical economic framework, the movement along that highway is associated
with a business’s startup costs, where higher costs deter small business activity. We outline four possible community archetypes where social capital and implicit institutions can directly influence the costs and hence profitability of a potential new firm.

In our empirical analysis we do find evidence that different elements of social capital can have both a positive and negative impact on small business activity, or intensity. Communities with higher opportunities for networking (one element of social capital) tend to exhibit higher levels of small business activity, but institutional rules also matter. We conclude that different elements of social capital have differentiable impacts on small business activity.

Because of this ambiguity, we must be cautious in policy prescriptions. While encouraging and supporting the expansion of various elements of social capital may be effective in assisting in the promotion of small business, our research shows that such policy activity may cause the opposite of intended results.

For example, if social capital (highway quality) is improved, while the enforcement of social rules (the speed limit) remains unchanged, we cannot expect to see the preferred results. We believe that the framework we offer and the empirical evidence uncovered moves us closer to not only having a better understanding of the role of social capital in communities but insights on policy. Further work must continue to look at the ways in which different types of social capital affect community outcomes.

Notes

1. The two other possibilities include “low-high” which is a county with a lower value of the small business concentration index surrounded by counties with higher values and “high-low” which is a county with a high value of the index surrounded by counties with a low value. There is a fifth possibility where the spatial pattern is statistically insignificant. There are “holes” in the map which represents counties where we are missing data and are removed from the analysis.

2. Naturally, there could be other econometric problems that cause difficulties for our model.

References


SOCIAL CAPITAL, COUNTY INFORMATION NETWORKS AND POVERTY REDUCTION

Stephan J. Goetz and Yicheol Han

The power of social networks to change individuals’ fortunes has been recognized since the seminal work of Granovetter (1983), who showed that so-called weak ties (e.g., those that exist over a great distance) can be more important than strong or local ties in helping jobseekers find work. The primary reason for this is that contacts outside the local network usually have access to a different set of information (e.g., about job opportunities) than contacts within the local network, because they are exposed to the same information sources as the jobseeker. Within the social sciences, network analysis has recently seen explosive growth with important principles such as preferential attachment (Barabási and Albert 1999) or the importance of weak links (Csermely 2009) finding universal applicability both in nature and society (e.g., Borgatti et al. 2009). To date, most of this work has focused on individual entities and their network connections (e.g., ants, bees, friends, jobseekers) rather than the explicit information networks that may exist among people living in different geographic entities such as counties or regions within a nation. In this sense, most previous network studies have not considered the role of space or spatial relationships in the formation and operation of human or social networks, that is, they have taken an aspatial approach. A parallel, more place-bound line of research draws on Putnam’s (2000) work on social capital, popularized in the book *Bowling Alone*, which considers trust and related connections among individuals as well as county-level spillovers, but without explicitly measuring the underlying networks. Rupasingha and Goetz (2007) operationalize a measure of social capital at the county-level and find, for example, that higher stocks of social capital within US counties are associated with greater success in reducing poverty rates over time, as well as faster economic growth.

In this chapter we seek to merge these two disparate but related literatures by examining two distinctly different types of human networks. One is the network that is embedded within social capital, that is, the ties and bonds that exist among
people living in a particular community or county. Even in this literature, a distinction is made between strong (usually frequent, local ties or connections) and weak ties, which can be contacts on the other side of the country that can be more useful to finding a job than the ties in one’s own labor market. The other is an explicitly spatial network of relationships among people that arises due to county-level commuting or migration flows. For example, when individuals migrate or commute from A to B they may bring with them new ideas and knowledge that do not already exist in B. This, too, is a form of information flow that exists within a (commuting or migration) network. For example, the information transmitted may represent ideas for new types of businesses or services that do not already exist in the community, or it may be ideas for solving problems of poverty or homelessness within a community. Migration and commuting are usually studied independently when in fact they may be connected (e.g., Renkow and Hoover 2000; also see Renkow 2003; Shuai 2012; Han et al. 2013). We then examine the roles that these two different types of networks—commuting and migration on the one hand and social capital on the other—may play in changing county-level poverty rates over time.

We not only study the independent effects of social capital and county information networks on poverty reduction but also examine whether they support and reinforce or weaken one another, through interactions. For example, social capital could enhance the positive effects of new information helpful to ameliorating poverty that is transmitted via commuting or migration flows. In particular, if a community is endowed with high levels of social capital, it may be more effective at disseminating new information that arrives with in-migrants or return-commuters. Or, if the social capital is of the negative variety, where newcomers or those who are “different” are excluded from communities or cliques, then it is possible that new information coming into a community never has a chance to be disseminated more broadly to the benefit of the community.

The notion that ideas and information flows are critical to human well-being, economic growth and innovation along with creativity is at the heart of the so-called Social Physics, which Pentland (2014) describes as a relatively new science that is being built on the newly available big data sets (such as cell phone calls, credit card purchases, etc.). Our contribution in this chapter is to examine how social capital, which itself may enhance flows of information that could bring about economic improvement, may interact with other forms of information flows—those embedded in migration or commuting networks—and enhance (or stifle) those flows.

We proceed by first briefly summarizing the literature on poverty determinants at the county-level and then reviewing the still nascent and sparse emerging literature on spatial information networks, and how these networks may affect socioeconomic well-being. We also very briefly cover the growing literature on social capital. This is followed by a discussion of a network-based entropy measure of information flows between nodes. We then discuss our empirical model and data in section 3, along with maps of the key variables. In section 4 we present the
empirical results and discuss their potential implications for policymakers and community leaders. For example, if we find interaction effects between social capital and spatial networks, community leaders in places with more social capital could benefit by knowing this, and may seek to take advantage of any positive interactions, or they may be prepared to mitigate the effects of any negative interactions. In section 5 we summarize and present ideas for further research.

Synopsis of Relevant Prior Research

We can divide the literature into studies that look at what drives migration (or commuting), on the one hand, and studies that examine the impacts of this migration (or commuting) both on the receiving and the sending communities, on the other hand. In the literature most of the work has been devoted to understanding the determinants or causes of migration (Goetz 1999; Grassmueck et al. 2008; Rupasingha and Goetz 2004; Arzaghi and Rupasingha 2013), rather than the effects or impacts of migration. Even so, both migration and commuting have important effects on local socioeconomic conditions, such as poverty, and there is growing interest in studying these effects, both for migration and commuting. For example, Partridge and Rickman (2006) find that a larger share of population living in the same house in the last five years (which implies less migration) was associated with a statistically significant higher poverty rate in US counties in both 1989 and 1999 regression models, after controlling for other salient factors. This would be symptomatic of communities that are in long-term economic decline or distress, where people are trapped because they do not have the skills or resources to move elsewhere in pursuit of new opportunities.¹

Net out-migration could also concentrate poverty in a community if those with fewer skills are more place-bound, thereby concentrating poverty. This has been argued to be at the core of the long-term persistence of poverty in entire regions, such as Appalachia or the Mississippi Delta. Commuting, on the other hand, has in recent research been found to reduce poverty rates, within the urban-suburban-rural spatial continuum, for counties that are not too distant from central business districts or downtown areas that offer agglomeration benefits and well-paying jobs (Partridge and Rickman 2008a, 2008b).

Eagle et al. (2010) are the first to explore the relationship between the structure of spatial networks using telephone communications as a proxy measure and the relative prosperity of communities, in the United Kingdom. While they do not claim causation, their results suggest that diversity of communication networks is significantly correlated with human socioeconomic well-being. The denser these spatial networks, measured through telephone network densities, the higher the economic well-being. Goetz et al. (2010), the only other related study we are aware of, examine the effect of information flows embedded within commuting networks on economic growth rates in the U.S., using two measures of network centrality. One is based on the commuting degrees (number of flows in and out) of a node and the other on the entropy of commuting flows, which can also be
calculated as in- and out-flows for each county. They argue that the more central a county within a commuting shed, the faster the economic growth rate because of greater opportunities for information and knowledge spillovers. Their statistical analysis generally supports this hypothesis. While population density is often pointed to as a measure of spillovers and related externalities that produce agglomeration benefits, Gordon (2013: 672) suggests that “[n]etwork density and population density are not the same; the latter may be a poor proxy for the former.”

Despite the rapid expansion of interest in social networks as a dimension of social capital among researchers and practitioners, the potential role of networks in improving community-wide socioeconomic well-being has not been explored rigorously. From studies of international migration it is well-known, for example, that remittances are sent back to home countries (e.g., Djaji 1986; Russell 1986; Adams et al. 2005). Less recognized, but we would argue more important from a development perspective, is the fact that these monetary flows are accompanied by flows of knowledge and ideas. The World Bank and other entities have recently suggested that international return migrants may carry with them knowledge about new legal institutions and business practices that they can introduce in their home countries. One example is relaxed licensing requirements for new businesses that are set up by returning Indian migrants from California. Likewise, a migrant from an economically depressed community in eastern Tennessee to New York City or San Francisco may be exposed to new business ideas that could be applied at the migration origin, or vice versa if the effect is experienced in the migration destination. The same may also be true of return migrants into rural communities who bring with them valuable skills and experience (von Reichert et al. 2014). In this context, we hypothesize that origin or destination counties that are better connected, in the sense of being more broadly linked within a county-level migration or commuting network, benefit more in terms of poverty reduction than those that are less connected. We define this notion of connectedness below in greater detail.

We examine the roles of two specific and distinct human networks in affecting wider socioeconomic well-being: county-level migration and commuting. Both of these networks have important spatial components. Previous county-level studies of migration or commuting have focused on gross (total) flows of migrants or commuters into and out of articular counties, and how they affect local economic well-being (e.g., Partridge et al. 2009). But studies that focus only on net or even gross in- or out-flows fail to exploit all of the information contained within the data, including migration efficiency, that is the number of gross in and out migrants that generate a particular net migrant flow (e.g., Goetz 1999). In particular, these studies ignore the fact that both migration and commuting flows represent network processes, with origins and destinations. By collapsing all flows into or out of a county into single variables (net or gross), important network features or characteristics are potentially missed.

As noted, we hypothesize that a county’s centrality or connectedness within a migration and commuting network affects important socioeconomic outcomes
such as poverty changes over time. By measuring the networks at one point in time, and change in economic conditions or well-being over the ensuing period, we substantially mitigate any potential endogeneity bias. For example, a more central and wealthier county could receive quantitatively and qualitatively more diverse tacit knowledge spillovers and as a result experience greater improvements in socioeconomic conditions over time. In addition, if migrants (commuters) move to a more diverse array of destinations as opposed to a single major city, return knowledge flows useful for improving local economic conditions could be larger, and more diverse. An empirical question here is whether in- or out-flows are more important; for example, out-migrants may still send information back to their community of origin, while in-migrants may also bring new information with them. If new in-migrants are unable to apply that knowledge, however, it may be ineffective (e.g., if they are not trusted). From a policy perspective, our particular interest is also in determining whether migration or commuting is empirically more effective in improving the local economy, depending on how they interact with social capital.

To elaborate, two variables are said to interact with one another when changing (that is, increasing or reducing) one variable also changes the effect of the other variable on the dependent variable. For example, both educational attainment and experience are associated with earnings: higher levels of both lead to higher earnings. In addition, it is possible that individuals gain an additional boost to their earnings by having both more education and experience. This boost would be beyond the effects of education and experience alone. In this sense, higher levels of one variable (e.g., education) may compensate for lower levels of another variable, such as experience. Of course, two variables may also interact negatively with one another, so that higher levels of one reduce the effect of the other on a dependent variable. Statistically, interactions are detected by multiplying the two candidate variables together and entering the product into the regression equation along with the non-interacted variables. If the coefficient estimate on the product statistically differs from zero, we conclude that an interaction effect is present.

While Rogers and Jarema (Chapter 2 of this volume) provide a broad discussion of the concept of social capital, the measure we use here is very specific and calculated for the county-level. In particular, our measure includes venues where social capital is often generated (such as bowling alleys, chambers of commerce, social clubs, membership organizations etc.) and it also captures voter participation rates in the national presidential elections, as a measure of civic engagement. This is described in greater detail in Rupasingha et al. (2006). It is important to stress that our empirical measure of social capital is by construction closely tied to the community because it uses the density of local social-capital generating establishments; thus it is more of a strong tie rather than a weak tie that would exist across space. In some ways, then, by using statistical interaction terms, we seek to use our migration and commuting measures to extend the effect of this local social capital measure over space, i.e., across county borders.
Another large and growing literature examines the effects of social capital, at the county-level, on questions surrounding economic growth and other issues such as poverty reduction. Rupasingha and Goetz (2007), for example, find that counties with higher stocks of social capital also are more successful at reducing poverty rates over time, or achieving higher per capita income growth rates, again controlling for other factors associated with these dependent variables. There are many different ways in which we could explore the effects of social capital, as one dimension of a non-spatial, place-bound network, on different socioeconomic outcomes. In this chapter we chose to focus on the effect of social capital and other networks on poverty reduction, rather than employment or income growth. We are motivated to do this in part by the recent work of Chetty et al. (2014), who also look at the effect of social capital on economic mobility using the measure developed in Rupasingha et al. (2006), that is, the odds that a child born in the lowest quintile is able to reach the top quintile on the earnings distribution.

An even larger body of research has examined county-level determinants of changes in poverty rates over time. In this literature, race, educational attainment and access to work have consistently, and stubbornly, been shown to affect the path of poverty rates over time (e.g., Albrecht et al. 2000; Levernier et al. 2000; Gunderson and Ziliak 2004; Partridge and Rickman 2006). In addition, the age distribution of the population and the dominant employment sectors have been found to matter, especially in the latest Great Recessionary period, 2007-09, from which the nation still had not fully recovered as of 2011. These conventional individual- and community-level factors correspond to “cultural” and “ecological” schools or explanations of poverty. In county-level regressions, adjusted $R^2$ values are 49 percent for the former and 44 percent for the latter, with combinations of both sets of regressors providing only small increases in $R^2$-squared values (Jensen et al. 2006).

**Entropy Centrality: Definitions and Calculations**

We next consider an entropy-based network measure that captures complex migration and commuting flows into and out of counties. Commuting and migration flows each form a network with origin-destination pairs representing nodes (counties). An important node (hub) in a migration or commuting network represents a central county in a spatial hierarchy, and the weighted flows of migrants or commuters between the nodes can be used to identify the underlying spatial structure. For example, as shown in Figure 5.1 a polycentric spatial structure may emerge through commuting flows. We suggest that commuters and migrants carry with them information as they cross county lines and our goal is to measure how much information a county receives, or loses, either through in- or out-movement of population through commuting or migration.

In information theory, entropy is a measure of the information contained in an element or a system of elements. Shannon (1948) measured the expected amount of information contained in a message transmitted through a telegraph line, which
is known as information content or Shannon entropy. Today there is significant work in computer and communication technologies on how to maximize the rate of information transfer for a given infrastructure. Within community economic development the notion of access to broadband brings notions of entropy to life.

When a message has \( N \) signals and the probability of a successful transmission of the \( i \)th signal is \( p_i \), the information content of such a message is defined as in Eq. (1):

\[
H = -\sum_{i=1}^{N} p_i \log_2 p_i
\]

Shannon entropy indicates the uncertainty or degree of freedom in a system. This information measure is useful for modeling complex systems (Gell-Mann and Lloyd 1996), and it can identify important nodes in a large network as shown by Tutzauer (2007) and Volchenkov and Blanchard (2008). These authors measure signals by using the connections between nodes, and then quantify the nodes’

**FIGURE 5.1** The concept of a polycentric spatial structure. Network flows create a self-similar fractal and self-organized spatial structure. The central node has large branches and achieves a star shape. This connectivity and spatial implication creates an influence space of central regions as well as a spatial structure.

Source: Authors.
centrality within the network. We use this network-based entropy measure to estimate the centrality of counties for both commuting and migration flows.

Both migration and commuting flows have two directions, into and out of counties. Some residents commute out to work while others come into a county to work, and migrants similarly leave and move into counties. These two flows are conceptually different, with commuting occurring on a daily basis and migration usually occurring only once and over any possible range of distances, and yet both flows have the potential to carry information with them. We calculate two entropies: in-entropy \( e_i^{in} \) and out-entropy \( e_i^{out} \) of county \( i \) defined as in Eq. (2):

\[
e_i^{in} = -\sum_j \left( \frac{m_{ij}}{\sum m_{ij}} \log_2 \left( \frac{m_{ij}}{\sum m_{ij}} \right) \right),
\]

\[
e_i^{out} = -\sum_j \left( \frac{m_{ji}}{\sum m_{ji}} \log_2 \left( \frac{m_{ji}}{\sum m_{ji}} \right) \right)
\]

Here, \( m_{ij} \) is the number of people who live in county \( i \) and work in county \( j \), and analogously for migrants. Ratio \( \frac{m_{ij}}{\sum m_{ij}} \) is the probability that one migrant (or commuter) in county \( i \) moves to county \( j \). If county \( i \) connects to all the other counties with equal flows of commuters (or migrants) to each county, the entropy is at a maximum. One way of thinking of this is that workers commute into a central business district, where they come up with new ideas due to the benefit of being together in a tighter space, which facilitates idea generation and information spillovers. Then, in the evening when they return home that knowledge flows back out into their communities with them, where it can potentially be applied to solve local problems. If region \( i \) links only to one other county (including itself), then it has minimum entropy, because \( \log_2(1) = 0 \). If interactions between any given counties depend on a few other counties, then the centrality is low even if the region has a high degree of connections. In the concept of entropy, a key factor of centrality is the diversity of connections in a network. Thus, the centrality of a county can increase either by adding more counties as commuting or migration origins or by including more equal shares of commuters (or migrants) from other counties, even though total employment (migrants) does not change (Figure 5.2).

Therefore a central idea associated with information entropy is that it is not just the total number of movers (migrants or commuters) that matters, but how evenly they are distributed across the commuting origins or migration destinations. The more evenly distributed the flows from origins (to destinations) the greater the potential information content that is conveyed through the flow. Note that distance moved or commuted may also matter in that the information content may increase with distance: spillovers of tacit knowledge are more likely the closer together the sender and receiver are in space. This also suggests that a migrant moving over a greater distance may bring different information than one moving into a nearby place.

**Empirical Model and Data**

We estimate a model with 2001–2011 simple change at the county-level in the percent poverty rate \( (Pov_{2011} - Pov_{2001}) \) as the dependent variable. The evolution of
the US poverty rate for all ages over the period 2000–2012, which includes the Great Recession of 2007–09, as well as since 1959 (inset), is provided in Figure 5.3. County-level rates, and the changes in these rates as shown in Figure 5.4, were available only through 2011 at the time of this study. This figure shows the extensive and long-lasting effect of the 2001 so-called jobless recovery, which was compounded by the 2007–09 recession. Underscoring the dramatic expansion of poverty over the last decade, vast tracts of the country show higher poverty rates than a decade ago. The main exceptions appear to be the energy-dependent counties in the nation’s center, which have benefited enormously from recent expansion in unconventional forms of energy exploration. Otherwise counties in Michigan, the remainder of the “rust belt” in Illinois, Indiana and Ohio (except for Pennsylvania) and the southeast US Census region along with selected counties along the West Coast that are generally not on the coast, appear to have borne the longer-lasting brunt of this economic shock, in the form of a 5.9 percentage point increase in the poverty rate, or higher.

Regressors that we use in our analysis include the initial poverty rate in 2001 (Povt), as a starting value that places all counties on the same playing field, along with standard determinants of poverty familiar from previous work. Most notably,
the “big four” determinants of poverty—education, race, female (single) household and access to work are included, with the latter measured by the unemployment rate (we also consider, alternatively, the workforce/population ratio, with similar results).

We include population and population density as key controls for agglomeration effects as well as the fact that counties have vastly different sizes. Thus we can determine separately the effects of population size and population density, while controlling implicitly for land area. This is important because (see below) there is less commuting as defined by the Census in Western States simply because counties there are larger in terms of land area (so fewer county borders are crossed even though commuters may travel just as large a distance as Eastern seaboard commuters). This is shown in Figure 5.5, as the percent of non-movers and non-commuters in each of the U.S. counties in 2000.

As additional regressors we include population age shares (15–24 and 65+ year olds), percent of adults with a college degree, percent African-American and Hispanic, employment shares in natural resource-based industries as well as manufacturing and construction. Reid et al. (2013) point out that African-Americans and workers in the construction and manufacturing industries were especially hard-hit by the 2007–2009 recession. We also include the unemployment rate as a measure of access to work, which is expected to be associated with a higher poverty rate.
In addition, and as noted, we include as controls per capita migrants and per worker commuters in each county, as reported by the Census Bureau. These are measured separately for both in and out movers or commuters. Because we are also including population numbers, this fixes the number of residents who work in their county of residence, as well as the number of individuals living in the same house over the five years. Migration behavior is measured over five years (1995–2000) whereas commuting is measured in only one year, close to the Census year (1999). Our last basic but central measure in this benchmark equation is the social capital index compiled by Rupasingha, Goetz and Freshwater (2006), which we include along with Regional Fixed Effects (RFE).

This empirical measure of social capital, which also is adopted by Markeson and Deller in Chapter 4, is based on a range of variables from County Business Patterns that can be separated into those that are more Olson-type or rent-seeking, and those that are more in the spirit of facilitating social interaction, i.e., these are Putnam-type groups. Among the former are (see Rupasingha et al. 2006: 89) political, labor, business and professional organizations while the latter include civic organizations, bowling alleys, golf clubs, fitness and sports organizations, as well as religious groups. These organizations are calculated on a per capita (10,000) basis, and then the first principal component is used to create a constant aggregate measure of social capital at the county-level. This measure has been in a variety of subsequent studies and proven to quite reliably separate communities with low and
high endowments of social capital, and it is remarkably consistent with the state-level measure of social capital reported in the General Social Survey (GSS), which is obtained using entirely different techniques.

FIGURE 5.5 Map of percent (a) out-migrants and (b) out-commuters
Source: Authors, using US Census Bureau, Census 2000 data.
The migration (Migt) and commuting (Comt) vectors are handled in parallel fashion, i.e., we calculate the same in- and out-entropy measures for each of these. This provides the following equation to be estimated.

\[
\Delta \text{Pov} = \alpha + \beta \text{Pov}_t + \gamma \Omega_t + \lambda \text{RFE}_t + \varsigma \text{Migt} + \theta \text{Comt} + \epsilon
\]

Here, Pov is the change in poverty rates between 2001 and 2011, Pov\(_t\) is the poverty rate in 2001, \(\Omega_t\) represents all the control variables described above, RFE\(_t\) are the regional fixed effects, and Mig\(_t\) and Com\(_t\) are our migration and commuting measures and are the primary variables of interest. The error term (\(\epsilon\)) is assumed to be well-behaved. All of these variables are from the U.S. Census Bureau except where noted. The variables calculated from the migration and commuting data are by the authors, using Java software. Summary statistics for each of the regressors are presented in Table 5.1.

In Figure 5.6 we illustrate how the raw migration and commuting flows appear in the specific cases of Georgia and neighboring Alabama. In the migration network the central role of Atlanta is clearly visible, primarily with outflows of residents into the suburbs. These flows are then in a number of cases offset with reversed flows of

![FIGURE 5.6 Movement of people in Alabama and Georgia; (a) migration and (b) commuting](source: Authors using 2000 US Census data.)
<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>No.</th>
<th>Mean</th>
<th>st.dev</th>
<th>Max.</th>
<th>Min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>initial pov.</td>
<td>Poverty percent all ages, 2001</td>
<td>3,078</td>
<td>13.75</td>
<td>5.77</td>
<td>43.50</td>
<td>2.10</td>
</tr>
<tr>
<td>population (x103)</td>
<td>Resident total population, estimated, 2001</td>
<td>3,078</td>
<td>91</td>
<td>296</td>
<td>9,635</td>
<td>0.06</td>
</tr>
<tr>
<td>pop_density(x103)</td>
<td>Resident population per square mile, 2001</td>
<td>3,078</td>
<td>0.23</td>
<td>1.69</td>
<td>68.433</td>
<td>0.00</td>
</tr>
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<td>%age_15-24</td>
<td>Resident population 15 to 24 years, percent, 2001</td>
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<td>13.67</td>
<td>3.38</td>
<td>46.20</td>
<td>6.45</td>
</tr>
<tr>
<td>%age_65+</td>
<td>Resident population 65 years and over, percent, 2001</td>
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<td>14.88</td>
<td>4.13</td>
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<td>1.65</td>
</tr>
<tr>
<td>%edu_college+</td>
<td>Persons 25 years and over, percent college’s degree or higher, 2000</td>
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<td>42.56</td>
<td>11.17</td>
<td>85.39</td>
<td>16.91</td>
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<tr>
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<td>Resident population, Black alone, percent, 2001</td>
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<td>8.88</td>
<td>14.48</td>
<td>86.00</td>
<td>0.00</td>
</tr>
<tr>
<td>%race_hispanic</td>
<td>Resident population, Hispanic or Latino origin, percent, 2001</td>
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<td>6.43</td>
<td>12.17</td>
<td>97.40</td>
<td>0.10</td>
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<tr>
<td>%emp_agri</td>
<td>Employment in farming, agriculture, forestry, fishing, and hunting, percent, 2001</td>
<td>3,078</td>
<td>9.90</td>
<td>9.22</td>
<td>64.94</td>
<td>0.00</td>
</tr>
<tr>
<td>%emp_manucon</td>
<td>Employment in manufacturing and construction, percent, 2001</td>
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<td>16.73</td>
<td>9.57</td>
<td>59.08</td>
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<td>Civilian labor force unemployment rate, 2001</td>
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<td>5.00</td>
<td>1.77</td>
<td>17.70</td>
<td>1.60</td>
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<td>%female_householder</td>
<td>Female householder, no husband present with own children under 18 years, percent, 2000</td>
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<td>3.32</td>
<td>28.20</td>
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<td>In-migrants per 100 resident population, 1996–2000</td>
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<td>6.35</td>
<td>65.17</td>
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</tr>
<tr>
<td>out-migrants per pop</td>
<td>Out-migrants per 100 resident population, 1996–2000</td>
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<td>18.21</td>
<td>5.99</td>
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<td>In-commuters per 100 employees who work in a given county, 1996–2000</td>
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<td>23.80</td>
<td>11.33</td>
<td>100.0</td>
<td>1.89</td>
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<tr>
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<td>Out-commuters per 100 employees who reside in a given county, 1996–2000</td>
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<td>32.62</td>
<td>17.68</td>
<td>86.13</td>
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<tr>
<td>SOC</td>
<td>Social Capital 1997</td>
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<td>0.00</td>
<td>0.63</td>
<td>3.54</td>
<td>-1.94</td>
</tr>
<tr>
<td>mig_entropy-in</td>
<td>In-entropy centrality in migration network, 1996–2000</td>
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<td>0.49</td>
<td>0.08</td>
<td>0.78</td>
<td>0.00</td>
</tr>
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<td>0.48</td>
<td>0.08</td>
<td>0.75</td>
<td>0.00</td>
</tr>
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<td>com_entrpoy-in</td>
<td>In-entropy centrality in commuting network, 1996–2000</td>
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<td>0.04</td>
<td>0.32</td>
<td>0.02</td>
</tr>
<tr>
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<td>3,078</td>
<td>0.14</td>
<td>0.05</td>
<td>0.33</td>
<td>0.00</td>
</tr>
</tbody>
</table>
in-commuting back into the central business district. These two figures resemble patterns of a self-organizing fractal: even though the commuting network looks quite different from the migration network, it also has features of a fractal. Here we see four hubs in the Atlanta area, involving 100,000 or more daily commuters.

A visualization of our calculated migration and commuting entropy measures is provided in Figure 5.7 in the form of a map. The relative sizes of the in- and out-migration entropies are similar. It is worth repeating that these measures reflect entropies, in terms of diversity of migration origins and destinations, rather than gross or even net flows of people, which are implicitly controlled for in the regression equation. The relatively lower entropy values in the West especially are noteworthy, and largely relate to the larger land areas of the counties where greater geographic distances may minimize cross county flows.

**Empirical Results and Implications**

The regression results are shown in Table 5.2 in the first column, with region fixed effects but without the entropy-based information measures. The coefficient estimate for initial poverty rates in 2001 is consistently negative and highly significant.
statistically across all regressions. This indicates convergence in poverty rates over time, which means that counties that started out with higher poverty rates experienced smaller increases in poverty over the ensuing decade, while counties that started out with lower poverty rates experienced greater increases. The convergence just means that the counties are becoming more similar in terms of the poverty rate. Note that this is consistent with an overall increase in poverty. In general, the signs of the statistically significant regression parameters $\Omega$ ($\gamma$) are in the expected direction. In particular, counties with larger shares of 15–24 year olds have higher poverty, while those with proportionately more retirees were similarly affected, suggesting that in this period retirement savings were perhaps insufficient to prevent poverty increases (possibly due also to large stock market losses).

Signs for the “big four” poverty determinants are as expected, and their statistical significance is robust across all of the equations, with the exception in this specification that communities with more African-Americans and Hispanic populations

<table>
<thead>
<tr>
<th>TABLE 5.2 Regression parameter estimates</th>
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<tr>
<td>Const</td>
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<tr>
<td>Initial pov.</td>
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<td>%age_65+</td>
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<td>%edu_college+</td>
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<tr>
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<td>%unemployment</td>
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<tr>
<td>in-migrants per pop</td>
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<tr>
<td>out-migrants per pop</td>
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<tr>
<td>in-commuters per emp</td>
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<td>out-commuters per emp</td>
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<td>mig_entropy-out</td>
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<tr>
<td>com_entropy-in</td>
</tr>
<tr>
<td>com_entropy-out</td>
</tr>
<tr>
<td>mig_entropy-in’SOC</td>
</tr>
<tr>
<td>mig_entropy-out’SOC</td>
</tr>
<tr>
<td>com_entropy-in’SOC</td>
</tr>
<tr>
<td>com_entropy-out’SOC</td>
</tr>
<tr>
<td>Adj. R square</td>
</tr>
</tbody>
</table>

Dependent variable = pov2011—pov2001
Significance levels: different from zero at *10%, **5%, and ***1% or lower
shares saw poverty rates decline (note that this effect remains robust even after we add the migration-related variables). College degrees provided strong protection against rising poverty rates, as did access to employment—or, for unemployment, the effect was strongly negative in the sense that more unemployment led to greater poverty. The female householder share was strongly associated with greater poverty increases, showing the largest standardized beta coefficient of all regressors (ahead even of the initial poverty rate).

Effects of the simple migration measures are statistically different from zero, with more in-migrants per capita leading to higher poverty increases and the converse for out-migrants. Only the number of out-commuters per worker is statistically significant, and negative, which is generally consistent with expectations based on previous research results. The effect of social capital is also pronounced and statistically robust: counties with higher stocks of this variable were better able to reduce poverty rates over this period, or at least prevent poverty rates from rising as rapidly as they did in communities with lower stocks. This finding is also generally consistent with the research results reviewed above, and it suggests that social capital can play an important role in improving local economic conditions (such as poverty) over time.

This is clearly an important finding and one that is central to this overall book. While we do not know the precise pathways through which this effect occurs, we can speculate on a few of them. For example, in counties with higher social capital residents may seek to work alongside one another both inside and outside of the political process, rather than putting up roadblocks, in finding and implementing local-level policies that create public benefits such as lowering the poverty rate. For example, they may subsidize the construction of low cost housing that gives the homeless a permanent address from which they can apply for employment. Studies have also found that counties with higher social capital the residents tend to be more supportive of locally-owned businesses (Kwon et al. 2014). In turn, small, locally-owned businesses tend to be associated with higher rates of per capita income growth over time (Fleming and Goetz 2011).

Next we turn to the effect of information flows conveyed through migrants or commuters via the entropy-based measures. We also interact these with the social capital variable. In so doing, the earlier regression results are generally not affected. Migration in-entropy measured alone leads to higher poverty rates, but this is offset when the term is interacted with social capital. When migrants arrive from a greater variety of origins, receiving communities with higher stocks of social capital appear to be able to take advantage of the information flows that accompany these movers. The opposite is true for out-migrants: considering this term alone, a greater variety of destinations is associated with more poverty reduction, which is consistent with the idea that a more diverse information flow back into the origin is translated into poverty reduction. However, in this case social capital has the opposite effect, in that it reduces the beneficial effect on poverty reduction. Higher commuting out-entropy is associated with greater increases in poverty rates, but this is counteracted by social capital. This suggests counties that send commuters to
a greater variety of other communities, are penalized in the form of poverty increases unless they also enjoy higher social capital stocks that allow them to take advantage of new information or insights brought back by commuters. On the other hand, our results indicate that the effect of commuting out-entropy on poverty reduction is not distinguishable from zero. In other words, this type of information flow has no bearing statistically on poverty change over time in the community (ignoring the effect of the interaction with social capital).

In further analysis we examine whether the net effects of these entropies on poverty, after taking into account interactions with social capital, are still negative. Here we use the fact that,

\[
\frac{\delta \Delta pov}{\delta \text{entropy}} = \alpha + \beta \text{SOC}
\]

where \(\alpha\) is the estimated coefficient for the entropy variable and \(\beta\) is that on the interaction term, and we evaluate this relationship for different levels of SOC. The net effect on poverty depends not just on the parameters \(\alpha\) and \(\beta\) but also on the level or amount of social capital: the higher the level, the greater the effect. In this case we find that for about 92 percent of all counties the effect of migration in-entropy is to reduce poverty rates, holding social capital stocks constant at their mean. For the commuting out-entropy measure, social capital stocks are not high enough to translate into lower poverty rates.

**Summary and Policy Conclusions**

Our study confirms earlier research in that we find social capital within a county to reduce poverty rates in a statistically significant and important fashion. In addition, the directions of the effects of our other explanatory variables are in general consistent with prior expectations. A novelty of our work is that we apply and extend recent advances in network science to the question of information flows across county lines, and also test for potential interactions between these flows of ideas and community-level social capital stocks. In other words we examine if social capital somehow enhances, or detracts from, any potential value that is contained in the information that is transmitted through cross-county border commuting or migration flows. Conversely, we also investigate whether the ideas that may be embedded within migration and commuting flows somehow amplify or reduce any positive effects of social capital. Here it is interesting to distinguish between migration and commuting because in the case of migration the new ideas may come from places that are further away while in the case of commuting a smaller distance is involved by definition, and thus the difference of novelty of the ideas may not be as pronounced. The migration and commuting phenomena also differ significantly in that migration tends to occur once or at least infrequently over a span of a few years while commuting usually occurs on a daily basis, allowing for repeated absorption of new ideas and their testing through a local application.
To our knowledge, and as noted, commuting and migration have not previously been studied from this perspective.

Our results indicate that, without any interactions, only greater migration out-entropy is associated with poverty reduction. This would suggest that the benefit of new ideas and innovation occur only after a certain distance threshold between the origin and destination pair is exceeded, and it is consistent with the World Bank’s and others’ arguments that international migrants may do more to bolster economic growth in the place they left behind than only sending remittances. This particular finding is also consistent with the possibility that a poor county with a more balanced portfolio of other counties to which out-migrants move receives an additional boost over those counties where the out-migrants’ portfolio of destination counties and the migrants’ distribution across these is less well-balanced.

A related noteworthy result is that social capital appears to enhance both migration in-entropy and commuting out-entropy. This was found to be the case in over nine of every ten counties, depending on the measure used. It is plausible that communities with more social capital are more welcoming of new immigrants, which in turn enhances their potential impact in terms of reducing poverty. A similar effect could be in play for out-commuting, where any new knowledge acquired outside the county by commuters is translated more readily into poverty-reduction in their county of residence, if that county also enjoys higher stocks of social capital. More generally, our results suggest that social capital and network-based information flows are mutually reinforcing at the county-level.

In terms of implications for policy makers and practitioners we conclude that there are strong tangible benefits in general to increasing social capital stocks along with human capital within counties, if the goal is to reduce poverty rates. For example, the cooperative extension system likely already plays an important role in many communities in terms of increasing social capital through various interactions with community members, although this assertion merits further analysis. This beneficial effect of primarily local social capital networks on community socioeconomic well-being is perhaps the single most important conclusion and contribution of this chapter.

We also find that social capital can reinforce the positive effects of ideas and information flows that accompany occasional migrants and daily commuters across county lines. However, here an important nuance emerges in that when we look at gross commuting and migration flows (rather than net), higher stocks of social capital reinforce the out-migration entropy and the in-commuting entropy in the direction of raising poverty rates over time. This negative (in the sense of raising poverty) effect of social capital is worth further study and contemplation, before blanket policy recommendations are made. In particular, this suggests that when more migrants leave to a greater variety of destinations, those left behind may use their social capital to block any poverty reduction efforts. Likewise, for reasons not yet fully understood, a community with higher social capital that receives a greater variety of in-commuters also somehow is more likely to see poverty rates increase rather than fall. This, too, is worthy of future study.
More generally, these nuanced findings suggest that before seeking to improve social capital stocks in a community, policy makers and practitioners are well-advised to contemplate how this increased social capital may interact with the migration and commuting characteristics of the community. Thus we cannot make a blanket recommendation that all communities seeking to lower their poverty rates adopt a strategy of raising social capital stocks. Instead, the devil as always is in the details, and all communities are not alike in the degree to which they would benefit from such a strategy, once we consider the cross-county information and idea flow networks that are layered on top of the social capital stocks.

Notes

1. Note that this measure only considers in-migrants; it does not count out-migrants, who by definition are no longer counted once they have left the community, and are therefore not available to answer the question. In that sense this measure is skewed.

2. For example, 100 in-migrants and 50 out-migrants generate a net in-flow of 50 migrants, and the same is true of 100,050 in-migrants and 100,000 out-migrants. The first case is one of much greater efficiency, because far fewer migrants have to move to generate the net flow of 50 in-migrants.

References


MEASURING SOCIAL CAPITAL AT THE NEIGHBORHOOD SCALE THROUGH A COMMUNITY BASED FRAMEWORK

Shannon H. Rogers and Kevin H. Gardner

Introduction

Social capital has many community related implications but is often measured through research approaches in isolation from the subjects being studied; for example, through the use of secondary and proxy data. While there are many reasons for this research approach, there are also missed opportunities for co-learning and problem solving. Community based participatory research (CBPR), often employed by health researchers, is gaining traction in other fields and disciplines as a powerful and legitimate research tool. This tool also provides the means to both measure and build community social capital (similarly to the community survey approach used by Friedman and Fraser in Chapter 7).

CBPR was used as a guiding framework to understand the relationship among measures of social capital and the built environment within the context of sustainability in New Hampshire municipalities (Manchester and Portsmouth) in New Hampshire (Rogers et al. 2010). This process began with the formulation of a relevant and timely research question that many practitioners articulated and was refined through key informant interviews: How does one measure community sustainability? A pilot study then laid the groundwork for testing research methods. Lessons learned from the pilot study were used to inform a larger study, along with focus groups in each municipality. The focus groups contained municipal officials, community decision makers, and other representatives from local interests. This all led to our main data gathering tool—a survey administered in a community-engaged manner that included visiting 2,000 homes. In the results interpretation and dissemination process the same community members and other involved stakeholders were invited to the “Sustainable New Hampshire” Workshop in September of 2010 to hear about the findings as well as offer their opinions, interpretations, and suggestions for future research and collaborations. To bring the
results to an even broader audience, a “road show” presentation was created and shared with community groups and municipal offices. In addition, a policy brief accessible to communities was published to stimulate discussion on how to implement the research findings through policy action. This chapter will detail these methods, the research findings that indicated higher levels of social capital in more walkable neighborhoods, and the broader implications of both the methods and findings.

Background

We all know of places and communities that have a combination of physical, economic, and social attributes that make us want to come back again. They can be large cities, small towns, and everything in between. These places often consist of walkable and safe streets, local businesses, thriving schools, economic opportunities, green spaces, and accessible transportation that connect the community with the rest of region. Place matters for many reasons, including its ability to influence our perspective on environmental issues and its impact on many of society’s most issues (e.g., Hamilton et al. 2010; Gieryn 2000). Within the context of sustainability, how do we measure relevant aspects of communities that may contribute to resilience and adaptability, and compare them over time? In order to understand the desire to measure sustainability at the community scale, we must first understand what has made some of our communities unsustainable. Sprawl, although often imprecisely defined (Lopez and Hynes 2003), broadly refers to land use and development patterns that have spread out from an urban core or center into areas that were once rural and sparsely populated (Cornell 2010; Bruegmann 2004; Nechyba and Walsh 2004). Sprawl has had many negative consequences for America and the sustainability of our communities. From the increase in resource use to the health impacts from air and water pollution, and the costs of delivering municipal services on a sprawling landscape there are many environmental impacts of a sprawling landscape (Johnson 2001). However, sprawl has also had negative impacts on key social components of communities (e.g. Oldenburg 1997). The physical separation of community residents can also have the unfortunate effect of depleting the community’s social capital stock.

Because the political and financial motivations behind many land use decisions did not always have the best interest of the average citizen in mind, there are many reasons to justify the consideration of social factors in design and planning of land use and community structure. The planning profession has long advocated for the involvement of citizens and stakeholders in community decision-making (see Chapter 7). Additionally, empirical research has found that when social infrastructure is strong healthier communities result, whether from a public health perspective or community well-being perspective (Ewing and Kreutzer 2006). Robert Putnam found that trusting communities have a measurable economic advantage and increased life expectancy (2000). Much of the work of New Urbanism and sustainable development is based on the idea that certain
communities will foster greater social interactions. “Through grids of streets, trans-
portation choices, and the siting of buildings along sidewalks, New Urbanism
brings destinations within reach and allows for frequent encounters between
In his exposition on the importance of “third places” as locations where individuals
can interact with diverse groups of people, Oldenburg observed the decline of such
places. “America does not rank well on the dimension of her informal public life
and less well now than in the past. Increasingly, her citizens are encouraged to find
their relaxation, entertainment, companionship, even safety, almost entirely within
the privacy of homes that have become more a retreat from society than a
connection to it” (Oldenburg 1997: xxix). Many American land use policies and
development since the 1950s have not explicitly considered social factors (Bullard

In understanding sustainable communities, the concept of social capital is
potentially very useful. Social capital, as defined by Harvard political scientist Robert
Putnam, is “the collective value of all ‘social networks’ [who people know] and the
inclinations that arise from these networks to do things for each other [‘norms of
reciprocity’]” (Saguaro Seminar 2010). Recently popularized by Putnam’s book
Bowling Alone that chronicled the decline in civic engagement in America, the term
is something many scholars in the past have talked about more broadly. Field (2003)
suggests that the theory of social capital is very straightforward. “Its central thesis can
be summed up in two words: relationships matter” (Field 2003: 1). Furthermore, just
as television viewing has the potential to influence the time and inclination people
have toward building relationships in a community, so too do sprawl, characteristics
of road networks, and land use zoning. Relationships matter, and our place in the
landscape has the potential to change those relationships. The research described in
this chapter probes these interactions to enhance our understanding of how land use
and transportation infrastructure influence social capital and sustainability at the
neighborhood and community levels.

A Community Based Case Study

Community Based Participatory Research (CBPR) inspired our research. CBPR
has six principles (Table 6.1) (O’Fallon and Dearry 2002). As closely as possible, we
were guided by these principles. The brief descriptions that follow will illustrate
this and serve as an example for how other research activities, specifically around
community development and social capital, can do the same.

The research described here employed a multi-method approach to under-
standing the relationship between social capital and the built environment. The
triangle in Figure 1 represents the steps completed to get to the large survey tool,
which was the key data collection method.

Communities are a logical unit of analysis for understanding the interaction
between social capital and the built environment. Delanty (2003) tries to flesh out
the many definitions of community to give a modern perspective of the concept.
TABLE 6.1 Principles of community based participatory research (O’Fallon and Deyry 2002)

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<th></th>
<th>1 Promotes active collaboration and participation at every stage</th>
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<td>2 Fosters co-learning</td>
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<td>3 Ensures projects are community driven</td>
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<td>4 Disseminates results in useful terms</td>
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<td></td>
<td>5 Ensures research and intervention strategies are culturally appropriate</td>
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<td></td>
<td>6 Defines community as a unit of identity</td>
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“The increasing individualism of modern society has been accompanied by an enduring nostalgia for the idea of community as a source of security and belonging in an increasingly insecure world, and in recent years, as an alternative to the state as a basis for politics” (Delanty 2003:i). While the modern definition of community has certainly expanded due to technology and a more mobile lifestyle that incorporates both physical and virtual connections, there still seems to be a strong tie to local geography and bounded definitions of a community. The research we describe focused on two cities and one town in the state of New Hampshire. Studying the community, i.e. town or city and neighborhoods within them, is particularly well suited for New Hampshire because of the state’s focus on local decisions and policy making (http://urlm.co/www.nhcivicalliance.org/). It also provides a focus on
micro-level primary data, unlike the secondary data or proxies used in many social capital research studies.

Selecting towns in New Hampshire also allowed the project team to focus on differences between the communities based on the given metrics and, for the most part, eliminate confounders due to differences in climate, culture, geography, and other factors that would arise between regions. Additionally, the expertise of the project team and their networks, including pre-established collaborations with local and state planners, allowed for a thorough case study.

After informal meetings and discussions with key stakeholders, such as community and regional planners and decision makers and a land developer, we conducted a pilot study. The pilot study took place in Durham, New Hampshire during the spring of 2008 with limited resources and a stated purpose of simply testing surveying techniques for measuring social capital and the built environment on the neighborhood scale and looking for initial interesting patterns. Two neighborhoods of varying built form were selected. Faculty neighborhood, the denser neighborhood, abuts the main shopping center in town. This is the only neighborhood with clearly defined boundaries in Durham that is close to the center of downtown. In contrast, the Longmarsh neighborhood was chosen as a second study site because of its relatively newer construction, more sprawling design, and greater distance from the center of town, and thus greater distance from most social resources, such as the library, shopping, schools, and churches.

A main goal of the pilot study was to test a survey instrument and to see if there was a relationship between neighborhood level characteristics of the built environment and individuals’ social capital. Because Robert Putnam and the Saguaro Seminar at Harvard University (Saguaro Seminar 2009) have developed a respected and often used survey tool and because a great deal of data from the use of this tool are available for comparison, we utilized the Saguaro Seminar’s social capital short form as a starting point to build our survey.

After the survey was reviewed and revised based on comments from colleagues and experts, we administered it via telephone to 50 randomly selected residents from Faculty neighborhood and to all 50 residents of the Longmarsh community. As there were so few homes in the Longmarsh community, we included all of the homes in the neighborhood. All individuals were contacted via telephone and attempts were made to conduct the survey over the phone unless individuals refused the survey, requested written copies or did not respond to a request for a telephone survey after three attempts to reach them by telephone. If individuals did not respond after three attempts, a paper version of the survey was mailed to them. The overall response rate for the survey was 50 percent, with approximately equal response rates in each neighborhood.

Applying the Methods at a Larger Scale

The pilot study motivated a larger study in a number of ways. The results, while from a small sample, suggested that a relationship might exist between walkability
and social capital at the neighborhood scale. Because the pilot study only surveyed a small group of residents in two neighborhoods, we expanded the study to look at a greater number of neighborhoods within two different municipalities. Additionally, the method of administering the survey, as well as some of the questions on the survey, was modified based on the results of the pilot study and the advice of municipal officials and community leaders. Two municipalities in the state of New Hampshire, Portsmouth and Manchester, were chosen because of their variety of neighborhood types and social, economic, and cultural diversity.

Selection of Communities

Manchester, NH
Manchester is New Hampshire’s largest city with over 100,000 residents. It is also the most diverse population, mostly due to its role as the State’s Refuge Resettlement Area. Over 76 languages are spoken in Manchester schools. Additionally, Manchester offers a diversity of neighborhood types, from sprawling suburban to older, more compact neighborhoods close to the inner city. It also has a strong commitment to economic development and social equity. The associate director of the regional planning commission in the I–93 corridor (where Manchester is located) expressed the desire and willingness to work with researchers to determine how to better measure sustainability, especially the social components of sustainability, in the communities under the commission’s jurisdiction and at a regional level (Diers 2008).

Portsmouth, NH
Portsmouth is a city of approximately 22,000 residents located in the Seacoast area of New Hampshire. A port city that has been a key part of the Northern New England economy since colonial times, Portsmouth is also a fairly progressive community. The city has a history of active and engaged individuals coming together to address pressing local and national issues. Recently, in November of 2007, Portsmouth became the first eco-municipality on the East Coast of the United States (Britz 2008). While Portsmouth has begun to work toward the objectives of being an eco-municipality, it is still attempting to define and measure its goals toward sustainability. In a conversation with the city’s sustainability coordinator, he expressed his need for assistance in measuring sustainability at the municipal level. As a result, he agreed to participate in the proposed research. This partnership allowed first hand access to the problem and question of measuring sustainability at the municipal level.

Two focus groups, one in each municipality, were then conducted with local and regional planners and decision makers in order to understand their perspectives on sustainability as well as what neighborhoods to focus our research efforts in when looking for a variety of built form as well as socio-economic diversity. We used the questions in Table 6.2 to guide the focus group discussions.
### TABLE 6.2 Focus group guiding questions

#### Definitions and Metrics
- How is your community defining sustainability?
- What indicators and/or metrics are you using to measure your progress on sustainability issues?
- How were these indicators/metrics selected?
- Are there measures of the built environment that you use to determine sustainability?
- How are you defining success in regards to your progress on sustainability issues?
- What tools do you use to implement sustainable planning initiatives?

#### Resources and Information
- What is your main constraint or limiting factor to implement the principles of smart growth and sustainable development?
- What is the most beneficial resource you have for implementing these principles?
- Where do you get your most useful information and who are your key informants?
- Are there any key groups that we should contact to discuss issues in your community related to...Sustainability? Transportation? Social capital? Public health? Neighborhood action?

#### Social Capital
- Have you heard of social capital? (If “no”, we’ll provide the definition)
- Does social capital fit into the work you do? How?
- Is social capital part of your definition of sustainability?
- How would you define the social component of sustainability?

#### Implementation and Interactions
- What would you need to be able to implement your principles of sustainability better?
- How do you interact with the planning board?
- What is the most effective format for you, as practitioners, to receive the results of research so that it can be implemented effectively?

#### Case Study Neighborhoods
- Would you say that there are specific neighborhoods in your community that are developed in a more desirable way, from the standpoint of sustainability?
- If so, what makes them desirable? Where are they?
- Would you say that there are specific neighborhoods in your community that are developed in a less desirable way, from the standpoint of sustainability?
- If so, what makes them less desirable? Where are they?
- Would you say that there are specific neighborhoods in your community that have higher levels of social capital (or civic engagement/involvement)? What specifically has indicated to you that they have high social capital? Where are these neighborhoods?
- Would you say that there are specific neighborhoods in your community that have lower levels of social capital? What specifically has indicated to you that they have low social capital? Where are these neighborhoods?
- In the neighborhoods you have mentioned so far, where are the locations that people would gather to meet, talk, and socialize?
- Who might we talk to determine the delineation of specific neighborhoods in community X?
Results from the focus groups were extremely useful in helping us identify neighborhoods to study. Additionally, this information guided the survey development process and enhanced the context and motivation for the research (see Rogers et al. 2010; Rogers et al. 2012; Rogers et al. 2013 for more details). Specifically, we utilized the community input from the focus groups to select ten neighborhoods of varying shape and demographics within each of the cities. One hundred residents were randomly selected in each of the neighborhoods to receive a survey. While the pilot study featured a phone survey, it was determined, again with input from the community based focus group, that this method of survey delivery was too time intensive for a much larger study of 2,000 people. Therefore, a drop off and mail back survey was created (with the option of submitting answers online instead of paper if residents preferred). Dillman (2000) was used as a guideline for survey design and implementation. While surveying in each of the 20 neighborhoods, researchers took a number of photographs and made observations about the physical and social environment.

Similar to research conducted in Ireland (Leyden 2003), we collected information on walkability through answers to a series of questions about which locations individuals perceived they could walk to from their home. These locations included a post office, restaurant, home of a friend, grocery store, coffee shop/café, bar/pub, shopping center, community/recreation center, church, convenience store, school, natural area/open space/park, and library/bookstore. We used these responses to create a self-reported walkability score for each respondent and then to determine if an individual lived within a more or less walkable neighborhood. To measure social capital, we asked survey respondents to indicate their levels of trust for various groups and individuals. We also asked residents about their frequency of participating in community activities including volunteering, attending public meetings, visiting friends, and attending organizational meetings. We compiled their responses into three indices using factor analysis: trust, community, and walkability.

A response rate of approximately 35 percent (comparable to other surveys of this size and budget) yielded nearly 700 returned surveys. Statistical analysis revealed a correlation between social capital and walkability. Individuals from walkable
neighborhoods showed higher trust indices vs. those from less walkable neighborhoods (t = 3.83), and also had higher community indices (t = 4.18). Thus, individuals who indicated living in a more walkable neighborhood had higher levels of social capital, even after controlling for demographic variables. This finding may have important implications for sustainable communities and quality of life and are discussed further in Rogers et al. (2012) and Rogers et al. (2013). As with all survey research, selection bias is a possibility. Individuals who enjoy walking may choose to live in more walkable neighborhoods. Other factors such as family size and weather may also play a role in perceptions of walkability. Despite these caveats, the correlation between walkability and social capital provides further evidence for the consideration of social capital as a key component of community development.

In the results interpretation and dissemination process the same community members and other involved engaged stakeholders involved throughout the research process were invited to the “Sustainable New Hampshire” Workshop in September of 2010 to not only hear about the results but to offer their opinions, interpretations, and suggestions for future research and collaborations. To bring the results to an even broader audience, a “road show” presentation was created and has been shared with the Manchester Health Department and the Portsmouth Sustainable Practices Committee. Findings from this research have since been included in Portsmouth’s Sustainable Transportation Plan proposal, a Carsey Institute Policy brief (Rogers, Gardner, and Carlson 2014) and presented at the New Hampshire Community Transportation Summit, as well as several academic conferences.

Conclusions

In summary, CBPR was used as a guiding framework for much of this research, which is particularly apropos to a study focused on community and social capital. The technique allowed us to interact with neighborhood residents and directly measure a key component of social capital (trust). This began with the question of what makes a community sustainable, which many practitioners wanted answered. As described, a pilot study then laid the groundwork for testing research methods, including revisions to questions related to social capital. Lessons learned from the pilot study were used to inform a larger study, along with two focus groups (one in each municipality). The focus groups contained municipal officials, community decision makers, and other representatives from local interests. All of this community input led to the creation of a survey tool that was delivered in a community sensitive and engaged manner to 2,000 households. Results were then shared in community-accessible ways through a workshop, “road show”, and accessible policy brief. We followed the six principles of CBPR as closely as possible given resource and time limitations by encouraging active collaboration and participation by key community members throughout. This participation led to co-learning opportunities that were invaluable in the problem formulation and design stages, an important consideration for research focused on relationships
between community and social capital. While it can be challenging, researchers were highly motivated to disseminate results in useful terms by fostering an ongoing dialogue and opportunity for future research.

Although criteria may change slightly from place to place, the general method will be useful in developing strategies for regions outside of New Hampshire also. Wherever the study, CBPR can be a powerful guiding force for conducting community development work to better understand and utilize social capital. The methods can be useful to researchers with well-defined study areas of limited size who can afford to conduct their research at the sub-community (neighborhood) level.

Our study also avoids the problems with using proxies for social capital (e.g. third places, infrastructure, or other measurable variables which provide the environment to create social capital but don’t measure it directly). We were able to tie the physical infrastructure (characteristics which promoted walkability) with the actual social capital measure (respondent’s levels of trust). This is an advantage of a survey based, primary data, community level approach. This approach is also labor intensive, expensive, and place based so it would be difficult to extrapolate results to larger regions. It thus illustrates strengths and weaknesses of “micro” approaches like ours and Friedman and Fraser’s with the “macro” approaches used in chapters like Skidmore and Abe, Goetz and Han, and Markeson and Deller.

Notes
1 The Saguaro Seminar is an initiative of Harvard University and was founded by Robert Putnam after the publication of his book on civic engagement in America, *Bowling Alone*. The short form social capital survey can be found at www.hks.harvard.edu/saguaro/
2 The walkability index for “walkable” neighborhoods was 9.96, vs. a value of 2.88 for “less walkable” neighborhoods. This difference was statistically significant at the 99% level (t = 45.8).

References
SOCIAL CAPITAL AND COMMUNITY PLANNING

Mary A. Friedman and Andria V. Fraser

Introduction
Climate change has presented a new urgency for more involved planning, especially in communities that have experienced flooding or are vulnerable to flooding from increased impervious surfaces and more severe weather. Recent economic challenges have heightened the awareness of the need for resiliency and effectiveness through community and regional planning strategies. Yet, in the past decade, communities across the United States have seen an anti-government and anti-planning movement grow in number and force. This has sometimes been labeled “Tea Party” antics (Flint 2012; Kaufman, Kaufman Zernike 2012), and while it isn’t new for planning efforts to be met with resistance, these tactics are orchestrated rather than organic and have grown in intensity with more public meetings being side-tracked by an organized effort to stop any government related policy or regulatory efforts. The combination of these problems creates a critical need for planners to get their residents on the side of community planning. Getting community members involved is a primary goal and linked to successful outcomes in community planning as documented by Hopkins and Zapata in Engaging the Future (2007). This means that people living and working in a community must come to understand the benefits of plans, programs, projects, policies, and regulations (which may limit what they can and cannot do on their own, on their neighbors’, and on public property). Herbert Smith (1979) refers to a strong level of support for these types of community efforts as a “planning attitude” in a community. This attitude happens more frequently if the public is continually involved in the planning process (Hopkins and Zapata 2007). If planning is to successfully meet the pressing demands of development and weather related pressures, planners might well consider spending more of their time creating social capital.
In 2004, the American Planning Association sponsored a conference on the applicability of social capital in the planning discipline. A series of articles were published following the conference which implored the planning profession to further investigate how the concept can and should be used in the field to address pressing environmental and social problems (Putnam et al. 2004). This chapter attempts to define social capital from the community planner’s perspective. The goal is to make the case for social capital as an important community investment and to discuss how planners can increase and maintain high levels of social capital within their community. The premise is that a key ingredient to successful planning practices is strong social capital within a community. However, to facilitate growth and maintain high levels of social capital it is necessary for the planner to continually invest in social capital rather than to go in search of it only when problems arise within a community.

In 2009, we conducted a study of social capital and community attitudes in New Hampshire’s Lamprey River Watershed. Our results indicate that social capital does increase the likelihood of support for innovative forms of planning (open space design) in the Lamprey River Watershed.

Defining Social Capital for the Planner

Social capital is referred to as a “metaconstruct” because “it is a collection of constructs” (Rohe 2004: 158) describing a rather nebulous phenomenon. As previous chapters have shown, social capital involves social interactions, trust, and reciprocity in social networks (Putnam 2000). Some of the constructs have been discussed in the fields of religion, political science, sociology, and community development for many years, and other constructs are additions to an improved social capital model. Simply stated, social capital is the byproduct of a network of social connections, and it is used to make gains for the individual, a subgroup, or a larger community. First, it seems necessary to state that some may define social capital as the product of any group related activity, whether or not the activity produced positive or negative outcomes. For example, gangs can be defined as having social capital from their association in the group, yet these outcomes are not considered positive by broader societal standards. However, in the field of community planning within the U.S., where the purpose is an improved physical and social environment, the definition of social capital denotes positive social activities and outcomes overall. This may lead to short-run improvements within communities, but more important, planning’s realm of influence is for long term improvements which sustain resources and build community strength.

The social capital concept needs to be explored by the planning profession as both a specific goal of planning and as a means to meet community level goals listed in Master Plans, such as improving the condition of the environment, increasing diversity, and building a stronger sense of community. Communities high in social capital would be expected to be more involved and to trust that other community members would act in the best interest of the group. This creates a
sense of obligation between community members which can increase conformance and support for positive community outcomes. A group’s ability to connect socially should further connect group members to their surroundings and to collective action in order to produce positive outcomes for the shared environment. Interestingly, these ideas are consistent with Plato’s social contract theory which was furthered by Thomas Hobbes, John Locke, and Jean-Jacques Rousseau. Social contract theory basically purports that people are willing to surrender certain individual freedoms for privileges and protections accruing to a group of like-minded individuals. Social capital is a more descriptive and palatable term for this phenomenon.

A planner’s role in the community is to assist community members in identifying needs and problems, and in finding ways to improve place-based social and physical conditions. Social capital, as described here, helps to promote coordination and cooperation, which is necessary in order for a community to work together to identify problems and their respective strategies for solutions with the planner. Therefore, social capital should be considered an important goal in community and environmental planning, as it is a very useful tool in achieving both local and broader societal goals. But, in order for community planners to promote and increase levels of social capital, we need to better understand it. Planners should be trained in social capital theory and in methods for measuring, evaluating, and improving social capital. This helps the planner promote and build social capital needed for community improvements that are broad in reach, community focused, and sustainable. The following section highlights how planners are trying to achieve these goals.

Social Capital and Smart Growth

Smart Growth principles are a set of planning strategies and techniques highlighted in the planning profession to address contemporary economic, environmental, and social problems in communities. According to the American Planning Association, Smart Growth “supports choice and opportunity by promoting efficient and sustainable land development, incorporates redevelopment patterns that optimize prior infrastructure investments, and consumes less land that is otherwise available for agriculture, open space, natural systems, and rural lifestyles” (2012: 1). The ten Smart Growth principles outlined by the US EPA are as follows: 1. Mixed land uses; 2. Compact building design; 3. Range of housing opportunities; 4. Walkable neighborhoods; 5. Distinctive, attractive communities; 6. Open space, farmland, and natural beauty; 7. Direction of development towards existing communities and services; 8. Variety of transportation choices; 9. Development processes that are predictable, fair, and timely; and 10. Encouraging community and stakeholder collaboration in decision making.

There is a link between the ability of a community to utilize and implement Smart Growth principles (as well as other planning and sustainability initiatives) and the level of social capital within the community (Putnam et al. 2004; Robertson 2010). It makes sense that communities with actively involved residents
are more likely to understand and to therefore support such community planning efforts. Higher levels of social capital may mean increased involvement in the protection of resources, including support of sustainable land development policy. Furthermore, sustainable land development may in turn nurture more social capital. The Smart Growth technique of open space design promotes mixed use and denser development, reduces sprawl, and creates opportunities to interact. Increased interaction creates opportunities for the production of social capital (Putnam et al. 2004; Engwicht 1993; Robertson 2010). All of these are objectives that fit with the Smart Growth principles.

Similar to Smith’s way of thinking about the benefits of a community having residents with a planning attitude, Woolcock, Briggs, Rohe, and others, suspect that social capital is a necessary component to creating what they refer to as a planning culture (2004). The presence of social capital means that individuals experience the benefits of a community and look beyond present and self-interest to community and future interest (Meyers 2007). Vidal (2004: 167) calls social capital the “bread and butter” to environmental and community planning. Therefore, social capital is a staple in fueling an active, participatory democracy. The theory of deliberative democracy is also relevant here too. According to political science theorist Jürgen Habermas, deliberative democracy is the idea that deliberation is a necessary precursor to a truly democratic decision (1984). Deliberation comes from increased interaction and must be present for social capital to be created. Again, we see that the Smart Growth principles are interconnected; however, the most important piece is likely the bread and butter, the social capital component, of planning. The case study presented in this chapter illustrates how these principles can be applied at the community level.

Survey Research and Social Capital in the New Hampshire Lamprey River watershed

The New Hampshire Lamprey River Watershed study provides an example of why and how social capital may be useful in promoting a more openly interactive community. The study shows that the more socially active and trusting community members, the more likely they are to support community level efforts to protect the environment. In the Lamprey River Watershed survey we found that more social interaction led to more support for the innovative Smart Growth technique of open space design. These results suggest that we should spend the time creating a more socially connected community if we are to make advances towards sustainability. If a community planner or community development specialist (hereafter planner) understands the benefits of an active citizenry, he or she should learn how to use social capital for improved decision making within and for the community. A primary method for both connecting and assessing community attitudes and values is the community attitude survey.

Successful community planning requires the continuous exercise of obtaining and assessing community-level data. The survey research method is a valuable
technique to ensure resident input for successful community planning. Survey research may build a community’s capacity for dialog among community members, as well as with planning-related agencies, while knowledge of planning topics is created and spread among participants. Data obtained from the survey may be used to establish a baseline regarding current public involvement in the community, perceptions of the community, attitudes and behaviors with respect to the environment, and knowledge and concern for specific community characteristics.

The planner may use survey data to create psycho-demographic profiles of residents with respect to social capital and other relevant issues, e.g., environmental stewardship, economic development/growth, and housing availability/affordability. For example, who are the residents that are likely to help in efforts to address problems? Their responses may reveal why they report certain attitudes. Planners need to see the responses to questions that are indicators of acceptance of planning techniques that protect or improve the environment, such as Smart Growth and other sustainability practices. This is the mechanism of a healthy planning culture.

Once a baseline measure of existing social capital has been established (see Putnam 2000), as well as other demographic variables, and current community attitudes and values, the community planner can develop a strategy to facilitate the growth and maintenance of social capital in order to accomplish community goals. Planners may initiate activities to increase social activities, work to build trust in the community, and to inform and continue to encourage positive community and environmental outcomes. Future surveys may be used to monitor progress in planning efforts. Most important, the survey research itself should be seen as a social capital project which increases awareness, dialog, deliberation—and therefore helps develop community social capital.

**The 2009 New Hampshire Lamprey River Watershed Survey**

The 2009 community survey of the Lamprey River Watershed in New Hampshire was funded (in part) by the University of New Hampshire Water Resources Research Center and was conducted to measure and analyze social capital within the Watershed and its potential impact on land use policy. A survey was distributed to 3,000 residents in the Watershed. In this research, social capital was measured and used to describe the community’s capacity to accomplish a tangible group benefit—in this case, protecting resources in the Watershed with an open space design policy. The research was an effort to support the theory that planners can treat social capital as a valuable community resource, one which can be cultivated and harvested. The study results revealed that increasing levels of social activities and social trust among residents leads to a greater likelihood (3 percent) to support the open space design development approach (Robertson 2010).

The survey questions regarding social capital are not customarily found in a planner’s resident-community survey. The social capital indicators are based on the Harvard Kennedy School, Social Capital Community Benchmark Survey (2000; 2006). The questions used to measure social capital and some of the survey results...
are presented here to help guide the professional or lay planner in this type of work. For the complete survey results refer to Robertson (2010).

The survey was sent to a stratified random sample of 3,000 people from nine towns in the Lamprey River Watershed and four towns partially in the Watershed. A one-time mailing was sent to a large sample of residents in order to make a broader reach in basic awareness of the issues presented within the survey. The intent was to reach a larger segment of the population with hopes of making them aware that a study was being conducted and that they were considered part of it, even if the surveys weren’t returned. This led to a tradeoff in response rates as budget constraints did not allow for additional waves of survey mailings. The survey yielded 768 responses for a 23 percent response rate, which provided a large enough sample to provide broad representation and information on the issues of interest. Kwak and Radler (2002) in a meta-analysis of survey research results found an average 24.2 percent response rate on a one-time mailing and an overall of 42.5 percent after two additional notices, similar to those in the Lamprey River study.

The order of the survey questions was carefully chosen, as we did not want to start asking questions about social activities and trust (social capital concepts) which seemed more sensitive in nature. Therefore, the first section of the survey included questions that would be considered traditional community survey questions. Some were formulated to get a better understanding of Watershed residents’ attitudes toward water quality on a local, regional, and national level; their own behaviors that may impact local and regional water quality; how connected they were to the watershed (do they participate in recreation activities in or around the watershed); their perception of water pollution; what they perceive to be the major sources of water pollution; and how these may be mitigated.

Respondents were asked to rate, “How important do you think the planning board’s work is in your community?” The Likert rating scale was one through five with five being extremely important. The mean score was 4.04 indicating that respondents believe the work of the planning board is important (Robertson 2010). A second question asked respondents to rate, “How familiar are you with the planning board’s work in your community?” The rating scale was one through five with one being not at all familiar, three being somewhat familiar, and five being extremely familiar. The mean score of 2.88 indicated that residents within the Watershed are only somewhat familiar with the planning board’s work (Robertson 2010). Respondents believe the work of planning in their communities is important yet they are not as confident in knowing what that work entails. This finding gives planners something to use in starting conversations and relaying more information to residents. Familiarity with the work of the planning board, and other local boards, should increase as the community converses more frequently about these community level topics (Robertson 2010).

Another question asked residents to consider what they themselves might do to help improve water quality in their communities. The results show that 34.6 percent were willing to attend a meeting with neighbors to discuss community issues, 31.7 percent of respondents were willing to attend town planning board
meetings, 18.1 percent were willing to volunteer on a local board to help make decisions regarding water quality, 16.1 percent were willing to attend regional planning meetings, and 14.9 percent were willing to join a local water conservation group. Thus, identifying the willingness to be engaged can be accomplished with a community survey. This willingness to engage can be turned into action—getting people to meetings, getting people to volunteer, getting people to support planning initiatives, if we know they are willing. This is the harvesting and use of social capital.

The second part of the survey was dedicated to the measurement of social capital in the Lamprey River Watershed communities. These questions may not typically be in a community survey distributed for planning purposes, however, as suggested in Putman (2000; 2003), Putman et al. (2004), and Robertson (2010), planners should strongly consider adopting such questions in order to establish a basic understanding and baseline measurement of social capital, identify areas where there is support for community efforts, and highlight areas (geographic or demographic) where strengthening social capital is necessary. Social capital questions on a survey can also help increase residents’ awareness of the concept and the relationships between a range of social activities (friends, sports, religious, and volunteer) and being connected to community overall.

The first question of this section asked respondents to identify items that make them feel like they are part of a community. The list of 14 options is presented in descending order in Table 7.1. The most popular responses are “friends,” “people in the neighborhood,” and “owning property in town.” Social connectedness is the key factor in creating social capital, therefore, the desire and opportunity to make friends, especially of neighbors, is critical to creating a sense of belonging to community. The items least likely to make someone feel part of their community were “place of worship,” “people that work in the community,” and “people at my work” (Robertson 2010). An “opportunity to get involved and volunteer” made 42 percent of the sample feel that they were part of a community (Robertson 2010). Sixty percent of the sample believed that the landscape and natural resources make them feel like part of the community (Robertson 2010). If both social and geographic connections are important components to a strong sense of community, and further the creation of social capital, then planners should use both of these paths in order to improve the residents’ sense of connectedness to community.

As repeatedly stressed in this volume, trust is an important component of social capital. The Lamprey River Watershed survey included 18 questions as measures of trust (also based on the Community Benchmark Survey 2000). Communities high in social capital would be expected to trust that community members would act in the best interest of the group as a whole during times of need. For example, when respondents were asked how likely it was that people in their community would cooperate with a directive to conserve water or electricity because of an emergency, 80 percent believed that it is “likely” or “very likely” that people would cooperate by conserving the resources (Robertson 2010). This finding shows considerable trust in the community. Trust in groups and organizations with which
Residents may associate is also important for the development of social capital (Putman 2000). Respondents were asked: “Generally speaking, how much do you trust different groups of people that may be involved in some way in your community?” Trusting people in the neighborhood received the greatest percentage of “trust them a lot” responses at 40.5 percent (Table 7.2). Eighty-three percent trust their neighbors either “a lot or somewhat.” The next most popular category is trusting people in the community at 17.6 percent (a lot) and 61.0 percent (somewhat) for a total of 78.6 percent for the sample trusting people in the community (Robertson, 2010).

Residents also report that they trust local boards and governing bodies more than they trust state or federal agencies (Robertson 2010). Trust should be seen as a necessary component to building social capital in a community, and according to these results, the local level is likely to be a more trusting environment for community members.

The mean scores were produced on these same 14 different types of groups considered to be part of a broad community network. They are listed in Table 7.3 in descending order and indicate where planning efforts may focus in order to both use trust and build trust to advance planning initiatives. The results are a reminder that we may be more successful if we move beyond primarily government mandated programs to ones that are inspired by local residents, focused on local needs, and with more diverse and well-trusted sources of information and assistance.

Table 7.3 helps highlight the difference in levels of trust, from a higher level of trust for groups that would be considered more local, such as people in the

---

**TABLE 7.1 “What makes you feel like you are part of a community?”**

<table>
<thead>
<tr>
<th>Feel like part of a community through…</th>
<th>Frequency and Percentage saying “Yes”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friends (N=766)</td>
<td>584 (76.2%)</td>
</tr>
<tr>
<td>People in the neighborhood (N=765)</td>
<td>575 (75.2%)</td>
</tr>
<tr>
<td>Owning property in town (N=765)</td>
<td>536 (70.1%)</td>
</tr>
<tr>
<td>The landscape and natural resources (N=766)</td>
<td>457 (59.7%)</td>
</tr>
<tr>
<td>Family (N=766)</td>
<td>424 (55.4%)</td>
</tr>
<tr>
<td>Activities in the community (N=766)</td>
<td>417 (54.4%)</td>
</tr>
<tr>
<td>Just by living in the community (N=766)</td>
<td>399 (52.1%)</td>
</tr>
<tr>
<td>Opportunities to get involved (N=766)</td>
<td>327 (42.7%)</td>
</tr>
<tr>
<td>The schools (N=766)</td>
<td>306 (39.9%)</td>
</tr>
<tr>
<td>Volunteers of the community (N=766)</td>
<td>301 (39.3%)</td>
</tr>
<tr>
<td>Place of worship (N=766)</td>
<td>215 (28.1%)</td>
</tr>
<tr>
<td>People that work in the community (N=766)</td>
<td>212 (27.7%)</td>
</tr>
<tr>
<td>People at my work (N=766)</td>
<td>167 (21.8%)</td>
</tr>
<tr>
<td>Other</td>
<td>49 (6.4%)</td>
</tr>
</tbody>
</table>

*Source: Robertson (2010).*
TABLE 7.2 Percentages: “How much do your trust different groups of people that may be involved in your community?”

<table>
<thead>
<tr>
<th>Trust</th>
<th>Trust them a lot</th>
<th>Trust them somewhat</th>
<th>Trust them only a little</th>
<th>Don’t trust them at all</th>
<th>Don’t know or does not apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>People in your neighborhood (N=739)</td>
<td>299 (40.5%)</td>
<td>314 (42.5%)</td>
<td>56 (7.6%)</td>
<td>17 (2.3%)</td>
<td>53 (7.2%)</td>
</tr>
<tr>
<td>People in your community (N=731)</td>
<td>129 (17.6%)</td>
<td>446 (61.0%)</td>
<td>91 (12.4%)</td>
<td>18 (2.5%)</td>
<td>47 (6.4%)</td>
</tr>
<tr>
<td>People at work (N=704)</td>
<td>208 (29.5%)</td>
<td>235 (33.4%)</td>
<td>44 (6.3%)</td>
<td>11 (1.6%)</td>
<td>206 (29.3%)</td>
</tr>
<tr>
<td>School administrators (N=729)</td>
<td>113 (15.5%)</td>
<td>283 (38.8%)</td>
<td>134 (18.4%)</td>
<td>66 (9.1%)</td>
<td>133 (17.3%)</td>
</tr>
<tr>
<td>Local news media (N=730)</td>
<td>35 (4.8%)</td>
<td>259 (35.5%)</td>
<td>245 (33.6%)</td>
<td>117 (16.0%)</td>
<td>74 (10.1%)</td>
</tr>
<tr>
<td>Places of worship (N=719)</td>
<td>200 (27.8%)</td>
<td>182 (25.3%)</td>
<td>67 (9.3%)</td>
<td>30 (4.2%)</td>
<td>240 (33.4%)</td>
</tr>
<tr>
<td>Conservation Commission members (N=738)</td>
<td>139 (18.8%)</td>
<td>298 (40.4%)</td>
<td>115 (15.6%)</td>
<td>49 (6.6%)</td>
<td>137 (18.6%)</td>
</tr>
<tr>
<td>Planning Board members (N=738)</td>
<td>72 (9.8%)</td>
<td>307 (41.6%)</td>
<td>177 (24.0%)</td>
<td>87 (11.8%)</td>
<td>95 (12.4%)</td>
</tr>
<tr>
<td>Locally owned businesses (N=739)</td>
<td>111 (15.0%)</td>
<td>387 (52.4%)</td>
<td>143 (19.4%)</td>
<td>28 (3.8%)</td>
<td>70 (9.5%)</td>
</tr>
<tr>
<td>National/multinational businesses (N=725)</td>
<td>17 (2.3%)</td>
<td>128 (17.7%)</td>
<td>233 (32.1%)</td>
<td>200 (27.6%)</td>
<td>147 (20.3%)</td>
</tr>
<tr>
<td>University/Cooperative extension specialists (N=732)</td>
<td>230 (31.4%)</td>
<td>287 (39.2%)</td>
<td>74 (10.1%)</td>
<td>27 (3.7%)</td>
<td>114 (15.6%)</td>
</tr>
<tr>
<td>Town/local government officials (N=736)</td>
<td>64 (8.7%)</td>
<td>361 (49.0%)</td>
<td>190 (25.8%)</td>
<td>83 (11.3%)</td>
<td>38 (5.2%)</td>
</tr>
<tr>
<td>State Agencies (N=741)</td>
<td>44 (5.9%)</td>
<td>341 (46.0%)</td>
<td>218 (29.4%)</td>
<td>76 (10.3%)</td>
<td>62 (8.4%)</td>
</tr>
<tr>
<td>Federal Agencies (N=736)</td>
<td>27 (3.7%)</td>
<td>234 (31.8%)</td>
<td>256 (34.8%)</td>
<td>163 (22.1%)</td>
<td>56 (7.6%)</td>
</tr>
</tbody>
</table>

Source: Robertson (2010).

neighborhood (mean score 2.3), to a lower level of trust for groups more distant, such as the federal government (mean score 1.18), and big businesses (mean score 0.93). According to these results, people are more likely to trust neighbors than local government (mean score 1.58) and planning boards (mean score 1.57), but these scores are still higher than other levels of government. This supports a local, and especially neighborhood level, social capital model for planners to engage with
Residents. This means that creating opportunities for people to live in and engage at the neighborhood level is important for developing social capital (Robertson 2010). It is likely that if trust does not exist at this more localized level there would be less involvement and less connection to community. The more community involvement, trust, and connection to community, the more likely we are to take care of local problems and improve the quality of life in neighborhoods and communities.

Further, respondents were asked to rate (on a scale of 0 to 3) “How much of the time do you think you can trust government to make good decisions?” (Table 7.4). Echoing previous results, respondents in general do not trust government to make “good” decisions all of the time. Local government does elicit more trust overall and residents’ trust in a governing body’s ability to make good decisions decreases the farther away that government is from home. There is very little confidence in federal government decision-making with only 18.8 percent agreeing to their ability to make good decisions “just about always” or “most of the time.” In fact, 32.4 percent indicate that the federal government “hardly ever” makes good decisions, whereas only 8 percent say this of local government (Robertson 2010).

The mean scores displayed in Table 7.5 compare four levels of government; residents put the federal government, at a mean score of 0.87, far below other levels of governance in their ability to make good decisions. Trust in government seems dangerously low overall, yet local government and county government are rated more favorably with respect to making good decisions “most of the time.”

### Table 7.3: Mean scores: “How much do you trust these groups to make decisions in your community?”

<table>
<thead>
<tr>
<th>How much do you trust on a scale of 0 to 3 (3 being high)?</th>
<th>Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust in people in your neighborhood</td>
<td>2.30</td>
</tr>
<tr>
<td>Trust in people at your place of work</td>
<td>2.29</td>
</tr>
<tr>
<td>Trust in university and cooperative extension specialists</td>
<td>2.17</td>
</tr>
<tr>
<td>Trust in places of worship</td>
<td>2.15</td>
</tr>
<tr>
<td>Trust in people in your community</td>
<td>2.00</td>
</tr>
<tr>
<td>Trust in conservation commission members</td>
<td>1.88</td>
</tr>
<tr>
<td>Trust in locally owned businesses</td>
<td>1.87</td>
</tr>
<tr>
<td>Trust in school administrators</td>
<td>1.74</td>
</tr>
<tr>
<td>Trust in local government</td>
<td>1.58</td>
</tr>
<tr>
<td>Trust in planning board members</td>
<td>1.57</td>
</tr>
<tr>
<td>Trust in state government</td>
<td>1.52</td>
</tr>
<tr>
<td>Trust in local news media</td>
<td>1.32</td>
</tr>
<tr>
<td>Trust in federal government</td>
<td>1.18</td>
</tr>
<tr>
<td>Trust in national and multinational businesses</td>
<td>0.93</td>
</tr>
</tbody>
</table>

*Source: Robertson (2010).*
local level trust can be seen as an opportunity to get support for local policy, regulations, and other community efforts for the advancement and protection of resources. There is obviously work for planners to do in order to make connections and build trust with all of the levels of government, but especially the federal government agencies.

At the end of the trust section of the survey, respondents were asked “Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people?” This provides a more general trust benchmark for the population overall. Surprisingly, only 28.3 percent of the respondents believe that “generally speaking… people can be trusted.” Nearly 75 percent of the sample believed that “you can’t be too careful” or “it depends” when it comes to trust. The lack of trust in people in general can negatively affect social capital (Paxton 1999; Robertson 2010). This is why repeated interaction, with positive outcomes along the way, provides important opportunities for building trust and furthering the development of social capital within and across community borders.

In the next series of questions, people were asked to report about the community activities in which they have been involved as well as other activities that are part of the measures for social capital (primarily from the Community

### TABLE 7.4 Percentages: “How much do you trust government to make good decisions?”

<table>
<thead>
<tr>
<th>Trust</th>
<th>Just about always (3)</th>
<th>Most of the time (2)</th>
<th>Only some of the time (1)</th>
<th>Hardly ever (0)</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local government (N=739)</td>
<td>22 (3.0%)</td>
<td>341 (46.1%)</td>
<td>302 (40.9%)</td>
<td>61 (8.3%)</td>
<td>13 (1.8%)</td>
</tr>
<tr>
<td>County government (N=739)</td>
<td>9 (1.2%)</td>
<td>274 (37.1%)</td>
<td>314 (42.5%)</td>
<td>58 (7.8%)</td>
<td>84 (11.4%)</td>
</tr>
<tr>
<td>State government (N=738)</td>
<td>9 (1.2%)</td>
<td>255 (34.6%)</td>
<td>383 (51.9%)</td>
<td>78 (10.6%)</td>
<td>13 (1.8%)</td>
</tr>
<tr>
<td>Federal government</td>
<td>6 (0.8%)</td>
<td>131 (17.7%)</td>
<td>356 (48.2%)</td>
<td>236 (31.9%)</td>
<td>10 (1.3%)</td>
</tr>
</tbody>
</table>

Source: Robertson (2010).

### TABLE 7.5 Mean scores: “How much do you trust government to make good decisions?”

<table>
<thead>
<tr>
<th>Trust to make good decisions…</th>
<th>Number of respondents</th>
<th>Mean (0,3)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local government</td>
<td>726</td>
<td>1.45</td>
<td>0.690</td>
</tr>
<tr>
<td>County government</td>
<td>655</td>
<td>1.36</td>
<td>0.659</td>
</tr>
<tr>
<td>State government</td>
<td>725</td>
<td>1.27</td>
<td>0.661</td>
</tr>
<tr>
<td>Federal government</td>
<td>729</td>
<td>0.87</td>
<td>0.722</td>
</tr>
</tbody>
</table>

Source: Robertson (2010).
Benchmark Survey 2000). Survey participants were asked “Were you involved with any groups that took local action for social or political reform in the past 12 months?” and “Did you serve on a committee for a local club or organization in the past 12 months?”

Table 7.6 presents the results of reported volunteer activities in social, political or local group work of the residents in the communities of the Lamprey River Watershed. These are good indicators of a general level of involvement as well as predictors of future local involvement. Barely one-third of the sample reports to having done these activities (Robertson 2010). This is similar to the findings of Putnam and others who have reported declining civic involvement. Suspects for the decline in civic engagement are the increased time spent watching television, using the internet, as well as long commutes to work (Putnam 2000). Strong local involvement should be a primary goal for planning. Survey research can help planners to gather more specific and detailed information regarding barriers to local involvement.

Respondents were then asked to think about their neighborhood, close friends and family, and the activities in which they were involved in over the past 12 months. Slightly over 50 percent of the respondents report spending some time with their neighbors at least several times per month; 29 percent talk with their neighbors either daily or several times per week; and another 10.4 percent talk to a neighbor on a daily basis. Five percent of respondents report that they do not talk to or visit with neighbors. The mean number of contacts with neighbors is 7.75 times per month, with median and mode values of 5 per month (Robertson 2010). Planners can benefit from these strong connections within neighborhoods. This casual interaction can lead to a micro-local level of dissemination of community level information (Robertson 2010).

To further determine the level that residents are social in their communities in the Lamprey River Watershed, respondents were asked to estimate how many times in the last 12 months they did 15 common social activities (Table 7.7). The greatest percentage of respondents in an activity is for socializing surrounding friends and family (see bold print in Table 7.7).

In summing the percentages across the categories “2-10 times per month” through “more than 1 per week,” the highest occurrences are “visit with relatives” and “friends over to the house” with 89 percent each. Recreating outdoors with

**TABLE 7.6 Involvement in local action in past 12 months**

<table>
<thead>
<tr>
<th>Local action for social or political reform (N=743)</th>
<th>Served on a committee for a local club or organization (N=743)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>195 (26.4%)</td>
<td>232 (31.2%)</td>
<td>427 (28.8%)</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>544 (73.6%)</td>
<td>511 (68.8%)</td>
<td>1,055 (71.2%)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1,482</td>
</tr>
</tbody>
</table>

*Source: Robertson (2010).*
family or friends is reported by 84 percent of the respondents. The next highest ranking is the item on attending a celebration, parade, local sport or art event in the area, with 65 percent of respondents. Respondents report very little activity in on-line discussions and yet more emphasis has been made over the last decade on using the internet to connect people in community (see Skidmore and Toya, Chapter 9). According to these data, activities that allow family and friends to gather, especially outdoors, may be a better way to get more people to interact and connect in a community. This can be a way for planners to inspire broader level social capital and broader level community-based outcomes.

Another important point for planners to consider as they attempt to create a sense of connection and involvement in communities is to consider obstacles to participation. This section of the questionnaire reads “Many obstacles keep people from becoming involved with their community. Thinking about your own life, are there obstacles or barriers that make it difficult for you to be as involved with your community as you would like?” The responses are displayed in Table 7.8.

An inflexible or demanding work schedule continues to be considered the greatest obstacle to community involvement with 43 percent saying it is a “very important obstacle.” Being afraid that participation will only lead to more work is another important obstacle to involvement. Also important is the perception that there is a lack of information on community issues and on how to get involved. This is a consistent finding in the survey results: residents need more information about community issues, how to get involved, and how government works. These concerns can be addressed by planners through good leadership, well organized meetings and volunteer efforts, and targeted information channels. Planners will have to organize to allow people the flexibility to get involved in projects around their work schedules, get detailed information to residents, and tell them specifically how to be involved. Planners must find ways around the major obstacles to involvement with the use of more creative and meaningful opportunities.

Respondents were asked to elaborate on obstacles in an open-ended question “What do you think are the main reasons people do not participate in community decision making?” Lack of self-confidence was stated by a number of respondents. This may be an issue that planners need to pay more attention to in public involvement strategies. According to the American Planning Association Code of Ethics, planners are charged with the duty of being advocates for those with limited skills in public discourse (APA 2009). Those stakeholders with little time, information, know-how, and lack of confidence in their skills to participate should be better informed about the issues and better assisted in participation. These are the underpinnings for bonding social capital and allow for more diversity in community outcomes (whether in decision making or other volunteer efforts).

Another obstacle that was repeated multiple times by respondents was the perception that people only get involved when they have a self-interest or personal investment in the outcome. This is a tough issue for planners; people do need to be involved more regularly than when they have a personal interest in the outcome. But perhaps the way into the community planning system is when there is
heightened awareness due to a personal impact. This can then be built upon to acquire a fuller set of skills such as an understanding about the broader community and trust among those who participate in the process. This reminds us that planning must make involvement an opportunity for civic education. Overall, planners must be sensitive to a variety of obstacles to public participation if future engagement in community is to continue in the most open and democratic way possible.

Respondents were asked another open-ended question “How would you prefer to participate in community related issues?” The results reveal two primary categories, group work and individual work. Some people prefer to “work in groups,” “serve on committees,” and “attend meetings” while others prefer an individualized task. There is a sentiment again that the commitments would have to be limited in

TABLE 7.7 Percentage of people participating in social activities

<table>
<thead>
<tr>
<th>Social Activity</th>
<th>Never per month</th>
<th>Once per month</th>
<th>2–10 times per month</th>
<th>12 times per month</th>
<th>Once more than once per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attended a celebration, parade, local sport or art event in the area</td>
<td>15</td>
<td>16</td>
<td>49</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Taken part in artistic activities with others</td>
<td>63</td>
<td>10</td>
<td>16</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Attended a child’s sport event</td>
<td>42</td>
<td>8</td>
<td>21</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Participated in a sport event</td>
<td>60</td>
<td>5</td>
<td>13</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Attended a club meeting</td>
<td>49</td>
<td>5</td>
<td>25</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Visit with relatives</td>
<td>4</td>
<td>2</td>
<td>30</td>
<td>25</td>
<td>19</td>
</tr>
<tr>
<td>Had friends over to your home</td>
<td>3</td>
<td>3</td>
<td>43</td>
<td>23</td>
<td>17</td>
</tr>
<tr>
<td>Played cards or board games with others</td>
<td>33</td>
<td>6</td>
<td>34</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Attended a self-help or support group</td>
<td>82</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Socialized with co-workers outside of work</td>
<td>28</td>
<td>6</td>
<td>44</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Attended a meeting about town or school</td>
<td>36</td>
<td>20</td>
<td>31</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Recreated outdoors with family/friends</td>
<td>7</td>
<td>5</td>
<td>42</td>
<td>19</td>
<td>14</td>
</tr>
<tr>
<td>Participated in an on-line discussion group</td>
<td>73</td>
<td>3</td>
<td>10</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Volunteered for a non-profit</td>
<td>41</td>
<td>11</td>
<td>24</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Volunteered for a community project</td>
<td>59</td>
<td>13</td>
<td>17</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Robertson (2010).
time and scope. There is certainly a concern of being trapped into too much responsibility and too much work. A few of the respondents mention the need for a fair group process and one wrote “I want to be in an open, non-authoritative group where input and efforts are equal, not bossing people around” (Robertson 2010). The other common response to this item was for people to have individual responsibilities such as financial consulting, construction and repair work, electronics, land work, donating land and money, writing letters, and even “filling out surveys like this one.” The elderly or less ambulatory members of the community, for example, may prefer to read about the issues and then have an opportunity to vote, whereas parents of young children may prefer to work on projects from home while the children are napping. By understanding various preferences for involvement, more inclusive and creative techniques can be devised to allow residents to participate on their own terms and focusing on their own talents, which leads to more connectedness, more social capital, and more positive outcomes for planning overall.

### TABLE 7.8 Obstacles to becoming involved in community

<table>
<thead>
<tr>
<th>Obstacles to community involvement</th>
<th>Very important obstacle</th>
<th>Somewhat important obstacle</th>
<th>Not an important obstacle</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>An inflexible or demanding work schedule (N=710)</td>
<td>304 (42.8%)</td>
<td>159 (22.4%)</td>
<td>221 (31.1%)</td>
<td>26 (3.7%)</td>
</tr>
<tr>
<td>Lack of childcare available (N=704)</td>
<td>52 (7.4%)</td>
<td>98 (13.9%)</td>
<td>510 (72.4%)</td>
<td>44 (6.3%)</td>
</tr>
<tr>
<td>Lack of transportation available (N=711)</td>
<td>11 (1.5%)</td>
<td>37 (5.2%)</td>
<td>637 (89.6%)</td>
<td>26 (3.7%)</td>
</tr>
<tr>
<td>Feeling unwelcome (N=709)</td>
<td>39 (5.5%)</td>
<td>135 (17.6%)</td>
<td>503 (65.5%)</td>
<td>32 (4.5%)</td>
</tr>
<tr>
<td>Concerns for your safety (N=714)</td>
<td>13 (1.8%)</td>
<td>27 (3.8%)</td>
<td>652 (91.3%)</td>
<td>22 (3.1%)</td>
</tr>
<tr>
<td>Lack of information on community issues (N=720)</td>
<td>90 (12.5%)</td>
<td>272 (37.8%)</td>
<td>333 (46.3%)</td>
<td>25 (3.5%)</td>
</tr>
<tr>
<td>Feeling that you can’t make a difference (N=719)</td>
<td>56 (7.8%)</td>
<td>196 (27.3%)</td>
<td>439 (61.1%)</td>
<td>28 (3.9%)</td>
</tr>
<tr>
<td>Not knowing how to get involved (N=714)</td>
<td>73 (10.2%)</td>
<td>207 (29.0%)</td>
<td>411 (57.6%)</td>
<td>23 (3.2%)</td>
</tr>
<tr>
<td>Afraid that it will be more work (N=716)</td>
<td>111 (15.5%)</td>
<td>278 (38.8%)</td>
<td>306 (42.7%)</td>
<td>21 (2.9%)</td>
</tr>
<tr>
<td>Potential conflicts with people (N=715)</td>
<td>27 (3.8%)</td>
<td>152 (21.3%)</td>
<td>515 (72.0%)</td>
<td>21 (2.9%)</td>
</tr>
<tr>
<td>Feeling it would be a waste of time (N=718)</td>
<td>59 (8.2%)</td>
<td>186 (25.9%)</td>
<td>449 (62.6%)</td>
<td>23 (3.2%)</td>
</tr>
<tr>
<td>It isn’t any fun (N=718)</td>
<td>46 (6.4%)</td>
<td>134 (18.7%)</td>
<td>505 (70.3%)</td>
<td>33 (4.6%)</td>
</tr>
</tbody>
</table>

Source: Robertson (2010).
It is also important for planners to know where residents get information about community events and issues. The top five sources of information according to the survey are newspapers/magazines, television, radio, neighbors, and community newsletters (Robertson 2010). Knowing where these avenues for information transference are as well as what kinds of information people are relying upon can be seen as the precursors to community involvement, or in other words, as the groundwork for social capital.

Measuring and Analyzing Social Capital in the New Hampshire Lamprey River Watershed

While social capital is a complicated construct to measure (social networks, trust, bonding, bridging, linking, and reciprocity), the measurement in the Lamprey River Watershed study is simplified to the summing of social activities and trust (Community Benchmark Survey 2000; Robertson 2010). Social activities were summed across the 15 activities in Table 7.7 for a total social activity score for each respondent. Trust was also a cumulative score based on 18 trust questions in the survey (see Tables 7.2 and 7.4). The social capital scores for activities and trust in the Lamprey River Watershed were analyzed with other variables in the study and we found that even with this simplified measure of social capital, there was a significant finding in its connection to community level outcomes of interest to planners, especially the main variable of interest, open space design.

After an explanation of open space design in the survey, the respondents were asked whether or not they would support this as a design requirement in their community. These responses are grouped into two answer categories, yes-support (54 percent), and no-support/don’t know (46 percent). With the use of logistic regression, it was determined that involvement in social activities did lead to support for this rather restrictive land use policy. Specifically, the likelihood of support for open space design increases by three percent with each additional social activity (Robertson 2010). Trust was also statistically significant in improving the odds of support for open space design. The likelihood of support for open space design increased by another three percent with each additional unit of trust (more trust) (Robertson 2010).

The results show that supporters of open space design are more socially active and more trusting than non-supporters of open space design. This finding supports the social capital theory that by promoting residents’ engagement in more social activities, and opportunities to build trust, we produce a resident population with a stronger sense of the benefits of planning methods, policies and processes.

Conclusions

Social capital, like other forms of capital, is the stock of energy that can be called to action for collective goods. Planners’ work is first and foremost in the public interest for the management of these collective goods. Social capital is a promising
focus area in the pursuit of this mission. What have we got to lose in attempting this strategy of focus? As planners work to address an ever-changing environment, in order to engage community members in a continuous planning process, social capital appears to be a most promising, even required, ingredient to successful community outcomes. The presence of social capital will very likely improve public hearings from opinion forums to productive discussions for community-level outcomes. Therefore, the creation and nurturing of social capital should be a priority in planning and included in all sustainability initiatives. An investment in social capital means that resources should be directed toward creating places, programs, and events that are conducive to the production of more social capital—to providing opportunities for more and better interaction between people. The projects, programs, plans, and events that promise to meet a goal of social capital should be ranked higher in priority.

In the APA planning and social capital symposium of 2004, Woolcock (2004: 184) identified four research aims regarding social capital as a new planning tool: “definitional clarity,” “theoretical coherence,” “conversational congruence,” and “learning by doing.” He encourages planners to investigate social capital in a variety of contexts in order to meet these research aims. The more known about social capital within this discipline, the more likely planners are to “get the social relations right” (2004: 188) and then use those social relations to produce collective goods. Because we followed these recommendations with the community survey in the Lamprey River Watershed, we know more about the connections people are making in the communities of the Watershed.

For the community and regional planner, the question becomes, how can these results be used to garner program, policy, and regulatory changes within the community or region in order to improve environmental and community outcomes? We have experienced public opposition to regulatory changes (such as the adoption of open space design regulations) that delay and eventually dissuade this type of development as the developer would rather invest less time in meetings and courtrooms and more time in construction work. Using the data from the survey results, the planner has information to share with community members in order to build trusting relationships. This can help inform and mobilize stakeholders who understand the many community benefits of planning policies which will produce better development projects in both the short and the long run.

To build communities to promote social capital accumulation we should plan for developments that prevent sprawl and encourage walking; build at the neighborhood level allowing residents opportunity to interact with others and strengthen relationships over time; build public places to provide additional opportunities to interact and strengthen relationships in the broader community; create downtown developments that are walkable to prevent sprawling automobile centric areas; encourage mixed use to improve opportunities for diverse housing needs (young adults, elderly, lower paid occupations); and plan for public events to allow community members and organizations to exchange information and confirm or reaffirm connections to others in the community. Along with creating
places conducive to interaction, planners should be trained to provide a platform for social capital building exercises in communities. Such exercises should have wide ranging opportunities, volunteer opportunities, and not be more work.

Regularly communicating with residents is important, whether by mailed newsletters/bulletins, email, or social media, in order to provide new information on activities and information regarding their community. This helps maintain a network of informed and potentially active citizenry. The resident survey should be a more regularly used tool for communication so that residents’ issues are not overlooked.

For planners that are considering using a community survey to better understand community issues and desires of residents, including questions to establish a baseline level of social capital may prove valuable for future planning efforts. Using questions similar to the ones posed in the New Hampshire Lamprey River Watershed survey, and the Community Benchmark Survey (2000) may be a good starting point. However, the planner should be mindful of their own community and tailor the questions and response options so they are suitable to that community with a key goal of being able to stimulate dialog and understanding around unique community issues. The use of social events to present planning issues and to make connections with stakeholders, and to understand and tap into existing social networks for support, should also be a welcomed task for planners. Beyond planning for social activities, planners should get involved in the social activities too; this can help a planner be considered part of the network and to gain the residents’ respect and trust.

On a final note, respondents were asked to rate “How likely is it that you will be involved in some community related activity in the next year?” Nearly 50 percent (48.6 percent) believe it to be likely or very likely that they will participate in a community related activity in the next year. This is good news; however, the flip side, is that the remaining 50 percent respond that it is not likely (41.8 percent) or they do not know if they will be involved (9.6 percent) (Robertson 2010). An example of program development to encourage community participation is a recently formed program in Maine called Encore Leadership Corps. ENCorps targets Maine residents aged 50 and up to train to become community and Smart Growth advocates. The program, which is free, trains 150 to 200 residents per year on topics such as food security, poverty, and land use design to alleviate these problems, such as with the use of Smart Growth techniques. Following the training, these members go back into their communities and host events and programs to pass the lessons on to their fellow community members. Perhaps we can form a social capital bridge to Maine and learn from their experience with this.

From regional to rural scales of planning across the United States, professional planners and community volunteers could use help in spreading the word about how development and conservation should take place for an improved future. Briggs refers to those with this role as the social capital entrepreneurs (2004). These are the ones in our communities that are willing and capable of building networks in order to get the job of community done. This is a critical new role for the
planner—to be a social capital entrepreneur. Leonie Sandercock (2004) projects that the communities of tomorrow will be “mongrel” cities. This means our communities will be well mixed, incredibly diverse and with a multitude of attitudes. We therefore must find a way to create a planning culture in our communities. Social capital should be included as a key principle in Smart Growth and sustainability efforts, and planners should incorporate it into their everyday routine in designing plans and projects. They have everything to gain and very little to lose by being the social capital creators.

References


THE RELATIONSHIP BETWEEN SOCIAL CAPITAL AND ECOSYSTEM SERVICES

A regional analysis

Patricia M. Jarema and John M. Halstead

Introduction

If social capital can be a means for organizing collective action, influencing policy, and managing public goods, could social capital also be a factor in managing land use towards more sustainable community goals? In this chapter we examine the effect that social capital has on environmental quality. As our society becomes wealthier the role of environmental quality in community and economic development is assuming greater prominence (Phillips and Pittman 2009; Green and Haines 2002). With respect to economic growth and development natural resources were once viewed purely through the lens of extractive industries (e.g., forestry, mining, agriculture). Today, however, there is more interest in the non-extractive uses of those same resources such as scenic beauty, wildlife preservation, and recreational services (Marcouiller, Clendenning, and Kedzior 2002; Deller et al. 2001; Marcouiller 1997).

One of the challenges that community and economic development practitioners and planners face is how to use those natural resources without consuming or destroying them. If people and businesses are attracted to a certain locale because of scenic beauty, wildlife, or recreational opportunities how are those activities managed such that those same attributes are not diminished? How can a community have its cake (growth and development) and eat it (enjoy these attributes) at the same time? This is at the heart of sustainable development. One specific example of this challenge is at the rural-urban fringe.

To analyze our basic question, the effects of social capital on environmental quality, we developed a model that quantifies social capital at the county level and two different measures of land use change: housing growth in the wildland urban interface, and the net loss of forested land cover. This research is large scale using many of the metrics employed in previous chapters that examine social capital and...
combine these variables with technologies in remote sensing and Geographical Information Systems (GIS) to estimate the two patterns of land cover change. Therefore, this research is an extension of previous research in social capital but applied to a different realm of public goods, on a larger scale.

Using ecological boundaries to identify the study region as all counties east of the Mississippi River of the United States (otherwise referred to as the Eastern Temperate Forest Ecoregion) the research discussed here is a regional, cross-sectional analysis. Spatial regression models are used, as in previous chapters (Chapters 4 and 5) to arrive at nonbiased efficient estimators. Drawing a parallel to Goetz and Han’s Chapter 5, the regression models are estimated to provide insight into the question of whether or not community level social capital can be aggregated up to the county level efficiently and, perhaps most important, whether social capital plays a mediating role in managing ecosystem services in a sustainable manner. Also examined is whether the commonly used measures of county level social capital are the appropriate measures of social capital in the context of managing ecosystem services or whether there are other measures of social capital that are better predictors of this relationship.

This chapter is organized with a discussion of what ecosystem services are and how this is a central tenet of sustainable growth. The role of social capital in sustaining ecosystem services is discussed within the context of a social—ecological system, as drawn from Hahn et al. (2006). Following the discussion of pertinent literature, the research is explained in more detail, the empirical model is described along with defining the variables used in the modeling, and results are provided.

**Defining Ecosystem Services**

Across spatial scales from local to global communities, ecosystem services are important inputs to economic development and thus become an integral part of sustainable development (Marcouiller et al. 2002). Managing ecosystem services carefully to insure that current and future generations meet their basic needs is the main objective of sustainable development. Ecosystem services, as defined by the Millennium Assessment (Millennium Ecosystem Assessment 2005) are categorized into four classifications as shown in Table 8.1 and are constituents of human well-being. Availability of food and fresh water provides the basic materials for a good life and security from disasters (natural or human-induced). Regulating services such as climate and flood regulation are vitally important in maintaining healthy individuals, communities, and nations. Management of ecosystem services occurs at varying spatial scales with overlap. For example, a residential neighborhood may create ‘community gardens’, a community may require water conservation, a state may regulate factors of forest production, and a federal government can regulate emissions from vehicles and industries.

It is important to note that The Economics of Ecosystems and Biodiversity (TEEB) initiative categorizes ecosystem services slightly differently than the Millennium Assessment with major categories in Provisioning services, Regulating
services, Habitat or supporting services, and Cultural services. In addition to the services identified in Table 8.1 the TEEB includes medicinal services as a Provisioning service, and provides more detail and perhaps a local scope to the Provisioning and Regulating services. For example, the TEEB adds Moderation of extreme events, Pollination, Biological control to the category of regulating services and further defines water purification as wastewater treatment.

Regardless of how ecosystem services are defined, categorized, and described this research is focused on the role that social capital has in managing ecosystem services. Specifically, are communities with higher levels of social capital better positioned to implement more sustainable development policies? Referring back to previous chapters, social capital is the loosely defined but generally acknowledged concept that social interaction between individuals, groups of people, and organizations is seen as a form of capital that can be used or transferred for many different things. This research analyzes whether social capital is used to transfer information regarding the most sustainable uses of ecosystem services that would have the outcome of preferable land use decisions. Understanding how social capital can be used in managing ecosystems is discussed in the next section.

Identifying How Social Capital Connects With Ecosystem Services

Leading researchers within the Resilience Alliance published a seminal paper in 2006 that describes how a social ecological system in Kristianstad, Sweden, successfully established a management organization comprised of local stewards, users’ groups, and municipalities capable of adapting to unpredictable changes in a fragile wetland system (Hahn et al. 2006). The authors provide a framework from which to define a social-ecological system (Figure 8.1).

The bottom sphere represents the ecosystem and the services that this ecosystem provides. For example, the Gulf of Maine is an ecosystem that provides services including fish, nutrient cycling, transportation, recreation, aesthetic beauty, and cultural practices and beliefs. Many different scientific disciplines seek to explain how the ocean ecosystem functions and how these functions relate to human societies and policies, as well as other ecosystems functions. In addition to scientists, people that rely on the ecosystem services the ocean ecosystem provides have accumulated knowledge on how the Gulf of Maine functions and what impacts

<table>
<thead>
<tr>
<th>Supporting</th>
<th>Provisioning</th>
<th>Regulating</th>
<th>Cultural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrient cycling</td>
<td>Food</td>
<td>Climate regulation</td>
<td>Aesthetic</td>
</tr>
<tr>
<td>Soil formation</td>
<td>Fresh water</td>
<td>Flood regulation</td>
<td>Spiritual</td>
</tr>
<tr>
<td>Primary production</td>
<td>Wood and fiber</td>
<td>Disease regulation</td>
<td>Educational</td>
</tr>
<tr>
<td>Fuel</td>
<td>Water purification</td>
<td>Recreational</td>
<td></td>
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</tbody>
</table>
these dynamics have on the ecosystem services that they value. This information is transferred, represented by arrow one, to the knowledge and system memory of the Gulf of Maine social-ecological system. The accumulated knowledge about the gulf is transferred from stewards, users’ groups, and scientists to the management organizations responsible for managing the ecosystem, the fisheries, the shipping lanes, the conservation zones, etc., of the Gulf of Maine. These management organizations also reciprocate knowledge and information back to Gulf of Maine users’ groups and scientists, all of which influence behaviors affecting the ecosystems of the Gulf of Maine. Users groups, local stewards, homeowners, and scientists have also used this knowledge to shape behaviors that affect the Gulf of Maine, represented by arrow three. For example, the Gulf of Maine lobster community has strict rules and social norms that regulate behavior. Lobster boats in the Gulf of Maine claim territory along the coast, territories not recognized by the state but enforced by the lobster community (Acheson 1975). Social norms such as those developed by the lobster community also shape how rules and regulations made by governing agencies are enforced. The costs of enforcing policies are dramatically cheaper if there is acceptance from social groups (Pretty 2003). Finally, there are unforeseen events that have a direct impact on the Gulf of Maine ecosystem function, the users’ groups dependent upon these ecosystem services, local stewards, local businesses,
and management organizations. These events could be gradual (climate change) or they could be shocks (oil spill or hurricane). Such events are termed external drivers of change and are represented by arrow four in Figure 8.1. The social ecological system must adapt to these external drivers of change and the strength of the social connections between all the spheres in Figure 8.1 are hypothesized to predict both the speed and ease of adapting to the changed social ecological system (Hahn et al. 2006; Adger et al. 2005).

The Hahn et al. (2006) article discussed a specific social ecological system in Sweden. This social ecological system was centered on a large wetland system prone to flooding which was also an economic and social foundation for surrounding communities. Management of the wetland system required that several different users’ groups, homeowners, municipalities, conservation groups, and scientists effectively communicate. A few key individuals were instrumental in serving as a bridge between isolated social networks or groups of individuals. While the authors of this study credit these key individuals as instrumental in bringing these groups of people together to communicate efficiently, social capital theorists would argue that the success of this social ecological system is also due in part to the existing social networks as well as the social infrastructure (Pretty 2003; Putnam 1993; Woolcock 2001).

While these examples are small scale depictions of how social capital was used to manage ecosystems, the research outlined in the following sections attempts to expand the scale of inquiry from a community to the Eastern Temperate Forest. The research develops one empirical model with two different measures of land cover change as the measure of sustainable use of ecosystem services. We refer to each application of the empirical model as a research scenario. Each has the same objective: to examine the relationship between social capital and land cover change.

**Description of Scenarios**

Each scenario uses multivariate modeling techniques to analyze the effect that social infrastructure had on the net loss of forested land cover and the growth of housing units in the wildland urban interface (WUI) in the decade of 1990-2000 across all US counties east of the Mississippi River. Social capital infrastructure is briefly explained as the density of social groups and business establishments that foster social interaction within communities. Each of these scenarios test the hypothesis that counties with a greater density of social groups and business establishments that fostered community social interaction would experience less housing growth in the WUI and less net loss of forested land cover. The hypothesis is based in the theory of the social-ecological system as a framework for sustainable development and the theory of social capital particularly the role of social capital in promoting more efficient transfer of information or communication within communities.
Developing the Empirical Model

As noted, the empirical models were constructed to test the research question: does social capital have an effect on environmental quality as measured by land cover change? The difference between the scenarios is the dependent variable. The dependent variable in scenario 1 is the net loss of forested land cover and the dependent variable in scenario 2 is housing growth in the wildland urban interface. These dependent variables are proxies for ecosystem services production such as carbon sequestration, wildlife habitat preservation, and aquifer recharge. The general empirical model is described as

\[ \text{Land cover change} = \mathcal{L} (\text{Social capital, sociodemographic factors, economic development, policy and control}) \]

Of particular interest in this research is the relationship that social capital infrastructure has with the loss of forested land cover. In these cases studies social capital is quantified at the county level and is viewed as community infrastructure that supports or facilitates individuals having opportunity to gather, either planned or unplanned, socialize and build social bonds including bonding and bridging capital. The central question is if social groups, organizations, and small business establishments have an inverse effect on the net loss of forested land cover and housing growth in the WUI. As discussed in previous chapters of this volume quantifying social capital at the county level has been widely debated in the literature. In both of these case studies the research tests two research questions. The first research question is, does social capital have an inverse effect on the net loss of forested land (scenario 1) and on housing growth in the WUI (scenario 2)? The second research question is, are the predominant measures of social capital (on a county level) most applicable to a social ecological system? To test the second research question two vectors of social capital measures were developed. The first vector is referred to as the Rupasingha vector of social capital measures that consists of variables that quantify social groups and organizations, voting participation in the last Presidential election, and participation in the 1990 U.S. Census. A second vector of social capital measures was developed and is referred to as the SES (social ecological system) measures. Comparisons of the measures across the two vectors are provided in Table 8.2.

Focusing on one variable in each of the vectors that quantify social capital we can see the differences between these two measures. The distribution and concentration of the density of social groups and organizations differs from that of third places (Figures 8.2 and 8.3). The geographic distribution of the density of membership associations, and amusement and recreational services (1990) across all the counties in the study region for each of the scenarios presented in this chapter is provided in Figure 8.2. Note that these measures of social capital use secondary data and are essentially proxies for social capital. As noted by Rogers and Jarema in Chapter 2 the existence of third places does not build social capital unless citizens actively use them.
TABLE 8.2 Description of variables used in two vectors of social capital measurement

<table>
<thead>
<tr>
<th>Rupasingha vector</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density of membership Associations and Amusement and Recreational Services (# of Organizations/10K population 1990)</td>
<td>US census County Business Patterns (CBP)</td>
</tr>
<tr>
<td>Voting Participation in 1988 Presidential Election (%)</td>
<td>1990 U.S. Census</td>
</tr>
<tr>
<td>Participation in the U.S. Census (%) 1990</td>
<td>1990 U.S. Census</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SES vector</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third Places (# of Establishments/10K population 1990)</td>
<td>U.S. census using 1990 SIC codes</td>
</tr>
<tr>
<td>Inclusive Religious Denominations (civically engaged adherents/10K population 1990)</td>
<td>1990 census of Churches from Association of Religious Data Archives</td>
</tr>
<tr>
<td>Small Business Establishments (# of Business Establishments with less than 20 employees 1990)</td>
<td>1990 U.S. Census</td>
</tr>
<tr>
<td>Commuting Time (Average Commuting Time)</td>
<td>1990 U.S. Census</td>
</tr>
</tbody>
</table>

FIGURE 8.2 Geographic distribution of the number of membership organizations and associations, per 10,000 persons (1990)
Counties colored lighter grey have smaller density of social groups and organizations as compared to the counties shaded dark grey/black that have a much higher density of social groups and organizations. There appears to be a spatial clustering of counties with high density of social groups and organizations (shown in dark grey) but a detailed analysis of geographic “hot” and “cold” spots of spatial clustering is beyond the scope of this chapter. The research discussed in this chapter focuses on examining these social capital “hotspots” in the relationship of land cover change by using spatial regression methods.

The vector of social ecological system measures appears to have a different geographic distribution (Figure 8.3) than the social capital measurement. The variable shown in Figure 8.3 is the density of third place establishments. Third places are places in the community where residents tend to go to congregate, hang-out, pick up a coffee or a newspaper, and catch up on the neighborhood gossip, meet a friend, or spark up a conversation with another community member. Third places differ from first places (home) and second places (workplace) in that third places are usually small business establishments where people can enter, spend little money, and gather information about the community. Third places are also unique...
in that they do not create barriers to entry; anyone can enter a third place, whereas social organizations typically require some sort of membership. Examples of third places include sit down restaurants, coffee shops, book stores, post offices, barber shops, beauty salons, gas stations with convenience stores, transfer stations, and farm stands.

Counties colored lighter grey have less third place establishments than counties colored dark grey. Comparing Figures 8.2 and 8.3 it is evident that there is a difference in spatial (or geographic) distribution of social organizations and third place establishments. From looking at these maps there does not appear to be a similar trend in clustering of high (or low) levels of social capital between the two measures of social capital. This is an interesting finding that should be discussed and examined empirically in future research. Questions that should be discussed may include: Are these measures of social capital both measuring the connections that individuals make with one another? As noted by Rogers and Jarema in Chapter 2 the measurement of social capital remains a sticking point in the empirical research. Within the framework of a social ecological system, is there a better measure of social capital as a function of transferring information between management groups, user groups, and residents?

Pertaining to the two scenarios discussed in this chapter it is important to examine these variables in context with the empirical model developed. While these scenarios were focused on examining the relationship between social capital and patterns of land cover change it is important to control for other measures that could explain some of the variance observed in either the net loss of forested land cover or housing growth in the wildland urban interface. A list of explanatory variables that affect the net loss of forested land cover and the growth of housing units in wildland areas include the following:

- Social capital
- Income per capita
- Education
- Ethnic diversity
- Poverty
- Income inequality
- Community attachment
- Female labor force participation
- Age
- Family households
- Size of manufacturing sector
- Urban—rural continuum
- Size of professional services sector
- Housing growth
- Size of agriculture sector
- Change in income
- Land conservation
• Population change
• State level environmental index

Each of these variables is measured (quantified) at the county level for the year 1990. The year of measurement is important because it establishes the direction in the relationship between social capital (and all the control variables) and habitat change. In other words, these measures of social capital are in place prior to the observed land cover change. While statistical analysis seldom “proves” causality, this type of lag structure moves the analysis closer to being able to make inferences about causation.

The Eastern Temperate Forest Region

Each of the scenarios discussed in this chapter uses secondary data across 1,969 counties of the Eastern Temperate Forest ecoregion. This region is delineated by the Omernik Level I ecoregion classification described by the U.S. EPA (USEPA 2010). The Omernik level I Eastern Temperate Forest ecoregion is characterized by its temperate, moderate to mildly humid climate, diverse forest cover, and dense human population (CEC 1997). The ecoregion runs along the Atlantic Coast and west into eastern Texas, Oklahoma, Missouri, Iowa, and Minnesota. The Eastern Temperate Forest is a significant evolutionary area for fauna, flora, and is habitat to endemic species (Ricketts 1999).

Human activities in the Eastern Temperate Forest include pine plantations in the South, coal mining in the Central Appalachian region, and a densely populated region from Boston, Massachusetts through Washington, D.C. The Southeastern Plains contain industrial-scale pine plantations. When the southern pine plantations are harvested they are classified as mechanically disturbed (clear cut) and remain in a disturbed state for a brief period before typically being replanted or left for natural regeneration (Loveland 2012). Coal mining in the Central Appalachian region is characterized by a different form of land cover change. Advancements in technology have given way to a controversial, yet mechanically efficient, method of coal removal known as mountain top removal. Mountain top removal results in the complete removal of all vegetation and substrate. In addition to natural resource dependent growth, the Eastern Temperate Forest also contains a historical concentration of the nation’s political, economic, and industrial development (CEC 1997). This region’s landscape has been transformed by industrialization and urbanization. Brown et al. (2005) describe that in the period of 1950–2000 the most dramatic increases in exurban area occurred throughout the Eastern Temperate Forest, an eightfold increase in both adjacent and non-adjacent nonmetropolitan counties. This trend of de-concentration of the urban core to rapidly expansive suburban corridors, and economic dependence on the region’s forestry and natural resources, are characteristics of growth and are represented by the two case studies examined in this chapter.
The Net Loss of Forested Land Cover in the Eastern Temperate Forest Region

The first research question examined whether social capital at the county level had an effect on the net loss of forested land cover in the following decade (1990–2000). The research hypothesis was that communities with higher levels of social capital would have more effective communication between management organizations, user groups, scientific community, and residents allowing for more efficient transfer of information that was/is pertinent to the management of forested resources within the social ecological system. In examining this research question several other variables were included in the modeling to account for the components of the social ecological system that include poverty, economic growth, and several demographic variables. The dependent variable is described as an index of forest loss in the period of 1991–2002.

Using the National Land Cover Database (NLCD) 1992/2001 Retrofit Land Cover Change Product and GIS software, land cover change in the form of forest loss was quantified for the period of 1992–2001. The NLCD 1992/2001 Retrofit Land Cover Change Product provides 30m x 30m pixels of land cover and land cover change in this nine-year period. Using ARcGIS 9.x software all of the pixels that changed from a land cover classification other than forested (urban, barren, wetland, agriculture) to forested within this 9-year period were summed and represent “conversion to forest.” The same method is used to determine how many pixels changed from a forested land cover to a land cover classification other than forested, termed “total forest loss.” The net loss of forested land cover is an index defined by: (conversion to forest (1992–2001) + existing/unchanged forest (1992–2001)—total forest loss (1992–2001) *100).

The net change of a given land cover results from both the gains and losses in forested land cover between 1991 and 2002. The net loss of forested land cover represents the availability of forested land cover in the Eastern Temperate Forest (Loveland 2012). On average counties in the Eastern Temperate Forest ecoregion had an index of 6.44 net loss of forested land cover (as measured by the net loss index previously described), with a standard deviation of 10.37, in the period of 1992–2001. Beaumont, Texas experienced the greatest net loss of forested land cover (255.28), with Ascension, Louisiana (163.71), and Allen, Louisiana (123.52) also having relatively high net loss of forested land cover across counties in the Eastern Temperate Forest ecoregion in the period of 1991–2002.

Figure 8.4, which illustrates the index of net loss of forested land cover 1992–2001, also shows the geographic distribution of the net loss of forested land cover. This variable is measured as an index, not a percentage, to account for the number of acres per county “losing” forested land cover and the number of acres per county “gaining” forested land cover within a ten year period (1990–2000). Counties colored in medium gradient of gray are predominantly located in the Southern half of the ecoregion and have the highest amount of net forest loss. Counties colored in light grey and dark grey/black have low forest loss and possible
gains in forested land cover. It appears that there is spatial or geographic clustering in the net loss of forested land cover with the highest index of net losses seen in the southeastern portion of the Eastern Temperate Forest ecoregion, with an index range of 14–60. Conversely, the northern counties of this region show the lowest index of net loss of forested land cover with an index range between 0–3.2. As seen with the social capital variables (association density and Third Places) there is a spatial clustering apparent in the net loss of forested land cover.

Due to the apparent spatial clustering a spatial regression method (Spatial Durbin Model using Bayesian Markov Chain Monte Carlo sampling) was used to estimate the empirical model. This specification allows for the effects of social capital and the other control variables to spill over county boundaries. It is hypothesized that the relationship between social capital infrastructure and the net loss of forested land cover would be a negative (or indirect) relationship. In other words, the research hypothesis is that as social capital increases the net loss of forested land cover would decrease. The results are provided in Table 8.3 which includes all the variables used to quantify social capital across the two vectors of social capital measurement (Rupasingha and SES).

FIGURE 8.4 The net loss of forested land cover in the period of 1990–2000 (an index)
Regression Results Scenario 1

While Table 8.3 shows the effects of the full set of independent variables, the variables of prime interest are the measures of social capital that include the Rupasingha vector and the SES vector. As previously stated this study had two research questions. The first research question focused on the relationship between social capital and the patterns of land cover change and the second research question focused on which measures of social capital are good predictors within a social ecological system.

Analyzing the relationship between social capital and the net loss of forested land cover the direction of this relationship is negative as noted in Table 8.3. Looking at the coefficient for variables association density, the percentage of population voting in the Presidential election, and participation in the US Census, each of these variables’ coefficients has a negative relationship, although individually none of these variables are large in magnitude or statistically significant. Looking under the SES measures of social capital we see a similar trend. The coefficients for third places and inclusive religious denominations are negative, of small magnitude, and not statistically significant. The coefficients for average commuting time and small businesses are both positive, with a larger magnitude, and average commuting time is marginally statistically significant at the 0.01 level.

In examining the relationship with small businesses and the net loss of forested land cover we see that as the number of small businesses increases by 100 the net loss of forested land cover increases by an index of one. While this is not a large magnitude it is interesting to consider that as the number of small business within a county increases, the net loss of forested land cover increases. Theories of regional development and the role of social capital would indicate that small businesses are very connected with the local communities. Why would an increase in small businesses be correlated with a loss of forested land cover? Answers to this question may require smaller scale research analysis.

This research examined measures of social capital individually but it is important to look at the joint significance of the measures of social capital. In other words, what is the effect of social capital when combining the individual measures of social capital? To examine this question a Wald F test was done to restrict the regression model (Table 8.4).

As shown in Table 8.4 the combined measures of social capital do not have a significant effect on the net loss of forested land cover. In this scenario the effect that social capital has on the net loss of forested land cover follows the direction (negative) as hypothesized but is not a significant effect.

Scenario 2: Housing Growth on the Wildland Urban Interface

The second scenario examines the effect that social capital has on housing growth in the Eastern Temperate Forest region in the period of 1990-2000. Using remote sensing technology and US Census data the number of new housing units built in
wildland areas in the period of 1990-2000. Wildland areas are described as land that is forested, grassland, or wetlands. Housing growth in the wildland areas is one measure constructed in the Wildland Urban Interface (WUI) dataset. The WUI

### TABLE 8.3 The net loss of forested land cover as a function of social ecological system

<table>
<thead>
<tr>
<th>Scenario 1</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SDM Model</strong></td>
<td><strong>Total effects</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Variable</strong></td>
<td><strong>Coefficient</strong></td>
<td><strong>t-statistic</strong></td>
</tr>
<tr>
<td>Rupasingha social capital measures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assoc density</td>
<td>-0.20</td>
<td>-1.03</td>
</tr>
<tr>
<td>Voting</td>
<td>-0.01</td>
<td>-0.12</td>
</tr>
<tr>
<td>Census response</td>
<td>-0.02</td>
<td>-0.38</td>
</tr>
<tr>
<td>SES social capital measures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third places</td>
<td>-0.04</td>
<td>-0.27</td>
</tr>
<tr>
<td>Inclusive religious</td>
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<td>-0.67</td>
</tr>
<tr>
<td>Commute time</td>
<td>0.11</td>
<td>0.44</td>
</tr>
<tr>
<td>Small businesses</td>
<td>0.01</td>
<td>1.85*</td>
</tr>
<tr>
<td>Control variables</td>
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<td></td>
</tr>
<tr>
<td>Education</td>
<td>0.42</td>
<td>1.62*</td>
</tr>
<tr>
<td>Ethnic</td>
<td>26.17</td>
<td>4.15***</td>
</tr>
<tr>
<td>Poverty</td>
<td>-1.15</td>
<td>-3.92***</td>
</tr>
<tr>
<td>Inequality</td>
<td>92.75</td>
<td>1.87*</td>
</tr>
<tr>
<td>Income per capita</td>
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<td>-4.91***</td>
</tr>
<tr>
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</tr>
<tr>
<td>Female labor force</td>
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<td>-1.51*</td>
</tr>
<tr>
<td>Average age</td>
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<td>0.28</td>
</tr>
<tr>
<td>Average age²</td>
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<td>-0.67</td>
</tr>
<tr>
<td>Home ownership</td>
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<td>-0.61</td>
</tr>
<tr>
<td>Families with children</td>
<td>16.31</td>
<td>1.06</td>
</tr>
<tr>
<td>Agriculture employment</td>
<td>0.04</td>
<td>0.19</td>
</tr>
<tr>
<td>Manufacturing employment</td>
<td>-0.03</td>
<td>-0.34</td>
</tr>
<tr>
<td>Professional employment</td>
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<td>-0.84</td>
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<td>6.04</td>
<td>2.21**</td>
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<tr>
<td>Rural</td>
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<td>2.26**</td>
</tr>
<tr>
<td>State ”green”</td>
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<td>0.10</td>
</tr>
<tr>
<td>Income growth</td>
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<td>-0.72</td>
</tr>
<tr>
<td>Population growth</td>
<td>0.06</td>
<td>2.18**</td>
</tr>
<tr>
<td>Housing growth</td>
<td>0.18</td>
<td>2.18**</td>
</tr>
<tr>
<td>Federal conservation</td>
<td>0.00</td>
<td>0.04</td>
</tr>
<tr>
<td>State conservation</td>
<td>-0.04</td>
<td>1.26</td>
</tr>
<tr>
<td>Private conservation</td>
<td>0.00</td>
<td>1.19</td>
</tr>
<tr>
<td>NRI forest</td>
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<td>-0.78</td>
</tr>
<tr>
<td>Rho</td>
<td>0.46</td>
<td>15.31***</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.2655</td>
<td></td>
</tr>
</tbody>
</table>

Pvalues: *0.10, **0.05, ***0.001/cons = suburban n = 1955
dataset is administered by the USFS Northern Research Station and was originally developed for the purposes of identifying the risk of forest fire on housing across the United States. In this scenario we use the WUI data to examine housing growth in wildland areas as a function of sustainable development and we hypothesize that areas with higher levels of social capital will have less housing growth in the wildland areas.

A map of new housing units built in the WUI from 1990-2000 (Figure 8.5) shows a slightly different geographic pattern than the net loss of forested land cover. Counties with the highest housing growth in the WUI (darker grey) tend to be located along the coastal areas stretching from north to south and along the Gulf Coast. In some of the southern states such as North Carolina, South Carolina, Virginia, and Florida, however, the housing growth in WUI area is not limited to the coastal areas and extends inland. The majority of counties in Florida experienced a range of 44,000-46,000 new housing units built in the WUI in the period of 1990-2000. Also of interest is that the Midwest region experienced the least amount of housing growth in the WUI, shown in light grey. Differences shown in housing growth in the wildland areas could be the result of many factors. The availability of land for building is a factor, as are economic conditions, as houses generally are not built if there is little regional demand for housing. Other factors could include efforts in planning by local communities or special interest groups that may or may not want to have housing growth in their region. We hypothesize that social capital may be a mitigating factor in community planning and regulation of housing growth. High levels of social capital could lead to more efficient communication between all of the groups of a social ecological system (regional planning, management agencies, local residents). To test this research hypothesis we used the same model developed and discussed in scenario 1. The two vectors of social capital, the Rupasingha vector of social capital measures, and the social ecological system (SES) measures of social capital, are again the variables of interest. Here again the regression accounts for the spatial dependency by using a Spatial Durbin Model, shown in Table 8.5.

Considering just the two vectors of social capital measures, overall social capital is a better predictor for housing growth in the WUI than for the net loss of forested land cover as discussed in scenario 1. In looking at the coefficients for the

<table>
<thead>
<tr>
<th>Empirical model 3.1 (general model)</th>
<th>SDM F-stat, F-prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrestricted model includes all social capital measures</td>
<td>0.44, 0.134</td>
</tr>
<tr>
<td>Restricted model: Rupasingha measures</td>
<td>0.76, 0.63</td>
</tr>
<tr>
<td>Restricted model: SES measures</td>
<td></td>
</tr>
</tbody>
</table>

TABLE 8.4 Wald F test results examining the combined effect of social capital measures on the net loss of forested land cover.
independent variables it is first important to look at the direction. The hypothesized inverse relationship between social capital and housing growth in the WUI is confirmed by the negative coefficients of the variables voting, inclusive religious denominations, third places, and commuting time. It also appears that the SES vector of social capital variables are statistically significant as compared with the Rupasingha measures of social capital where only the percentage of the population that voted in the last Presidential election is statistically significant (at the 0.05 level). Voting also has the largest magnitude. For every 10 percent increase in voting participation 20 less housing units were developed in the wildland urban interface. Also interesting to consider is the impact that third places have on housing growth in the WUI area in 1990-2000; for every 10 additional third place establishments

FIGURE 8.5 Geographic distribution of housing growth in wildland areas in the period of 1990-2000
(per 10,000 individuals) established in a county, 18 less housing units were developed in the period of 1990–2000. Note that this result—that is, the differing statistical performance of different measures of social capital—is similar to that found in Markeson and Deller (Chapter 4).

As in scenario 1, it is important to look at the combined effects of social capital, per vector of social capital measurements. In this part of the analysis we are testing to see if all of the social capital measures in the Rupasingha vector of measurement (association density, percentage of population voted in last Presidential election, and participation in the 1990 Census) combined are statistically significant and likewise for the measures in the Social Ecological System (SES) (third places, small businesses, commuting time, inclusive religious denominations). As seen in Table 8.5 the SES measures combined are statistically significant. In this scenario third places, small business establishments, average commuting time, and inclusive religious denominations, are better predictors of housing growth in the WUI area in the period of 1990–2000 than the Rupasingha vector of social capital measures.

In scenario 2 the research hypothesis that social capital has a negative effect on housing growth in the WUI area is supported. Also supported is the hypothesis that the SES measures of social capital appear to be better predictors of housing growth in the WUI. Do these results indicate that third places, average commuting time to work, inclusive religious denominations, and small business are better measures of social capital? Further research would have to examine this question more directly than was examined scenario 2.

Conclusions

One motivation for conducting the research discussed in both of our measures of changes in land use was to examine land cover change as an outcome of a social ecological system making decisions. Our theories on the social ecological system assume that incorporating management organizations, users groups, and residents in the decision making framework will lead to more sustainable decisions. The research hypothesis was that social capital is an important component to creating better communication within the social ecological system. The research presented in the scenarios assumes that social capital will increase communication between the spheres (or the different groups of people trying to manage the ecosystem) and therefore, the system as whole can make more sustainable decisions, that will result in less housing growth in the WUI and less loss of forested land cover. This research also questioned if there are measures of social capital that are more precise in estimating the function of social capital within a social ecological system. The applied research presented in this chapter has found mixed results as to whether social capital has an impact on sustainable land cover and has found that different measures of social capital that quantify social capital infrastructure, rather than social groups, are better predictors for the relationship with land cover change.

The results showed that social capital in general is a better predictor of housing growth than the net loss of forested land cover. Explanations for this finding are
speculative and are offered only as points of discussion. Perhaps, individuals within a community can observe housing units being built in wildland habitats within their community but may not realize that a tract of forested land was cut down. In

<table>
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<th>Variable</th>
<th>Coefficient</th>
<th>t-statistic</th>
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</thead>
<tbody>
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<td>Assoc density</td>
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<tr>
<td>Voting</td>
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</tr>
<tr>
<td>Third places</td>
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<td>-1.75*</td>
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<td>Inclusive religious</td>
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<td>-1.76*</td>
</tr>
<tr>
<td>Commute time</td>
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<td>-1.93**</td>
</tr>
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<td>Small businesses</td>
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<td>Average age^2</td>
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</tr>
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<td>Housing 90-00</td>
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<td>State “green”</td>
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<td>Income growth</td>
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<td>Housing growth</td>
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<td>-0.30</td>
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<td>Private conservation</td>
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</tr>
<tr>
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</tbody>
</table>

Pvalues: *0.10, **0.05, ***0.001/cons = suburban n = 1957
other words, maybe there is a difference in the perception of ecosystem degradation within a community?

The difference between social capital measures’ effects on the WUI is an important finding. Part of this research questioned whether or not there are more precise measures of social capital as it functions within a social ecological system, and for this dependent variable (change in WUI) the SES social capital measures were better predictors of housing growth than the Rupasingha measures.

It is reasonable to question and discuss the function of social capital in empirical research. Other chapters in this book have quantified social capital at the county level, some have used very similar measures as used in the Rupasingha vector, and other chapters have added additional measures of social capital to gain a better understanding of how social capital functions relative to the research question. Within a social ecological system social capital should function to bridge user groups with managing organizations and departments. In examining the effects on development in the Wildland Urban Interface third places, inclusive religious denominations, and average commuting time all had a negative effect on housing growth and are statistically significant. Does this finding indicate these measures of social capital are better measures of bridging capital than association density? It is possible that the non-exclusive nature of third places could lead to more bridging and linking with pertinent managing organizations between. Comparatively, membership groups and associations form with an intended purpose, such as the local gardening group convenes to discuss and plan community placed gardens. A local coffee shop is a place where random community members visit and have potential to be social with any other individual in the shop at the same time.

One thing that was found in modeling the two dependent variables was spatial dependence. This finding is echoed in other chapters that also examine social capital at a regional scale. In this analysis, spatial clustering was found in each of the dependent variables and the independent variables of interest, association density and third places. While the regression methods controlled for the spatial dependence it is important to examine these research questions from a regional perspective.

It is important to consider what impact neighboring communities have on social capital development and patterns of land cover change; neighboring communities may benefit by combining efforts in working towards sustainable growth. Many ecosystem services (e.g., carbon sequestration) are a global public good but are often managed within communities. Friedman and Fraser (Chapter 7) found in

<table>
<thead>
<tr>
<th>Table 8.6</th>
<th>Wald F test results examining the combined effect of social capital measures on housing growth in the WUI in the period of 1990–2000</th>
</tr>
</thead>
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<tr>
<td>Dependent variable: housing units build in WUI 1990–2000</td>
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</tbody>
</table>
| SDM F-stat, F-prob | Restricted model: Rupasingha measures 1.47, 0.182  
Restricted model: SES measures 4.401, 0.000068 |
their community survey work that there were higher levels of trust in local and state governments than in the Federal government, which points to the issues in top-down vs. bottom-up management strategies. Social capital, more specifically establishments that foster the social interaction between individuals and linking with organizations that have the power to make policy decisions, are vital resources in sustainable development and conservation. Such establishments, as found in this research, include coffee shops, sit down restaurants, and small business establishments. These establishments, from the context of this research, could serve to link together members of the community with managing and governing groups and organizations to work towards managing community and regional growth.

References

TEEB (2010) The economics of ecosystems and biodiversity: Mainstreaming the economics of nature. A synthesis of the approach, conclusions and recommendations of TEEB.


THE ROLE OF NATURAL DISASTERS AND TECHNOLOGY IN THE FORMATION OF SOCIAL CAPITAL

Mark Skidmore and Hideki Toya

Introduction

In recent years economists have taken an interest in measuring and understanding the implications of “social capital” for economic activity. However, defining, measuring, and identifying the underlying determinants of social capital is a significant challenge given the difficulty of measuring social capital. In the words of Huysman and Wulf (2004: 1) “social capital refers to network ties of goodwill, mutual support, shared language, shared norms, social trust, and a sense of mutual obligation that people can derive value from. It is understood as the glue that holds together social aggregates such as networks of personal relationships, communities, regions, or even whole nations.” While researchers have used a number of approaches to measure social capital, one widely accepted general proxy for social capital, the level of societal trust, is typically measured using surveys and is available for many countries. Bjørnskov (2006) shows that societal trust tends to be stable over time. For example, the descendants of immigrants to the United States exhibit the same level of trust as the current inhabitants of countries from which their ancestors came several generations earlier (Uslaner 2004); trust within a given society/community is deeply embedded in its culture. Yet, major disruptions such as the dismantling of communist societies (Bjørnskov 2004) have been shown to have a significant effect on societal trust. Bjørnskov (2004) offers an excellent summary of the cross-country empirical research on this topic, which points to factors such as income inequality, ethnic diversity, and religion as important factors. What is much less studied and understood are the factors that lead to changes in trust over time.

In the present study we offer an examination of how natural environment and the emergence of new technologies can influence societal trust. Building on the work of Toya and Skidmore (2013) who document a strong positive relationship...
between natural disasters and increases in societal trust, we also show that climatic disasters, terrorist incidents, and access to internet and phone use are significant determinants of societal trust. Interestingly, our analysis shows that disasters lead to increased trust when internet access is available. We conjecture that new information technologies facilitate the flow of information and serve to connect those affected by disasters with others; the presence of such technologies enables the building of connections, thereby increasing societal trust.

Using data from many countries we conduct panel data analysis of the relationship between societal trust, the frequency of natural disasters and terrorist incidents, and the access to information technology (IT)/communications technologies. The remainder of this chapter is organized as follows. The next section offers a review of the most relevant literature on the economics of natural disasters, trust/social capital formation, and IT/communications technologies in the context of social capital formation. Section III presents cross-country data on natural disasters, IT/telecommunications, trust, and other socio-political-economic information. In section IV, we present the empirical analysis, and section V offers concluding remarks.

**Literature Review**

The literature review is organized into two parts. The first portion of the review offers a discussion of the most relevant literature on the economics of natural disasters. As will become apparent, there are potential linkages between disaster propensities and the formation of social capital, and more specifically societal trust. In the second part of the review, we discuss the most relevant research on the determinants of social capital/trust, including emerging IT/communication technologies.

**Economics of Natural Disasters**

The degree to which disasters lead to human and economic losses when they strike depends on a variety of economic, social, and political factors. Wildavsky (1988) offers a compelling discussion of how increasing income translates to a general increase in societal safety. Wildavsky (1988) argues that the degree of safety citizens enjoy is a natural outcome of a growing market economy. In the context of natural disasters, a number of researchers document a general reduction in vulnerability as income increases. Tol and Leek (1999) suggest that there is a rapid transition between vulnerable and invulnerable that occurs in the development process. More recently, using detailed information on disasters from OFDA/CRED, Kahn (2005) demonstrates that income and institutional quality reduce vulnerability to disasters. Using a similar framework to that of Kahn (2005), Anbarci, Escaleras, and Register (2005) find that greater income inequality increases earthquake fatalities. Toya and Skidmore (2007) add to this line of research by showing that higher levels of human capital, trade openness, and a more developed financial sector also reduce disaster vulnerability.
Horwich (2000) offers a discussion of the importance of social institutions in providing disaster assistance in his study of the 1995 earthquake that struck Kobe, Japan. He noted the Japanese Mafia was particularly effective at providing assistance and distributing resources even as units of government suffered from paralysis immediately following the quake. Very recent studies by Escaleras and Register (2012), Toya and Skidmore (2010), and Skidmore and Toya (2013) show that decentralized government systems are more effective at limiting disaster-induced human casualties. Generally, these studies document the role economic development and the quality and nature of institutions play in reducing societal vulnerability to natural disasters.

Turning more specifically to research on how disasters may affect preferences and how individuals perceive others, Cassar, Healy, and von Kessler (2011) show that preferences for risk, time, and trust can change in the wake of extreme events. In particular, they use experimental methods to examine how preferences changed in Thailand following the 2004 Asian tsunami; their results suggest that individuals affected by the disaster are more trusting, more trustworthy, and more risk-averse than subjects in similar communities not affected by the tsunami. In a recent study funded by the National Science Foundation, Loveridge, Shupp, and Skidmore (2013) evaluate the impacts of a category five tornado that struck the suburbs of Oklahoma City on May 20, 2013. The tornado, more than a mile wide, resulted in massive damage and 24 fatalities. Moore was the primary suburban community in the tornado’s path and had been struck by another category five tornado on May 3, 1999. The researchers used survey methods to evaluate potential changes in preferences for time and risk as well as trust levels from three populations: 1) individuals impacted directly (i.e., loss of life, injury or property damage) by the 2013 tornado event, 2) individuals from the surrounding community who experienced the event, but were not directly impacted, and 3) individuals residing in a (demographically) similar community in the Oklahoma City metro area, but which has not experienced a significant tornado event recently. While it is too early to fully report on the findings, preliminary results indicate that respondents in the tornado-affected area are significantly more risk averse \((p<.05)\) and patient \((p=.06)\) than respondents outside the affected area. Respondents in the tornado zone were also significantly more trusting in general \((p<.01)\), but less trusting of government, particularly national government. These preliminary findings provide additional evidence that natural disasters affect perceptions/feeling of trust.

Toya and Skidmore (2013) examine the role of disaster events on societal trust using data for many countries over the 1970–2010 period. Using panel data methods, they identify a significant positive relationship between societal trust and disaster activity. Specifically, they show that trust increases in periods following significant natural disaster activity. In the present study, we extend the work of Toya and Skidmore (2013) in research in two ways. First, we consider the effect on society of the emergence of IT/communication technologies in many countries over the period of analysis. Second, we consider the interaction between disaster
shocks that can affect societal trust and emerging IT/communication technologies. We hypothesize that the presence of IT/communication technologies facilitates the networks, connections, and interactions necessary for people to work together in preparation for and response to disaster crises to meet significant societal challenges. Before turning to the empirical analysis, we first discuss the most relevant literature on social capital and trust, including the role of IT/communications technologies.

Social Capital, Trust, and IT/Communications Technology

Over the last twenty years, development and regional economists have considered the role of social capital in economic systems. According to Bourdieu (1986), social capital refers to the nature of social obligations, connections, and networks available to an individual in a given society. Sobel (2002) offers an excellent summary of the research on the various aspects of social capital. The most relevant research in this literature is the work that examines differences across countries in social capital. While researchers have used several measures of social capital such as membership in clubs, civic organizations, and other group activities, a particularly useful proxy that is highly correlated with these other measures of social capital is the degree of societal trust. A commonly accepted measure of generalized societal trust in cross-country comparisons is obtained from this question on the World Values Survey: “In general, do you think that most people can be trusted, or can’t you be too careful in dealing with people?” The ambiguity of the question makes it somewhat difficult for respondents to answer. However, this question turns out to be a very effective measure of trust if one is attempting to capture culturally specific perceptions. To illustrate, trust scores obtained from this question were good predictors of the number of wallets in each country that would be returned with its contents intact (Knack 2001). Similarly, Lederman et al. (2002) and Uslaner (2002) show that trust scores are also an important determinant of corruption and violent crime.

A number of studies have sought to explain the variation in trust levels across countries. Generally, these studies point to income inequality, ethnic diversity, and religious composition as core determinants of societal trust. La Porta et al. (1997) and Berggren and Jordahl (2006) find societies with hierarchical religions (Catholicism, Orthodox Christianity, and Islam) tend to be less trusting. The work of Knack and Keefer (1997) suggest that countries with greater ethnic diversity exhibit less trust. While income inequality is generally a robust determinant of trust, care must be taken with estimation and interpretation as income inequality is potentially endogenously determined.²

With the exception of Toya and Skidmore (2013), none of the studies within the economics literature have considered the role that the natural environment may play in determining societal trust, and none evaluate how trust changes over time using panel data methods. The goal of the present study is to consider the factors that lead to changes in trust over time, emphasizing shocks such as natural
disasters and terrorist incidents, and emerging IT/communication technologies. Specifically, we build on Toya and Skidmore (2013) by considering how changes in the natural environment, changing technology, and the interaction between disaster shocks and IT/communication technologies may lead to changes in societal trust.

Intuitively, the forces of nature could influence cultural identity and mindset; extreme events might overwhelm a given society and thus social capital could erode. In support of this view, Hsiang et al. (2013: 1) evaluate 60 empirical studies from archaeology, criminology, economics, geography, history, political science, and psychology to determine the degree to which climate affects violence. They conclude that there is “strong causal evidence linking climatic events to human conflict across a range of spatial and temporal scales and across all major regions of the world.” However, Ostrom (1999) suggests that social capital tends to appreciate with use; some types of natural disasters may provide an opportunity for individuals to work together to address their collective challenges. For example, suppose a society has the potential to experience significant storms that affect entire regions and broad cross-sections of society, regardless of social status. Addressing the challenges associated with such storms in terms of ex ante preparations and ex post responses requires a collective effort, or the building of “bridging” capital (Putnam 2000). The work of Toya and Skidmore (2013) offers new evidence in a cross-country panel framework that significant storm activity is followed by a measurable statistically significant increase in societal trust. However, in order for society to come together and build social capital/trust in the wake of disasters, there must be a means by which members of society can learn about the challenges and in turn mobilize and offer a response. We hypothesize that emerging IT/communication technologies provide an effective networking tool that facilitates such activity. Below, we offer a brief discussion of the emerging research on how information technology affects social capital.

The work of Shah, Kwak, and Holbert (2001) is one of the earlier articles that considers the role of IT/communications technology on social capital. Using survey data, they report that the impact of the internet on social capital depended on how the internet was used. Use of the internet for informational purposes resulted in increased production of social capital, whereas use of the internet for socio-recreational purposes reduced the production of social capital. Hampton and Wellman (2003) were interested in studying the notion that internet use resulted in the weakening of meaningful person-to-person contact within communities. However, they found that internet use when coupled with a local online discussion group actually enhanced “neighboring.” Relative to non-wired residents, wired residents were shown to increase the number of known neighbors in a more geographically dispersed area within the suburb studied.

In 2004 Huysman and Wulf edited a book entitled Social Capital and Information Technology. The book offered a compilation of chapters on various aspects of the potential relationship between information technology and social capital, noting that strong preexisting social capital facilitates the adoption of electronic-based
networks. At the same time, they conclude that information technology can positively influence social capital formation. The Australian Government (2005) also examined the role of IT/communication technologies on the building of community and social capital. Generally, these studies highlight the potential positive effects of information technology on the formation of different types of social capital, while at the same time acknowledging potential negative impacts. The weight of the existing body of research, however, leans in favor of the positive effects.

In the context of natural disasters, IT/communication technologies can serve as a conduit for connecting and shoring up resources to assist in recovery, thereby facilitating “community” and trust building among members of society. Taken together, the work on natural disasters and IT/communication technologies suggest that natural disasters could potentially have a positive impact on societal trust, and this effect is enhanced by the presence of emerging IT/communication technologies. In the present study, we consider three questions in a cross-country panel data evaluation: 1) Is there an observable relationship between natural disasters and trust?; 2) Is there a relationship between societal trust and the emergence of information technology?; and 3) Does information technology facilitate trust building in the wake of a disaster? Before presenting the empirical results, we offer a detailed description of information on natural disasters, information technology, and other data that we use in our analysis.

Data on Disasters, Technology, Trust, and Socio-Economic Factors

Natural Disasters

Data on natural disasters come from the OFDA/CRED International Database (2012). The OFDA/CRED database is a result of collaboration between the Office of U.S. Foreign Disaster Assistance and the Center for Research on the Epidemiology of Disasters. Efforts to establish better preparedness for and the prevention of disasters have been a primary concern for donor agencies, implementing agencies, and affected countries. Demand for complete and verified data on disasters and their human impacts by country and type of disasters has been growing. The OFDA/CRED initiative to develop a validated database on disaster impacts is a response to this need. OFDA/CRED has compiled data on the occurrences and effects of mass disasters in the world from 1900 to the present. OFDA/CRED makes a concerted effort to validate the contents of the database by citing and cross-referencing sources. OFDA/CRED also uses specific criteria for determining whether an event is classified as a natural disaster. The database includes information on number of events, damages, numbers affected, and deaths. These data have been used in numerous published studies on the impacts of natural disasters. However, for purposes of our analysis we are reluctant to use data on damages, number affected, and deaths from natural disasters for three reasons. First, data on these factors are not always available. Second, since total economic damages...
tend to increase with income, the damages caused by disasters may be endogene-
nously determined. Similarly, numbers of people affected fall with income so that
low-income countries experience far more human casualties and losses (Toya and
Skidmore 2007). Wealthy countries devote more resources to safety in terms of
building codes, engineering, and other safety precautions, reducing deaths.5 Finally,
as noted by Albala-Bertrand (1993), the impacts of disasters are sometimes
exaggerated in developing countries in order to secure international assistance.
Thus, data on damages and loss of life are to some degree unreliable.

For the reasons described above, we use the number of significant events occur-
ring in a country over the 1985–2004 period, aggregated in five-year intervals, as
our indicator of exposure to natural disasters; the number of events is probably the
best exogenous measures of disaster risk available. As a further precaution, in some
specifications we include lagged measures of disasters as explanatory variables, so
that the measures of disaster propensities we use are for years prior to changes in
trust scores, our dependent variable. In the remainder of this paper, we use the
natural logarithm of one plus the total number of natural events as our primary
independent variable.6 Summary statistics for these and all other variables used in
our analysis are presented in Appendix Table 9.A. Appendix Table 9.B provides
definitions and sources for all variables used in the analysis, and Appendix Table
9.C presents the list of countries used in our analysis. In some regressions we
separate natural disasters into climatic and geologic disasters because the relative
effects of each may differ. Some disasters may serve to divide and break down
social networks, whereas others might provide opportunity to build social capital.
In addition, effective forecasting of climatic events allows citizens and officials to
prepare for the event in advance, whereas current technologies do not allow the
forecasting of geologic events.

Countries experienced an average of about 3,486 disasters as recorded in the
OFDA/CRED database over the 1985–2004 period. In our analysis, we consider
storms, floods, earthquakes, mass movements such as landslides, and volcanic
eruptions. The most common types of disasters are floods and storms (extreme
winds), accounting for 39 and 41 percent of the total number of disaster events in
our sample, respectively. Earthquakes, slides, and volcanic activity account for the
remainder. Over the period of analysis, there is considerable variation in the
frequency of natural disasters, with several countries experiencing more than 40
disasters in each five-year period on average (United States, China, Philippines, and
India) to 16 countries that experienced no disasters during the period we study.7

There is a concern that disaster propensities might be related to the level of
development and thus indirectly related to trust levels. Including measures of
development as control variables will help in this regard, but it may not fully
address this issue. However, in a recent study which used the same disaster data
source used in the present work, Kahn (2005) shows that probability of disaster
occurrence is unrelated to the level of development; disasters are equally likely to
occur and be recorded across the development spectrum, though disasters have
much larger impacts in developing countries.
We also consider two measures of IT/communication technology, which are taken from World Development Indicators: The number of internet users per 100 people and the number of cellular phone subscriptions per 100 people. There is considerable variability in internet and cell phone use/access across countries and over time. Importantly, over the period of analysis we observe significant transformation in many (but not all) countries included in our study. As discussed in more detail later, this variation enables us to determine whether these technology changes had an impact on societal trust.

We merge the disaster and technology data with socio-economic and political data, which are available from several sources (Global Terrorism Database; Heston et al. 2011; Indices of Social Development; and Polity IV Project). We use data on trust, disaster activity and other socio-economic variables for 131 to 146 countries (depending on data availability) in five five-year intervals for years between 1985 and 2009. Using this merged data set, we conduct empirical analyses to determine the relationship between changes in trust, disasters, and IT/communication technologies, while controlling for a range of other factors considered in previous studies.

Trust
Data on trust come from survey data reported in “Indices of Social Development.” As previously described, a commonly used measure of trust in cross-country comparisons is an indicator of generalized trust, which is now available for many countries over a number of years. This trust measure is: 1) a good predictor of the number of wallets in each country that would be returned with its contents intact (Knack 2001); and 2) an important determinant of corruption and violent crime (Lederman et al. 2002; Uslaner 2002). While country-wide trust scores tend to be stable over time (Bjørnskov 2006), shocks can lead to changes in trust. As shown in Toya and Skidmore (2013), trust scores do change over time. In contrast to other cross-country studies that attempt to explain cross-country variability in trust, we seek to understand the determinants of changes in trust over time, focusing on the role of the natural environment and emerging IT/communication technologies.

Other Variables
To isolate the effects of natural disasters and technology on changing societal trust, we incorporate other variables that have been shown to be important in previous studies that examine the determinants of trust across countries. We include: per capita GDP growth, the number of terrorist incidents, the degree of democracy, and an OECD indicator variable interacted with the September 2001 attack indicator variable. We also include time indicator variables to control for worldwide trends in changing trust. In specifications not reported but available upon request, we also included income inequality, total years of schooling, and ethnic fractionalization as additional control variables. However, data limitations for these variables
significantly reduce the number of countries that we are able to include in the analysis. In these regressions’ coefficients disasters and technology are similar to those presented in the paper, and none of the coefficients on these additional variables are statistically significant.

We include the previous period’s GDP growth as a control variable because previous studies show that trust tends to be higher in higher income countries, though potential endogeneity suggests caution in interpretation. We also control for the degree of democracy and other shocks that may affect trust; we include the number of terrorist incidents and an interaction term between an OECD indicator variable and a September 2011 terrorist attack indicator as additional control variables. Note that factors such as religious composition, legal origin of government, and ethnic fractionalization—variables that are typically included in cross-sectional analyses of trust—fall out of the specification we describe below because they are stable over this period. We are therefore not able to include them in the panel analysis. Below, we present our empirical analysis of the determinants of changes in trust using panel data methods.

**Empirical Analysis**

In this section, we examine changes in trust levels using panel data for many countries. In light of the recent work of Cassar, Heally, and von Kessler (2011), Loveridge, Shupp, and Skidmore (2013), Toya and Skidmore (2013), and the growing literature on the role of technology in social capital formation, we explore whether disasters and IT/communication technologies influence societal trust using panel data methods.

Our empirical analysis is based on the earlier cross-country analysis in which the level of trust is considered to be a function of the underlying economic, cultural, and institutional features in a country. Of course, we add measures of disasters and technology to this framework; this approach is illustrated by the following equation:

\[
\text{Trust}_{it} = \beta_k \left( D_{ijt-1} \right) + \beta_l \left( T_{int} \right) + \beta_m \left( D_{ijt-1} \ast T_{int} \right) + \beta_n \left( Z_{int-1} \right) + \epsilon_{int}
\]

where Trust\(_{it}\) is the average trust score in country \(i\) in periods \(t\), \(D_{ijt-1}\) is equal to the natural logarithm of the sum of all past disaster events in country \(i\) for disaster type \(j\) (storms, floods, earthquakes, mass movement, volcanic activity) in period \(t-1\), \(T_{int}\) is a measure of technology (internet use or cell phone use), \(D_{ijt-1} \ast T_{int}\) is an interaction between disasters and technology, and \(Z_{int}\) represents a vector of \(m\) variables that may determine trust (e.g., per capita GDP, the degree of democracy, institutional quality, origin of law, religion, income inequality, human capital, and other factors considered in previous cross-country analyses), and \(\epsilon_{int}\) is the error term. The disaster-technology interaction is intended to capture the degree to which the presence of technology facilitates trust building in the wake of natural disasters.
However, this type of cross-sectional analysis is potentially hampered by omitted variable bias, spurious correlations, and endogeneity. We therefore estimate a first-difference regression illustrated by the following equation:

\[
\text{Trust}_i - \text{Trust}_{i-1} = \beta_a (D_{ijt-1} - D_{ijt-2}) + \beta_b (T_{imt} - T_{imt-1}) + \beta_c (D_{ijt-1} \times T_{imt} - D_{ijt-2} \times T_{imt-1}) + \beta_n (z_{int} - z_{int-1}) + c_i + t_t \mu_{it}
\]

where \(D_{ijt-1} - D_{ijt-2}\) is equal to the number of disaster events during the past five-year period, \(T_{imt} - T_{imt-1}\) is the change in technology during the past five-year period, and \(z_{int} - z_{int-1}\) represents a vector of \(m\) variables that may determine changes in trust over time (e.g., lagged per capita GDP growth, lagged changes in the degree of democracy, terrorist activity during the current five-year period, and the interaction term OECD Indicator \times September 11 Attacks), \(c_i\) represents country fixed effects, \(t_t\) is a set of a time period indicator variables, and \(\mu_{it}\) is the error term. All regressions are estimated using a cluster approach in which standard errors are clustered at the country level to address temporal autocorrelation.

The equation represents a change in trust specification in which we control for both country and time effects. The time period for our trust data covers 1990 through 2010 in which we consider four five-year time periods: 1990–1995, 1995–2000, 2000–2005, and 2005–2010. In Tables 9.1 and 9.2, both current and lagged measures of disasters enter into the specification, terrorism is in current terms, and all other dependent variables enter as lags to reduce concerns about reverse causality. These tables present coefficient estimates for disasters, IT/communication technology, and terrorist incidents, but not the coefficient estimates on the full set of control variables; estimates for the full range of control variables are presented in Toya and Skidmore (2013), and are available upon request from the authors. For reference, in Appendix Table 9.A we report summary statistics for all variables used in the analysis.

Consider first the results reported in Table 9.1. In columns 1 and 3, we include a single comprehensive measure of disaster activity (current and lagged), terrorism, internet use (column 2), and cell phone use (column 3). Disaster activity is the sum of all the types of disasters we consider in our analysis. The regressions reported in columns 4–6 are similar to those in columns 1 and 3 except that interaction terms for disaster activity and IT/communication technologies are included. Columns 1 and 3 show that the coefficient on lagged natural disaster activity is positive and highly significant. In contrast, current terrorist incidents significantly reduce trust. In columns 2 and 3, growth in internet and cell phone use also increases societal trust. Further, these regressions explain about 40 percent of the within country variation in the change in trust. In columns 4–6, we include the disaster \times technology interaction terms to examine the degree to which technology facilitates the formation of social capital in the wake of disasters. Here we see that disasters only increase trust scores in the presence of internet technology: The
coefficient on disaster becomes statistically significant when the interaction term is added to the regression (column 4). The interaction between disasters and cell phone use is also statistically significant (column 5), but the statistical significance of the coefficient on disasters is maintained. These findings suggest that IT/communication technologies, particularly internet access, help societies work together in the wake natural disasters. In contrast, the terrorism–technology interactions are not statistically significant in any of the regressions. In column 6, we include all interaction terms; these results are consistent with the column 4 and 5 estimates.

In Table 9.2 we present a set of estimates that mirror those presented in Table 9.1 except that they split disasters into climatic and geologic disasters. Given that we are now able to forecast climatic events but not geologic, the effects of these two types of disasters might be different in terms of potential effects on society. Forecasting enables societies to work together and prepare for the coming event.

**TABLE 9.1** Natural disasters, information and communication technology, and trust.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tr>
<td>Ln(\text{Number of total disasters})_t</td>
<td>0.005</td>
<td>0.004</td>
<td>0.003</td>
<td>0.012</td>
<td>-0.004</td>
<td>0.008</td>
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<td></td>
<td>(0.801)</td>
<td>(0.620)</td>
<td>(0.482)</td>
<td>(1.379)</td>
<td>(-0.543)</td>
<td>(0.948)</td>
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<td>Ln(\text{Number of total disasters})_{t-1}</td>
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<td>0.011</td>
<td>0.015</td>
<td>0.000</td>
<td>0.016</td>
<td>0.001</td>
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<tr>
<td></td>
<td>(2.982)</td>
<td>(1.955)</td>
<td>(2.799)</td>
<td>(0.013)</td>
<td>(3.015)</td>
<td>(0.117)</td>
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<tr>
<td>Ln(\text{Number of terrorism incidents})_t</td>
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<td>-0.011</td>
<td>-0.013</td>
<td>-0.012</td>
<td>-0.010</td>
<td>-0.010</td>
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<td>(-2.497)</td>
<td>(-2.781)</td>
<td>(-2.607)</td>
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<td>Growth in internet users</td>
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<td>(2.877)</td>
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<tr>
<td>Growth in mobile cellular subscriptions</td>
<td>0.013</td>
<td>(2.654)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth in internet users'</td>
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<td>-0.011</td>
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<td>Ln(\text{Number of total disasters})_t</td>
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<td>(-1.474)</td>
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<td>Growth in internet users'</td>
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<td>Ln(\text{Number of total disasters})_{t-1}</td>
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<td>(1.715)</td>
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<tr>
<td>Growth in internet users'</td>
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<td>0.004</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln(\text{Number of terrorism incidents})_t</td>
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<td>(1.515)</td>
<td></td>
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<tr>
<td>Growth in mobile cellular subscriptions'</td>
<td>0.008</td>
<td>0.007</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Ln(\text{Number of total disasters})_t</td>
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<td>(1.756)</td>
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<td>Growth in mobile cellular subscriptions'</td>
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<td>-0.004</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln(\text{Number of terrorism incidents})_t</td>
<td>(-1.245)</td>
<td>(-1.647)</td>
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<td></td>
</tr>
<tr>
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</tr>
<tr>
<td>Number of countries</td>
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<tr>
<td>R-squared: within</td>
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<td>0.414</td>
<td>0.408</td>
<td>0.411</td>
<td>0.400</td>
<td>0.417</td>
</tr>
</tbody>
</table>

Numbers in parentheses are t-values (clustered standard errors). Time indicator variables for each of the 5 year periods and country indicator variables are included, but not reported here.
whereas society is not given warning of geologic events. In these estimates (columns 1–3), we see that only climatic disasters are associated with increases in trust. Further, as shown in column 4–6 only the climatic disaster-technology interactions are statistically significant. These estimates suggest that technology

<table>
<thead>
<tr>
<th>Table 9.2: Climatic and geologic disasters, information and comm. technology, and trust dependent variable: change in trust</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>Ln(1+Number of climatic disasters)$_t$</td>
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<td></td>
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<tr>
<td>Ln(1+Number of geologic disasters)$_t$</td>
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<td></td>
</tr>
<tr>
<td>Ln(1+Number of climatic disasters)$_{t-1}$</td>
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<tr>
<td>Ln(1+Number of geologic disasters)$_{t-1}$</td>
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<td>Ln(1+Number of terrorism incidents)$_t$</td>
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<tr>
<td>Growth in mobile cellular subscriptions</td>
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<td>Growth in internet users’</td>
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<tr>
<td>Number of countries</td>
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<td>R-squared: within</td>
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Numbers in parentheses are t-values (clustered standard errors). Time indicator variables for each of the 5 year periods and country indicator variables are included, but not reported here.
appears to facilitate the society’s preparation for and response to climatic disasters but not geologic disasters. Again, these findings are consistent with the idea that forecasting coupled with emergence of IT/communication technologies leads to increases in social capital as measured by trust.

This analysis offers empirical evidence that climatic disasters and IT/communication technologies are statistically significant positive determinants of changes in societal trust. In addition, it appears that the emergence of IT/communication technologies have enhanced societal trust in the wake of natural disasters, particularly climatic disasters. Extreme climatic events are expected to accompany global warming, and IT/communication technologies are rapidly becoming accessible in many countries around the world. While the research presented here suggests a potential benefit (increased trust) from climatic events, this effect is only present when society has access to IT/communication technologies. Hsiang (2013) offers compelling evidence that climatic events also result in violence. Are these two findings incongruent? Significant shocks such as natural disasters create conditions where both conflict and cooperation can arise; we observe both. A key finding in our study is that technology appears to play a critical role in bringing society together to address such challenges. From a policy perspective, the advancement of IT/communication technologies may be very important in terms of limiting violence and promoting cooperation as extreme events become more common. Further, there are now a number of empirical studies showing that social capital in general and trust in particular play a critical role in economic development and governance. Increasing our understanding of the determinants of societal trust may enhance development efforts as well as inform disaster mitigation policies.

Conclusions

In this study we use panel data analyses to examine the relationship between disaster propensities, terrorism, technology, and societal trust. Our examination reveals a robust positive relationship between trust and an overall measure of the previous period’s disaster activity, particularly storms. We also show that trust decreases in the presence of terrorist activity and increases as IT/communication technologies become more accessible. Interestingly, we find that the positive association between disasters and trust is only present when IT/communication technologies are accessible. Our study increases our understanding of the forces that lead to changes in social capital over time. Many of the factors identified in previous cross-country studies of trust are stable over time. We contribute to this body of work by offering an examination of factors that lead to changes in trust over time, with a particular focus on the natural environment and changing technological conditions. These findings suggest that shocks from disaster events and terrorism can have a significant influence on culture. We also document a robust positive relationship between trust and IT/communication technologies, and show how such technologies facilitate collective efforts in addressing challenges associated with disasters. As evidence for climate change mounts, it will be
increasingly important to consider the implications for society and culture, and consider how technology can be used to minimize violence following disaster shocks and promote social capital formation.

Notes

1 The respondent must choose between: “1-Most people can be trusted”; and “2-Can’t be too careful”.
2 For example, higher levels of trust could generate a sense of solidarity across income groups and thus create support of redistributive policies.
3 We use 131 to 146 countries depending data availability and specification. See Appendix C for list of countries.
4 The reasons for taking into account a disaster are: 1) 10 or more people were killed; 2) 100 or more people were affected/injured/homeless, 3) significant damages were incurred; or 4) a declaration of a state of emergency and/or an appeal for international assistance was made.
5 See Toya and Skidmore (2007) for empirical evidence on the relationship between the level of development and the effects of natural events.
6 We also used disaster variable normalized by the natural logarithm of land area since larger countries generally experience more natural disasters. These results are very similar to those presented in the paper.
7 These countries are Bahrain, Bermuda, Cape Verde, Equatorial Guinea, Eritrea, Estonia, Gabon, Libya, Malta, Qatar, Singapore, United Arab Emirates, Uzbekistan.
8 Trust data from ISD is made from various sources See www.indsocdev.org/interpersonal-safety-and-trust.html for details.
9 For some types of disasters in some countries, there were zero events. We therefore add one to all observations to avoid arithmetic error.
10 Recall that factors such as religious composition, legal origin of government, and ethnic fractionalization, variables that are typically included in cross-sectional analyses of trust, fall out of this specification because they are stable over this period.
11 Within the lagged framework, we also include disasters and other explanatory variables over the 1985-1989 period.

References


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### APPENDIX TABLE 9.C List of Countries

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LATINO/A IMMIGRATION, SOCIAL CAPITAL, AND BUSINESS CIVIC ENGAGEMENT IN RURAL PRAIRIE TOWNS

Terry L. Besser and Nancy J. Miller

Small rural towns are thought to be friendly places where everyone knows everyone else. It is safe to leave an empty car unlocked and running at the convenience store. Like Mayberry of television fame, they are believed to be the quintessential high social capital locations. For our purposes, rural towns are incorporated municipalities with fewer than 15,000 residents in a non-metropolitan county. In spite of the tendency to overlook the dark side of social capital in these nostalgic accounts, the truth is it is easier to know a larger share of the population when towns are small and distant from urban areas. The lack of anonymity in these locations adds to the power of the rewards and sanctions associated with complying with local norms. Moreover, when the number of residents is low, it is harder to rationalize not getting involved in the community by thinking that someone else will do it or that your efforts will not make a difference.

We define social capital as relationships between people characterized by trust and norms of reciprocity that can be used to achieve individual and collective goals (Putnam 2000). As described above, the impact of population size itself is one explanation for the higher levels of social capital generally found in rural towns compared to metropolitan areas (Besser 2002). Another feature that may contribute to greater social capital in rural towns is their relatively high ethnic and racial homogeneity. In 2005, minorities accounted for 36 percent of metropolitan population in the U.S. while only 18 percent of the population in non-metropolitan places was minorities (Jones, Kandel, and Parker 2007). The percentage is far less in the Great Plains and Corn Belt states (henceforth referred to as prairie states) non-metropolitan counties (Johnson 2003: 25). While rural towns in the southwest have historically had significant proportions of Latino/as in their populations and southern small towns possessed sizeable populations of African Americans, the small towns in the midsection have been populated almost exclusively by descendants of white northern European immigrants.
That situation has changed. Since 1990 rural prairie towns with livestock and egg processing facilities have experienced dramatic increases in Latina population (Donato et al. 2007; Durand, Massey and Charvet 2000). Latina immigrants are attracted to these “new destination” towns to fill the low wage jobs offered by the processing employers and because they desire the small town quality of life. The profoundness of the change is illustrated by the fact that among the 11 new destination towns in this study, the average percentage of Latinas in the population in 1990 was 9.83. By 2010 it was 40.48 percent and four of the towns had more than 50 percent Latinas.

Research on urban neighborhoods, metropolitan areas, and states suggests that racial and ethnic diversity is associated with lower social capital. Members of both the minority and majority racial and ethnic groups interact less and have diminished interpersonal trust in heterogeneous communities than residents of homogeneous places (Alesina and Ferrara 2002; Laurence 2009; Letki 2008; Putnam 2007). These findings are not as unambiguous as the previous statement implies, as we will show. Nevertheless, they provide support for threat theory which posits that in places with greater diversity, the majority group will perceive the minority group to be an economic and cultural threat and react by marginalizing and demonizing minority residents (Alesina and Ferrara 2002; Laurence 2009).

Indeed, the rapid increase in population diversity in rural prairie towns has led to heated disputes and acrimony among long term residents and mixed and ambivalent relationships between Latina immigrants and long term residents (Fennelly 2008; Gray and Woodrick 2005). On the one hand, the new immigrants are welcomed because they represent an increase in population for towns that have been losing residents for over a century (McGranahan, Cromartie, and Wojan 2010) and supporters argue that they bring renewed economic activity and cultural variation and vitality. On the other hand, the churning of immigrants and their lack of English speaking skills, low income, and low educational levels represent a strain for local schools and health care facilities (Farmer and Moon 2009). Their different cultural patterns challenge local values and norms (Fennelly 2008; Flora, Flora, and Tapp 2000). Under these circumstances it is reasonable to assume that community social capital will be affected.

Social capital is a critically important resource for rural prairie towns. These places face daunting challenges of depopulation and the loss of economic activity caused by the restructuring of agriculture and the offshoring of manufacturing (Falk and Lobao 2003; Gunderson 2006). The ability to work together as a group to achieve collective goals is an asset that can be substituted for other resources that are in short supply (Flora et al. 1992; Flora 1998; Sharp et al. 2002). Not only can social capital leverage other resources to help solve community problems, it is also associated with more civically engaged business owners who provide leadership and monetary and in-kind support for the community (Besser 1998; Burton and Goldsby 2009). Research consistently shows that social capital resources differentiate successful rural towns from their less successful peers (Sharp et al. 2002;
Green and Haines 2002). A loss of social capital therefore, represents a threat to town survival.

In spite of the importance of this topic and the recent scholarly interest in the relationship of racial and ethnic diversity to social capital, we are unaware of research on social capital in new destination towns. The purpose of this chapter is to fill that gap. We will examine the perceived level of social capital in 11 new destination prairie towns compared to its level in six towns matched in geographic location, population size, and economic situation. If social capital is less in the new destination towns than in matched towns, social capital theory will be advanced and the threat hypothesis will be supported. We extend previous research on this topic by considering whether business civic engagement is likewise affected by the changing demographics of new destination towns. In the first section of this chapter, we elaborate theories about the relationship between social capital and racial and ethnic diversity. A review of the literature on social capital and business civic engagement follows. We then describe the research design, concept operationalizations, and findings. In the final section, we discuss the implications of the findings for social capital theory and for new destination towns.

**Social Capital and Diversity**

Two theories predict how social capital might be impacted by the ethnic and racial diversity of communities. Contact theory suggests that living close to individuals of different races and/or ethnicities who have equivalent socioeconomic status encourages interaction across racial and ethnic lines which, in turn, enhances trust of members of the other racial group (Oliver and Wong 2003). Conversely threat theory (Key 1949) proposes that living in close proximity to a different racial or ethnic group will lead to greater within group solidarity for both majority and minority groups as the other group is perceived to be a threat to economic resources and/or cultural integrity. The larger the minority proportion of the population, the more threatened the majority feels, the more hostile they become toward the minority, and the less interaction occurs between minority and majority group members (Citrin and Sides 2008). This triggers a downward spiral of feeling threatened, diminished interaction between groups, and stronger ties within the groups.

Insight into the apparent differential impact of diversity on within group and between group solidarity is provided by the literature on bonding and bridging social capital (Narayan 1999). Bonding social capital is defined as strong, intense ties accompanied by within group trust and norms of reciprocity (Granovetter 1973; Narayan 1999; Rusch 2010). Bridging social capital is created through weak ties (less frequent interaction and less emotional intensity attached to the tie) between members of two or more tightly knit groups. These ties are also characterized by trust and norms of reciprocity between the linked individuals and groups, but to a lesser degree than that associated with bonding ties. Contact theory predicts that racial and ethnic diversity increases bridging social capital and has no effect on
bonding social capital. Threat theory argues that greater diversity decreases bridging social capital across racial and ethnic lines and increases bonding social capital.

When examinations of the relationship of diversity and bridging social capital (variously defined as interpersonal trust, social cohesion, voluntary association membership, and voting patterns) are aggregated to the community (Putnam 2007), state (Alesina and Ferrara 2002), and national levels (McLaren 2003), threat theory is supported. Nations, states, and communities with greater racial and ethnic diversity have lower bridging social capital. In Putnam’s (2007) research, greater diversity also diminishes bonding social capital. Putnam (2007) explains his anomalous finding by suggesting that people hunker down in the face of diversity interacting neither with those like themselves nor with people who are racially or ethnically different. The negative effect of diversity on both bonding and bridging social capital is called “constrict theory.”

At the neighborhood and individual level, the relationship is more complicated, however. More diverse neighborhoods have lower social cohesion and interpersonal trust (bridging social capital), but when the socioeconomic class of the neighborhood is controlled the relationship disappears (Laurence 2009; Letki 2008). Individuals who live close to people of different races and ethnicities but with similar socioeconomic status have more interaction across racial lines, less intergroup prejudice, and more interpersonal trust (Laurence 2009; Pettigrew and Tropp 2006; Stolle et al. 2008). Letki (2008) elaborates this relationship even further. In her research of economically distressed neighborhoods in the U.K., greater diversity was associated with lower interpersonal trust even when interracial interaction was the same as that in more affluent neighborhoods where it leads to greater trust and tolerance. She postulates that in poor neighborhoods disorder and powerlessness discourage the development of trust even when interaction occurs. If true, it follows that the context factors associated with a history of poverty matter as much as the socioeconomic class of individual neighbors, their proximity, and the frequency of interaction between individual majority and minority group members in developing trusting relationships. It is not known if a legacy of poverty is associated with disorder and powerlessness in rural towns. Even so, it is important to consider that possibility by controlling for the historical levels of poverty in this analysis.

Social capital and community scholars have come to accept the fact that bonding social capital can result in negative outcomes for the general welfare and for individuals (Portes and Landolt 1996), but they have given little attention to the negative consequences of bridging social capital. Rusch’s (2010) study of bridging relationships between Black and White groups in Detroit is an exception. She points out that “boundary spanners,” Black and White individuals with bridging relationships with members of the other race, risk being seen by their own race as disloyal and untrustworthy. This poses a serious dilemma for the individual boundary spanners. In order to be an effective bridge they must have the trust of their own race and the trust of members of the other race, which in some cases may be mutually exclusive. In this light, bridging social capital may benefit the larger collectivity, but represents a risky proposition for individual boundary
spanners. They may gain power and status as the gatekeeper with access to non-redundant resources or lose if they are viewed as traitors and walled off from the core sources of power in their own group and never really accepted as loyal members of the rival group. This discovery may help communities anticipate the hurdles associated with encouraging residents to develop relationships across racial and ethnic lines.

This literature leads us to expect that new destination towns will have lower levels of bridging social capital than matched towns and that the larger the percentage of Latinas in town the lower the bridging social capital. Constrict theory predicts that the level of bonding social capital will also be less. At the individual level, socioeconomic equivalence between races ameliorates the negative effect of racial and ethnic diversity on interpersonal trust and interaction. This may not correspond directly to the community level of analysis. But as Letki’s (2008) findings demonstrate, prevailing and historical levels of income inequality may affect the relationship between diversity and social capital. Socioeconomic disparity within a community can be approximated with the unemployment and poverty rates. Therefore, for this analysis, we will assess the relative importance of current and historical unemployment and poverty rates and the percent Latina in the population on bridging and bonding social capital.

Social Capital and Business Civic Engagement

Social capital is essential for rural community development because of its association with civic engagement. By civic engagement we mean the active involvement of residents in community life including holding public office, serving on boards, voting in elections, and providing labor and financial support for community improvement projects. Communities with high bridging and high bonding social capital have higher rates of voluntarism and more effective community development projects (Agnitsch, Flora, and Ryan 2006; Flora et al. 1997). They are better able to respond to environmental problems (Leach and Sabatier 2005) and have higher rates of voting in elections and more effective local government (Rice 2001).

The aspect of civic engagement that is the focus of this analysis is the community involvement of business owners and managers (referred to together as “operators”). Scholars have documented the important contribution of local business operators to the quality of life in the Twin City area (Galaskiewicz 1997) and Philadelphia and Boston (Batzell 1979) and to the revitalization of Cleveland (Austin 1998). The financial, in kind, and leadership resources they can furnish for betterment projects are equally or more essential to the welfare of rural communities (Tolbert 2005; Tolbert, Lyson, and Irwin 1998).

We argue that business operators are as likely to be affected by collective values and norms as are other residents. They comply with the level of philanthropic and community support provided by their business peers (McElroy and Siegfried 1986; Navaro 1988; Useem 1991; Useem and Kutner 1986) and the business groups to which they belong (Besser, Miller, and Sudaji 2011; Galaskiewicz 1997). Com-
Community social capital may influence business operators indirectly through these mechanisms or directly through interactions with residents in everyday life (Burton and Goldsby 2009; Madden, Scaife, and Crissman 2006).

Heying (1998) contends that one explanation for the overall decline in civic engagement in the U.S. is the loss of locally owned businesses whose owners are more committed to the local community than businesses with absentee owners. This is an intriguing idea that applies more to densely populated areas with branches of many large businesses than to small rural towns. The residential location of the owners of small businesses, defined as for-profit organizations with fewer than 500 employees (U.S. Small Business Administration 2011), has not changed appreciably over time. In spite of constituting the overwhelming majority of businesses (99.7 percent) in all locations, small businesses in metropolitan areas lack the power and economic impact associated with the large corporations in the area. In small rural towns, small businesses are frequently the only businesses. The greater visibility of small businesses in small towns and their greater economic and social dependence on the town compared to large corporations, make them more affected by local sanctions and rewards. This is consistent with Brammer and Millington’s (2006) contention that the visibility of businesses is a more important predictor of their level of philanthropy and involvement in the community than is their size.

The reasoning developed above proposes that business operators in small towns will be influenced by the level of social capital in their community in their decisions about the amount of support to furnish the community. If bridging and bonding social capital are high in a community, business civic engagement will be correspondingly higher than in places with low levels of social capital. If the proportion of Latina business owners and residents in the community is negatively associated with social capital, the amount of support businesses provide for the community will likewise be affected.

**Research Design**

This analysis used data from a study aimed at assessing the relationship between social capital, economic vitality, and amenities in new destination towns. New destination towns were operationalized as incorporated municipalities that had experienced an increase of 10 percent or more in Latina population between 1990 and 2008, had a minimum of 10 percent Latinas in their 2008 estimated population, a total population of fewer than 15,000 residents, and were located in a non-metropolitan county. Eleven rural new destination towns and six matching towns were selected in Iowa, Kansas, and Nebraska. The matching towns had almost no Latinas in their population and were selected to be as close as possible to the new destination towns in the state and similar in population size and economic situation.

Our interest in economic vitality and business strategies and business civic engagement necessitated conducting interviews with local business owners and managers. They were asked about their economic situation and the business climate in the community. Those who were residents of the towns in which their businesses
operated (91.3 percent in this sample) were also asked questions measuring community social capital. We argue that small rural town business operators have an in depth understanding of the community since they are usually long term residents with a stake in the welfare of the community. In this sample, business operators had lived in the towns where they do business an average of 30.02 years (standard deviation is 20 years). Moreover, their perception of the prevailing level of social capital is more relevant to the amount of support they provide the community than is the perception of the general population.

A random sample of 3,462 businesses operating in the selected towns was purchased from American Profiles. The top decision maker for each business in the sample was interviewed in 2009 by telephone by trained interviewers from the CATI Laboratory at the Institute for Social and Behavioral Research at Iowa State University. Interviews lasted approximately 20 minutes. Many of the names on the purchased list were ineligible, had inaccurate contact information, or could not be reached. When those businesses were subtracted, the sample size was 1,772. Among that group, 1,213 business owners and top managers agreed to participate in the study for a cooperation rate of 68.45 percent. Spanish speaking interviewers conducted face to face interviews with Latina business owners in the new destination towns. Ninety agreed to be interviewed (approximately 90 percent cooperation rate). Thus the total number of business operators participating in the study was 1,303.

For this analysis, the indicators of inequality are the percent of the population at or below the poverty level and the unemployment rate for 1990, 2000, and the 2005–09 time periods. The percent of the population that is Latina in the three time periods was also included. We chose to examine the impact of the inequality and ethnic diversity variables for three time periods to compare the new destination and matched towns before and after current immigration and to assess whether previous poverty levels affect the relationship of Latina immigration on social capital in 2009. Data for 1990 and 2000 are from the decennial census of the population for those dates. Beginning after the 2000 decennial census, the American Community Survey (ACS) has been used to provide detailed information about the population instead of the decennial census. It uses random sampling strategies and probability theory to estimate population statistics. In the ACS samples from small rural towns are too small to make annual estimates with acceptable margins of error. Therefore, aggregating data from five years furnishes the lowest margin of error in estimating small town demographic and economic values. For that reason we employed the 2005–09 estimates from the ACS for the latter point in time.

**Operationalization of Variables**

Business civic engagement, bonding social capital, and bridging social capital were measured with indices calculated using principal component factor analysis with varimax rotation. The scales were created at the individual level of analysis and aggregated as community means. The questions selected for the indices each had
face validity for the construct being measured and each loaded at or above 0.5 (Kim and Mueller 1978). The Cronbach’s alpha score for the business civic engagement and social capital indices are above 0.5 which is considered to indicate adequate index reliability (Kim and Mueller, 1978). The exact wording of the questions used in the indices and their descriptive and factor scale statistics are shown in Table 10.1.

Findings

The new destination and matched towns are compared in Table 10.2. With an N of only 17, we relaxed the p value for statistical significance to 0.1. There were no significant differences in indicators of inequality between the two categories of towns for 1990 and 2000. The new destination towns had a larger share of Latinas in their population in 1990 even before the reorganization of the meat packing industry that led to massive immigration between 1990 and 2005. Their greater ethnic diversity is not, however, associated with greater poverty or unemployment compared to the matched towns. Even though there was no significant difference between new destination and matched towns in 1990 poverty levels, there was substantial variation across the whole sample of towns (mean = 11.42, standard deviation = 3.75, min. = 5.70, max. = 19.20).

By 2000, new destination towns averaged almost 30 percent Latina. In the 2005-09 period, the percentage had increased to 40.48 on average. The dramatic difference in Latina population between the two kinds of towns is accompanied in 2005-09 by a significant difference in inequality as measured by poverty rates. New destination towns averaged a poverty rate of 14.83 percent compared to the 8.83 percent in matched towns. There is no significant difference in unemployment rates. It should also be noted that the new destination towns realized an increase on average of over 1,000 residents between 1990 and 2005-09, or about a 19.40 percent increase. The majority of that gain occurred between 1990 and 2000. Population levels appear to have leveled off since then. The matched towns lost slightly in population over the two decades. The average levels of bonding social capital, bridging social capital, and business civic engagement in 2009 are significantly higher in the matched towns compared to the new destination towns.

Even though all these towns are considered to be small, the new destination towns had on average 77 percent more residents in 2005-09 than the matched towns. This difference is not statistically significant because there is more variation within the categories than between them. Still, social capital and business civic engagement might be affected by the difference in population size. Therefore, in assessing the relative predictive values of inequality and ethnicity on social capital, we controlled for population. Figure 10.1 shows the partial correlation coefficients for the independent and dependent variables with population controlled. Only the paths for statistically significant correlations are shown.

With population controlled, the 1990 poverty rate is positively associated with 2009 bonding social capital but does not affect bridging social capital or business
TABLE 10.1  Indices for business civic engagement and social capital variables (N=1303)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Component factor statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business civic engagement</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For each of the following kinds of support businesses provide for their communities, please indicate whether you have provided it very often (=5), often, sometimes, seldom, or never (=1). How often have you provided….</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Financial or technical assistance for community development and planning</td>
<td>2.40</td>
<td>1.21</td>
<td>.77</td>
</tr>
<tr>
<td>2. Donations to local schools or youth programs</td>
<td>3.55</td>
<td>1.06</td>
<td>.70</td>
</tr>
<tr>
<td>3. Leadership or financial support for local bond issues to finance community projects</td>
<td>2.13</td>
<td>1.16</td>
<td>.72</td>
</tr>
<tr>
<td>4. As a business owner/manager, I am willing to expend resources to help the community. (1= strongly disagree, 5 = strongly agree)</td>
<td>3.98</td>
<td>.81</td>
<td>.68</td>
</tr>
<tr>
<td>Cronbach’s $\alpha = .68$ Variance explained = 51.54 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bonding social capital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Now I would like to ask you some questions concerning your opinion about the local community.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Being a resident of (town) is like living with a group of close friends. (1= strongly disagree to 5=strongly agree)</td>
<td>3.70</td>
<td>.90</td>
<td>.82</td>
</tr>
<tr>
<td>2. About what proportion of the adults living in (town) would you say you know by name? Would you say you know 1=none or very few, 2=less than half, 3= about half, 4= most of them, 5 = all.</td>
<td>2.57</td>
<td>.94</td>
<td>.68</td>
</tr>
<tr>
<td>3. Please rate the friendliness of (town) where (1 = very unfriendly and 7 = very friendly)</td>
<td>5.51</td>
<td>1.13</td>
<td>.78</td>
</tr>
<tr>
<td>Cronbach’s $\alpha = .64$, variance explained = 58.37 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bridging social capital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Now I would like to ask you some questions concerning your opinion about the local community. Please indicate whether you strongly disagree, disagree, neither agree nor disagree, agree, or strongly agree with the following statements about (name of town).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. If you do not look out for yourself in (town), no one else will (reverse coded for factor scale).</td>
<td>2.68</td>
<td>1.12</td>
<td>.77</td>
</tr>
<tr>
<td>2. When something needs to get done in (town), the whole community gets behind it.</td>
<td>3.48</td>
<td>1.00</td>
<td>.70</td>
</tr>
<tr>
<td>3. Community clubs and organizations are interested in what is best for whole town.</td>
<td>3.65</td>
<td>.93</td>
<td>.78</td>
</tr>
<tr>
<td>4. Please rate the level of trust in (town) where 1 = very trusting and 7 = very untrusting (reverse coded for factor scale).</td>
<td>3.33</td>
<td>1.70</td>
<td>.53</td>
</tr>
<tr>
<td>Cronbach’s $\alpha = .60$, variance explained = 49.44 %</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
civic engagement. The unemployment rate is negatively related to 2009 business civic engagement. Interestingly the 1990 Latina proportion of the population is not associated with either social capital or business civic engagement. As the proportion of Latinas increases in 2000 and 2005–09 however, the relationship becomes significant. In 2000, the greater the proportion of Latinas in a town, the lower the bonding social capital (−.51) and the lower the bridging social capital (−.43). The 2000 unemployment rate is also negatively associated with bonding social capital perhaps due to its covariance with the percent Latina (.45). The 2000 poverty rate is not associated with unemployment or percent Latina.

In 2005–09, the negative correlations between percent Latina and the social capitals have increased to −.60 and −.53 respectively and the percent Latina is now significantly negatively related to business civic engagement (−.38). There is a significant positive correlation (.43) between poverty rates and the percent Latina controlling for population. The 2005–09 poverty rate is also negatively related to bonding social capital (−.53) and bridging social capital (−.44). Bonding and bridging social capital covary with each other (.70) and are associated with business civic engagement (.46 for bonding social capital and .66 for bridging social capital).

### Table 10.2
New destination and matched towns compared—means (standard deviation)

<table>
<thead>
<tr>
<th></th>
<th>New destination towns</th>
<th>Matched towns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=11</td>
<td>N=6</td>
</tr>
<tr>
<td><strong>1990</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent Hispanics**</td>
<td>9.83 (9.25)</td>
<td>.80 (.95)</td>
</tr>
<tr>
<td>Percent in poverty</td>
<td>11.25 (4.12)</td>
<td>11.72 (3.32)</td>
</tr>
<tr>
<td>Percent unemployed</td>
<td>4.51 (1.04)</td>
<td>3.71 (1.94)</td>
</tr>
<tr>
<td>Population</td>
<td>5,429 (3,536)</td>
<td>3,686 (1,633)</td>
</tr>
<tr>
<td><strong>2000</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent Hispanics***</td>
<td>29.94 (13.21)</td>
<td>1.40 (.88)</td>
</tr>
<tr>
<td>Percent in poverty</td>
<td>11.91 (2.61)</td>
<td>10.03 (5.38)</td>
</tr>
<tr>
<td>Percent unemployed</td>
<td>3.00 (.92)</td>
<td>2.38 (.83)</td>
</tr>
<tr>
<td>Population</td>
<td>6,397 (3,985)</td>
<td>3,804 (1,545)</td>
</tr>
<tr>
<td><strong>2005-09 Estimates</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent Hispanics***</td>
<td>40.48 (16.47)</td>
<td>2.12 (1.58)</td>
</tr>
<tr>
<td>Percent in poverty**</td>
<td>14.83 (3.78)</td>
<td>8.83 (4.90)</td>
</tr>
<tr>
<td>Percent unemployed</td>
<td>6.09 (2.90)</td>
<td>4.87 (2.41)</td>
</tr>
<tr>
<td>Population</td>
<td>6,482 (4,030)</td>
<td>3,654 (1,482)</td>
</tr>
<tr>
<td><strong>2009</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bonding social capital***</td>
<td>−.15 (.28)</td>
<td>.30 (.28)</td>
</tr>
<tr>
<td>Bridging social capital***</td>
<td>−.14 (.28)</td>
<td>.30 (.22)</td>
</tr>
<tr>
<td>Business civic engagement**</td>
<td>−.07 (.10)</td>
<td>.10 (.21)</td>
</tr>
</tbody>
</table>

**p<.05, ***p<.01
The statistics shown in Table 10.2 and Figure 10.1 depict a set of 11 new destination and six matched rural prairie towns that in 1990 do not vary in measures of inequality. Regardless of their designation as new destination or matched, towns with more inequality in 1990 as measured by poverty rates had higher levels of bonding social capital in 2009 and (when measured by unemployment levels) had lower business civic engagement in 2009, but neither are associated with bridging social capital in 2009. The fact that these two indicators of inequality had different impacts on bonding social capital and business civic engagement suggests that they may measure different aspects of inequality. This position is bolstered by the lack of a significant correlation between them in any of the years studied. Ethnic diversity in 1990 is not related to social capital or business civic engagement in 2009.

The picture changes in 2000 when the proportion of Latinas in new destination towns averaged about 30 percent. This higher level of Latina population is strongly predictive of lower levels of bonding and bridging social capital in 2009. In 1990 and 2000, towns with a greater proportion of Latinas in their population did not have higher poverty rates than matched towns although unemployment and percent Latinas are correlated in 2000. By 2005–09 however, the poverty rates in new destination towns were significantly higher than in matched towns. These higher levels of poverty and percent Latinas were associated with less bonding social capital and bridging social capital, and lower business civic engagement in 2009.

To determine if initial poverty levels created a context that changes the relationship between ethnic diversity and social capital, we recalculated the correlation coefficients controlling for the poverty rate in 1990. The results are shown in Figure 10.2. With the 1990 poverty rate controlled, the 1990 unemployment rate is negatively associated with the 2009 levels of both kinds of social capital and business civic engagement, but once again 1990 Latina percentages are not important to the
dependent variables. Population size is negatively associated with bonding social capital in all three time periods, but is not significantly associated with bridging social capital. This makes sense since one item in the bonding social capital scale (what proportion of the town’s population do you know on a first name basis) is very population size sensitive. It also complies with theoretical expectations that bonding social capital is easier to maintain in smaller towns. The percentage of Latinas and the unemployment rate in 2000 are negatively correlated with 2009 bonding social capital, and percent Latinas is also negatively correlated with bridging social capital.

The 2005–09 percent of Latinas is negatively associated with all three dependent variables. The correlations of bonding social capital and bridging social capital with each other and with business civic engagement are slightly lower than when population is controlled, but remain significant. Regardless of how much poverty existed in towns in 1990, a higher percent of Latinas in the population in 2000 and 2005–09 was followed by lower bonding and bridging social capital and less business civic engagement in 2009. The findings are essentially the same when 2005–09 poverty rates are controlled instead of the 1990 poverty level (findings are not shown). The association of percent Latinas with social capital and business civic engagement cannot be explained by the covariance of 2005–09 poverty rates and percent Latinas. Furthermore, the possibility that poorer towns are more likely to become new destination towns and that economic inequality in 1990 is actually causing lower social capital and business civic engagement in 2009 instead of ethnic diversity is not supported.

Conclusion and Discussion

The question that prompted this analysis was whether racial and ethnic diversity affected social capital and business civic engagement in small rural prairie towns.

![FIGURE 10.2 Socioeconomic and diversity predictors of social capital and business civic engagement with 2005–09 poverty rate controlled](image-url)
Findings for these small towns are similar to prior research on this topic for metropolitan areas, states, and neighborhoods. Ethnic diversity is negatively associated with bridging and bonding social capital and business civic engagement. The presence of a small percentage of Latina immigrants in 1990 is not significantly related to social capital in those towns in 2009. As the percentage increases from 1990 to 2000, however, bridging and bonding social capital and business civic engagement decrease accordingly.

These findings support Putnam’s (2007) constrict theory which predicts that bridging social capital and bonding social capital are lower in ethnically and racially heterogeneous residential settings than in more homogeneous places. Threat and contact theory are not supported. The findings of this study apply to the situation of the majority group in new destination towns, but not necessarily to the minority group. The number of Latina business owners in each town is too small to permit conclusions about the level of bonding social capital within the Latina group or Latina perceptions of bridging social capital with Anglo residents. This represents a limitation of the present study and suggests an important area for future research.

It is possible however to conclude that majority group bonding and bridging social capital is less in rural towns experiencing dramatic increases in ethnic diversity caused by Latina immigration. Furthermore, heightened diversity in 2000 and 2005–09 are negatively associated with the amount of community support provided by local business operators directly and indirectly through diversity’s impact on bonding and bridging social capital.

We also examined whether or not a legacy of inequality as measured by the 1990 poverty rate would affect the relationship between diversity and social capital. When the 1990 poverty level was controlled, there was no appreciable change in the negative relationship between the social capitals and business civic engagement and percent Latina in the population. Controlling for the 2005–09 poverty level does not alter the relationship. Business operators’ perception of community bonding and bridging social capital and the amount of support they provide are negatively affected by diversity itself and not the increase in poverty associated with a greater diversity.

In the short term, it appears as if new destination prairie towns have realized an increase in population (and perhaps other benefits not examined here) at the expense of bonding and bridging social capital and business civic engagement. Losing bridging capital may be especially problematic, as Warren points out in the foreword of this book. However, as Putnam (2007) argues, wise policies and choices can transform these short term losses into long term community gains. If immigrants to the community are able to support themselves economically, establish households, and raise children in the new destination towns, the challenges raised by the churning of immigrants (new immigrants constantly arriving in the host community and longer term immigrants returning to their native country) will diminish. The possibility of building relationships and trust across ethnic groups will be enhanced. This depends on the employment environment and practices of the recruiting industry and the practices and attitudes of community institutions and Anglo residents.
Note

1 For simplicity, we will use the term “Latinas” for the rest of the chapter to refer to both Latinos and Latinas.

References


The authors that have contributed to this volume have presented a variety of viewpoints and case studies of social capital theory and practice across a wide range of community and economic development topics. While the contributors provide useful and interesting applications in their own right, the central question of this volume is whether these diverse social science disciplines—sociology, economics, planning, political science, natural and human resource policy—provide a common thread from which to build a cross-disciplinary approach to social capital development and use in the community setting.

As Rogers and Jarema pointed out in Chapter 2, the late 1980s witnessed both an explosion and an evolution of thinking which led to examination of the linkages and causality between human and social capital. But not all scholars are in agreement regarding if and how social capital should enter our empirical research; for example, Durlauf (1999; 2002), Durlauf and Fafchamps (2006), and Woolcock (2001) see underlying problems in using the social capital paradigm in a research/policy framework. Woolcock (2001: 69) suggests that “…social capital [has] become all things to all people, and hence nothing to anyone…” As such Durlauf and his colleagues argue that while social capital might be a useful construct to think about socio-economic issues it is not particularly useful for producing policy insights in a rigorous manner. In other words, it is impossible to move from philosophical discussions to rigorous scientific testing. Without adequate means of measuring social capital any policy insights are purely speculation. This is consistent with the discussion by Rogers and Jarema (Chapter 2) on the challenges the empirical literature has illustrated on measurement.

One of the challenges to the study of social capital is that the field is truly interdisciplinary with political scientists, sociologists, economists, and planners each taking different approaches both from theoretical and empirical perspectives. Has this interdisciplinary perspective created more noise and confusion or are we
triangulating on a better understanding of social capital and its role in community and economic development? Can scholars of social capital find those common threads that community and economic development practitioners gravitate toward and move communities forward? A central aim of this volume has been to shed light on what those common threads might be and how those threads can inform policy at the community level. The goal of this concluding chapter is to attempt to identify those common threads and policy insights.

To place structure on this review we return to the central questions posed in Chapter 1: What is social capital and why does social capital “happen”? Can looking at communities through the conceptual lens of social capital help communities deal with various social and economic issues? If social capital is important to the social and economic well-being of communities can policy influence it? Can communities build social capital to improve overall well-being? Does the study of social capital across a multitude of different disciplinary perspectives help us triangulate onto a common set of threads that can help us better understand community dynamics and help inform policy or does it result in more noise and confusion? Can scholars of community and economic development gain a better understanding of the community by learning from other disciplinary perspectives? We conclude with an assessment of the future of social capital research across our disciplines.

In reviewing the eight analyses of social capital presented in this book it is important to acknowledge that we cannot claim that the various authors “speak for” their disciplines. In addition, we certainly acknowledge that important research on social capital is taking place in disciplines not explicitly included in this book such as management, health care, and geography, among others. Nonetheless, differences in disciplinary perspectives are evident in unique approaches, findings, policy recommendations, and even writing styles. Certainly a common theme is that all of these authors are working toward building models which apply social capital in a policy relevant framework. In addition, each chapter is addressing a unique community and economic development issue, which is partially by design.

A very brief synopsis of the key characteristics of the eight separate analyses presented in this volume is provided in Table 11.1. All share a common focus in that they seek to establish a causal link between a change in some social capital measure and some social outcome. Even a cursory review of the contributions to this book reveals disciplinary differences in how one approaches a research or policy question. They vary in scope, scale, theoretical foundation, quantitative approaches, and policy recommendations. In particular, there are clear differences in development and extension of social capital research as opposed to using previously identified measures of social capital (and its proxies). Differences arise in primary as opposed to secondary data, and geographic scope of the analysis from direct survey work in a relatively small number of communities, to county-level secondary data from across the U.S., to international data and the rigor of statistical analysis from simple descriptive to Bayesian spatial statistics. Perhaps most interesting are how results differ across these approaches. How, then, can we extend this analysis to develop common themes in social capital research that transcend individual disciplines?
<p>| Authors                  | Social capital measure                              | Effects                                                                 | Findings/policy avenues                                                                 | Discipline    | Methods                  | Data                        | Scope          |
|--------------------------|-----------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------------|--------------------------|-----------------------------|----------------|-----------------------------|
| Leyden &amp; Goldberg        | Built environment, walkability measures             | Trust levels, health, reduced crime, individual happiness               | Neighborhood design, reducing single-use, car-dependent communities, better land-use and transportation planning matter for social capital | Political science | Various                  | Various; data from 10 international cities | Various        |
| Deller &amp; Markeson        | Cooperatives, associations, non-profits, places of worship concentration; population “adherence” to a religion; Goetz-Rupasingha index | Small business concentration in U.S. counties; outlines 4 possible community archetypes where social capital and implicit institutions directly influence costs &amp; profitability of potential new firms | Evidence that different elements of social capital have both positive and negative impacts on small business activity; communities with more opportunities for networking exhibit higher levels of small business activity; institutional rules play key role. Outlines neoclassical framework for how social capital influences small business development | Economics      | Spatial econometric modeling of small business concentration | Secondary U.S. counties |               |
| Goetz &amp; Han              | Goetz-Rupashingha index migration, commuting        | Poverty rates                                                          | Increasing social capital stocks within counties reduces poverty rates; beneficial effects of local social capital networks on community socioeconomic well-being | Economics      | Spatial econometric modeling | Secondary International |               |</p>
<table>
<thead>
<tr>
<th>Authors</th>
<th>Social capital measure</th>
<th>Effects</th>
<th>Findings/policy avenues</th>
<th>Discipline</th>
<th>Methods</th>
<th>Data</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rogers &amp; Gardner</td>
<td>Walkability, trust</td>
<td>Increased levels of trust in communities</td>
<td>CBPR allows interaction w/neighborhood residents, direct measurement of social capital (trust); methods useful to researchers with study areas of limited size</td>
<td>Natural resources, environmental engineering</td>
<td>Survey, descriptive and basic statistics</td>
<td>Primary</td>
<td>Community, neighborhoods</td>
</tr>
<tr>
<td>Friedman &amp; Fraser</td>
<td>Trust levels of respondents</td>
<td>More effective land use planning</td>
<td>Community surveys; avenues for participation and social capital building in community</td>
<td>Planning</td>
<td>Survey, descriptive and basic statistics</td>
<td>Primary</td>
<td>Community, watershed</td>
</tr>
<tr>
<td>Jarema &amp; Halstead</td>
<td>Third places</td>
<td>Changes in development in rural-urban interface; increased species abundance &amp; diversity, carbon sequestration</td>
<td>Unclear; tax or community development strategies to increase third place interaction?</td>
<td>Natural resource policy</td>
<td>Spatial econometric modeling of land use change</td>
<td>Secondary</td>
<td>Ecoregions, multi-state U.S.</td>
</tr>
<tr>
<td>Skidmore &amp; Abe</td>
<td>Data on trust from survey data in “Indices of Social Development”</td>
<td>Changes in trust levels as a function of natural disaster exposure (current and lagged), terrorism</td>
<td>Positive relationship between trust and previous disaster activity; trust increases as IT/communication technologies become more accessible</td>
<td>Economics</td>
<td>Regression analysis, first difference regression analysis</td>
<td>Secondary; panel data analyses</td>
<td>International</td>
</tr>
<tr>
<td>Besser &amp; Miller</td>
<td>Measures of bonding social capital, bridging social capital, and business civic engagement</td>
<td>Economic vitality &amp; amenities in new destination towns experiencing an increase of 10+ percent in Latina population</td>
<td>Economic diversity negatively associated with bridging and bonding social capital; findings supports constriction theory. If immigrants able to support themselves economically, challenges diminish.</td>
<td>Sociology</td>
<td>Principal component factor analysis</td>
<td>Primary</td>
<td>“Destination Communities” in Midwestern U.S., “matched” town comparator data set</td>
</tr>
</tbody>
</table>
Back Through the Chapters: What Do We Know?

Before we can identify common themes or threads surrounding social capital and how those themes or threads can help move policy forward it is useful to review each empirical chapter in turn. This section will summarize the individual chapters’ response to the major questions of chapter one. In this summary we will attempt to identify major themes or threads contained in each chapter.

Leyden and Goldberg took a broad approach in Chapter 3, providing an excellent overview of how the “built environment” affects involvement in the community. Their discussion of how land is modified by humans, and the commonalities across communities, leads to the role of transportation infrastructure and its effect on “walkability” in a community. The authors point out that generally, decreases in walkability tend to reduce social capital stocks (Rogers and Gardner address this question empirically at the community level in Chapter 6). The authors raise the issue that changes in development patterns are at least partially responsible for the rapid decline in social capital in the U.S. over the past several decades, owing to the evolution of the single-use, car dependent community. The movement toward car dependent suburban sprawl has isolated people within the community and reduced their social interactions. In addition, their study of empirical research efforts indicates that the built environment of cities and city neighborhoods not only influences social capital but also influences individual happiness of residents; in their words, “the built environment is associated with happiness both directly, and as mediated by aspects of social capital.” Their discussion of the relationship between commuting and social capital is empirically addressed in Chapter 5 by Goetz and Han. From a policy perspective, the authors note problems with the continuing tendency of economic and policy incentives to promote low-density developments, which in turn have a negative effect on walkability. Clearly, the policy implications of their work are to take a more holistic approach to the built environment which reconciles the demand for space and convenience with consideration of the health and environmental consequences of a car-dependent environment.

How social capital can be incorporated into neoclassical models of firm behavior, particularly entrepreneurial activity, is examined by Markeson and Deller in Chapter 4. The authors draw the important distinction between social capital “infrastructure” as a necessary but not sufficient condition for reaping the benefits of social capital, and the institutional frameworks necessary to “convert” this capital so that it has the desired effects on social well-being. They use the analogy of a highway to describe how social capital can be used to move a community forward. The infrastructure of the highway, the number of lanes and road condition, is akin to the institutions that allow for people to interact such as chambers of commerce, churches, and volunteer organizations. A larger concentration of these types of institutions correlates to a larger and higher quality highway. But the informal norms or rules of behavior are akin to the rules governing the use of the highway, such as the speed limit. If, for example, risk taking behavior or failure is discouraged in the community (a social norm) then the environment is not conducive for
starting a small business. Thus it is interplay between institutions and social norms that drive community economic development. Using empirical data on small business development, they find evidence that different elements of social capital can have both positive and negative impacts on small business activity. The authors use spatial econometric modeling with county-level, national data to examine six separate measures of social capital: cooperatives concentration; places of worship concentration; percent of the population “adherent” to a religion; associations concentration; non-profits concentration; and the previously developed Goetz-Rupasingha Index. Their empirical findings also demonstrate that the choice of social capital measures can affect the results. This underlines the need to experiment with a variety of measures in establishing causality or conversely, it points to the conclusion that there may be no one good “single” measure for social capital in empirical settings.

Goetz and Han directly examined the effects of commuting and migration on social capital at the county level, with the ultimate objective of finding a causal relationship with poverty levels in Chapter 5. The premise of their work, confirmed empirically—the “how social capital happens”—is that a more stable population would tend to lead to less poverty in a county. Higher stocks of human capital allow a county greater ability to reduce poverty rates. The study also examined information flows across county lines, and interactions between these flows and community-level social capital stocks. Their results (what “matters”) indicate that only greater migration out-entropy is associated with poverty reduction; in other words, migrants may do more to bolster economic growth in the place they left behind than only sending remittances. The authors also conclude that social capital appears to enhance migration and commuting entropies; they also speculate that communities with more social capital are more welcoming of new in-migrants, which in turn enhances their potential impact in terms of reducing poverty. Goetz and Han conclude that “social capital and network-based information flows are mutually reinforcing at the county-level.” This could be interpreted as contrary to the results found by Besser and Miller (Chapter 10). Policy recommendations appear to point to, if not encouraging commuting and migration, at least not discouraging them. One could argue that in a geographic sense, increased commuting and migration enhances flows of information that are a core component of bridging social capital. Yet, Leyden and Goldberg found that increasing commuting time decreases community volunteerism, which is a key component in building community social capital. So once again, we see an activity which has been found empirically to increase social capital in some situations and decrease it in others; this may be a case of trading bridging for bonding capital.

From a community policy perspective a strong understanding of the local situation is vital before one can implement strategies. If the community appears to have strong bonding social capital yet lacks bridging social capital these two sets of apparently contradictory results can help inform our thinking. Here looking at commuting and migration patterns might be warranted. Are migrants and commuters targeted for becoming involved in the community? In another community with strong bridging
social capital, such as one with higher migration and commuter rates, but weaker bonding social capital, these results may point the community in another direction. So, while on face value the results of Besser and Miller, and Goetz and Han, may appear contradictory, within the context of the community situation they may actually be complementary. In the framework of the New Urbanism can communities foster stronger bonding social capital amongst those that are commuters and/or migrants who bring bridging social capital to the table?

In an interesting segue from Leyden and Goldberg’s discussion on walkability, Rogers and Gardner (Chapter 6) address the consideration of social factors in design and planning of land use and community structure. Using community level studies in New Hampshire, the issue of walkability and its measurable effects on trust at the neighborhood level is explored. Household surveys solicit information on “walkability” as a proxy for the trust element of social capital. Their advocacy for involvement of citizens and stakeholders in the decision making process, as well as their own use of community surveys, introduces ideas on which Friedman and Fraser elaborate in Chapter 7. Their use of neighborhood scale data allows direct measurement of social capital indicators, rather than proxies. The micro-scale of their approach, however, limits extrapolation to larger regions (what environmental economists might call a variation on “benefits transfer”). In other words, given the small scale of the analysis how generalizable are their results to other communities?

In a further exposition of the community level, survey-driven approach to social capital policy, Friedman and Fraser (Chapter 7) focus on a community planning scale, centering on an ecoregion (the Lamprey River Watershed) in southern New Hampshire. A strong planning perspective is clear throughout their work. In their view, social capital “happens” due to social activities and interactions of residents, which in turn create more trust within the community. More trusting community members are in turn more supportive of complex planning initiatives; “social” people tend to be more in tune with the usefulness of these programs. The community survey tools used in their study can both measure and create social capital (via participation in constructing the surveys and taking them). The community survey method establishes social capital baselines, allowing for monitoring and identifying weaknesses. This information can be used to nurture social capital/trust via social activity and infrastructure, and promoting interactions within the community. Thus, their findings support an active community-level approach to both gathering social capital information and promoting social capital formation.

Pulling back to a “high altitude” geographical view of social capital, Jarema and Halstead (Chapter 8) use a mesoscale approach to estimate whether third places as proxies—“conduits”—for social capital affect land use change and development in the wildland/urban interface (WUI) in the southeastern region of the U.S. The benefits of slowing conversion of land in the study region are interesting in that they contain many features of global public goods (e.g. carbon sequestration), which in turn influence the level from which policy might best originate. This perspective is consistent with Leyden and Goldberg’s finding that social capital is, at least to a degree, a public good. The empirical modeling approach revealed that
two dependent variables which might have been judged similar a priori—forest land use conversion and development in the WUI—displayed different causal relationships with social capital (as measured). So, whether social capital “matters” depends on the variable definitions chosen. Policy actions might originate “top down” to reflect the geographic dispersion of beneficiaries—which might not be culturally or socially acceptable to the affected population—or “bottom up” through community efforts to increase conduits for social capital formation. Given the spatial issues involved, county to county interactions are clearly necessary, and consistent with the findings of Goetz and Han. In essence, some community issues are truly regional (multi-community) issues and require a regional approach. This requires that communities pay attention to bridging social capital across community boundaries.

Skidmore and Abe (Chapter 9) note in their study of the role of social capital in natural disasters that norms of trust tend to be stable over time and population movement, and are embedded in culture. In general, they conclude that greater levels of trust can enhance a region’s ability to deal with disasters. Levels of trust are also positively related to the previous period’s disaster activity, indicating that trust levels “grow” over time in response to responses to natural disasters. Thus, having high levels of social capital helps communities deal with disaster, but experiencing a disaster tends to build human capital stocks to deal with later problems. So again we see a type of endogeneity, where natural disasters can create social capital, but having social capital helps mitigate the effects of disasters. If we return to our idea of thinking about community and economic development within a systems approach framework all pieces of the system are dependent (i.e., endogenous) on each other. An exception to this is the matter of terrorism occurrences, which tend to decrease trust. Their policy findings are quite clear: increased levels of technology and communication can help build trust networks.

Besser and Miller’s (Chapter 10) work in “destination communities” begins with the premise that social capital is indirectly related to a community’s population size, due to personal interactions occurring more frequently and easily. Thus, small rural communities, or smaller urban neighborhoods, are more inclined to have a stronger foundation from which social capital springs. These smaller communities, whether rural or urban neighborhoods, also tend to be less ethnically diverse than the nation as a whole, however, so an empirical question is whether large scale increases in Latina populations in these communities will affect overall social capital stocks. It is of course possible to see increases in bonding capital concurrent with decreases in bridging capital. Durlauf (1999) raises this possibility in discussing the so-called “Robbers Cave” experiment (Sherif et al. 1961) where the two study groups developed strong senses of group identity and differing internal behavior norms (positive bonding capital) but also exhibited great animosity toward each other (negative bridging capital).

An interesting facet of Besser and Miller’s study of smaller rural communities is the incorporation of a variety of established theories which could account for a variety of outcomes. For example, consistent with Goetz and Han (Chapter 5),
contract theory might suggest that increased in-migration could increase bridging capital, with no effect on bonding capital, whereas threat theory would decrease bridging and increase bonding. Finally, constrict theory would suggest a negative effect of increase diversity of both bonding and bridging capital. These three possibly contradictory theories also point to a possible route for collaboration across disciplines. Using a theory-based starting point for an empirical study allows for testing both the theories and determining the strongest case for causality in social capital policy. It is also noteworthy that Besser and Miller provide the strongest theoretical basis of the various disciplines represented by the book’s authors. So an obvious question might be, can the theories drawn upon by sociologists be used either by other social scientists, or as a foundation for more expansive theories of social capital?

Common Themes/Common Foundations?

The research presented in this volume makes it clear that there are tangible, quantifiable, and policy relevant arguments for both including social capital indicators in exploratory research and for making social capital formation and use part of the research and policy process. At the same time, some of these findings are somewhat ambiguous in interpretation, leading to a need for cautionary application of social capital theory. For example, research results—that is, the estimated nature of the relationships between social capital indicators and desired policy outcomes—proved to be sensitive to both the dependent variable selected (e.g., Jarema and Halstead) and the explanatory social capital variables chosen (e.g., Markeson and Deller).

A common thread is that at the community level investing time and energy into strategies that promote social capital plays an important role in the community and economic development process. We would argue that many of the authors within this volume would concur with Mattessich (2009) that social capital is at the heart of community development. If community development is at its core building the capacity of a community to effect change then the insights gained by studying social capital are vital to community development. What is less clear is the role of social capital in economic growth and development. While the theoretical linkage is possible it is not clear how well the empirical evidence supports the link. The research is simply not there yet and the best we can conclude now is that investment in social capital is a necessary but not sufficient condition for economic growth and development.

Another interesting finding from the research outcomes is the variation in types and measurement of social capital used in empirical work. The book presents an interesting mix of primary and secondary data used for the social capital indicators. Most focus partly or entirely on the “trust” aspect of social capital, a variable with which, as noted previously, Farr (2004) takes some issue. It is encouraging that trust indicators collected directly via survey instruments (e.g., Friedman and Fraser, Rogers and Gardner) reveal basically the same causality effects as those generated
via secondary data or proxy (e.g., Skidmore and Toya, Goetz and Han). As noted above, model specification appears at least in some instances to be sensitive to the type of social capital measurement used. It may be that development of an index that is widely accepted, which draws from the various disciplines could help to “standardize” our study approaches. This has been done to some degree with the Rupasingha and Goetz index used by some of the authors of this volume, but empirical results also demonstrate that seemingly equally valid measures of social capital yield different results than this index in empirical testing (Deller and Markeson). An established example of this type of qualitative index, though in a different vein, is the new ecological paradigm (NEP) developed by sociologist Riley Dunlap and his colleagues (Dunlap 2008; Dunlap et al. 2000). The NEP, as applied, relies upon collection of primary data, which was not an option for most of the studies discussed in this text. Thus, to be transferable across studies and regions, any index would probably use secondary data, again raising the issue of which variables to include and how to weight them.

On the measurement issue, there is one pattern that appears to come forward regarding how to quantify social capital. Two of the key elements of social capital include local institutions and levels of trust. Institutions where people gather and/or organize to effect change such as religious organizations, cooperatives, business and/or civic organizations, are relatively easy to measure using secondary data. But how these institutions are used, or not used, and more important notions of trust, is not as easily available from secondary sources. If the researcher or practitioner is interested in better understanding these latter fundamental elements of social capital they are for all practical purposes limited to surveys. This greatly limits the types of research questions and policy insights one can address.

Social capital is usually considered a social “good” while acknowledging that “bad” social capital exists as well. Both Besser and Miller’s empirical studies and Durlauf’s observations suggest that the growth of one type of social capital can lead to decline in other types of social capital. In the bonding versus bridging case, increased bonding can lead to decreased bridging capital. Warren, in his foreword, points to a lack of growth of bridging capital as a constraining factor in community development. What, then, should the public policy implications be? Is one type of capital preferred over another? Is there a way to “balance” the growth of bonding with a decline in bridging capital? Are there identifiable circumstances where bridging and bonding capital increase together to improve public welfare and where the two capital types work at cross purposes? Finally, can both types of capital be modeled in a system as they affect a social indicator of interest, or perhaps, a system of indicators?

In addition, moving forward requires a sound theory of social capital that can inform researchers on the choice of social capital measures and on hypothesis formation. Social capital theory has evolved considerably since its early roots in political science and sociology. Nonetheless, some theories may generate hypotheses that lead to conflicting expectations even within the same discipline (e.g., Besser and Miller). Concrete policy actions to increase social capital stock may
be tangible in some cases, for example neighborhood and community design to increase walkability, third places, and increasing access to IT services, but elusive in others such as changing long-standing third place conduits across large swaths of a region.

Moving Forward

While it clearly is an oversimplification, our review of the literature, reinforced by the contributions of our co-authors, seems to support the following: the foundational theory, and much of the continued emphasis on theory refinement and development, is largely the domain of sociologists and political scientists. Moving along the “continuum,” economists tend to focus more on modelling, causality, and applications; in other words, less of a focus on what causes social capital but rather what are the outcomes of social capital across a range of community and economic development issues. Much of this work relies on secondary data which limits the dimensions of social capital that can be studied. Planners’ views on what constitutes theory differ somewhat from other social scientists; their main concern is to find viable theories to support specific action at the community level. Members of all four of these disciplines would (rightfully) argue that their work runs the gamut from theory to application, but the relative intensity of focus on the different aspects of social capital theory points not towards discordant approaches but toward the possibilities for meaningful, synergistic collaboration.

In the philosophy of science literature there are two ways of thinking about how a theoretical perspective should advance. One approach pits different theories against each other and lets the best one stand. The other approach is to triangulate the insights from different theoretical perspectives to arrive at a stronger understanding of the issue at hand. If we acknowledge that thinking about the community requires a systems approach and that system has political, social, and economic dimensions, then a triangulation approach seems most appropriate. What can planners, sociologists, economists, and political scientists learn from each other?

This perspective about the theories underlying social capital is consistent with Svendsen and Svendsen’s (2009) “troika” of political science, economics, and sociology. It is our contention that as we move forward we need to both increase cross disciplinary cooperation, as Akçomak (2009) implores, and broaden the field to include both those with additional theoretical insights and those whose main focus is principally policy relevance and application. As we have seen in this volume, how the different authors think about social capital and how that way of approaching the issue plays out in the community. Interdisciplinary thinking and research, a truly systems approach to social capital and community and economic development, can be messy and at times confusing and frustrating. As noted in Chapter 1 of this book Woolcock cautions that we risk “social capital becoming all things to all people, and thus nothing to anyone.” This is the risk of triangulating across different disciplinary approaches to thinking about social capital. It is also the risk of taking a systems approach to thinking about community and economic development.
Figure 1.1 demonstrated clearly that researchers tend to seek out collaborators from their own disciplines. There tends to be strong bonding social capital within disciplines but weak bridging social capital across disciplines. This is even true in this volume. Yet, consider Akçomak’s contention that the bridging social capital of social capital researchers is low. If young researchers try to reverse this condition by seeking out and collaborating with scholars from other disciplines, they run the risk of building bridging capital while losing some of their own bonding capital. Survival in academia generally involves publishing in the most prestigious journals possible, which have at best a mixed record of accepting interdisciplinary research. Perhaps leadership from those more established (and tenured) faculty members who have less to lose from these “risky” behaviors is especially necessary in the social capital field. We also suggest that practitioners (both academics and non-academics) should play a major role in moving social capital from the research to the applied policy stage.

We believe that the empirical findings presented within this text, and the extensive literature cited in these chapters, demonstrates that there is rich practical potential in social capital research. Before we can realize its potential, we clearly have much work to do in developing a coherent theory to go with evolving statistical approaches and policy initiatives; to paraphrase Warren’s opening remarks to this volume, we’re only “twenty years in.”

References


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INDEX

Amenities 32–34, 38, 40, 179, 193
American Planning Association (APA) 115, 116, 126,
Balance Agriculture with Industry (BAWI) 44–47
Bonding (capital) 11, 19–21, 126, 129, 139, 176–8, 180–1, 183–6, 195–201
Bourdieu, Pierre 15–16, 19, 23–4, 158
Bridging (capital) 11, 19–21, 48, 129, 139, 152, 159, 176–8, 180–1, 183–6, 195–201
Built environment 8–10, 31–4, 36–41, 103, 105, 107, 109–10, 192, 194
Business development 7, 9, 44–7, 57, 61, 74, 195
Civic Engagement 11, 18–19, 24, 26, 53, 85, 105, 109, 112, 125, 176, 178–86, 193
Cluster: Spatial 62, 64, 69, 70, 141, 145, 152; Development 32, 46, 48
Coleman, James 3, 14–16, 19, 23, 51–3, 61
Community based participatory research (CBPR) 10, 103, 105–6
Community Development 4, 8, 15, 44, 53, 105, 111–12, 115, 134, 178, 198–9
Constrict theory 177–8, 186, 193, 198
Contact theory 176, 186
cooperative associations 3, 51
Cultural capital 16, 23
Decision-making 2, 53, 104, 123
Destination towns 175–81, 183–6, 193
de Tocqueville, A. 35, 51
Eastern Temperate Forest Ecoregion 135, 143–4
Economic Development 2, 3–8, 15, 27, 44–8, 50, 51, 74, 87, 108, 118, 134–5, 157, 167, 190–1, 195, 197–8, 200
Ecosystem services 11, 21, 134–9, 150, 152
Embeddedness 7, 9–11, 24, 51–2, 82
Encore Leadership Corps (ENCorps) 131
Entrepreneurship 44–5, 48–51, 56, 58, 64–5
Entropy 82–3, 86–9, 93, 95, 97–9, 195
Geographic information system (GIS) 11, 38, 135, 144
Granovetter, M. 3, 7, 51–3, 81, 176
Human capital 3, 14–17, 24, 49, 52, 58–60, 99, 156, 163, 195, 197
infrastructure: social 2–3, 9, 23–4, 104, 138–9, 145, 150, 194; entrepreneurial 2–3; physical 10, 112; transportation 32, 105, 194
Institutions 4, 9, 15, 20, 40, 45, 52–3, 55–7, 61, 74, 157, 194–5, 199
Interdisciplinary 2, 4, 8, 26, 190, 200–1
Lamprey River Watershed 115, 117–20, 125, 129–31, 196
Leadership 2, 4, 26, 126, 175, 178, 201
Manchester, New Hampshire 10, 103, 108, 111
Millennium assessment 135–6
Mixed use development 33
Networks (in social capital) 2, 3, 6, 7, 9–10, 16, 19, 21, 23–4, 26–7, 46, 48, 51–2, 54–5, 71, 74, 81–4, 99, 105, 107, 115, 129, 131, 138, 155, 158, 161, 197
Norms (in social capital) 2, 3, 5–7, 11, 16,