The Dissertation Committee for Kristen Elisa Reid

certifies that this is the approved version of the following dissertation:

Building a Framework for Institutional Change:

The Small Worlds of Assets for Independence Act Grantees

and their Financial Partners

Committee:

_____
Calvin L. Streeter, Supervisor

_____
King Davis

_____
Laura Lein

_____
Dennis L. Poole

_____
Michael Sherraden

Building a Framework for Institutional Change:

The Small Worlds of Assets for Independence Act Grantees

and their Financial Partners

by

Kristen Elisa Reid, B.A.; M.S.S.W.

Dissertation

Presented to the Faculty of the Graduate School of

the University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

December 2004

Dedication

For Helen, the social worker, and Viola, the idealist.

Acknowledgments

This study would not have been possible without the interest and assistance of the staff of the Office of Community Services in the U.S. Department of Health and Human Services. I am equally indebted to the staff of the organizations taking part in the Assets for Independence Demonstration Project who talked with me about their collaborative partnerships. I would also like to thank my committee, especially Cal Streeter, whose guidance and support have been invaluable. Finally, I would like to thank my family and friends, especially my parents, for their love, encouragement and support during this time.

Building a Framework for Institutional Change:

The Small Worlds of Assets for Independence Act Grantees

and their Financial Partners

Publication No. _____

Kristen Elisa Reid, Ph.D.
The University of Texas at Austin, 2004

Supervisor: Calvin L. Streeter

The study tests whether the intersectoral relationships of 157 grantees of the U.S. Department of Health and Human Services' (USDHHS) Assets for Independence (AFI) Demonstration Project and their financial partners form a small world network structure. Small world networks are networks of relations that are made up of clustered groups of network members connected through random, inter-cluster ties. The small world network structure allows small changes in relations at the local level (i.e., within clusters) to have macro impact within the wider, global network. Such networks have been found to be more efficient in transmitting messages and to have more sustainable relationship structures.

After finding that the network structure of the AFI Demonstration Project grantees and financial partners is a small world, the study performs two tests of correlation. The first Quadratic Assignment Procedure (QAP) tests whether the

intercluster ties of the grantees correlated with the overall structure of the network. The

second QAP tested whether the emergent network structure was related to the distribution

of grantees across USDHHS regional designations. While both tests found significant

Pearson Correlation values, neither had strong correlations indicating that other variables

are influencing the distribution of relationships. The limited findings for the study frame

more in-depth studies to be performed, including innovative methods of network

analysis, to further understand the multi-sector relationships of asset-building programs.

Table of Contents

List of Tables

List of Figures

Chapter 1: The Study's Purpose and Framework

Introduction

We live in a small world that is growing smaller by the minute through globalization. In the global context, local communities are no longer isolated from international actions; "mega-cities" share the same popular "**local global culture**"[1] regardless of national boundaries (Ahmadi, 2003, p. 16); and **social change** efforts become worldwide movements (Batliwala, 2002). As social workers, we recognize the importance of relationships and networks in framing our understanding of the world (Trevillion, 2000). One method for understanding complex interrelationships is social network analysis, which studies the patterns and structures of relations among people, organizations and communities (Scott, 2000).

In "small world networks" (e.g., Watts & Strogatz, 1998; see also Watts, 1999, 2003) – a special type of social network – strategic relationships among network members allow small changes on the local level to have widespread impact across a network. Researchers studying small world networks can identify and measure the **global effect** of changes in local and group-spanning relationships for a large network. In so doing, researchers can identify local areas within a network for building relationships to create larger changes. While applications of the small world concept have tended to focus on networks in biology and physics (e.g., Watts & Strogatz, 1998), a few recent studies have emerged that apply the small world concept to interorganizational relationships (e.g., Baum, Shiplov, & Rowley, 2002; Kogut & Walker, 2001). *This*

---

[1] Words bolded in the text can be found in the Glossary located in Appendix A.

*dissertation study built on this work by performing a **small world analysis** of a large*

*national network of grantee organizations and their **financial partners** that are*

participating in the federal Assets for Independence (AFI) Demonstration Project, a

savings account program for low-income populations funded through the U.S.

Department of Health and Human Services (USDHHS).

This study is one of the first social work studies to use the small world network method. Therefore, this dissertation details the analytic methods to make the research and its guiding concepts accessible to all social workers—academics, practitioners, and students. However, in addition to explaining the discrete small world dynamics of the network relationships under study, the implications of the research address how social network analysis can serve as an approach for social workers to understand the complex, uncertain and dynamic environment of social welfare and, thereby, to create innovative, collaborative solutions to social welfare problems.

Although the study's subject was discrete in scope, the dissertation covers a broad array of concepts, methods, and analytical levels for studying a social change framework. In the context of the dissertation, *social change* means a change in social institutions that improves the equality, power, opportunities, and circumstances of disenfranchised and/or impoverished peoples. The longitudinal development of the network structure of the Assets for Independence Demonstration Project, studied for this dissertation, provides one example of how concrete relationships among organizations can indicate how power might develop and change among **institutional sectors**.

Small actions have large implications for small world networks. One effect is to improve its efficiency. A simple example of this is the telephone game. In a telephone game, a group of people passes a message from one person to the next until each person has heard the message. The challenge comes in communicating the message reliably to the next person. Often, by the time the last person in the group hears the message, what starts as a simple statement, such as "Why did the hen cross the road?" can end up as "I found a penny yesterday." If the first person, on the other hand, went directly to the final person to communicate the message, not only would that person receive the message faster, but it would also be far likelier that the final person would hear the message correctly.

By directly 'connecting' to the last person, the first person has made what is called a "**shortcut**" across the group (Watts, 2003). Small world networks are defined by these shortcuts, which span across and link different groups to one another. Many social networks contain shortcuts. Shortcuts make it possible for you to know the people who are friends of a friend. They are also the interorganizational relationships that link different stakeholder groups together. For example, the current study looks at the relationships between public sector entities and nonprofit organizations that comprise the AFI grantees and their financial partners. Not long ago, these groups would not be working together (see the next section of this chapter). However, as the social welfare context has changed, so have the partners. Today it is common for government entities to have contracts with nonprofit and for profit organizations and for banks to partner in economic development strategies.

The shortcuts across the public, nonprofit and for profit sectors link disparate institutional sectors. Each link is an opportunity for improved communication, a strengthening of community resources, and sustainability of multi-sector solutions to social welfare problems. Social workers can use the identification of such links and the network structures they create to highlight important empowerment opportunities in the social welfare environment for our organizations and stakeholders. By building relationships between different stakeholder groups and different organizations, social workers can take advantage of the small world's characteristic "random" group-spanning relationships that can improve network efficiency, sustainability, and growth.

The recent improvements in analytic software[2] have broadened the analysis of social networks and have made the methods and results more accessible to practitioners through colorful graphs and maps of networks. Emerging methods in social network analysis can be used to represent the dynamic nature of the systems in which social work in practiced. Moreover, researchers have made important gains in integrating network analytic methods with practice, especially in the field of international development. Rick Davies of Cambridge University and his colleagues with the Research, Evaluation, Monitoring, Appraisal, Planning and Policy (REMAPP) Network in the UK are working with international development agencies to develop ways to infuse program planning and practice research with network research methods (Davies, 2003). These and other research and evaluation methods (e.g., participant-guided research) are infused with social change objectives and use an institutional perspective that places the development

---

[2] For example, this study used the software program, UCINET 6.0 (Borgatti, Everett, & Freeman, 2002), which was first developed in the early 1990s.

4

initiative in a dynamic, sociohistorical context. In this context, researchers use network

analysis both to describe and explain network relationships and to develop strategies

wherein multiple stakeholders collaborate to form social welfare and social change

solutions (Davies, 2003). The next section of this introductory chapter places the present

research in the complex environment of social work practice and research.

The Social Work Context

When Mark Homan called for social workers to become "**change agents**" in his

1994 book *Promoting Community Change: Making it Happen in the Real World*, he was

characterizing an emerging movement against the rise of public sector, bureaucratic

responses to social welfare problems. Homan explained in simple language the need for

social workers to engage community members to make social change possible. A decade

later, social change remains one of the most important purposes of social work (Ahmadi,

2003; Mulroy, 2004; Polack, 2004; Popple, 2000). Yet, as fundamental as the objectives

of social justice and social change are to the profession, in practice social workers may

feel disempowered to make change happen as one professional working within a wide

range of **institutions** in a global system.

Research has shown that a social worker's political presence often amounts to

voting and other types of low-level participation (Gray, Collett van Rooyen, Rennie, &

Gaha, 2002). The social work literature reveals that social change remains an abandoned

goal in practice (Beresford, 2000; Fitzpatrick, 2002; Popple, 2000; Weiss, 2003) and

argues that the profession's research methods and policy directions need to better

incorporate social justice and social change aspects of practice (Lyons, 2000; Padilla,

5

Lein, & Cruz, 1999; Thompson, 2002; Trevillion, 2000; Davis, 2004). While our profession considers social change and social justice as fundamental values, in practice, it is difficult to achieve.

Why a Achieving Change is Difficult

Part of the difficulty in achieving change is that the social work profession operates within a complex **institutional environment**. The context of social welfare is complex, dynamic, and uncertain…and, as mentioned earlier, increasingly *global*. A global perspective exacerbates the complexity through a **multiplier effect** that increases the number of **stakeholder groups** and communities who must be engaged. It also aggregates the institutions that must be addressed in any social welfare solution. When institutional change occurs in a global context (or within a local context with a global perspective), the dynamical interactions among stakeholders increase in number and intensity. Within the institutional environment, uncertainty replaces inertia, and incremental change shifts to rapid and large-scale transformations. Social workers may feel lost amidst a rapidly changing world of large-scale institutions. Social network analysis, and especially the analysis of small world networks, assists in the identification of critical points where social workers and their agencies, professional networks, and communities can effect change on a wide-scale basis—even if it is simply reach out and create new and diverse interorganizational relationships.

Furthermore, the complex environment of social welfare makes it difficult to evaluate program effectiveness and efficiency (Gambone, 2004). For example, efficiency outcomes of state welfare reform projects may obscure the ineffectiveness of a "Work

First" philosophy in actually meeting the basic needs and employment goals of former welfare recipients (e.g., Edin & Lein, 1997 in Midgley, 2001). When social and institutional changes are fundamental goals for community interventions, evaluation and research (and thus determining project success) become more challenging.

Without clear-cut measures of success for social change goals, pursuit of such initiatives can seem fruitless and can lead to the disempowerment of social work professionals and their stakeholders. More importantly, large-scale movements in social justice issues tend to lack stakeholder involvement when brought to the global level (Batliwala, 2002). Global and other large-scale advocacy groups can develop agendas that lack the voices and input of local stakeholders and thus can perpetuate and intensify the disempowerment of local communities (Amy, 1987 in Reilly, 2001; Lucas, 2001). Research on the small world concept has begun to identify how efficiency and effectiveness can be measured in **large-scale networks**.

While the present study does not directly measure effectiveness or efficiency of demonstration project's network, the report does discuss how future studies may build on this work to develop methods for new types of social work evaluations, especially in areas where social work intersects with other institutional sectors. Importantly, the study applies a 'big picture' perspective to the growing use of banks, credit unions and other financial intermediaries as partners in social welfare. As these entities increase their participation in social welfare interventions, it will be critical for social workers to have the tools with which to evaluate the effectiveness of these partnerships. Social network

analysis and the analysis of small worlds provide important evaluative tools for social workers studying into the 'big picture'.

A Changing Institutional Context

In addition to the challenge of determining professional efficacy in social change initiatives, social workers face the concomitant issue of a changing institutional context for the delivery of human services. One set of changing relationships is found in the **devolution** of the state and public sector as provider and protector to disadvantaged people and communities. In the West, nonprofit organizations, nongovernmental organizations, and for profit businesses are taking on the provision and management of public human services in a wave of privatization and contractual relations with the state (Healy, 2002; McDonald, Harris, & Wintersteen, 2003; Mendel, 2003; Poole, 2003; Schmid, 2004). These changing relationships between the public, for profit and nonprofit sectors are considered desirable because they are seen to be more efficient, flexible and innovative (Schmid, 2004). Moreover, nonprofit organizations and other community businesses are responding to these market-based approaches in order to maintain **legitimacy** (Dart, 2004) and to ensure continued funding (Healy, 2002; Mendel, 2003; Poole, 2003).

Contractual relationships with the public sector emphasize measurable outcomes, efficiencies and successes. Although social workers commonly perceive the emphasis on the "bottom-line" in social welfare contracts as antithetical to social work values, private-public partnerships are becoming a common setting for the profession (Gray, Healy, & Crofts, 2003; Healy, 2002; Reisch & Sommerfeld, 2003). Therefore, social workers must

increasingly understand more business-related aspects of human service work: strategic

planning, staff recruitment and development, and resource development (Hopkins &

Hyde, 2002); decision-making strategies, oral and written communication, and leadership

skills (Claiborne, 2004; Hoefer, 2003; Mizrahi & Rosenthal, 2001; Patti, 2003); financial

management skills (Wimpfheimer, 2004); organizational theory and how it informs

practice (Austin & Kruzich, 2004); and collaborative and interprofessional strategies

(Mulroy, 2004).

Moreover, new types of organizations are emerging in the social welfare context.

"**Social enterprises**," which include the for profit provision of human services and

business development entities (e.g., **community development banks** and

microenterprises) (Gray et al., 2003), approach social welfare from the perspective that

the state is an ineffective provider of human services. Market-oriented solutions, which

are delivered through organizations and businesses created for and focused on social

welfare objectives, are perceived to more efficiently and effectively solve the problems of

individuals and families (Dart, 2004).

Additional organizational players are faith-based organizations, which are

entering the human services milieu with more formalized, policy-supported roles (Lewis,

2003). Overlaying these organizational role changes is a shift in political priorities

toward collaborative, **multi-sectoral** interventions and strategies for community

development and human service provision (Ferguson, 2004; Gil de Gibaja, 2001; Libby

& Austin, 2002; Mulroy, 2003; Shaw, 2003). While interorganizational collaboration

holds great promise in bringing about social and **institutional change** (Brown &

9

Ashman, 1999; Brown & Tandon, 1994), these collaborative ventures are fraught with complexities (Amir & Auslander, 2003; Brinkerhoff, 2002; Farmakopoulou, 2002; Poole & Colby, 2002; Reilly, 2001), which social workers and other human service professionals are increasingly required to address (Cherin, 2000; Cohen, 1999; Root, 2000).

A common issue for professionals in the complex environment of social welfare is the importance of establishing, maintaining, and understanding relationships among stakeholders and other organizational and institutional agents. In a period of institutional change in the settings of social work, we need to have an understanding of the larger structures of relations (Ahmadi, 2003; Fitzpatrick, 2002; Gummer, 2002; Poole & Colby, 2002). For example, this dissertation study found that the structure of the network of USDHHS grantees and their financial partners was equally influenced by market forces leading to bank mergers as it was by the increasing number of grantees.

Clearly, as this study's preliminary results attest, social welfare institutions experience institutional pressures beyond those brought about by changing social policy or social welfare programs. That is to say, not all shortcuts are created by social policy or social welfare interventions, and if network shortcuts confer power on those organizations that create them—as some network analysts (e.g., Burt, 2000) might argue—it is important for social workers to understand these larger, institutional dynamics in order to effectively plan and implement social welfare programs. The social development approach uses an institutional perspective to integrate the complexity and dynamic forces influencing social welfare interventions.

The Social Development Approach

The **social development** approach views social welfare with a dynamic perspective, which builds on community strengths and involves community stakeholders in comprehensive strategies for economic development and community change (Midgley & Tang, 2001). The approach values social change goals as well as outcomes for individual and family well-being, and it can be seen as a logical heir to the community change models developed by Homan and other community social workers (e.g., Kretzman & McKnight, 1993). The approach also focuses on the development of social and economic policies that move toward and support social justice and institutional change objectives (Midgley & Tang, 2001; M.S. Sherraden, Slosar, & Sherraden, 2002).

Methods for social development integrate a wide range of social welfare practices (Midgley & Tang, 2001), which include community collaboration and coalition-building; expanding resources and capacities of local development organizations; expanding support services; forming and maintaining relationships among community stakeholders; and development of work skills (Alvord, Brown, & Letts, 2002). The approach also includes investment in and creation of local businesses, the broadening of market choices for low-income communities, and other "**asset development**" strategies. In the context of the social development approach, *asset development* is just one of many strategies to empower and develop communities. Although social development and asset development have similar meanings in the literature, "asset development" can also refer specifically to the creation of wealth—for individuals through savings programs, and for communities through business creation and the formation of interpersonal networks and

interorganizational relationships. In this context, asset development initiatives are also known as "**asset accumulation**" or "asset-building" strategies.

Asset development strategies involve both individual and community-based social welfare interventions that assist the poor in becoming stakeholders in a development effort (Nyman, 2004). On an individual level, asset-based welfare strategies, such as **Individual Development Account** (IDA) programs, help individuals and families accumulate savings for high-return assets—a home, an education, and a growing small business. In place of more traditional welfare strategies based on income maintenance, individual asset accumulation strategies can provide the poor with the tools they need to escape poverty and build on successive accomplishments—especially when supported by **institutional mechanisms** that reinforce asset development among the poor (Beverly & Sherraden, 1999; Ssewamala & Sherraden, 2004).

On a community level, asset development strategies involve local organizations and stakeholder groups in building community assets (Kretzman & McKnight, 1993). The approach focuses on building community capacity to create and sustain revitalization initiatives, identifying and using the innate strengths of a community as assets, and building wealth for individuals and communities (Scales & Streeter, 2004). One type of community asset is *social capital*; the relationships between individuals and especially among community institutions that make it function better for all community stakeholders (Ashman, Brown, & Zwick, 1998; Lang & Hornburg, 1998; Putnam, 2000;

although see Kadushin, 2004 for a contrary perspective).[3] Following Burt (2000), social

capital is a metaphor for a valued item exchanged or developed through a network

relationship of individuals (e.g., resources, power, trust, values), which, when exchanged,

can convey benefits or improve the positions of those who exchange the item, and can

benefit a cluster or entire network in the exchange. Such capital is socially-derived, i.e.,

through social relationships; and may also be social in nature (as opposed to financial

capital, which specifically refers to monetary exchanges).

Social capital can also refer to the social capital of individuals and their

connectedness to and within a community (e.g., Burt, 1992). However, in the context of

community-based interventions, social capital aggregates to stakeholder groups,

organizations, and institutions (Brown & Ashman, 1999; Brown & Tandon, 1994;

Waddell, 1997). In the community context, social capital is about forming shortcuts.

IDA strategies, such as those used by the studied demonstration project, build both

individual *and* **community social capital**, and thus develop community assets by linking

together nontraditional partners from the public, private, and nonprofit sectors (Nyman,

2004).

The Social Development Framework for the Dissertation Study

The social development approach provides social workers with a comprehensive

perspective in which to understand the complex and dynamic nature of social welfare

practice and in which to "harmonise social and economic interventions" (Ahmadi, 2003,

p. 18). This dissertation study represents a preliminary assessment of institutional change

---

[3] Different scholarly disciplines define "social capital" in different ways. See Chapter 2 for additional
discussions of social capital in the social development context.

mechanisms within the network of **AFI grantees** and their financial partners and is the first in a series of studies the author plans to pursue in the network analysis of **multi-institutional dynamics**. It is important, therefore, to place the present study in the context of this planned research, which will build on these early results.

The theoretical framework for the study emerges from three different areas by which the profession can view the development of community assets: process, institution, and structure (see Figure 1.1). The process perspective studies the "bottom-up" aspects of **multi-sectoral** collaboration, including the practice skills required for building social capital within communities and institutions. The next chapter's literature review looks at one type of collaborative strategy—*strategic bridging*—which views these interorganizational relationships as part of an effort by diverse organizations, businesses, and other stakeholder groups to strategically "bridge" or collaborate to achieve mutually beneficial ends. Views of local stakeholders enhance the process perspective because this perspective must be "**context-dependent**" (Fitzpatrick, 2002, p. 163) in order to reveal both the processes by which institutional norms and structures develop *and* the meanings given to those norms and structures. The findings of this report identify the need for further study into how the processes of multi-sector collaboration may affect and be affected by the structure of the network and by the institutions governing those relationships.

The institutional perspective, as typified by the analysis of *institutional structures*, views interorganizational relationships as microcosmic examples of larger **institutional movements** among sectors and changes in social, political, and economic

institutions. In studying institutional structures, research on asset development uses a

"top down" viewpoint by studying the economic and social policies, societal beliefs and

ideologies of social welfare, and how these norms and values create, maintain, legitimize,

support, and limit social development initiatives. While studies of process identify roles

for stakeholders and professionals, studies of institutions identify roles for institutional

sectors and the linkages formed between the for profit, private, and nonprofit sectors. To

study the grantee-financial partners relationships of the AFI Demonstration project from

a process perspective, for example, one might examine the processes by which financial

partners were approached to participate in the project to identify challenges, benefits and

common facilitation practices.

Figure 1.1 Approaches to Understanding Community Asset Development

Process
Bottom-up Approach

Skills and
Collaborative
Processes for Building
Community Assets
and their Results

Structural Approach
(Used in Present Study)

Structures of Network
Relationships Among
Community Partners

Institutional
Top-down Approach

Policies, Beliefs,
Ideologies and Norms
that Guide the
Development of
Community Asset
Development
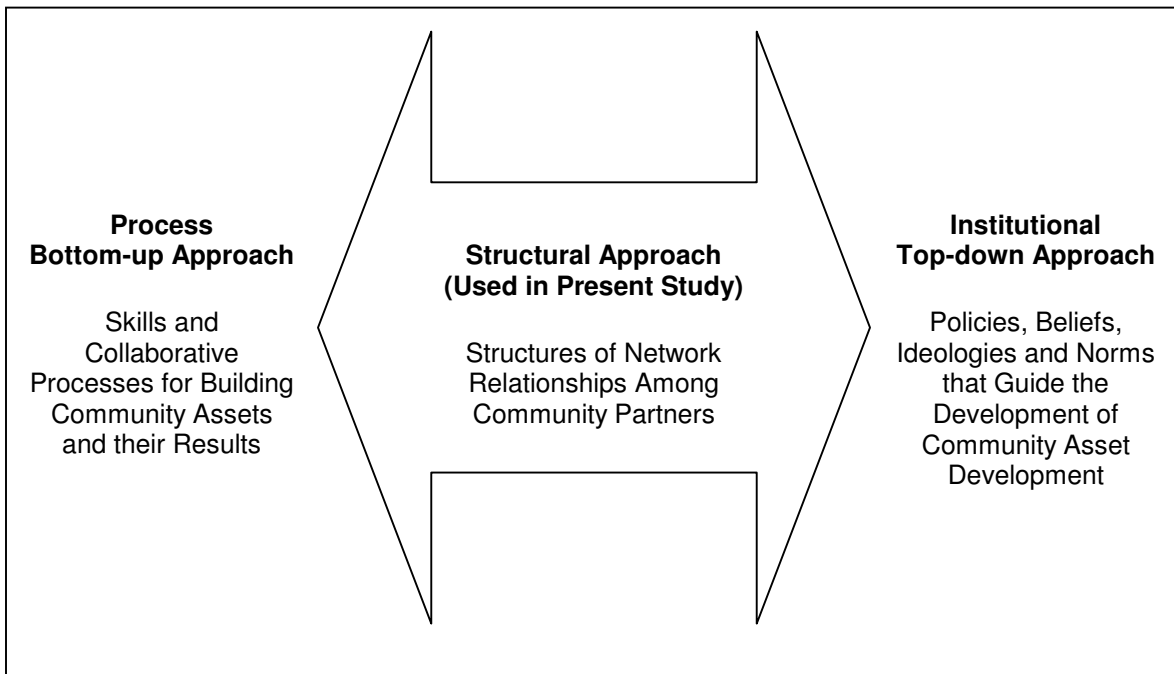
From an institutional perspective, however, one might study the policies and informal norms governing these partnerships and the meanings and expectations they imply for other partnerships between the financial and nonprofit sectors. One might also study the ideologies of the different types of financial partners. For example, how does the participation of community development banks differ from that of large multinational banks?

The structural perspective, as illustrated by *network analysis*, analyzes community asset-building in terms of the network structure of relations that emerges as community entities and stakeholders forge new collaborative partnerships. As explained earlier in this chapter, network analytic methods reveal the patterns and structures of relationships among people, organizations, communities and institutions. In so doing, it can both illustrate the processes that create institutional change (e.g., the building of social capital) and can illustrate larger institutional movements that affect local relations (e.g., how institutionalized relations shape **intersectoral partnerships**). The current study analyzes the relationships built between the nonprofit and financial sectors in the AFI demonstration program using this structural focus on intersectoral relations. While it is not the only way to study social development strategies, network analysis provides important information for planning, intervention, monitoring and evaluation (Davies, 2003)—especially in terms of evaluating the outcomes of collaborative partnerships as seen in IDA programs.

Small Worlds

From a structural standpoint, small world networks lie between **order and randomness** (Watts, 2003). Order is represented in the tight subgroups of relations, e.g., one's personal friendship network. Randomness enters through the random relationships (the "shortcuts") between the clustered groups of network members, e.g., one's friends who are friends with different groups of people. Through these shortcuts, every person can connect to every other person in a network in a small number of steps.

The creation and deletion of shortcuts in a small world network has potentially far reaching effects. Small world network structures can make networks more efficient (Latora & Marchiori, 2001; Watts & Strogatz, 1998); make networks better able to withstand environmental shocks and change (Kogut & Walker, 2001; Watts, 2003); and can increase the power of certain network members (Wilhite, 2001). The longitudinal study of small world networks can identify the processes by which organizations become more central or powerful players (Baum et al., 2002), and identify whether forging new partnerships will increase an organization's status in the network (Baum et al., 2002; Newman, Strogatz, & Watts, 2001; Wilhite, 2001).

When applied to community development strategies, small world network analysis becomes a powerful analytic technique to plan and create new strategic partnerships. Random shortcuts can emerge through *strategic choice*, as they are not part of the inherent structure of the larger network (e.g., an organization can decide to partner with a business that is not traditionally associated with social welfare interventions) (Watts, 2003). As a result, a new shortcut emerges in the wider network and provides for

increased capacity, efficiency, and endurance. These changes in the wider network (also known as the "**global network**") change the structure of relations, create new shortcuts between groups and can have institution-wide effects. The underlying premise for this dissertation study was that IDA programs, and their resulting network of partnerships, provide for these types of intergroup-shortcuts and thus have the potential for creating widespread institutional change.

If the study's results revealed that the AFI network was a small world, the network would have certain structural characteristics:

1)   Dense sub-grouping (known as "clustering") within a relatively sparse network—as measured by the *clustering coefficient* developed by Watts and Strogatz (1998); and

2)   A short average number of linkages needed to move from one network member to another (called "**path lengths**").

These small world network characteristics have been used to explain **network efficiency** (Latora & Marchiori, 2001; Watts & Strogatz, 1998), network membership limits (Amaral, Scala, Barthélémy, & Stanley, 2000), and network tolerance for environmental shocks (Kogut & Walker, 2001; Watts, 2003). The study's scope covered just a *small part* of a continuum of research that deserves more attention from social work researchers. The study highlights analytic techniques that can help social workers to rethink the process, institutional environment, and structure of interorganizational and multi-sector relations in community development.

The present study uses the AFI network and small world methodology for a preliminary exploration of multi-sector dynamics; i.e., how interorganizational

relationships among partners from the public, private, and nonprofit institutional sectors develop and change through time. Although limited in its focus, the study identified areas of small world analysis and related methodologies that have great potential for understanding behaviors of organizations and their institutional environments. This study serves as a first step in the development of a new research area in the field of community-based social work and social work administration by introducing contemporary theories of global network analysis as methods for understanding multi-sector behaviors.

The next section of this chapter provides a brief overview of the AFI Demonstration Project.

The Study's Subject: AFI Grantees and their Financial Partners

The primary appeal of the AFI Demonstration Project as a subject for the current study was that the program requires the collaboration of nonprofit, public, and private sectors for its implementation and thus forms a multi-sectoral network. Most project grantees are local nonprofit organizations, which partner with one or more banks or credit unions to offer a savings account program for low-income persons who meet federal qualifying criteria. Project grantees also collaborate with a number of other local entities to provide or make available subsidiary services to program participants, including basic financial education, specialized training on small business development or homeownership, and supportive services (USDHHS, 2003). **Financial education**, also known by some in the field as "financial literacy" or "financial training," refers to education and familiarization with basic banking and family finance methods (e.g., how to open a savings account, how to create a family budget, or how to apply for and manage

19

a home mortgage). Financial education, savings account programs, low-cost lines of

credit, and other financial instruments and programs are becoming more available to

lower-income persons in the U.S. as banks, public entities, and nonprofit organizations

strive to make the financial sector more accessible to a broader population (Seidman &

Tescher, 2004).

At the heart of the AFI program is the IDA, in which individuals who meet certain

low-income criteria can save portions of their income in matched savings accounts. The

acronym "IDA" has not become as ubiquitous as the more familiar "IRA" mainly due to

the limited population that can hold these types of accounts. However, since the first

proposal of IDAs by Sherraden in his 1991 book, *Assets for the Poor*, the interest from

the financial sector as well as public entities on the federal and state levels has grown

tremendously and has made IDA programs a more common alternative to the U.S. public

welfare system.

As of 2003, 34 states, as well as the District of Columbia and Puerto Rico have

passed some type of IDA-related legislation, and other states have established state-

supported initiatives (Edwards & Mason, 2003). Since 1993, $84 million in state funds

and over $100 million in federal funds have been dedicated to IDA initiatives. Nearly

20,000 accounts have been created in 49 states (Edwards, 2003). All but two of the fifty

states (Utah and Alaska) have programs participating in the AFI Demonstration

(according to data current to April 2004).

Program Funding

As an incentive for saving, program participants receive match monies on their savings, from one dollar for every dollar saved to up to eight dollars per saved dollar, with the highest **match rates** resulting from multiple small matches from several sources (USDHHS, 2003). Federal AFI grants fund these match amounts, which must be supplemented by an equal amount of local, private donations as a requirement for receiving the grant—thus requiring grantee applicants to expand their resource base for the program. The AFI grants also allow 7.5 percent of received funds to pay for administration costs, including the regular collection of data and reporting on program implementation to the Office of Community Services (OCS), the overseeing agency within USDHHS[4].

USDHHS periodically reports its findings for the demonstration project to Congress (USDHHS, 2000, 2003), which authorized the demonstration in 1998 with the passage of the Assets for Independence Act (42 U.S.C. 604 note) of the Community Opportunities, Accountability, and Training and Educational Services Act of 1998 (Public Law 105-285, as amended). Two such reports have been made publicly available since the project's inception in 1999. They report on the first and second years of the project: Federal Year (FY) 1999 (USDHHS, 2000) and FY1999-FY2000 (USDHHS, 2003). The data for the present study were collected from these reports and supplemented by additional data (current to July 2003) received from OCS personnel.

---

[4] Recent changes in the administrative structure of USDHHS may have made this office obsolete, but such changes could not be confirmed at the writing of this report.

Each AFI grant and the required supplemental resources raised from community entities fund a local five-year demonstration of the AFI IDA program. In two cases— AFI demonstrations with the Pennsylvania Department of Community and Economic Development (PADCED) and the Indiana Department of Commerce (INDOC)—the grants subsidize grandfathered IDA programs, which the states implemented before the passage of the AFI policy. Unlike the competitive funds most entities apply for on a yearly basis, PADCED and INDOC receive annual appropriations throughout the project's demonstration.

Although USDHHS has provided some entities with supplemental grants, it uses the greatest portion of yearly available funds to create new programs. In 1999, USDHHS funded 38 demonstration projects, including the two grandfathered state programs. By 2004, 157 entities had received AFI grants through FY2002 (USDHHS, 2003) (new grants were in process for FY2003 at the writing of this report). The reauthorization of AFIA, which passed the House in September 2003 and the Senate in February 2004, was in conference committee as of July 2004 (Corporation for Enterprise Development [CFED], 2004). USDHHS requested its annual $25 million dollars as part of its 2005 budget request, and the field is confident that Congress will reauthorize the program with minimal (if beneficial) changes (Cramer, Debroy, Parrish, & Boshara, 2004).

The Choice in Using the AFI Network as a Sample for Study

The availability of data for a large, nationwide network of organizational entities was a major factor in the choice of this network as a sample for a dissertation study with limited resources. However, the network sample was restricted in its scope—only

22

representing two of the many potential sectors collaborating in the AFI Demonstration, i.e., grantee and financial partners. Nevertheless, the network's size (Initial $N = 157$ grantees and 157 financial partners) allowed it to meet one of the primary requirements for a small world network analysis: a network must be large enough to show meaningful results (Watts, 1999).

Because it was not known whether the sample network would indeed prove to be a small world network, many explanatory analyses were excluded from the study. However, as a first step in exploring the potential of small world analysis in understanding the development of multi-sector collaborations, the study's results point to some exciting areas for further research on large multi-sector networks, which are discussed in the final chapter of this report. Additionally, the overall framework for the study pulled together theories of institutional development from many disciplines, of which the analysis of network structure is just a small part.

Structure of the Dissertation

The dissertation has five chapters. Chapter 1 discussed the purpose of the study by placing it within the theoretical framework of social development approaches to social welfare. Chapter 2 provides a review of the related literature, including recent social welfare research using network analysis. Chapter 3 details the study's methodology, and Chapter 4, its results. Chapter 5 discusses the implications of the research and areas for further study. Several Appendices supplement the material found in the main report. Importantly, Appendix A provides a Glossary of Terms, which is included in the dissertation to further define what may be new terms or ideas for a social work audience.

Chapter 2: Literature Review

Introduction

This literature review builds on a social work goal of institutional change. Here, the term "institutions" refers to persistent, replicable, and synthesizing norms and ideals (Fararo & Skvoretz, 1986) that characterize the interactions of individuals and larger social groups in social, economic, and political environments. The term "institutional change" means a sustainable, participatory, and pluralistically beneficial movement from the current dominant culture of disengagement and disenfranchisement of the poor to one that supports opportunities for sustained growth and development.

As change agents, social workers have the opportunity to participate, lead and broker institutional change in a multitude of institutional environments. As was discussed in Chapter 1, the change agent role is a difficult one because the institutional environment is complex, dynamic, and involves multiple stakeholders thus making uncertain the identification of our roles in change. There is the added challenge of determining what constitutes successful institutional change, which, therefore, obscures our notions of professional efficacy.

To discuss institutional change, this literature review focuses on three areas of the literature that capture the processes, institutional mechanisms, and developing structures that make change possible. This chapter begins with a discussion of strategic bridging, a method of interorganizational and multi-sector collaboration in which a mediating organization or collective group facilitates the interorganizational relationships of entities representing different institutional sectors (e.g., Brown & Ashman, 1999).

Following a discussion of strategic bridging frameworks, the next part of the literature review examines network analysis methodologies as a way to understand institutional structures. Attention is paid to the literature of small world network analysis (e.g., Watts & Strogatz, 1998) and the emerging use of social network analysis in social development strategies. The final section of the chapter gives an overview of economic and sociological perspectives of institutional change and relates these to the analysis of network structures.

Models of Institutional Change Processes: Strategic Bridging Collaboration

One of the newer models used in social development initiatives is that of strategic bridging collaboration, of which there is a considerable body of qualitative research in the international development literature (e.g., Ashman et al., 1998; Brown, 1993; Brown & Ashman, 1999; Covey & Brown, 2001; Lawrence & Hardy, 1999; Waddell, 1997; Westley & Vredenburg, 1991). A compelling aspect of the strategic bridging model is that it encompasses 1) the skills and tasks of multi-sector collaboration; 2) the resulting interorganizational structures; and 3) an institutional change perspective. This literature review covers these three areas of the model with a focus on structures and institutions.[5] Clearly, no one model of collaboration will apply to all situations; however, this model is supported by a number of assumptions—derived through case study research—that provide important structural and institutional perspectives in which to understand multi-sector collaboration.

---

[5] A discussion of specific skill sets is beyond the themes of this review. However, readers wishing to learn more about strategic bridging skills and interorganizational tasks are encouraged to visit the Institute for Development Research website at http://www.jsi.com/idr/IDRreports.htm to read the case studies, which detail many of the professional skills used in multi-sector collaboration.

Major Structural and Institutional Concepts in the Strategic Bridging Model

The strategic bridging approach began as a discussion of the conflicts that emerge when organizations interact (Brown, 1977 in Brown, 1983). Successful interaction hinges on the careful management of differing organizational characteristics and philosophies during the interaction process. By identifying organizational interdependence—e.g., shared resources and information and characterized by shared tasks, common values and authorities, and physical proximity—such interdependence can create new units that "bridge" autonomous organizations (Brown, 1983).

In his studies of local economic development strategies in developing countries, Brown (1987) identified the need for approaches that "bridged" the public, private, and nonprofit sectors to develop multi-sectored approaches to social welfare problems. **Bridging organizations** were seen as potential facilitators of these multi-sector strategies (Brown, 1987; and in Westley & Vredenburg, 1991). Westley and Vredenburg and, subsequently, Sharma, Vredenburg, and Westley (1994) argued that the purposes of interaction made the interdependence "strategic." Facilitators of such strategic partnerships—strategic bridging organizations (SBOs) (Nyman & Moore, 2002)—are similar to "**collaboration conveners**" (Wood & Gray, 1991) and "**referent organizations**" (Trist, 1983).

However, whereas traditional perspectives of interorganizational collaboration argue for a neutral mediator (Gray, 1989), the SBO can be purposefully motivated (Westley & Vredenburg, 1991); can facilitate multi-sector partnerships (also known as intersectoral partnerships) (Brown, 1993); and can achieve legitimacy by strategically

balancing its own interests with those of its partners (Ashman et al., 1998; Brown &

Tandon, 1994). This last quality of strategic bridging (balancing interests) acknowledges

organizational interdependence and the need for partners to exert "**mutual influence**" in

collaboration settings (Brown & Tandon, 1994). Therefore, a strategic bridging

framework assumes *empowering and purposeful relationships* for the bridging

organization and for its potential partners, which can include local stakeholders.

An institutionally-directed model.

The strategic bridging model is appropriate for highly complex and multi-sector

interorganizational relationships because it views the organizational environment with an

institutional perspective. Even in single-sector collaborations, when an organizational

environment becomes too complex for one organization to manage, an

interorganizational approach can change the perspective from the single organizational

level to a "**domain**" level (Trist, 1983, p. 270). Once viewed at the domain level, the

organization can identify the areas of "interconnectedness" and reduce the uncertainty

that emerges in complex environments (Trist, 1983). When organizations look beyond

their organizational or sectoral boundaries, they use what is known as a macro or

institutional perspective (Covey & Brown, 2001).

The macro perspective reveals the institutions that shape social and community

interaction. Using an example from asset development strategies, nonprofit organizations

that facilitate savings programs need to understand how banks respond to customer and

community needs. These organizations will also need to understand the public policies

that influence bank decisions (e.g., the Community Reinvestment Act, which regulates

and monitors bank responsiveness to local communities). In strategic bridging collaborations, the SBO facilitates these intersectoral relationships and builds capacity and knowledge in a number of areas to mediate multi-sector collaboration (Brown, 1993).

New Institutional economics (a sub-discipline of economics) explains that economic institutions develop through and are managed by **mediating entities** (North, 1993). These entities facilitate the development of rules for interaction (and the means to enforce them) and standardized means to exchange resources. Figure 2.1 provides an illustration of the function of mediating entities. Here, the environment is characterized by a complex set of individual actors, including potential mediators, each operating under a separate set of assumptions.

Figure 2.1 Reducing Complexity through Mediating Entities
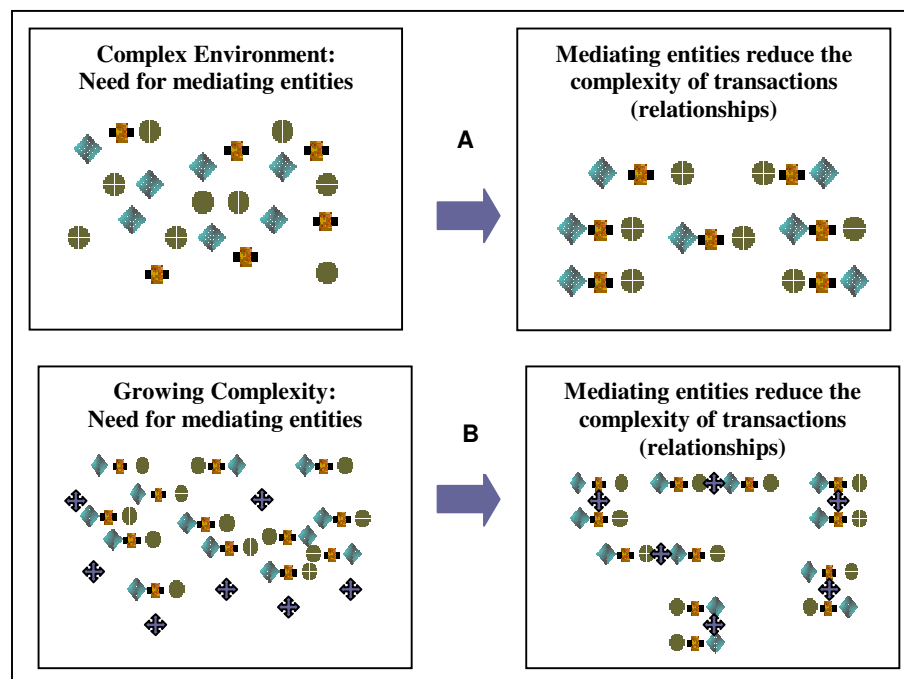
28

Through the development of institutions (top half of the figure at *A*), mediating entities reduce the environmental complexity by developing institutional norms and rules for interaction. Similarly, in the transition depicted in the bottom half of the figure (*B*), mediating entities further reduce the growing complexity through the development of inter-institutional norms for interaction.

Strategic bridging organizations play this critical mediation role in collaborations by facilitating complex, multi-sector relationships. The bridging organization defines the problem domain so that it encompasses (bridges) both the needs and resources of each institutional stakeholder in the effort (Brown, 1987). Therefore, another assumption of the strategic bridging model is that organizations can serve as *mediators* between sectors by assisting with the development of *norms, rules, and enforcement strategies for interaction*, and that these norms eventually create **institutional arrangements** for interactions among organizations and sectors.

Figure 2.2 (on the next page) illustrates the bridging of sectors by the SBO. In the figure, the SBO bridges two institutional sectors through interorganizational relationships with Partners A and B. Nyman (2004) argued that the "**problem domain**" should be termed the "opportunity domain" because it is solution-focused. In the figure, the SBO defines the opportunity domain in such a way that the problem and its solutions are relevant to the needs and resources of both partners. However, as the figure shows, because the SBO includes itself in the opportunity domain, it is not a neutral mediator and has a stake in the overall success of the collaborative effort (Nyman, 2004; Westley & Vredenburg, 1991).

Figure 2.2 The Strategic Bridging Environment
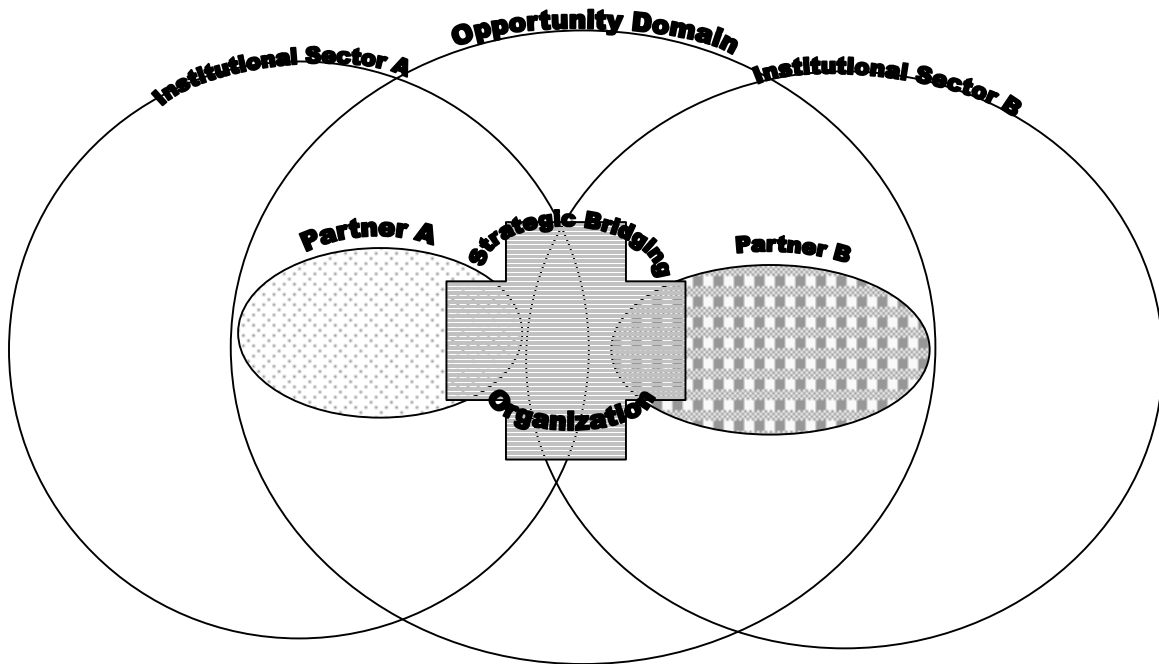
The growing availability of high-quality data through funded case studies allows a cross-comparison of many different strategic bridging and multi-sector collaboration cases. As the strategic bridging approach has gained attention, researchers have sought to classify bridging dynamics and structures into typological frameworks. A comparison of these frameworks is presented in the next section of this chapter.

Typological Frameworks of Strategic Bridging Collaborations

The frameworks discussed in this section come from case studies of strategic bridging collaborations in international development:

A. Westley and Vredenburg (1991) compared two Canadian multi-sector endeavors to determine bridging roles, strategic focus and purposes for collaboration.

Sharma et al. (1994) later used this framework to study a West African collaboration.

B. Brown and Ashman (1999) studied thirteen international, multi-sector development partnerships in Africa and Asia to understand how grassroots-directed and nongovernmental organization (NGO)-directed partnerships differed in level of conflict, types of decision-making processes, and the degree of focus on **social learning**.

C. Ashman et al. (1998) studied the relationships of Civil Society Research Organizations and their partners in international development to examine the types of conflict experienced.

D. Lawrence and Hardy (1999) studied how differing levels of alignment with dominant institutions by three multi-sector collaborations in the field of refugee assistance influenced organizational structures, levels of legitimacy with stakeholders, and the bridging strategies employed by the organizations.

Framework A: Altruistic vs. Egoistic Bridges

Interorganizational relationships, especially those that bridge different sectors, can be costly and challenging (Waddell & Brown, 1997). Moreover, as interdependence among organizations increases, the costs associated with poorly managed conflicts will increase (Brown, 1983). Nevertheless, organizations pursue intersectoral relations in order to develop new strategies for which prior single-sector interventions have failed (Kalegaonkar & Brown, 2000). They may also pursue such relationships to enhance their legitimacy and to increase their access to new sources of financial and informational resources (Ashman et al., 1998). Westley and Vredenburg (1991) categorized these motives as "altruistic" or "egoistic" and classified bridging organizations by the motivations they have to collaborate.

Egoistic bridges tend to volunteer for the bridging role in order to maintain their place and legitimacy within an institutional domain. *Altruistic* **bridging** organizations,

on the other hand, may be designed or mandated by other entities in the domain. Altruistic bridges are often developed in order to address a specific problem and to synthesize the institutional arrangements of the domains that they bridge (Westley & Vredenburg, 1991). Subsequent research has indicated that altruistic bridges tend to be temporary in order to bring about the direct collaboration of multi-sector partners, while egoistic bridges tend to have enduring bridging roles for long-term collaborative facilitation (Sharma et al., 1994).

Nevertheless, Westley and Vredenburg consider relationship endurance and thus the maintenance of the SBO's position as important factors in strategic bridging success: "[S]uccess in bridging situations should be judged less by the consensus achieved regarding a negotiated order and the commitment to implement decisions than by…building enduring links" (Westley & Vredenburg, 1991, p. 87). Weakening multi-sector relationships can be seen as strategic failures. Therefore, one conflict in strategic bridging collaboration is that when organizations are mandated or created to bring about direct collaboration among sectoral partners, the loss of the facilitating SBO may actually inhibit the long-term success of the partnership.

Sharma et al. (1994) argued that when altruistically-motivated bridges seek to create direct collaboration among the multi-sector partners, it makes the organization "structurally transitory" (p. 474) and thereby undermines the bridging effort. Emerging weaknesses in a bridging organization will subsequently affect its ability to define the opportunity domain; to secure internal commitment from its stakeholders; and to achieve a balance between its own goals and motives of those in the domain—each of which is an

additional measure of successful bridging (Sharma et al., 1994; Westley & Vredenburg, 1991) (see Table 2.1). The authors argue that strategic bridging collaborations, if altruistically motivated, will be more successful if they pay some attention to building legitimacy and **sustainability** into their role as bridgers.

Table 2.1 Frameworks of Strategic Bridging – Westley & Vredenburg (1991)

Authors	Westley & Vredenburg (1991); Sharma, Vredenburg & Westley (1994)			
Approach	Purpose of the strategic bridging organization			
Classification	*Type of bridge*	*Assignment of bridging role*	*Strategic focus*	*Purpose for seeking relations*
	Egoistic Bridge	Voluntary	Self-serving	Maintain domain relations
	Altruistic Bridge	Designed or mandated	Problem focused	Transformative
Measures of Successful Bridging	◆ Endurance of links ◆ Successful articulation of problem domain ◆ Bridging organization securing internal commitment ◆ Balancing self-interest with domain concerns			
Emerging Issues	◆ Organizations may not have the resources or authority to collaborate ◆ Potential partners may have vastly differing ideological perspectives ◆ Partners may have historical conflicts that set the tone for collaboration ◆ There may be legal barriers that need to be overcome			

While self-interest is clearly an important part of the bridging model, Sharma et al. (1994) do not sufficiently clarify how egoistic bridges that seek to maintain domain relations are better able to address the emerging issues of collaboration (e.g., historical conflict, lack of resources, differing ideologies). However, one might argue that in such cases, the bridging organization has the strength of the dominant institution to legitimize

its function and goals. Strategic bridging collaboration need not have goals for institutional change.[6]

Organizations that seek enduring roles to "become a part of the fabric of the domain" (Sharma et al., 1994, p. 474) provide certain legitimacy to the effort, which assists them in addressing a partner's lack of resources or legitimacy. By focusing on its own legitimacy, the SBO will be able to mediate the collaboration of ideologically-different organizations and their historical conflicts, and may make itself better situated to overcome legal and political barriers (Westley & Vredenburg, 1991).

Westley and Vredenburg argue that in the altruistic domains of Third World development, the egoistic motives of a bridging organization may be the deciding factor in collaborative success. However, their research inquires neither into successful altruistic bridges, nor into their **transformative purposes**. The work of Brown and Ashman (1999) gives some insight into these bridging processes.

Framework B: Grassroots-directed vs. Organizationally-mediated Multi-sectoral Partnerships

Strategic bridging among sectors has been found to foster the development of interorganizational social capital and *social learning* (i.e., the building of capacities to collaborate and approach problems collectively) (Brown & Ashman, 1999; Waddell, 1997). Brown and Ashman's (1999) study of thirteen developing world partnerships identified two types of multi-sector bridging: 1) bridging by organizations to increase

---

[6] The strategic bridging model is equally powerful in explaining how dominant and oppressive institutional structures are developed and maintained. This is a particularly interesting area of study, which deserves more attention in social work.

service capacity, and 2) bridging by **grassroots** organizations to create social change and address community interests. Social capital and social learning are integral to the success of such collaborative endeavors. However, the degree of direct participation and decision-making by grassroots entities and their stakeholders varies. The authors found that participation and decision-making depended on whether grassroots institutions were critical to a project's sustainability (Brown & Ashman, 1999). In some projects, grassroots participation was not a critical factor.

Brown and Ashman (1999) defined collaborative success as the number of people who were served by the effort (size: less than 10,000 to greater than 100,000 people) and by its level of sustainability (degree to which the effort was able to raise resources from each of the partnering public, grassroots, and nonprofit sectors). The authors tied successful multi-sector collaboration to the level of social capital built by the partnerships and to the degree to which social learning was used to strengthen the partnerships.

The authors measured social capital by the existence and extensiveness of grassroots organizations and grassroots networks, the number and strength of intersectoral contacts, the level of conflict among partners, and the degree to which less powerful partners were able to participate in decision-making. Social learning, which "produces enduring changes in the institutional arrangements that enable future intersectoral action" (Brown & Ashman, 1999, p. 164) was defined as *capacity-building* that brings about "changes in interorganizational arrangements that enable multiple organizational actors to understand and work together effectively" (p. 156). Performed in conjunction with *program* **learning**, which "enables the parties to deal with specific

issues to carry out the program" (p. 156) and ***organizational* learning**, which "indicates changes in specific organizational actors" (p. 156); *social* learning—on a multi-sector level—supports multi-sector capacity-building, mutual influence in decision-making, and the building of sustainable relationships (Brown & Ashman, 1999).

Once Brown and Ashman categorized the cases according to these differing levels of success, social capital, and social learning, they found that two types of intersectoral initiatives emerged, each appropriate to the purposes of the collaborative endeavor. The first type, the grassroots-directed initiative, had a similar voluntary role as that of the egoistic bridges studied by Westley and Vredenburg. However, its purpose is much more transformative and social change-seeking than found for egoistic organizations. Projects mediated by Non-Governmental Organizations (NGOs), on the other hand, resembled problem-focused, altruistic bridges, yet they had few transformative goals.

Grassroots-directed endeavors experienced higher levels of conflict because they tended to have a greater diversity of partners (Brown & Ashman, 1999). The authors found that in such initiatives, grassroots parties participated at higher rates and exerted mutual influence in decision-making. Social learning was fostered and catalyzed by grassroots leaders, who supported the examination of multiple perspectives in order to identify better solutions. For projects that required local resources and information to ensure sustainability, these network structures appeared to be the most appropriate (see Table 2.2).

The authors argued that NGO-mediated projects experienced lower levels of conflict because they had lower levels of grassroots participation. NGO-mediated

partnerships were appropriate for initiatives with few participation incentives or in situations where grassroots groups lacked capacity. Such initiatives had success with projects that required the building of organizational capacity and projects where services addressed individual social welfare goals (e.g., delivery of rural health services) rather than social change goals.

Both Westley and Vredenburg (1991) and Brown and Ashman (1999) define multi-sector partnerships and bridging relationships as functions of collaborative motives. Both studies link motives to the structures of the relations formed among the intersectoral partners and identify the level of internal conflict as influencing bridging success. However, while Westley and Vredenburg (1991) use *organizational* measures of success, Brown and Ashman (1999) measure success in terms of initiative impact and sustainability—factors that influence *institutional* success. Sustainable transformation and especially the emergence of new multi-sector institutionalized relationships relate to the level of social capital building and social learning that takes place among sectors.

The Brown and Ashman study also highlights important considerations for stakeholder involvement in development projects. NGO-mediated projects achieved success with minimal involvement of stakeholders, yet the authors found that these projects also were less likely to build local networks and organizations to sustain the project locally. In contrast with the Westley and Vredenburg framework, the altruistically-motivated organizations did not seek "transformative" social change. Although NGOs were better able to form and maintain relationships among the public,

Table 2.2 Frameworks of Strategic Bridging – Brown & Ashman (1999)

Authors	Brown & Ashman (1999)				
Approach & Success Measures	Different "patterns of success" in Grassroots-directed and Non-Governmental Organization (NGO)-mediated projects in serving greater numbers and having more sustainable resources.				
Classification	*Type of Project*	*Level of Conflict*	*Decision-making*	*Social Learning*	*Application*
	Grassroots-directed	Moderate to high levels of conflict among parties due the representation of diverse interests.	Grassroots parties participate and have mutual influence in decisions.	Fosters social learning.	Local resources and information are needed to solve problems. Networks of grassroots organizations allow larger geographic areas to be served and also make connections to large agencies in other sectors. Community action is necessary to gain benefits.
	Non-Governmental Organization (NGO)-mediated	Lower levels of conflict due to less participation by grassroots groups. A more likely structure when parties do not want to participate or grassroots organizations do not exist. Less conflict to manage makes it easier to initiate.	NGOs mediate differences among different sectoral partners. Less emphasis on direct negotiation and grassroots participation. NGOs serve as decision-makers and consider all interests.	Some social learning but tend to focus on organizational learning. Efforts less likely to create local entities to sustain the projects and generate fewer resources from within the served communities.	Best for narrowly-defined projects. NGOs deliver services and technical assistance to underorganized grassroots agencies with fewer resources. Depends less on local resources and capacities and more on the service capacities of NGOs and government agencies. Can be successful when organizational capacity for providing services is important to success of project and services are directed toward individuals and families.
Emerging Issues	◆ The level of conflict and degree to which grassroots entities participate in decision-making influences the degree to which there is mutual influence among the parties in framing problems, setting directions, articulating plans, and guiding actions. ◆ Success can be achieved even with moderate to high levels of conflict. ◆ Catalysts in the participating organizations were often individuals who encouraged and fostered the examination of multiple perspectives and facilitated problem solving for better solutions. ◆ Social learning—"changes in interorganizational arrangements that enable cooperation"—was the key to sustainability.				

private and for profit sectors and were able to provide services when grassroots capacities were negligible, grassroots-directed initiatives formed networks with other grassroots groups to serve larger geographic areas and provide broader development programs, thus achieving the more transformative objectives one would expect from "altruistic" organizations.

More importantly, grassroots-directed projects supported participation of local stakeholders and were more likely to foster social learning strategies for development. The Brown and Ashman study underscores the idea that creating a network of relationships is only a part of the development process: The formation of network relationships (or "**ties**") among organizations, institutional sectors, and stakeholders must be accompanied by the development of local capacities and participatory decision-making in order for lasting social change to occur. Ashman et al.'s (1998) study of the network ties of **Civil Society Research Organizations** (CSROs) further clarifies the link between network structure and sustainability.

Framework C: The "Strength of Strong and *Weak Ties"*

Ashman et al. (1998) studied eight CSROs, which are grant-making organizations that fund and support grassroots groups and NGOs in the developing world. CSROs must generate funding and create distribution systems to allocate these funds to local organizations. CSROs meet many of the strategic bridging criteria discussed in the earlier frameworks. The organizations link multiple sectors, must balance internal interests with those of the partnering stakeholders, and staff within the organizations recognize and mediate multiple perspectives and values. The authors argued that the

types of relations founding board members (and thus their organizations) had with their respective networks would influence the challenges they faced and how they dealt with these challenges.

Board members with stronger network relations held common interests and values with their network colleagues. They founded their CSROs to increase their organization's access to financial and informational resources and to broaden their network's impact in international development. On the other hand, CSROs with board members from more weakly-tied networks represented a greater diversity of interests and sought to build diversity in their CSRO boards to gain local legitimacy. The authors found that both types of organizations were challenged to maintain a balanced perspective in order to be effective grant-making entities. If the boards became too strongly aligned with the populations that the grant recipients served, financial donors were alienated; if ties were too strongly aligned with donors, then grant recipients experienced challenges in meeting grant requirements (Ashman et al., 1998). See Table 2.3, on the next page, for a summary of findings.

Interestingly, Ashman et al. (1998) found that neither type CSRO (neither weakly-tied nor strongly-tied) recruited grassroots actors for their boards due to the potential for conflict: both types of organizations relied on professional opinion to make decisions. However, both types of CSROs purposefully sought ties, either through board inclusion or through weak links to resource-generating entities, in order to address organizational sustainability. An important contextual factor in this framework is the fact

Table 2.3 Frameworks of Strategic Bridging – Ashman et al. (1998)

Authors	Ashman, Brown & Zwick (1998)						
Approach	Types of network ties formed by Civil Society Research Organizations to their networks in generating funds and disbursing grants to local, grassroots organizations.						
Classification	*Type of Tie*	*Purpose of Tie*	*Longevity of Ties*	*Homogeneity of Network Contacts*	*Type of Resources Sought through Contacts*	*Governance of Organization seeking contacts*	*Conflicts Experienced*
	Strong	To increase impact or autonomy of network	Long-standing ties	Homogeneous	Financial and informational resources developed through intersectoral relations	Closed boards to retain homogeneity	Internal conflicts among board and staff regarding values and uses of resources
	Weak	To gain resources for the network through alliances with international agencies	New ties	Heterogeneous	Legitimacy developed through board interlocks	Boards open for new recruits to bring legitimacy	External conflicts between organizations and environment regarding inflexibility
Emerging Issues	◆ Organizations were challenged to maintain a balanced perspective. If ties were too strong to marginalized populations, then donors were potentially alienated. If ties were too strong to donors, then rules and requirements would be challenging to groups receiving funds. ◆ Strongly-tied, homogeneous networks sought additional resources through intersectoral ties. Weakly-tied, heterogeneous networks had access to a diverse set of resources, but required legitimacy. ◆ Neither type recruited grassroots actors for their boards, because of the potential for conflict, and relied on professionals for decisions. ◆ Strongly-tied networks can forge external weak ties to generate new resources but retains its orientation and values. However, this means that such networks need to constantly seek new ties (resources). Weakly tied networks can include new ties in its structure, thus reducing its need to seek resources. However, if such ties are not legitimized, then the network may have trouble maintaining its orientation and may lose flexibility from having to meet the demands of many stakeholders.						

that the CSROs studied by Ashman et al. (1998) were founded by status-elite members of their respective countries, who either founded the CSRO as an extension of an existing, strongly-connected social network, or as a multi-sector initiative. Participation of grassroots organizations and stakeholder populations was scarce.[7]

Strongly-tied CSRO networks sought external relationships to generate new resources but maintained their homogeneous orientations and values. The authors saw these relationships as the "weak ties" discussed by Granovetter (1973): "[W]eak ties which connect otherwise socially-isolated groups have been noted for their capacity to bring new information and resources that would otherwise not be accessible…." (Ashman et al., 1998, p. 2). However, because these CSRO boards did not seek new members, they experienced continual pressure to link themselves to financial donors in order to ensure an appropriate level of resources.

By contrast, the more heterogeneous CSRO boards sought new members and diversified their financial and informational resources. Diverse ties can be mediated by bridging organizations (Brown, 1993 in Ashman et al., 1998), or through "participatory decision-making" (p. 2) strategies. However, the diverse CSRO boards experienced challenges in creating and maintaining legitimacy, and had to balance their diverse sectoral alignments. Additionally, their diverse membership made it difficult to strike a balance between consistency and flexibility in goal orientation (Ashman et al., 1998).

---

[7] Ashman et al. (1998) explained that one CSRO was "created in part to respond to revolutionary movements which, from the perspective of the business community, constituted a threat to social and economic stability" (p. 5).

The study's findings illustrate how network structure influences organizational sustainability and resource access. Strong and weak ties to external entities in an institutional environment create different challenges for organizations that bridge sectors. The final bridging framework, developed by Lawrence and Hardy (1999), studies how the different structural positions of bridging organizations affect their respective organizational challenges and structures.

Framework D: Structural Position in Activist Domains

Lawrence and Hardy created a typology of bridging organizations based on the degree to which a bridging organization aligned itself with institutionally powerful and centralized institutions or connected to and allied itself with more peripheral interests (e.g., the interests of activist organizations). The authors studied three systems created to serve refugees in Canada, Denmark and the United Kingdom. The level to which the bridging organizations aligned themselves with dominant institutions affected their organizational structures, partnership approaches, and organizational cultures (Lawrence & Hardy, 1999).

Lawrence and Hardy argued that the dominant organizations' centrality did not necessarily reflect perceived legitimacy, but rather that centrality was a function of "their activity in a wide variety of domains and on their power within the capitalist system" (p. 50). The bridging organizations sought to link refugees and related stakeholder organizations to the central public sector entities that served this population. The value differences among the three types of bridging organizations influenced the methods by

which they served refugees in the three countries and depended on the organizations' proximities to centrally dominant sectors and dominant paradigms.

Using Douglas and Wildavsky's model of organizational culture (1982 in Lawrence & Hardy, 1999), the authors categorized the bridging organizations' structures as *markets*, *hierarchies* or *sects,* depending the openness of the organizations' boundaries (Lawrence & Hardy, 1999, p. 61). The authors explained that because the organizations they studied had "strong, enduring boundaries" (p. 61), the "**market**" type of organizational structure, which typically has more fluid boundaries, did not apply.

The bridging organization that aligned closer to the central dominant paradigm (the "**center extension**," p. 58) reflected a more **hierarchical** structure, i.e., had a culture that was regulated by formalized rules and constraints and used decision-making standards (Douglas & Wildavsky, 1982 in Lawrence & Hardy, 1999). A **sectarian** structure (used by the "**border federation**," p. 59), on the other hand, was characterized by egalitarian, decentralized methods of decision-making, lacked formal rules, and used participatory decision-making. The authors identified this structure in the bridging organization that aligned itself with **border entities**. The "**pure bridge**" case (p. 58) exhibited characteristics of both these types and was thus considered a hybrid.

The hierarchical nature of the center extension made it prone to perceived threats to its stability and the stability of the dominant institutions. It employed bridging strategies such as compromise, standardization, and norm enforcement by creating communication channels with border entities. This type of bridging organization was most likely to suffer from a lack of legitimacy with the border groups. These challenges

Table 2.4 Frameworks of Strategic Bridging – Lawrence & Hardy (1999)

Authors	Lawrence & Hardy (1999)				
Approach	The position of a bridging organization within the institutional fields of activist domains (between "center," dominant groups and "border" activist groups) will affect the organization's structure, strategies, and other organizational characteristics.				
Classification	***Position in Activist Domains***	***Organizational Structure***	***Perceived Threats to Legitimacy***	***Bridging Strategies***	***Application***
	Center Extension: Positioned closer to the dominant paradigm	Hierarchical	Threats to domain stability	Standardization and communication	Supports the center's enforcement of standards and norms. Such bridging organizations stress communication and compromise between the center and border entities. However, because communication is often put in terms of the dominant paradigm, such bridges may lack legitimacy with border groups.
	Border Federation: Positioned closer to activist organizations that oppose the dominant paradigm	Sectarian	Fissioning (the breaking away of members)	Membership support	Supports activist values of border groups but may risk losing members if it becomes too bureaucratic or if the center is unresponsive. However, legitimacy as a voice for border groups assists in negotiations with center.
	Pure Bridge: Positioned midway between the dominant paradigm and "border" paradigms	Hybrid of hierarchical and sectarian characteristics	Threats to domain stability and membership fissioning	Balancing standardization and membership strategies	Threats to legitimacy come from both the dominant paradigm and from "border" groups that may perceive the organization as co-opted by dominant groups. Therefore, pure bridges focus on negotiating standards with the center and negotiating membership with the border.

to legitimacy are similar to the difficulties faced by the strongly-tied networks studied by Ashman et al. (1998), which may explain why multi-sectored bridging initiatives encounter challenges when grassroots and local stakeholder groups perceive an organization to be allied with dominant institutions.

In contrast, the border federation bridging organization was challenged by "**fissioning**" (Lawrence & Hardy, 1999, p. 66), i.e., the breaking away of members because they perceived alternatives as more effective. In such cases, an increase in the level of bureaucracy, the exclusion of certain grassroots groups, or a perceived lack of impact caused the bridging organization to lose members and thus diminished the power it gained by having a diverse membership. These challenges relate to Ashman et al.'s (1998) weakly-tied networks, which must balance the needs of their diverse memberships without sacrificing flexibility.

Pure bridges can be threatened from "both sides" (p. 67)—undermining by the dominant center and experiencing fissioning from member border groups. Pure bridge sustainability depends on the careful negotiation of standards with the use of participatory strategies that allow for representation of its diverse membership. The authors argued that in this "schizophrenic" case (p. 68), a bridging organization should assess its mission and determine whether its alliances serve its organizational goals. The authors appear to argue that in activist domains, effective bridging may need to be defined in terms of alliances with one side or the other, and that strategic bridging may not be effective as a hybrid of both dominant norms *and* norm challenging institutions.

Lawrence and Hardy's typology illustrates the necessity of the institutional perspective in studying strategic bridging collaborations. Bridging partnerships that seek to maintain the dominant paradigm through the mainstreaming of marginalized groups and populations may be undertaken for purposes other than that of social change (e.g., to maintain the *status quo*). The strategies undertaken by centrally-aligned bridging organizations might only address the needs of marginalized populations without addressing the root causes of those needs. Nevertheless, one could argue that some institutional change is possible through cooperative strategies as well as through competitive and activist ones.

Summary of Frameworks

Table 2.5 (on the next page) summarizes the four strategic bridging frameworks reviewed here. While the studies vary in focus, there is a general theme that differing levels of diversity in their boards, stakeholders, constituents and partners characterize bridging organizations. Not all bridging organizations seek partnerships with grassroots organizations and stakeholders. However, many do and thus experience some of the challenges inherent in bringing together diverse perspectives, including difficulties in maintaining membership cohesiveness, balancing the interests of partners and the goals for collaboration, and determining to what degree dominant institutions influence the decision-making procedures of the collaboration.

Another theme that emerges from a comparison of the studies is that bridging organizations have both transformative and **maintenance** roles. Transformative roles seem to focus the bridging organization on building local capacities for social change.

Table 2.5 Summary of Strategic Bridging Frameworks

Study	Type of Bridge	Bridging Role	Purpose of Bridge	Level of Diversity Represented in Bridge	Ties to Grassroots Stakeholders	Ties to Dominant Institutional Entities
Westley & Vredenburg (1991); Sharma et al. (1994)	Altruistic Bridges	Voluntary	Self-serving, Maintenance-oriented	*	*	*
	Egoistic Bridges	Designed or Mandated	Problem-focused, Transformative	*	*	*
Brown & Ashman (1999)	Grassroots-Mediated	*	Facilitating community action to solve local problems	High	High	Low
	NGO-mediated	*	Facilitating organizational capacity-building to provide services	Low	Low	High
Ashman et al. (1998)	Strongly-tied	Designed	Increasing impact or autonomy through resources	Low	Low (as studied)	High
	Weakly-tied	Designed	Gaining legitimacy and resources	High	Low (as studied)	High
Lawrence & Hardy (1999)	Pure Bridges	*	Mediating norms of dominant institutions and activist, peripheral entities	*	Moderate	Moderate
	Center Extensions	*	Developing compromises between dominant institutions and activist entities	*	Low	High
	Border Federations	*	Supporting activist voices in negotiations with dominant institutions	*	High	Low

* Not specified in the study.

Organizations filling maintenance roles may not actively seek to maintain dominant

institutional arrangements (although they can). However, maintenance roles may be

given to **exogenous organizations** that extend services to a community, while retaining

the existing institutional relationships. The next section of this chapter completes the

discussion of strategic bridging by linking strategic bridging assumptions to the asset

development approach.

Framework Assumptions: Purposeful Bridges and Social Change

The frameworks presented in the four case studies illustrate the complex

challenges associated with social change objectives in multi-sector collaboration. It is

not enough to collaborate or to create ties with organizations in other sectors (Marra,

2004): Strategic bridging collaboration models assume that organizations, their leaders,

their partners, and their staff need to make *strategic choices* at each stage of the

collaboration process. Decisions influencing the success and sustainability of projects

include:

- ◆ How and what kinds of ties are to be formed with other organizations?
- ◆ How and by what degree are local stakeholders to be involved in decision-making processes?
- ◆ How are resources to be generated?
- ◆ How is information to be disseminated?
- ◆ How closely does one align with dominant paradigms?

Negotiating through each of these decision stages requires careful consideration

of the institutional environment, the partners involved, the goals for collaboration, and of

the capacity level of the bridging organization to facilitate and manage multiple perspectives.

The collaborative model is not appropriate in all instances. Organizations can have few conflicting interests and few convergent interests, which leads to a "non-engagement" with few incentives to collaborate (Covey & Brown, 2001, p. 3). At the other end of the spectrum, organizations and groups may have many converging and conflicting interests, which are deeply tied to issues of power and social justice, and which make bridging a difficult endeavor. The bridging approach seeks to build new arrangements and to create new social units (Brown, 1983) that merge and define the mutual influences, common interests, and roles within each of the bridged sectors. There is a clear focus on linking institutions through interorganizational relationships and thus on the creation of new institutional arrangements (Brown, 1993; Brown & Ashman, 1999; Brown & Tandon, 1994; Kalegaonkar & Brown, 2000; Waddell & Brown, 1997). Here, the emphasis is on "new," i.e., new institutional arrangements that do not merely replicate the dominant paradigm:

[E]xisting institutional arrangements have proved largely inadequate to the challenges posed by the global problematique…[and] efforts to respond to the problematique are undermined by the lack of common values and visions…Organizations that enable diverse stakeholders to articulate and implement solutions to complex problems can make seminal contributions to solving both the institutional and the values problems…[T]hey are key actors in articulating shared visions and in constructing institutional arrangements for achieving them (Brown, 1993, pp. 2-4).

The strategic bridging literature emphasizes that local decisions and collaboration strategies can have institution-wide effects. Such effects can be seen in the IDA

movement. Seidman and Tescher (2004) found that five factors have increased the access of low-income persons to the financial sector. Among these factors were major changes in the financial sector that have led to alternative financial institutions; "unconventional partnerships" (p. 12) between financial firms and other entities to reach underserved populations; and the growth of the IDA movement. Nyman (2004) elaborated on the capacity-building strategies and activities of IDA collaborations as methods to build political advocacy mechanisms of rural, grassroots groups to foster institutional change. She found that grassroots support for multi-sector projects can empower residents of rural areas by building community assets:

> The multi-organizational networks serving the *colonias* regions build community capital and community assets, which strengthen the communities from within. For disinvested, rural communities this can mean sustainable and meaningful community development, which can turn temporarily-funded projects into enduring economic development strategies…The key is not to parcel development strategies into funding streams and demonstration projects, but to build networks, community capital, and community assets for sustainable development (Nyman, 2004, p. 19).

The replication of the multi-sectoral relationships in IDA programs has helped to increase the institutional legitimacy of the asset development strategy. IDA and IDA-related policies have gained the attention of policymakers, who on a federal level are now introducing proposals for child savings accounts, tax credits for banks participating in IDA programs, and new savings options for retirement, among others (Cramer et al., 2004). Nevertheless, even as savings programs become a more frequent strategy in social welfare policy, the amount of federal asset-building policies *remains* disproportionately favorable to the wealthy over the poor (CFED, 2004; Cramer et al., 2004). This unequal

advantage in asset-based policy has yet to be resolved fifteen years after Sherraden first noted it in his book (1991).

For social workers endeavoring to make change in the dominant paradigm, these findings can be discouraging. Even with promising tools, such as strategic bridging collaboration, which can lead to institutional change, institutional factors weigh heavily on a change agent's success and how change takes place. Nevertheless, local changes can create widespread change. Social network analysis, and specifically small world network analysis helps us to understand how these small changes do manifest larger scale changes on the institutional level.

Social Network Analysis and the Small World

That localized changes can affect larger systems is not a new idea. We have all heard of the chaos theory anecdote that a butterfly flapping its wings in Hong Kong can create a tornado in Texas (postulated by MIT meteorologist, Ed Lorenz in 1963)—this is known as the ***butterfly effect***. However, the study of institutions shows us that this effect feeds back onto the greater institution, which influences the local area, which influences the institution, and so on. The early work of institutional theorist Talcott Parsons captured a similar idea in the burgeoning field of 20th century sociology: the short-term interests of the individual moderate the effects of common values in the institutional environment (Parsons, 1934 (unpub.)/1990; see also Coleman's comment on Parsons' work, 1990).

The influences of discrete changes on a local level—nontraditional partnerships in a local collaboration, for example, or the flapping of a butterfly's wings—can manifest themselves in macro-level changes in the environment. To discern and study all of the variables that influence institutional change is a massive undertaking. Nevertheless, the need to explain institutional change is great, and the need to make those explanations meaningful may be even greater. From the perspective of the mathematical sociologist, John Skvoretz, "Inevitably, it seems formalization capable of supporting rigorous analysis requires that we discard much of the richness and complexity of a topic. And it is this rich complexity that motivates our interests in the first place" (2000, p. 511)

Perhaps it is this complexity that makes institutional change so daunting. We know from research in many different fields that small changes do have big effects (DiMaggio & Powell, 1983; Granovetter, 1973; Lawrence, Hardy, & Phillips, 2002; North, 1996; Watts & Strogatz, 1998). Early in his seminal article, *The Strength of Weak Ties*, Granovetter (1973) argued:

> [T]he analyses of processes in interpersonal networks provide the most fruitful micro-macro bridge. In one way or another, it is through these networks that small-scale interaction becomes translated into large-scale patterns, and that these, in turn, feed back into small groups (p. 1360).

Watts would later echo similar sentiments in 1999:

> Significant changes in global structure [of a network] can result from changes in local structure that are so minute as to be effectively undetectable at the local level (p. 498).

That being said, a map of social relations is only as good as the kinds of relations it maps, and the use of the network analytic method is only as good as the

operationalization of its nodes and ties. **Nodes** in a network of relations represent the

actor, or the **roles** of an actor. For example, a network of relations among a group of

community organizations can reveal how those organizational actors interact, or the

network could also be used to make some conclusions on the roles of the different

organizations in the collaborative effort. Strategic bridging concepts are decidedly about

the *roles* of organizations. Institutional analysis can take it one step further. In one

sense, institutional analysis is concerned with the way the roles of organizations are

influenced by overarching norms of interaction. In another sense, it focuses on the way

actors' interactions with others create and change the institutional norms (Fararo &

Skvoretz, 1986).

Similarly, the *ties* of a network represent the relationships between and among the

nodes, and can be seen as representing the actual *structure* of a network, or can reflect the

role *relationships* that create node positions in an underlying institutional structure (Burt,

1992; Fararo & Skvoretz, 1986). Therefore, when network analysis is used to study

interorganizational collaboration, for example, the ties may simply reflect common

affiliations among nodes (e.g., an AFI grantee having the same financial partner as

another AFI grantee), or the ties can reflect actual relations and positions within a

network (e.g., an AFI grantee shares resources with another grantee through a particular

financial partner).

While in this study's case, the network described by the data can only represent

grantee-bank affiliations, the curious characteristics of small world networks—*that*

simple structure can have meaning—allows us to identify where interesting things may

be happening on the local level. Small world network analysis does this by comparing the actual structure of networks to abstract random networks, a theoretical perspective developed by Rapoport (1957) and Erdős and Rényi (1960, in Watts, 2003).

In his studies of disease contagion, Rapoport (e.g., 1957) developed many of the common network concepts we use today: **reciprocity** (a tie from point A to point B is also a tie from point B to point A); average cluster size; measures of **density** vs. the number of connections; **homophily** (the tendency to associate with like people); and, "**triadic closure**" (adding dynamic interactions to the work of George Simmel) (Watts, 2003). Rapoport's "random-biased nets" were ordered networks constructed under certain rules (thereby "biased") to which additional ties would be added randomly (in Watts, 2003). Before this, network ties had been assumed mathematically as independent events (e.g., Erdős & Rényi, 1960 in Watts, 2003). Therefore, Rapoport introduced causality into the formation of network ties (Watts, 2003).

Randomness and Order

The interaction of order and chaos (random chance) manifests the larger effects in the small world. Watts and Strogatz (1998) argued that introducing chance linkages to ordered networks creates opportunities for inter-cluster links between nodes that are originally far apart. These are the "six degrees of separation" popularized by Guare's 1990 play of the same name. Most social networks are comprised of individuals who have mutual acquaintances and who form closely-knit clusters. That "clustering" lessens the degree to which a message can be communicated to someone you don't know: "clustering breeds redundancy" (Watts, 2003, p. 40).

It being a small world means that not only can you get a message across a small group of like-persons, but also (because each person is connected to every other person on the planet by an average of six degrees or "steps") that message has the potential to go worldwide even though we are clustered in small groups (Travers & Milgram, 1969; Watts, 2003). The **clustering** of persons or organizations is developed by strong ties between and among similar nodes. However, if one were to create a tie at random, it would be much more likely that such a tie would connect individuals from two *different* clusters. By adding randomness to an otherwise orderly network, one can quickly reach a threshold that links all the clusters.

These are the "weak ties" that Granovetter linked to getting a job (1973, 1983). The measure of the "density" of a network is derived as the number of ties a particular node has within a cluster of its network divided by all the number of all possible ties that could be had within the network (Barnes, 1969 in Granovetter, 1973). Dense networks are those whose density ratio approaches *one*. Granovetter argued that networks need not be fully tied (a fully-tied graph is called **complete** in graph theory) to impact information diffusion across a network: weak, inter-cluster ties could have just as much impact as the strong ties within the clusters.

The small world theory derives its explanatory power from the mathematical tension between randomly-created networks and highly ordered ones. Watts (2003) explains that our actions are determined partly from the structure of the networks in which we exist and partly from our own decisions and choices—what he terms

"structure" and "agency" (p. 72).[8] Mathematically, **agency-derived ties** can be treated

like random events because they are not constrained by the structure of the network,

whereas **structure-derived ties** emerge as a consequence the existing network structure:

> Once these apparently random affiliations have been made…structure
> reenters the picture, and the newly created overlaps become the bridges
> over which other individuals can cross and form additional affiliations of
> their own" (Watts, 2003, p. 72).

Now the connection to strategic bridging becomes clearer. Even the purposeful

bridges formed between institutional sectors by strategic bridging organizations can be

considered random events, thereby adding "chaos" to an otherwise structured (clustered)

network. Burt related a similar concept to organizational power: organizations can take

advantage of the **structural holes** between strongly tied networks to control the flow of

information and resources (Burt, Gabbay, Holt, & Moran, 1994). This is similar to the

"strength of weak ties" argument advanced by Granovetter (1973), which Ashman et al.

(1998) used to describe dimensions of intersectoral relations.

Measuring Small World Networks

Using this range from completely ordered networks to completely random ones,

Watts and Strogatz (1998) created two abstract models of network interaction. In one

network, sparse populations live isolated from one another but have equal (random)

chances to be connected (independent of network structure). In the other network, the

population is highly clustered with a high degree of probability that like persons will be

connected and strangers will remain strangers. This created a measurement of what

---

[8] Watts (2003) provides a very easy-to-understand explanation of the small world network concept. His discussion is used as a guide for the next few pages of the literature review.

Watts and Strogatz called the "clustering coefficient": "The degree to which, on average, a person's friends are more likely to know each other than are two strangers" (Watts, 2003, p. 77).

Watts and Strogatz then created the *Beta Randomness Model* (1998), which describes the relationship between the number of paths it takes on average to go from point A to point B and the degree of clustering in the network. The point where these two network properties—clustering and average shortest path between two points in a network—meet, is the critical point when the network moves from a "**fragmented network**" to a small world (Watts, 2003, p. 79, 81).

When one remembers that "agency" or individual choice can be considered a random event because it is not dependent on network structure, then the implications for the small world network model become substantial. With the addition of a number of random (agency-derived) linkages between clusters, e.g., strategic bridges between institutional sectors, the path length of connections among differently-clustered points is reduced significantly.

Applications of the Small World Model to Real Networks

Taking off from Milgram's 1967 study of the "small world problem," wherein he studied the number of connections it would take to link populations the size of the U.S., Watts and Strogatz (1998) began to apply the small-world model to existing networks. There were difficulties, however: "[O]ne can never be sure that the chain of intermediaries actually traced between two people was the shortest one possible" (Watts, 1999, p. 514). Because the identification of a small-world network depends on its

comparison to a randomly-tied graph of a similar number of nodes and ties, in large "N" networks, very few "shortcuts" or ties among clusters "k" are needed to differentiate the network from that of a randomly-tied one (Watts, 1999). Therefore, when studying real networks, it is difficult to determine whether the identified ties really are "shortcuts," or are, instead, the only identified ties among a range of others that remain unidentified but indeed comprise shorter paths.

Watts and Strogatz (1998) identified three cases of small world networks in the real world: the collaborative connections between actors in a movie database (based on Tjaden, 1997); Phadke & Thorpe's 1988 study of the North American power grid; and data from the study of the neural network of a nematode *C.elgans*, studied by White et al. and Achacoso & Yamamoto (1986 and 1992, respectively) (all studies listed in Watts & Strogatz, 1998). For the varying ranges of N (from $N = 282$ for the nematode's neural network to $N = 226,000$ for the movie database), Watts and Strogatz found that each could be represented by the small-world model for their respective measures of k (number of ties among clusters), L (**average minimum path length**), and C (clustering coefficient).

Subsequent to their study, the small world network concept has become a hot topic among mathematicians and sociologists, especially social network analysts. Although few scholarly studies have applied the model to organizational networks, its application appears to have substantial implications. For example, Kogut and Walker (2001) performed a small world analysis on a network of German enterprises and found that even when they simulated changes to the network structure through the addition and deletion of ties, the network structure retained its small world properties. Kogut and

Walker concluded that concerns that weaknesses may emerge with the growth of the global market in the German business sector may not be as severe or even as likely as was predicted. Baum et al.'s (2002) study of strategic partnerships within the Canadian financial sector revealed a persistence of small-world structure over a longitudinal period (1952-1990).

Small world networks have other benefits, including rapid communication across the network, as Watts and Strogatz (1998) found when they applied the small world network concept to a network representing disease contagion (similarly affecting network communication as in the telephone game example discussed in Chapter 1). However, other models of large networks exhibit similar properties to the small world model, and, in fact, very large networks exhibit the short path lengths found in small world networks (Bollobás, 1985 in Newman, 2003). Additionally, the predictive value of the small world model is still under investigation (e.g., Lahtinen, Kertész, & Kaski, 2001; Latora & Marchiori, 2001; Newman et al., 2001).

Although shortcuts are possible in very large networks, it is the combination of these short path lengths with a high degree of clustering that makes the small world model useful for understanding network dynamics. Local partner decisions by AFI grantees may be made to enhance a program or service—perhaps a new financial partner has a lower rate of interest on home mortgages for participants. Local decisions may also affect a program negatively, e.g., a financial partner decides to not continue partnering after it merges with another bank. We can understand these local decisions in terms of the collaborative process, in terms of service effectiveness for participants, and in terms

of program sustainability—what does it do to the larger network? As was found in this study, these local decisions aggregate to have substantial effects on the larger network across the entire demonstration project. Local partnership decisions can strengthen a cluster (thus creating more homogeneity within clusters), or can link new clusters together (thus forming shortcuts between clusters). When we ask, "What is the overall effect of the AFI Demonstration Project?" part of the answer must include the widespread effects the project has for the participating sectors, and whether the small changes in personal wealth we see on the local level are matched by equally important changes in the structure of power relations among the organizations providing these services. One could argue that this larger picture goes to the heart of the growth potential for the project and its sustainability. The decisions made by social workers at the local level can, indeed, have widespread effects.

Networks and Institutional Change

The strategic bridging approach emphasizes that building social capital among multi-sector partners influences the creation of new institutional arrangements. However, as was brought out in the review earlier in this chapter, the presence of social capital does not necessitate social change. This is because "social capital" is a metaphor (Burt, 2000), which can symbolize trust (Church et al., 2002; Putnam, 1993 in Burt, 2000); resources (Bordieu, 1980 in Burt, 2000; Robison & Flora, 2003); and power (Sharp, 2001), among other concepts and relationships.

Burt argues in his extensive review of network analyses of social capital (2000) that research should not be as concerned with what social capital *is,* but it rather should

focus on the "network mechanisms" that convey value onto the metaphor. That is to say, the *positions* of the persons or organizations in a structure will confer competitive advantage that makes it possible for them to control information or other resources, exert power in decision-making, and influence the diffusion of norms across a network (among other advantages). Therefore, relationships become strategic assets, which when viewed in the context of a network of relations, become strategic "capital."

Social Capital and the Development of Institutions

Two approaches can be used to understand how social capital influences the development of institutions. The first approach comes from New Institutional Economics, which uses a "bottom-up," micro-perspective by looking at how relationships gradually formalize into institutional arrangements. The second approach comes from institutional sociology, which uses a "top-down," macro-perspective by studying how larger institutional processes guide the actions and decisions of people and organizations.

The development of economic institutions.

In economic terms, relationships among persons and organizations are defined by "**transactions**," which are the exchange of resources. Many transactions are risky because one or more of the actors in the exchange do not have sufficient information to determine whether they are getting value in return for the resources they are exchanging. This uncertainty leads to certain costs, e.g., to acquire information on the legitimacy or trustworthiness of a partner. If the costs associated with acquiring information (to reduce the risk in the exchange) are *less* than the benefits one could get from the exchange, this provides an incentive to proceed with the transaction. Economic institutions are created

when exchanges are repeated over time, which reduces uncertainty and creates institutional norms for the exchange (i.e., institutional arrangements) (Oberschall & Leifer, 1986).

The control over institutional arrangements is often held by those actors with power (e.g., those whose social capital places them in positions of power within a network); and there are multiple perspectives in society as to how to best organize these institutional arrangements (Eggertson, 1996). When faced with multiple interests, actors in power are not likely to seek egalitarian arrangements, even if they are the most efficient (North, 1991 in Eggertsson, 1996), because formal arrangements and informal norms of interaction that support the current power structure influence their decisions. The formal institutional arrangements and informal norms (as emerging through repeated transactions) reduce exchange uncertainty and thus provide incentives to maintain the current structure of relationships. Therefore, one aspect of the power conferred by a network structure to a person or organization with high levels of social capital is that the person can exert control over who has access to resources, information, and power (Burt, 2000).

The strategic bridging model assumes a reworking of these institutional arrangements, through the building of social capital with marginalized stakeholders and thus creating situations where these groups can exert mutual influence in decision-making (Covey & Brown, 2001). Network analysis provides the means to reveal current power structures, which can help to explain successful development projects. For example, in his analysis of three community development networks in the rural Midwest

of the U.S., Sharp (2001) analyzed the interlocking directorates among local organizations and institutional entities. Sharp found that the networks with either a strong central leadership structure or a collaborative, less centralized "coalitional" structure (p. 40) exhibited greater capacities to develop community-wide development projects than the network that had fewer cluster-spanning or centralized ties.

Importantly, Sharp used a number of methods to investigate the relationships of the community network partners. In addition to studying the common board memberships of the community organizations and their multi-sector partners, Sharp (2001) performed in-depth interviews with key informants in those communities in order to ascertain the degree to which the projects were perceived as successful. What emerges from Sharp's research is the multiplicity of relationships required to assess community development success and effectiveness. He argues for a broad and diverse range of measures of local capacity:

> The research reported here suggests more appropriate proxies for measuring the community field, including a diverse and inclusive community organization or coalition, which generates communitywide awareness and facilitates the flow of local information or resources; generalized leaders, who seek to build bridges between diverse social fields; capacity for leadership development; organizations or institutions with stockpiled resources available for community development; multi-interest planning processes; and proactive action organized in response to collectively recognized community needs…" (Sharp, 2001, p. 422).

The network structures revealed by Sharp's analysis present an incomplete picture of community development strategies that requires additional study of the complex interactions of the actors represented in the network—a complexity acknowledged by social development researchers who are developing field evaluation techniques using

network analysis (e.g., Church et al., 2002; Davies, 2003; Nuñez & Wilson-Grau, 2003). Often, informal networks emerging through relationships have the greatest influence (Benini, 1999; Lawrence et al, 2002). Institutional economists would call these developing "**non-market institutions**," which informally guide behavior outside the formal rules of the market (Oberschall & Leifer, 1986). From a sociological perspective, informal institutions are the substantive methods by which norms and values influence behavior.

The development of sociological institutions.

Sociological views of institutional change focus on the aggregation of norms that create change on the local level and affect institutional change through **isomorphic processes** (i.e., processes that create similar structures). The work of DiMaggio and Powell (1983) is often cited as the formative sociological work on the development of institutions. In their work, organizations are aggregates of human action. The authors argue that institutional change no longer emerges from organizational *variation* but, rather, derives from institutional processes leading to organizational *homogeneity*. These institutional processes include increased interaction, the formation of interactional structures and patterns, increased information flow among organizations, and the development of mutual awareness among organizations (DiMaggio, 1982 in DiMaggio & Powell, 1983).

Isomorphic processes encourage organizational innovation by conveying institutional legitimacy rather than recognizing demonstrated efficiency (DiMaggio & Powell, 1983). Therefore, changes in the structure of an organization or in an

interorganizational network can be explained through competition for institutional power

and legitimacy (Dart, 2004).[9] The authors identified three isomorphic processes:

normative processes of isomorphism, as communicated through professional agreement;

mimetic processes of isomorphism, as organizational responses to environmental

uncertainty that cause organizations to replicate legitimate forms; and *coercive* processes

of isomorphism, which are "forced adoptions" and pressures of conformity to legitimized

forms of the state and other powerful entities' (e.g., funders) (DiMaggio & Powell, 1983).

Normative pressures come from a profession's attempt to legitimize or

institutionalize itself. Norms for organizational structure are communicated via

professional networks and groups and through educational activities (such as the

conferring of professional degrees) (DiMaggio & Powell, 1983). *Mimetic* processes

occur in institutional and organizational environments of uncertainty, which cause the

"modeling" (p. 151) of organizational structures that are perceived to be more legitimate.

For DiMaggio and Powell, environmental uncertainty emerges as poorly understood

technologies, ambiguous goals, or as a nebulous "symbolic uncertainty" that

organizations perceive in the environment (DiMaggio & Powell, 1983). *Coercive*

pressures from the state and other powerful entities come in the form of laws and formal

rules that require organizations to take on specific forms. Each of these isomorphic

processes encourages organizations to seek homogenous forms within the institutional

environment. One could identify a similar set of processes in the development of

interorganizational and intersectoral structures.

---

[9] Dart (2004) explains that it is legitimacy, not efficiency or effectiveness, that drives the movement toward contractual agreements in social welfare.

Linking Process and Institutional Change

Lawrence (whose work on activist bridging organizations was reviewed earlier) et al. (2002) contends that studies of institutional development tend to view institutional change as related to "field-level dynamics" rather than to the "micro sources of macro changes" (p. 281). The authors used DiMaggio & Powell's approach to the development of institutions by studying how collaborative partners link to one another and to outside entities conferring legitimacy. Lawrence and his colleagues argued that the process-outcome focus of studies of collaboration neglect the *macro changes* that develop in institutions. Their qualitative study of a series of collaborative interactions of an NGO in Palestine (*sic.*) highlights how the NGO's interorganizational relationships with various partners in its field created "**proto-institutions**," which the authors defined as "practices, technologies, and rules that are narrowly diffused and only weakly entrenched, but have the potential to become widely institutionalized" (p. 283).

Because the authors saw the relationships as informal and emergent, they identified the development of proto-institutions (and related norms of interaction) as part of an informal, on-going process. Collaboration innovations in technologies, practices, etc. diffused into the field where they developed into proto-institutions. Once adopted, the proto-institutions become "full-fledged institutions" (Lawrence et al., 2002, p. 283). The authors concluded that when there was a high degree of involvement (information flow, interactions) between partners, it provided a ripe setting for **interorganizational learning** (a form of social capital, Brown & Ashman, 1999). However, when the NGO had collaborative ties to organizations, professional associations, and other institutional

entities, these ties allowed local practices and norms to be communicated throughout the field. The authors found that collaborative interactions that tied partners to these outside entities could serve as "catalysts" for institutional development (Lawrence et al., 2002). Through the development of proto-institutions, normative, mimetic, and coercive processes influenced changes in institutional arrangements.

Conclusions

This chapter presented a review of the literature that links the structures of relationships among people, organizations, and institutions to approaches of understanding institutional change. Mediating organizations have the potential to bridge marginalized stakeholders to organizational and institutional resources, which can assist these groups in gaining greater influence in the decisions regarding social and economic development initiatives affecting them. While neither appropriate nor effective in all instances, multi-sector collaboration, as characterized by strategic bridging relationships, can create strategic linkages that build the social capital of local stakeholders, and thus provide them greater legitimacy in the institutional environment.

Network analytic methods reveal formalized and informal structures and patterns of relations within this institutional environment and assist in conceptualizing the mechanisms by which powerful entities make choices in how resources are generated and shared, how information is created and disseminated, and how legitimacy is conferred within the community and institutional context. The small world model presents a structure of relationships that acknowledges the strategic choices people and organizations make to increase their strength within their own group and throughout a

network of relations by forging ties across to dissimilar groups. Nevertheless, even when such a structure exists, it is but one of a multiplicity of relationships that are part of the dynamic and complex context of the institutional environment.

The challenge is to resist the isomorphic pressures to remain locked to one's discipline or sectoral boundary and to span across a network to build relationships and share goals with other groups. Economic perspectives of institutions imply that the actors in current community and institutional structures have used this property of networks to their advantage, and thus exert powerful influence over the distribution of wealth and resources in society. Social development strategies necessitate an analysis of what the current structure is, and then an identification of what needs to change to make social justice and social change a reality.

The next two chapters discuss the methods and results of the small world analysis performed on the AFI network of grantees and financial partners. Time and resources greatly limited the study, which neither includes participant perspectives, nor studies the relationships in any way other than the formal acknowledgement of a simple "partnership." However, the study makes the crucial first step in analyzing the current, multi-sector environment under which the asset development model is implemented.

Chapter 3: Methodology

Overview to Chapter 3

This chapter details the methodology followed to perform a small world network

analysis for the dissertation study. The methodology includes the following phases:

1. Sampling;
2. Data Collection;
3. Data Coding;
4. Data Preparation;
5. Testing the data to ensure they meet criteria for a small world analysis; and
6. Performing the small world analysis.

The network data used for the small world analysis (the final phase of the

methodology) differ substantially from the original network samples, which are discussed

in *Part 1* of this chapter. The original samples are **case-by-affiliation** network data, i.e.,

the data identify network relations between grantee organizations and their financial

partners. This chapter details how the data are sampled, collected, coded, prepared, and

tested prior to the small world analysis.

Part 2 explains additional data collection activities (unanticipated in the

dissertation proposal), which were performed to ensure data accuracy. *Part 3* refers to

the data coding process by which financial partner identities were checked against public

records to recode banking partners in terms of their holding companies.

Before a small world analysis can be performed, the grantee-by-financial partner

network data must be transformed into grantee-by-grantee and financial partner-by-

financial partner network data. *Part 4* of this chapter explains this process. *Part 5* of the

chapter discusses the testing of the network data against Watts' (1999) criteria (size,

density, centrality, and clustering) for a meaningful small world analysis. *Part 6*

discusses the methods by which the small world analysis was performed, the results of

which are discussed in Chapter 4 of the dissertation.

Part 1: Sampling

Two network sample groups were used in the study, each comprising a sample

year of Assets for Independence (AFI) demonstration grantee organizations and their

financial partners. The first year of network data covered those organizations and their

then-current financial partners receiving AFI grants in Federal Year (FY) 1999. These

network data were compared to the current group of AFI grantees, which comprised all

AFI grantees and their *current* financial partners that had received grants in FY 1999,

2000, 2001, and/or 2002 *and* were currently operating a program.[10]

A list of grantees and their financial partners (noted as current to July 18, 2003)

was provided by the US Department of Health and Human Services (USDHHS). This

list was used as an *initial* listing of all currently operating AFI programs. Three grantees

that were expected to receive funding in FY 1999 and FY 2000 were no longer operating

a program and were not included in the USDHHS list (S. Shalit, personal communication,

September 30, 2003). The omission of these three programs was confirmed by the two

reports the federal agency made to Congress on the AFI project (USDHHS, 2000 and

2003) and were not included in any further data collection or data analysis activities.

---

[10] The organizations and financial partners receiving grants in FY2003 were not included in the 2004
Network sample because USDHHS had not yet processed all the FY2003 grants at the time of data
collection in early 2004.

When it became clear that the USDHHS list had several inaccuracies, it was decided that the grantees would be contacted to confirm their current financial partners. Furthermore, because USDHHS had not yet identified all the FY2003 grantees, it was also decided that the planned analysis of five years of data (FY1999 through FY2003) would be reduced to a comparison of two years of network data, i.e., data for network in 1999 and data for the current network (as of April 2004).

A sample of all possible current grantees and financial partners was created from the list provided by USDHHS, as well as grantee lists contained in the USDHHS's reports to Congress (2000, 2003). This sample included *157 grantee organization*s and *270 unduplicated financial partners* (39 of these grantees and 155 of these financial partners were noted to have received grants in FY 1999).

Part 2: Data Collection

Contact information was gathered from USDHHS program webpages, agency reports, the USDHHS list, and state telephone directories. Using this information, calls were made to each of the 157 potentially operating grantee organizations. Grantee contacts or other persons identified by the grantees as an appropriate contact for the program (e.g., the Executive Director) were asked to confirm their current financial partners. The term "Financial Partner" was defined as those banks[11] and/or credit unions with which the grantee held its **Reserve Account** and **Participant Accounts**. Reserve Accounts hold the USDHHS grant funds, which are used for program, evaluation and other administrative expenses, and are used to match participant savings deposits

---

[11] For the purposes of this report, the term "banks" refers to all financial partners except credit unions. The term encompasses all types of financial intermediaries, including thrifts, banks, and savings & loans.

(USDHHS, 2000). A Reserve Account also holds funds that the grantee has received from local funders, which provide the required matching funds for the federal grant. Participant Accounts are the savings accounts held by the participants in the project. Grantees that had received funding in FY1999 were asked to retrospectively confirm their financial partners for that funding year.

Of the 157 grantees listed, 150 were successfully contacted. Financial partners were confirmed for 137 current grantees and for 38 (of the 39 possible) grantees from FY1999. The seven grantees that could not be contacted were assumed to not have programs. Of the 150 grantees that were successfully contacted, one refused to confirm the information; ten said that they were not or no longer doing a program, or that their organization had never received funding, and two were unable to provide the information.[12] Table 3.1 details these data collection statistics (see Appendix B for more information on grantees).

Table 3.1 Data Collection Statistics

Total Grantees on list	157
Grantees that could not be contacted	7
Grantees Contacted	150
Current grantees that confirmed their financial partners	137
Refused to answer	1
No longer doing a program or never received funding	10
Contact person was unavailable to confirm data[2]	2
Final samples of Grantees	*137 – 2004 Network (38 – 1999 Network)*

---

[12] After the data were collected and analyzed, one of the grantee contacts, who had been unavailable during the data collection phase, called to confirm the data. This information was not included in the analysis.

Part 3: Data Coding

Once a grantee contact confirmed the financial partners for the organization, online business databases and search engines were used to check all the identities of the identified financial partners, and to determine any changes or inconsistencies in bank names or identities due to mergers or inaccurate information. *Hoover's Online* (www.hoovers.com) is an Austin, Texas-based company that provides up-to-date industry information on all companies listed on the American Stock Exchange (AMEX), the New York Stock Exchange (NYSE), the National Association of Securities Dealers Automated Quotations (NASDAQ), as well as current information on thousands of other non-publicly offered companies operating in the U.S. and around the world. Their online database and other available materials are nationally recognized as providing current and comprehensive industry information (Oppel, 1999). This free online database was the primary reference used to check bank identities and to recode the banking partners to their holding company names.

If a bank's identity or location was not confirmable through Hoover's Online, another online resource, *The Community Banker* (www.thecommunitybanker.com), was used to identify a bank's website to gather more information. The Community Banker website is operated by R. Kinney Williams & Associates, a financial intermediary auditing company based in Lubbock, Texas, which specializes in auditing financial institution websites. The website categorizes individual bank websites by state, thus making it easy to identify banks partnering with specific grantee organizations. In many

cases, the website was used to clearly identify independent and locally-owned banks, which were not publicly owned, but which had an internet presence.

Credit Unions Online (www.creditunionsonline.com) and the online nationwide directory *SuperPages.com* (yellowpages.superpages.com) were also used to confirm bank identities. If none of these resources could be used to locate and/or confirm the identity of the bank or credit union, the online search engine *Google* (www.google.com) was used to find the financial intermediary's website or to find current information on the financial partner. Online information from regional Federal Reserve banks was often found through Google searches, and this information was used to confirm local business name changes, to identify very small banks that did not have an internet presence, or to confirm bank mergers that had taken place several years ago.

For analysis purposes, all bank names were coded to their holding company names (if applicable). Therefore, in some cases, although the name given by a grantee contact for its banking partner may have differed from that of another grantee's banking partner, if the banks were held by the same holding company, they were considered the same bank (Appendix C provides information on all financial partners in the sample).

Dates and incidences of banking mergers were noted for each of the sample banking partners, and the identities of the banks and credit unions were amended as appropriate for the two sample years. As some mergers took place between the issuing of the FY1999 grants and the 2004 sample year, occasionally a banking partner present in both network samples had a different name in 2004, although it was the same partner. Merger-based name changes that took place *in or before 1999* were considered the

current name for the 1999 financial partners (these cases are also noted in Appendix C).

Moreover, mergers taking place after April 2004 were not applied to the sample.

Grantee contacts often confirmed several additional financial partners than those

listed by USDHHS. Therefore, the sample of financial partners grew substantially. After

the data collection process was completed and the banking partners coded according to

their holding companies, the 1999 Network resulted in 154 total partnering entities (38

Grantees and 116 Financial Partners), and the 2004 Network totaled 448 partnering

entities (137 Grantees and 311 Financial Partners). Table 3.2, below, lists the final

sample sizes for the two networks.

Table 3.2 Final Samples for the 1999 and 2004 Networks

Network Sample	Grantees	Unduplicated Banking Partners	Total Nodes in the Networks (*n*)
1999 Network	38	116	154
2004 Network	137	311	448

Part 4: Data Preparation

Network analysis uses **relational data**, which describe the relationships or *ties*

between members (or *nodes*) of a network (Scott, 2000). Streeter & Gillespie (1992)

classified the information gleaned from analyses of networks into two categories of

properties: 1) "relational properties," which are explained through the types of

relationships represented in the network; and 2) "structural properties," which are the

structures that are revealed in the analysis at the individual, group or global network

levels. For example, relational properties of networks may explain the flow of

information throughout a network by measuring the number of e-mails network members

send to and receive from one another. Analyses of structural properties, on the other hand, may use the same network data and identify the person who is the go-between for the greatest number of network members (in basic network analytic language this person would be the most "central," [Freeman, 1979]). Structural properties may also reveal that certain members of the network are clustered together, i.e. they send/receive many more e-mails to one another than they do to other members of the network.

In each case, the relational data used by the analysis are operationalized as "e-mails sent and received," but relational properties characterize the network in terms of what is exchanged and variations in network relationships, while structural properties identify roles and the structural mechanisms that underlie these relations (Burt, 2000; Streeter & Gillespie, 1992). This dissertation study performed an analysis of the *structural properties* of the AFI grantee-financial partner network. The network ties are operationalized as an *acknowledged and identified partnership*. While the financial partners were not contacted to confirm or acknowledge a partnership with a grantee, for the purposes of the analysis, the relationships are assumed "symmetrical," (i.e., the relationship identified by the grantee would be equally acknowledged by its partner).

A Matrix Format for Relational Data

One way that network analysts organize their data is by constructing a data matrix (Streeter & Gillespie, 1992). The simplest matrix for network data is the "rectangular case-by-affiliation" matrix (Scott, 2000, p. 40). This type of matrix is a "two-mode" matrix because the rows (cases) and columns (affiliations) refer to two sets of data. The

data collected on the AFI networks results in case-by-affiliation matrices with grantees

serving as cases and financial partners as affiliations (see example in Table 3.3).

Table 3.3 Sample Portion of a Grantee-by-Financial Partner Matrix

		Financial Partners			
		Charter One Bank	First Niagara	Compass Bank	Fleet Bank
Organizational Grantees	Action for a Better Community	1	0	0	0
	Allston Brighton CDC	0	0	1	1
	CTE Inc.	0	0	0	1

This type of matrix is also known as an "incidence" matrix (Scott, 2000, p. 41)

because it identifies the incidences when cases are tied to affiliations. In the above

example, Action for a Better Community is "tied" to Charter One Bank (represented by a

"1") but not to the other financial partners listed in the matrix (represented by zeros).

Data Language Files

UCINET (Borgatti et al., 2002) software limits the number of columns that can be

entered into a matrix format to 255 columns. Therefore, the data for the dissertation

study was entered using Data Language (DL) files, which can handle much larger data

sets. DL files for the 1999 and 2004 data sets are found in Appendix D.

Reducing the Samples to the Largest Components

Small world analyses assume "full **connectivity**" within a network, i.e., that all

members of a network are connected to it by at least one tie (Watts, 1999). Therefore, the

analyses are performed on the largest **component** of a network (on the largest group of

connected members). Both years of network data contained a large component. Figures

3.1 and 3.2 present graphs of the two networks using asymmetrical data collected for

1999 and 2004 (readers may refer to Appendices B and C for identified acronyms).

Figure 3.1 Graph of the Network of AFI Grantees and their Financial Partners in 1999
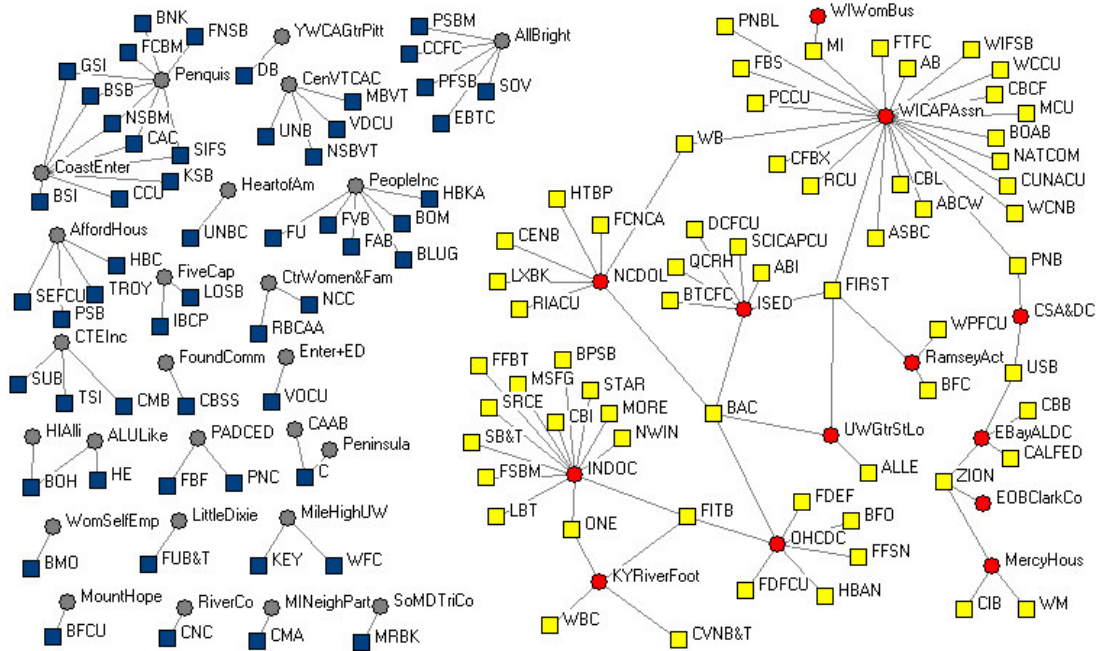
Note: The largest components in Figures 3.1 and 3.2 are represented with red (grantee) and yellow (financial partner) nodes. The remaining unconnected dyads and components are represented by gray (grantee) and blue (financial partner) nodes. In Figure 3.1, the largest component is pictured on the right side of the figure. In Figure 3.2, the largest component is pictured at the top of the figure.

Figure 3.2 Graph of the Network of AFI Grantees and their Financial Partners in 2004

Following the full-connectivity assumption, Kogut and Walker (2001) and Baum et al. (2002) focused their small world analyses on the largest components of the networks they studied. A similar focus was used for the present study—all **isolated dyads** and other small components were removed from the two samples, and DL files were created for the largest single components in the 1999 and 2004 Networks (see Appendix D for copies of the DL files of largest components). As shown in Figures 3.1 and 3.2, the network components with red and yellow nodes were identified for analysis. Table 3.4, below, details the numbers of isolated nodes removed for the small world analysis.

Table 3.4 Network Sizes Before and After Dyads and Smallest Components Removed

	Number of Grantees		Number of Unduplicated Financial Partners		Size of Network and Size of Component Used for the Small World Analysis	
	In Original Network Sample	After Dyads and Small Components Removed	In Original Network Sample	After Dyads and Small Components Removed	Original Size of Network	Size of Largest Component
1999 Network	38	13	116	62	154	75
2004 Network	137	99	311	255	448	354

The 1999 Network started with 154 nodes and was reduced to 75 nodes when 10 grantee-financial partner dyads and an additional 12 small components were removed from the sample. The 2004 Network, formerly 448 nodes, was reduced by 26 dyads and 10 small components, netting 354 nodes for the largest component.

Creating Adjacency Matrices from Incidence Matrices

Small world analyses study *direct* relations among a set of network nodes in contrast to the indirect relationships represented in case-by-affiliation matrices (Kogut & Walker, 2001, p. 324). This means that the data should reflect direct relationships among a network of nodes, e.g., ties between neural network nodes in a nematode or Hollywood actors (Watts & Strogatz, 1998); firm ownership patterns (Kogut & Walker, 2001); or (for the present study) federal grantees sharing the same financial partners.

Small world analyses of the two largest components in 1999 and 2004 in their present case-by-affiliation format would yield no result—every grantee is connected to another grantee through at least one financial partner (and vice versa). Network analysts deal with this problem by transforming case-by-affiliation data into "**adjacency**" **data**, which divide **incidence data** into two sets. One set shows the common partnerships among grantees (e.g., a **case-by-case matrix**), and the other set shows the common partnerships among the banks and credit unions (e.g., an affiliation-by-affiliation matrix) (Scott, 2000).

UCINET was used to transform the incidence matrices into two adjacency matrices: one matrix showing the common partnerships among grantees (a grantee affiliation matrix) and another showing the common partnerships among the banks and credit unions (a financial partner affiliation matrix).[13]

---

[13] To generate a grantee affiliation matrix from incidence network data, one need only request the UCINET program to perform its "Affiliations" procedure. However, in order to acquire the financial partner affiliation data, one must first "Transpose" the incidence matrix—make rows into columns and columns into rows—and then request an affiliation matrix from the transposed matrix.

When incidence data are transformed into adjacency data, the sizes of the resulting networks reflect two sides of the incidence network (e.g., the resulting networks are composed of the grantee or financial partner nodes only). This reduces the size of the network on which an analysis is performed. As shown in Table 3.5, the largest component for the 1999 network was transformed into two affiliation networks of 13 grantees and 62 financial partners, respectively. A similar transformation procedure on the 2004 network yielded affiliation networks of 99 grantees and 255 financial partners, respectively.

Table 3.5 Sizes of Incidence and Affiliation Networks for 1999 and 2004

	Size of Largest Component in the Incidence Network	Size of Grantee Affiliation Network	Size of Financial Partner Affiliation Network
1999 Network	75 nodes	13 nodes	62 nodes
2004 Network	354 nodes	99 nodes	255 nodes

Matrix Symmetry and Dichotomization

Small world analyses assume unidirected, unweighted ties among members of a network (Watts & Strogatz, 1998; Watts, 1999; Kogut & Walker, 2001; Baum et al., 2002). When an incidence matrix is ***unidirected*** (as was the assumption in the present study), cell values are *symmetrical*, i.e., they have the same values for each row/column and column/row pair. However, when incidence matrices are transformed into affiliation matrices, cell values represent weighted relations among pairs of cases (e.g., a pair of

grantee programs sharing more than one financial partner). Because the small world

analysis also assumes *unweighted* ties, UCINET was used to dichotomize the adjacency

matrices for the two network years.

Once the largest component was identified and its network data transformed and

dichotomized, the data were ready to perform the preliminary tests to ensure that the

network met the criteria for a small world analysis. These tests are discussed in the next

section of this chapter.

Part 5: Testing the Data to Ensure they meet Criteria for a Small World Analysis

As discussed in Chapter 2, Watts identified four criteria that must be satisfied

before a small world analysis can be performed on a network (1999, pp. 495-496). They

are:

1. The network must be large enough so that a small world
   network analysis is meaningful;
2. The network must be sparsely connected;
3. The network must be decentralized; and
4. The network must be clustered.

This part of the chapter discusses the testing of the network data to ensure that

they meet these four criteria for the small world analysis.

Criterion One: Network Size

When Watts and Strogatz (1998) performed their small world analyses on real

world networks, they chose three differing sizes of networks to study: a) $n = 282$ for a

nematode's neural network; b) $n = 4,941$ for an electrical power grid; and c) $n = 226,000$

for an actors' database. Kogut and Walker's 2001 small world analysis of a German

enterprise network reported affiliation networks of 291 firms and 429 firm owners, and

Baum et al. (2002) studied affiliation networks ranging in size *n* from 92 to 152 nodes.

Although the sizes of the affiliation networks of the 2004 sample (*99 nodes* in the

grantee affiliation network and *255 nodes* in the financial partner affiliation network)

were clearly within these parameters, the affiliation networks from the 1999 sample were

deemed too small for the analysis (13 grantees and 62 financial partners). Therefore, the

1999 networks were omitted from the small world analysis. The small world network

analysis was performed *only* on the 2004 Network data.[14]

Criterion Two: Network Sparsity

Watts' (1999) second criterion for small world analysis is that the network must

be sparsely connected, i.e., that the number of connections between the nodes is far fewer

than the actual number of nodes. The number of connections is computed as a statistic *k*,

or the average minimum number of ties among members of the network. Table 3.6 (on

the next page) compares the network sizes (*n*) and average minimum ties (*k*) for this

study and other small world analyses found in the literature.

The statistic *k* was calculated for both affiliation matrices for the 2004 Network:

$k_{Grantee} = 10.85$ ($n = 99$) and $k_{FinPart} = 20.68$ ($n = 255$). Although the average minimum

numbers of ties for the two affiliation networks in 2004 were proportionally higher than

those found in the literature, network connectivity was found to be adequately sparse to

meet the second small world criterion ($k \ll n$; the number of network ties is much

smaller than the number of network nodes).

---

[14] Other network analyses were performed on the 1999 data, the results of which are discussed in the next
chapter.

Table 3.6 Network Sizes and Average Minimum Ties in This Study and in the Literature

Study	Size of Network (*n*)	Average Minimum Number of Ties (*k*)
Present Study [Affiliated Grantees, 2004]	99	10.85
Present Study [Affiliated Financial Partners, 2004]	255	20.68
Watts & Strogatz (1998) [Actor Database]	226,000	61
Watts & Strogatz (1998) [Nematode Neural Network]	282	14
Watts & Strogatz (1998) [Power Grid]	4941	2.94
Kogut & Walker (2001) [Affiliated Firms]	291	6.59
Kogut & Walker (2001) [Affiliated Owners]	429	3.23
Baum et al. (2002) [Affiliated Companies]	87 (mean size)	2.85 (mean *k*)

Criterion Three: Network Decentralization

The third criterion for a small world analysis is that the network must be decentralized, which means that the "shortcuts" in the network are not due to one or a few central nodes connecting the network (Watts, 1999). UCINET provides several options for measuring network **centralization**: the three most common measures were used for this study. Measurements of *degree*, *closeness*, and *betweenness* centralities were calculated for both of the affiliation networks of the 2004 Network sample. The results of the betweenness centralities are reported in the main body of this report. The results of the degree and closeness measurements can be found in Appendix E. Before

reporting the **centrality** results, however, a short discussion of the centralization cut-off value is presented.

Centralization cut-off value.

Chapter 2 reviewed the literature on small world analyses. However, an additional methodological issue surrounding centrality requires discussion here—that of establishing a cut-off value for centrality. Although a cut-off value for the third small world criterion was not defined in the literature (Watts, 1999, 2003; with Strogatz, 1998; as well as Kogut & Walker, 2001 and Baum et al; 2002), a cut-off value of *0.50* was chosen for the present study. That is to say, if any of the *network centralization index* scores were equal to or above 0.50 (50 percent), then the assumption would be that the network was too centralized for a small world analysis to be meaningful.

Although the centrality of networks has been a common measurement tool for network analysis for many years (e.g., Freeman, 1979), the probability distribution of centrality measurements has not been standardized.[15] However, there is no absolute cut-off point on which network researchers agree (Bonacich, personal communication, April 22, 2004). Moreover, there is disagreement as to which measurement methods are best suited for a given network in the context of its purpose and structure (Borgatti, 2002a, b), which further obfuscates the distribution of centrality scores for a given method.

The 0.50 cut-off established for this study considers the nature of the banking sector (that it is becoming more centralized among larger banks) and the fact that some of

---

[15] Koehly & Wasserman's 1996 article on stochastic (random) centrality provides one statistical approach to determine the probability of centralization scores. However, this procedure was not used for the study. Future studies may want to investigate this issue further.

the larger, state-wide grantees will likely connect to several partners because their portion

of the sample involves multiple locations of grantees. Centrality indices reflect "the

degree to which [a network's most central point] exceeds the centrality of all other

points," (Freeman, 1979, p. 228) compared to its maximum potential centrality within a

network. With a .50 cut-off value for centrality, if a given network has an overall

centralization measurement of .50 (or lower), the centrality of a network's most central

node reaches maximum centrality with half or fewer of the remaining network nodes.

Network centralization indices, as described by Freeman, represent an interplay

between point centrality and network centrality. Given that there is no clear agreement as

to which centrality measurements are optimal for network analysis (as recognized by

Freeman in 1979), multiple measurement methods are a useful way to understand the

dynamics of network centralization. The following sections briefly cover degree and

closeness measures of centrality, and describe how the centrality measurements of a

highly centralized, example network are compared to those of the 2004 AFI networks.

The report focuses on the findings for betweenness measures of centrality. However, as

indicated earlier, detailed descriptions of the measurements for degree and closeness

centrality are located in Appendix E.

Degree and closeness measurements of centrality.

Degree measurements of centralization measure the size of network node's

neighborhood (Freeman, 1979)—in this case, how many grantees are directly connected

(within one step) to a particular grantee or how many financial partners are directly

connected to another financial partner (Freeman, 1979). It is a local measure of

centrality, i.e., it determines centrality based on the neighborhoods of *alters* (nodes to which a node is directly connected) of individual nodes.

Closeness centrality measures how far points are from one another by taking the inverse of the sum **geodesics** of a point (Freeman, 1979). A closeness centralization index measures the amount by which the point that is closest to the greatest number of points in the network reaches maximum possible closeness. Unlike degree centralization, which reflects the size of a node's neighborhood, and thus its connectedness within the network, closeness measures the degree to which points can reach other points in a network through as few intermediaries as possible (Freeman, 1979).

Closeness centrality is useful in measuring how quickly a message can be sent across a network given a set network size and the ability to choose a path from node to node (Borgatti, 2002a, b). When referring to a small world network, closeness centrality could reflect the sparse connections among points which are on opposite sides of a network and yet very "close" in terms of geodesic distance.

An example of a highly centralized network.

Figure 3.3, on the next page, shows an incidence network made up of 17 nodes. The example network centralizes around a three nodes. When the network is transformed into two affiliation networks, the spoked members become dense, interconnected clusters (Figure 3.4), and the central hub nodes appear as three connected points (Figure 3.5). The centrality around a "hub" in an incidence network (Figure 3.3) creates a clustering effect in at least one of the two resulting adjacency networks (Figure 3.4).

89

Figure 3.3 Graph of a Highly Centralized Network
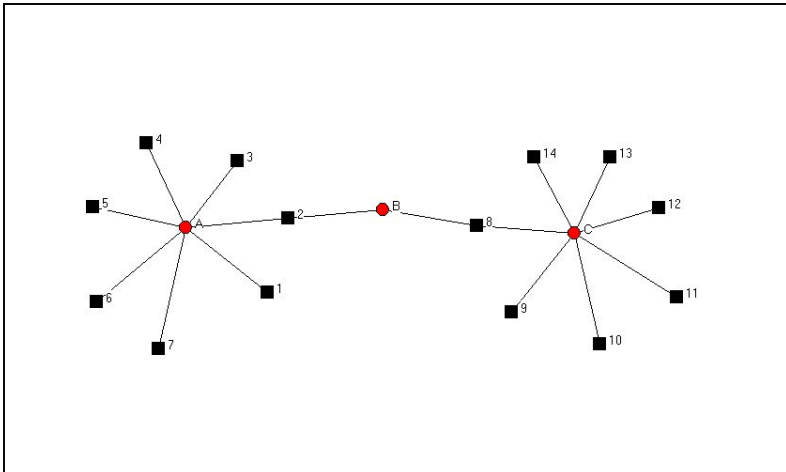
Figure 3.4 Example of Affiliation-by-Affiliation Network
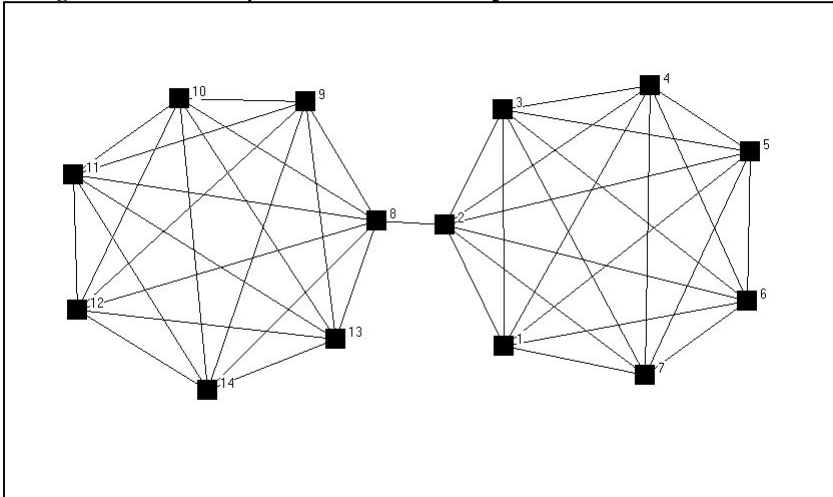
Figure 3.5 Example of Case-by-Case Affiliation Network
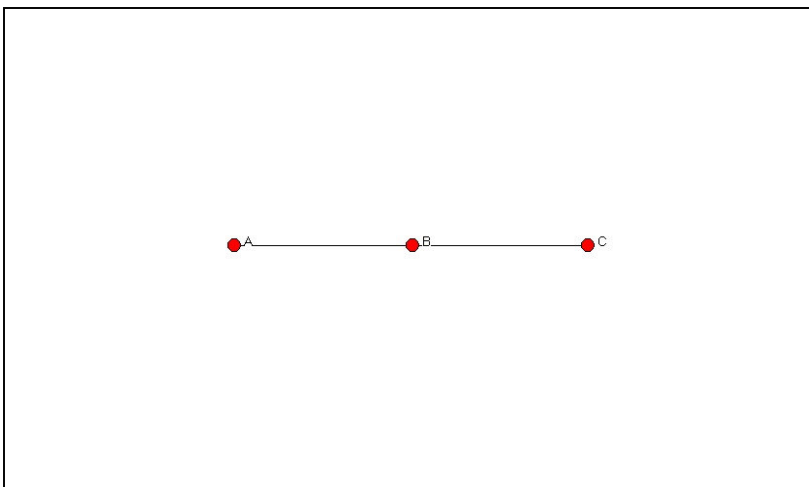
Degree and closeness centralization indices for the example networks shown in Figures 3.4 and 3.5 reflect the high number of nodes in the example incidence network (Figure 3.3), which are centered around a few points (see Appendix E). Measurements of betweenness centrality for these networks reveal the high centrality of the example network when they are compared to the betweenness indices for the 2004 grantee and financial partner networks (see the next section of this chapter).

Betweenness measures of centrality.

Betweenness centrality measures the proportion of times a point lies on the geodesics or geodesics between two points. Network analysts often relate this structural property to the degree of control a point has in acting as an intermediary between points (Freeman, 1979), and the more frequently a point lies on geodesics and the larger proportion of geodesics it lies on, the more central it is.

The occurrence of certain central nodes along short paths among parts of the network would intuitively relate to the small worldliness of a network. As the small world structure reveals densely clustered network areas connected by "random," sparse ties, it would follow that a certain number of these sparse ties would reveal high betweenness scores as they connect cluster to cluster. Therefore, some level of betweenness centrality is expected in a small world network, and the 0.50 cut-off value should allow an adequate amount of betweenness centrality to be identified without removing a network from the small world analysis. Table 3.7 contrasts the data on betweenness centrality for the 2004 affiliation networks and the example networks of Figures 3.4 and 3.5.

Table 3.7 Betweenness Centralization Statistics: Study & Example Affiliation Networks

	Maximum Betweenness Value	Minimum Betweenness Value	Mean Betweenness Value	Standard Deviation Value	Overall Betweenness Centralization Index
Grantee Affiliation Network *n* = 99	895.72	0.00	82.80	177.49	17.28% (.1728)
Bank Affiliation Network *n* = 255	9910.07	0.00	251.65	1005.83	30.18% (.3018)
Example Network (Figure 3.4) *n* = 14	42.00	0.00	6.00	14.70	49.70% (.4970)
Example Network (Figure 3.5) *n* = 3	1.00	0.00	0.33	0.47	100.00% (1.00)

As indicated in final column of Table 3.7, both of the 2004 affiliation networks fall within the 50 percent cut-off value for betweenness centrality. As one might expect, the two example affiliation networks (in Figures 3.4 and 3.5) have betweenness indices greater than the 0.50 cut-off. The most central nodes in the two example graphs lie on proportionately greater numbers of geodesics than the central nodes of the 2004 grantee and financial partner networks. The results of the centralization measurements indicate that centralization is not an issue for the network, which thus meet the third criterion for a small world analysis.

Criterion Four: Network Clustering

The final criterion for performing a small world analysis is that the network must be highly clustered. The term "**network clustering**" is often interchanged with that of

network cliquishness, although the terms actually refer to two different network characteristics (Scott, 2000). While clusters define similarities (or dissimilarities) according to some characteristic (e.g., organizations interconnected by credit unions versus those that do not partner with credit unions), "cliques" refer to structural properties of subgroups within the network, usually defined by the number of ties among nodes within a particular node's **neighborhood** (Scott, 2000).

Because small world analyses are concerned primarily with the structural properties of a network, the measurement of cliques was used to measure the level of clustering in the network. The requirement for the network to be "highly clustered" means that the network must be structured in a way that a node's neighbors are linked to their neighbors more closely than to other nodes and cliques of nodes within a network.[16] Therefore, the requirement for a high amount of clustering is assumed to mean, here, that the network contains multiple cliques. To test this structural property, both of the 2004 affiliation networks were analyzed using the UCINET procedure for identifying 1-cliques within the network; i.e., all node groups whose members are connected within one link of one another.[17]

For the present analysis, all 1-cliques containing three or more nodes were reported. For the 2004 Grantee network, a total of thirty-one (31) 1-cliques of size 3 nodes or greater were found. Figure 3.6, on the next page, shows the resulting

---

[16] This definition of "clustering" also corresponds to the use of the "clustering coefficient" in the small world analysis, explained later in this chapter.
[17] As the set value for the number of links increases, the criteria for membership within a particular clique are "relaxed" (Scott, 2000). Therefore, all things being equal, a higher number of cliques will be identified in a 1-clique procedure versus one that identifies all 2-cliques within a network.

dendrogram of the *n*-clique procedure for the 2004 Grantee network. Roughly 90 percent

of the network fell into one or more of the node groups.

Figure 3.6 Dendrogram of 1-Cliques of 2004 Grantee Network, sized 3 or greater
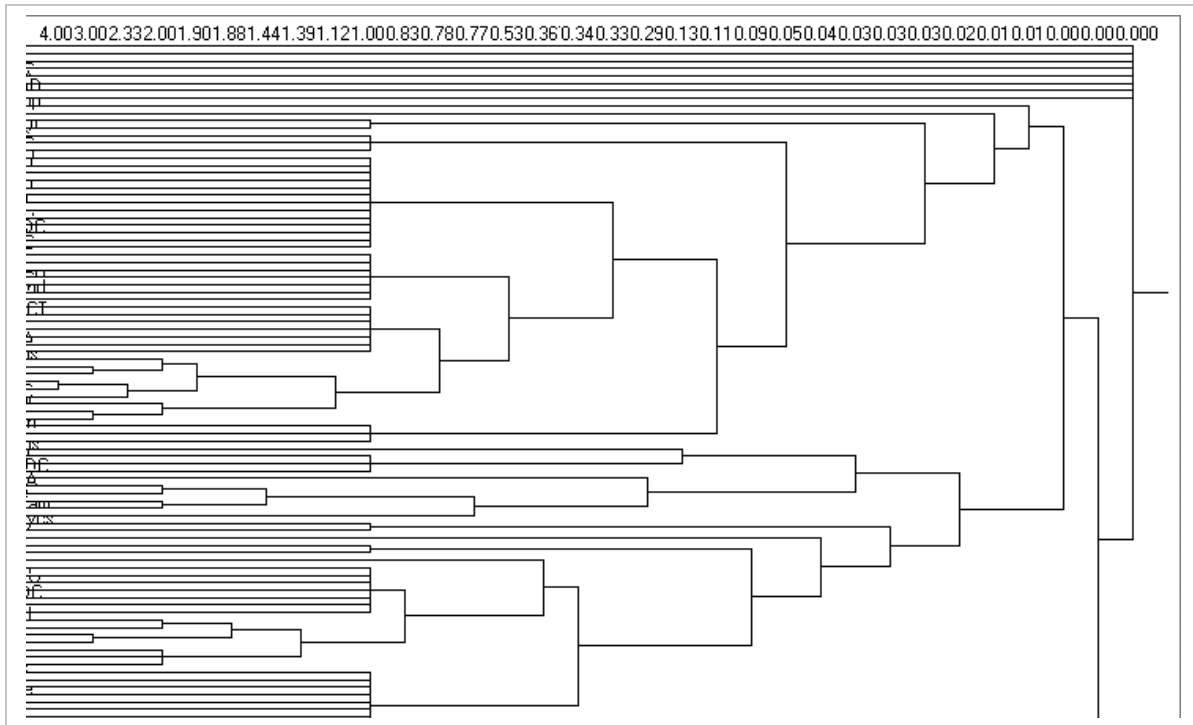
The dendrogram illustrates both network clustering *and* centrality. The numbers

across the top of the dendrogram in represent the "**clustering levels**," which indicate the

number of shared memberships nodes have in a particular clique. For example, if nodes

share memberships at level 4.00, as only two nodes do so in these results, then the

members of that "clique" share at least four ties. The majority of nodes fall into cliques

at level 1.00 or lower, which indicates a more decentralized network (Scott, 2000). The

average size of the cliques found for the 2004 grantee network was 5.42 grantees.[18]

---

[18] A list of the 1-clique memberships for the two affiliation networks can be found in Appendix F.

For the 2004 financial partner network, a 1-clique analysis found 51 one-cliques sized 3 nodes or greater. Figure 3.7 presents the resulting dendrogram. The mean group size was 6.67 banks for each 1-clique in the 2004 Bank network. Over 95 percent of the financial partner nodes (95.3 percent) were included in a sized-3 clique prior to the final permutation. Again, a majority of the nodes fall into 1-cliques at the 1.00 level, indicating relative decentralization in the network.

Figure 3.7 Dendrogram of 1-Cliques of 2004 Financial Partner Network, sized 3 or greater

The larger sized 1-cliques in the networks reveal the presence of grantees with several financial partners or banks with several grantee partners. These are the more centralized nodal groups within the *incidence* network (as shown in the top half of Figure 3.2). However, apart from these larger affiliation clusters, the networks emerge as

smallish cliques, which are sparsely connected through nodes sharing memberships in multiple groups. A denser network structure would result in many more cliques than the 31 grantees shown for the 2004 grantee network and the 51 cliques for the 2004 financial partner network (Scott, 2000). Results from further analyses, reported in Chapter 4, support these initial findings.

Comparison to the Caveman graph.

As was the case for the centrality cut-off value, the literature has not identified a clustering level to test against the fourth criterion for a small world analysis. However, the clustering levels of the two 2004 networks can be compared to that of Watts' (1999) "Caveman graph" (see Figure 3.8, below). The Caveman graph is an example of a *highly* clustered, sparsely connected graph. The UCINET *n*-clique procedure finds twelve 1-clique clusters sized 3 nodes or greater within its 30-node network.

Figure 3.8 The Caveman Graph (per Watts, 1999, p. 501)[19]

---
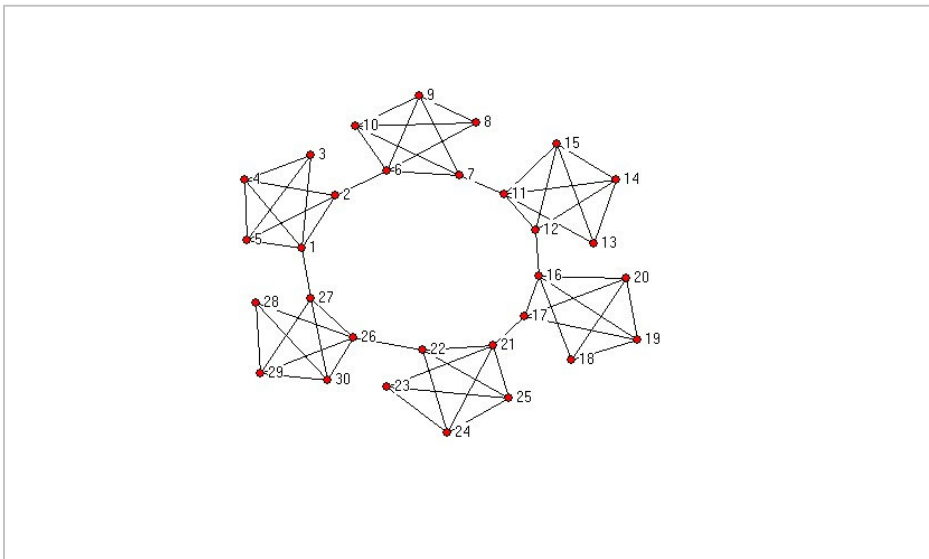
[19] The caveman graph was created using a constructed DL file input to UCINET.

The resulting dendrogram for the 1-clique (sized 3) procedure for the Caveman graph is

shown in Figure 3.9.

Figure 3.9 Dendrogram of 1-Cliques in the Caveman Graph, sized 3 or greater
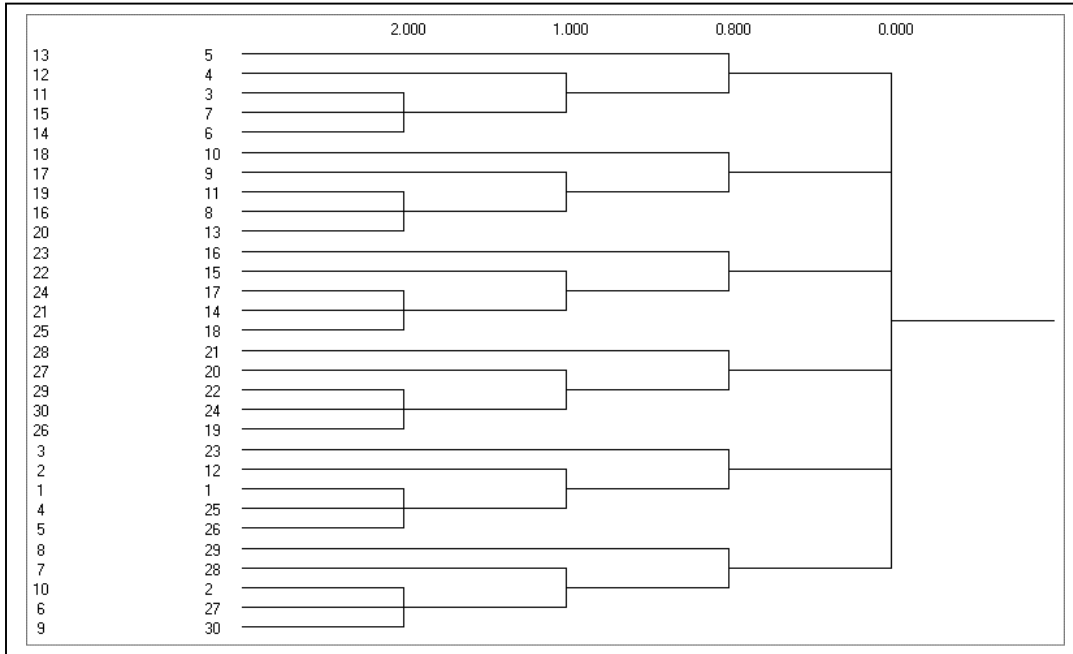
The Caveman graph is an example of extreme clustering/sparsity (Watts, 1999),

which, nevertheless, appears to be less clustered than either of the two affiliation

networks in 2004. One can reasonably surmise that the two 2004 networks show

adequate clustering for the small world analysis. Moreover, as will be shown in Chapter

4, findings for the clustering coefficient for the two studied networks are similar or show

even higher clustering than findings for other small world networks (e.g., Watts &

Strogatz, 1998; Kogut & Walker, 2001; Baum et al., 2002).

At the other end of the clustering extreme, Watts (1999) explains, is a randomly-

generated network, where clustering is much less likely to happen. That is to say, if you

were to choose a person at random in the world, Watts explains (2004, p. 47), it would be far more likely that you would choose someone far away from you than you would someone around the corner. Networks in the real world will likely fall between the highly clustered networks of the "caveman" graph and the sparsity of random networks. Where networks are highly clustered (representing order), but have sparse short ties among clusters (representing randomness or disorder), they take on small world properties. It is this balance between randomness and order that makes the small world situation possible.

The tests for the appropriateness of a small world analysis on the sample networks revealed that the 2004 Sample network and its resulting affiliation networks were of adequate size, sparsity, decentralization, and clustering to perform a meaningful small world analysis.

The final part of this chapter describes the procedure by which a small world analysis was performed.

Part 6: Methods for Performing a Small World Analysis

To perform a small world analysis, Watts (1999), Kogut & Walker (2001) and Baum et al. (2002) calculated the *clustering coefficient* (*C*) and *average minimum path length* (*L*) for their networks. These values are then compared to a similar calculation for a random network of the same size (*n*) and density (*k*). The following sections of the chapter discuss these calculations and methods for calculating similar measures for a random network.

Clustering Coefficient (C)

The clustering coefficient (C_{actual}) is a measure of the ***local* network**(s) of each node, i.e., "the probability that two vertices (*u*, *v*) will be connected, given that each is also connected to a 'mutual friend' (*w*)" (Watts, 1999, p. 498-499). As explained in Chapter 2, the compelling part of the small world concept is that small changes on the local level can bring meaningful change at the institutional level. Following Watts, Kogut & Walker (2002) used the following formula for calculating *C* for their small world analysis:

$$C_{\text{actual}} = \left[\frac{k\,(k-1)}{2} \right] \text{ averaged over all nodes in the network}$$

Large values of C (approaching 1) in a sparse network indicate that "the network is comprised of densely interconnected cliques" (Baum et al., 2002, p. 16).

Clustering coefficients are easily computed using UCINET (Borgatti et al., 2002), which has a procedure to identify these values for a given network. Results of the procedure using the datasets of the 2004 Grantee Network and the 2004 Bank Network are reported in Chapter 4.

Average Minimum Path Length (L)

The average minimum path length (L_{actual}) measures the ***global* network**, i.e., "the average number of ties along the shortest path between any two nodes (i.e., banks) in a network" (Baum et al., p. 16). The shortest path between two nodes in a network is the *geodesic*, which is also computed in UCINET via its "Distance" procedure. Large values

of *L* indicate that "resources" (Baum et al., 2002, p. 16), such as information, must pass on average through many nodes before reaching all members of network. Because this statistic varies with network size, the shorter the average geodesic in reference to network size, the more efficient information flow will be.

Identifying Small World Networks

To determine whether a network is a small world, L_{actual} (L_A) and C_{actual} (C_A) statistics for a network are compared to *L* and *C* values for a random network (L_R and C_R, respectively), given the same number of nodes (*n*) and ties (*k*). Watts & Strogatz (1998) calculate $C_R = k/n$ and $L_R = \ln(n)/\ln(k)$[20] (p. 440). If the network is a small world, C_A will be much larger than C_R, and L_A and L_R will be near in value.

Kogut and Walker (2001) summarized a comparison of these four values in what Baum et al. (2002) termed a "Small World Critical Statistic" (p. 17), which was a ratio of C_A/C_R over L_A/L_R. This study planned to use this critical statistic as part of determining whether the networks were small worlds. However, with additional research into the small world concept, the calculation of a "small world statistic" was dropped from the analysis. A discussion of why this choice was made can be found toward the end of Chapter 4.

Having passed the initial criteria for performing a small world analysis, the two affiliation networks from 2004 were evaluated for small world properties. The results of the small world analysis and additional network analyses performed on the data are reported in the next chapter.

---

[20] "ln" in mathematical notation represents "the natural log of…"

Chapter 4: Results and Findings

Overview to Chapter 4

This chapter reports on the results of the small world analysis and relates these findings to other research on small world networks. The results of two Quadratic Assignment Procedure correlation analyses for the grantee network are discussed. Findings regarding betweenness centrality of individual grantees and financial partners are presented. The chapter ends with a discussion of limitations of the study, including two methodological issues that emerged while performing the analysis.

Results of the Small World Analysis

A small world analysis of the largest components of the 2004 Financial Partner and 2004 Grantee affiliation networks revealed small world characteristics for both networks. Table 4.1 presents the findings for the clustering coefficients and average path lengths for the actual networks and their random approximations.

Table 4.1 Small World Results for 2004 Grantee and Financial Partner Networks

Small World Statistics	Grantee Network	Financial Partner Network
n of Largest Component	99	255
k – Average number of ties in Largest Component	10.85	20.68
C_A –Clustering Coefficient for Largest Component	0.84	0.93
L_A – Average Path Length in Largest Component	2.69	2.98
C_R—Clustering Coefficient for Random Network with Same number of Nodes and Ties	0.11	0.08
ln(*n*) – Natural Log of *n* (for computation of L_R)	4.595	5.537
ln(*k*) – Natural log of *k* (for computation of L_R)	2.385	3.033
L_R—Average Path Length for Random Network with Same number of nodes and ties	1.93	1.83

Clustering coefficient values range from 0 to 1.00, with larger values indicating a higher degree of interconnections among a node and its alters and among the alters themselves (Watts & Strogatz, 1998). The 2004 network of Assets for Independence (AFI) grantees, as connected via their financial partners, has a high clustering coefficient ($C_A = 0.84$), as does its reciprocal network of financial partners, the 2004 Financial Partner network, which has a clustering coefficient equal to 0.93.

Watts and Strogatz (1998) argued that the clustering coefficient for a random network of the same number of nodes and ties (C_R – approximated by the calculation n/k) would be much smaller than the actual clustering coefficient for a network if it were indeed a small world. The calculations for the random approximations of the two affiliation networks resulted in much lower clustering coefficients: $C_R = .11$ and .08 respectively. A randomly generated network with the same numbers of nodes and ties would likely be much less clustered than the actual studied networks.

For average path length calculations (L_A), the average geodesic of the largest component was measured as 2.69 for the Grantee network and 2.98 for the Financial Partner network. That is to say, on average, the shortest path between two nodes is just under three steps in either network. Given the low density of the networks (.081 for the Financial Partner network and .111 for the Grantee network), the small value for the average geodesic supports the networks' small world trend.

If the networks are small worlds, random networks of the same number of nodes and ties will have similar average geodesics (Watts & Strogatz, 1998). Approximate values of average path length can be calculated using the $\ln(n)/\ln(k)$ formula (Watts &

Strogatz, 1998). Using this calculation, it was found that the average path length of

similarly sized, sparse random networks (L_R) approximated the actual average geodesic

values: the random networks average geodesics fell just under two steps per network

node.

Comparison of Findings to Prior Research

How do the current study's findings compare to findings of prior research? Later

in this chapter's *Limitations* section, the utility of the "small world critical value" used by

Baum et al. (2002, p. 17) is debated as a measure to compare the small world values for

networks. However, it is useful to put the values found for the present study in the

context of prior research. As Table 4.2 (on the next page) indicates, the findings of the

present study fall within the range of values for actual and random clustering coefficients

and average geodesics for similarly sized networks with similar numbers of ties.

While it is important to reiterate that the average numbers of ties per node in the

two studied networks are somewhat larger in proportion to their network sizes, as

compared with earlier research, the low density of the networks indicate relative sparsity,

and thus hold to the requirements of the small world analysis.

For most small world networks, average path lengths are surprisingly short, which

runs counter to what one might intuit for a large, sparsely connected graph (Kogut &

Walker, 2001). Interestingly, clustering coefficient values for actual networks vary

considerably, with the present study finding some of the larger values in the table.

Table 4.2 Comparisons to Findings for Small World Networks in the Literature

Network	n	k	Path Length		Clustering		Reference
			Actual	Random	Actual	Random	
Bank Syndicates '57-'62	76	1.47	4.29	4.78	0.096	0.019	Baum et al., 2002
2004 Grantee Network	99	10.85	2.69	1.93	0.837	0.1096	Current study
Bank Syndicates '76-'81	100	2.99	2.83	3.33	0.358	0.03	Baum et al., 2002
*Ythan Etuary food web	134	8.7	2.43	2.26	0.22	0.06	Montoya & Solé, 2000
2004 Financial Partner Network	255	20.68	2.98	1.83	0.93	0.0807	Current study
C. Elegans	282	14	2.65	2.25	0.28	0.05	Watts & Strogatz, 1998
*E. Coli Substrate	282	7.35	2.9	3.04	0.32	0.026	Wagner & Fell, 2000
German firms	291	6.59	5.64	3.01	0.84	0.022	Kogut & Walker, 2001
German owners	429	3.23	6.09	5.16	0.83	0.008	Kogut & Walker, 2001
Power grid	4,941	2.67	18.7	12.4	0.08	0.005	Watts & Strogatz, 1998
*Internet, domain level	6,209	4.11	3.76	6.18	0.3	0.001	Pastor-Satorras et al., 2001
*Words, synonyms	22,311	13.48	4.5	3.84	0.7	0.0006	Yook et al., 2001
*Math. Co-authorship	70,975	3.9	9.5	8.2	0.59	5.4x10-5	Barabási et al., 2001
*WWW	153,127	35.21	3.1	3.35	0.108	0.0002	Adamic, 1999
*Film Actors	225,226	61	3.65	2.99	0.79	0.001	Watts & Strogatz, 1998
*Words, co-occurrence	460,902	70.13	2.67	3.03	0.437	0.0001	Ferrer i Cancho & Solé, 2001
*MEDLINE Co-authorship	1,520,251	18.1	4.6	4.91	0.066	1.1x10-5	Newman, 2001

*As cited in Albert & Barabási (2002), who presented a similar comparison in their article (*Table I*, p. 50).

Discussion

As discussed in Chapter 1 of this dissertation, the purpose of the study was to determine whether the AFI network—as defined by the network of grantees and financial partners—was a small world; and if so, what makes it a small world. This secondary question has both easy and difficult answers. One easy answer is that the grantee and financial partner networks are comprised of dense subclusters of nodes that are connected by "shortcut" ties, which reduce the average path length a node must travel in order to connect to another node across the network (Watts, 1999).

Small world networks resemble Granovetter's (1973) networks of weak ties, and Burt's (1992) networks of structural holes. The shortcuts, weak ties, and filling of structural holes provide for intercluster connections among the more densely populated parts of a network. The concept of *transitivity* is an integral part of the Granovetter weak ties theory. Transitive triples are made up of three nodes in which each node connects to the other thus forming a triad. Weak ties are those ties that connect multiple transitive triples thus serving as "bridges" between clusters. The clustering coefficient developed by Watts and Strogatz (1998) takes the concept of transitivity and applies it to larger degree neighborhoods, i.e., measuring "transitivity" for clusters of more than three nodes. Their "shortcuts" are versions of weak ties across large networks of dense clusters.

Quadratic Assignment Procedures on the Network Data

If these weak ties are responsible for the structure of network relations, then a matrix representing the values of the ties between the network nodes should correlate with a matrix representing the overlap of the nodes (Borgatti & Feld, 1994). Using the

procedure outlined in Borgatti & Feld's 1994 article on testing Granovetter's weak ties theory, a Quadratic Assignment Procedure (QAP) was performed to test the correlation between the valued 2004 Grantee network (the network matrix prior to its dichotomization for the small world analysis) and a matrix measuring the strength of the overlap among the nodes of the network.[21]

The procedure resulted in a moderate value for the Pearson Correlation coefficient (.385, $p<0.001$), which indicates that in the Grantee network, the stronger the tie between two of the grantees, the more likely their local neighborhoods overlap (Borgatti & Feld, 1994). Given the high degree of clustering for this network (a clustering coefficient of 0.837), this finding would seem appropriate. However, because the relationship is only a moderately sized one, there would appear to be other variables affecting the structure of grantee affiliations.

In terms of grantee growth, USDHHS administers its programs through ten regional offices, each overseeing the implementation of programs for between four and eight states. Do the shared banking partnerships have something to do with the region in which the grantee is located? A QAP correlation test of the relationship between the network structure of the 2004 grantees (as affiliated by financial partners) and the same network of 2004 grantees as affiliated by USDHHS region shows a low, but significant correlation (.165, $p<.001$). Although regional distribution appears to have a better likelihood than chance in influencing the distribution of partnerships, its effect is fairly

---

[21] See Appendix G for a detailed explanation of this procedure.

low, which indicates that some other variable or variables are influencing the distribution. This finding is understandable given the high number of multiregional banking partners.

Other factors in Network Structure

It is very possible that the structures of the financial partner and grantee networks are related to the clustering that results from transforming an incidence network into two affiliation networks (see Chapter 3 for a discussion of this issue). A graph of the incidence network's largest component helps to illustrate the high-degree values of certain nodes in the network. In Figure 4.1 (on the next page), circles represent grantees and squares represent financial partners. Red nodes are those grantees and financial partners that had the highest betweenness scores for their respective affiliation networks (a key to the color scheme is found at the bottom of the figure). While Figure 4.1 represents the same incidence network as shown in Chapter 3 (with the largest component of the graph in Figure 3.2), this graph emphasizes the clustering among the nodes in the 2004 network.

One might think that it is the number of partners that determines the centrality of a grantee in its affiliation network, but this is not the case. As Table 4.3 reveals (on page 107), it is not how many you know, but *who* you know that counts. For the grantees with the top ten neighborhood sizes (as measured by degree) in the 2004 Grantee network—with the exception of a few cases—the size of a network neighborhood does not necessarily translate into a high degree score in the affiliation network. Rather, those grantees with high degree scores have *well-connected partners*.

Figure 4.1 Graph of Incidence Network of Grantees and Financial Partners in 2004, Largest Component

Key to Figure 4.1

● (yellow)	Grantee in 1999 and 2004 Networks	■ (light blue)	Financial Partner in 1999 and 2004
● (green)	Grantee in 2004 Network only	■ (dark blue)	Financial Partner in 2004 network only
● (red)	Grantee with High Betweenness Score	■ (red)	Financial Partner with High Betweenness Score
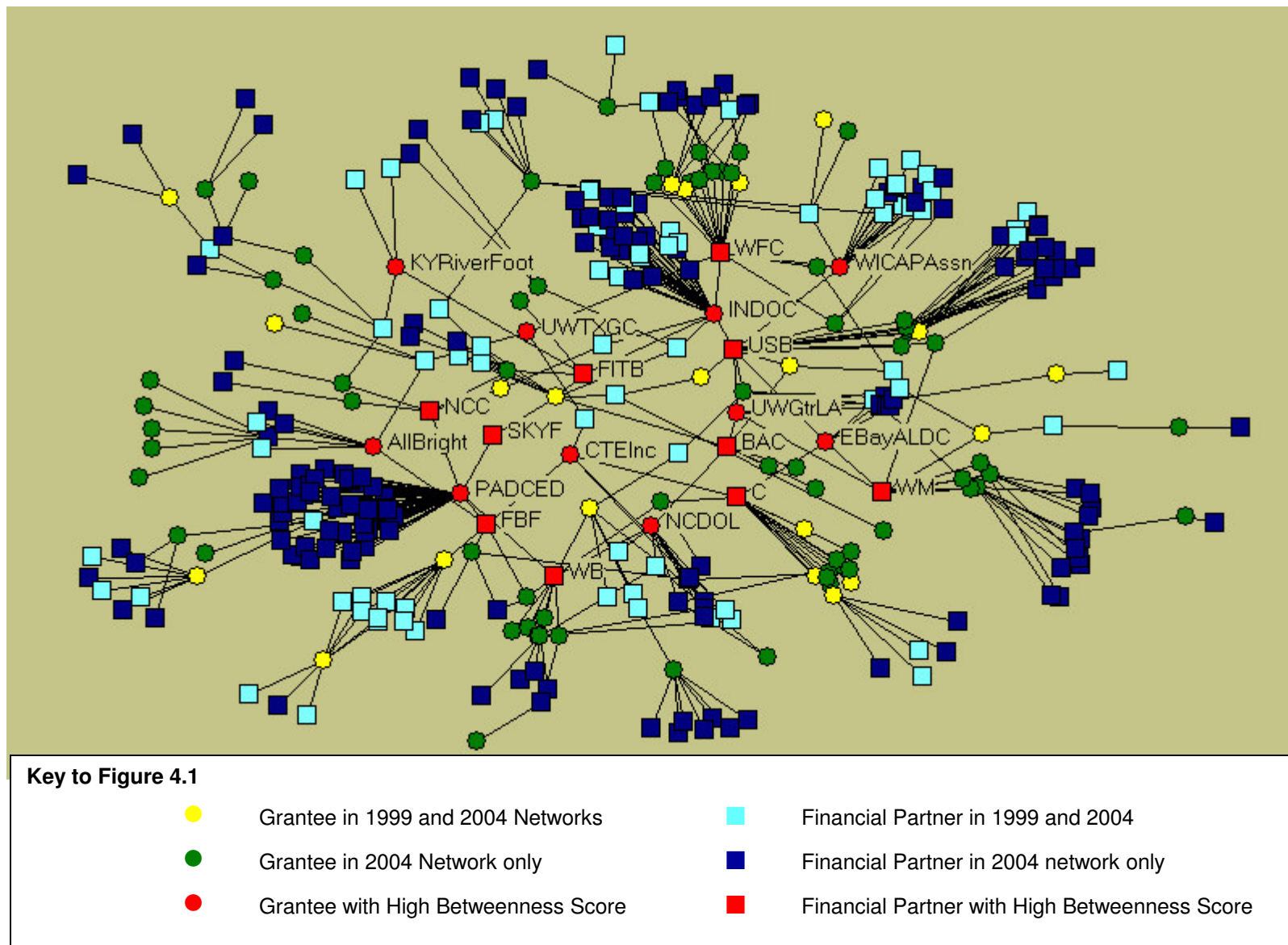
Even more importantly, it is not necessarily how many grantees with which a *bank* (or credit union) partners that affects its degree-influence on the centrality of a grantee. Rather, it is whether that financial partner then connects to a grantee with many partners. For example, Spokane Neighborhood Assn. (SpokeNeigh) has four financial partners, two of which are Wells Fargo and US Bank. Even though SpokeNeigh is connected to the 2004 grantee network by only 2 shared partners, it is sharing Wells Fargo with 16 other grantees and US Bank with 15 other grantees. That those grantees may overlap (i.e., also partner with *both* US Bank and Wells Fargo) means that SpokeNeigh becomes well-connected and central, in terms of degree, within the network. Table 4.3, on the next page, lists those grantees that link to well-connected partners.

The relationship, now revised, becomes: It is not who or how many people you know, but rather, it is who and how many people the *people known to you* know.

[This space is intentionally blank.]

Table 4.3 The Well-Connected Partners of the 2004 Grantee Network

Grantee	Size of Network Neighborhood in Incidence Network (# of bank partners)	Number of partners of degree sized 2 or more in 2004 Bank Network	Degree Size of Network Neighborhood in Affiliation Network	Rank (as a frequency of degree in 2004 Grantee Network)
EBayALDC	6	Citibank CBB US Bank Wash. Mutual ZION	34	1
INDOC	37	HBAN Wells Fargo RBCAA FITB US Bank	34	1
WICAPAssn	18	Wells Fargo MI FTFC US Bank	31	2
SpokeNeigh	4	Wells Fargo US Bank	28	3
UWGtrLA	7	UB US Bank ZION Wash. Mutual Bank of America	27	4
WestHous	3	Wachovia Citibank	23	5
PADCED	51	Wachovia NCC SKY Financial MTB Sovereign Fleet Bank	22	6
UWKingCo	3	Wash. Mutual US Bank	20	7
UWTXGC	3	JP Morgan Chase Wells Fargo Compass Bank	20	7
CTEInc	5	Wells Fargo Citibank PBCT Fleet Bank	19	8
MesaCAN	2	Wells Fargo ZION	19	8
UWGtrStLo	3	Bank of America US Bank	19	8
NCDOL	11	PBCT RY NCF WBS Bank of America Wachovia	18	9
RamseyAct	5	Wells Fargo Bremer Financial	17	10

What do the affiliation networks look like? Remembering that a small world analysis requires a decentralized network, the short average path lengths in the networks will relate more strongly to shortcut ties rather than to highly centralized nodes. Average path length is simply an average geodesic for all pairs of nodes, averaged over the entire network. Therefore, measures of betweenness centrality would appear to most closely relate to the existence of shortcuts because betweenness centrality identifies the number and proportion of times a node lies on the shortest path between two other nodes (Freeman, 1979). Table 4.4, below, lists the normalized betweenness centrality measurements for the ten most central nodes in the 2004 Grantee Network.

Table 4.4 Ten Most Central Nodes in 2004 Grantee Network as Measured by Betweenness

Grantee	Normalized Betweenness 2004	Rank* in 2004 Grantee Network Largest Component	Normalized Betweenness in 1999 Network	Rank* in 1999 Network	Difference in Normalized Betweenness Scores 1999-2004
EBayALDC	18.84	1	3.00	3	+15.84
PADCED	17.14	2	0	6	+17.14
INDOC	16.36	3	0	6	+16.36
AllBright	12.42	4	0	6	+12.42
UWGtrLA	9.51	5	N/A	N/A	N/A
UWTXGC	9.35	6	N/A	N/A	N/A
CTEInc	8.92	7	0	6	+8.92
WICAPAssn	8.51	8	5.90	1	+2.61
NCDOL	7.27	9	0.90	5	+6.37
KYRiverFoot	5.96	10	0	6	+5.96

*Note: Ranks for normalized betweenness determined by frequency of scores. Therefore, rank from one year to the next is only normatively comparable.

Rank and normalized betweenness scores for the grantees in the 1999 network are

provided in Table 4.4 for comparison. What becomes immediately clear is that the fifth

and sixth most central nodes—the United Way of Greater Los Angeles (UWGtrLA) and

the United Way Texas Gulf Coast (UWTXGC)—have achieved high betweenness

centrality despite being newly added nodes to the network. The table also reveals the

major changes in network structure over time. Five of the ten most centralized grantees

in the 2004 largest component lay on no geodesics in the 1999 network. Moreover, the

Pennsylvania Department of Community and Economic Development (PADCED, now

#2), the Allston Brighton Community Development Agency (AllBright, now #4), and

CTE, Inc. (CTEInc, now #7) were not even connected to the largest component in 1999.

Figures 4.2 (below) and 4.3 (on the next page) provide graphic representations of the

changes in the entire Grantee affiliation network (isolates included) from 1999 to the

largest component of the grantee network in 2004.

Figure 4.2 Graph of the 1999 Grantee Affiliation Network
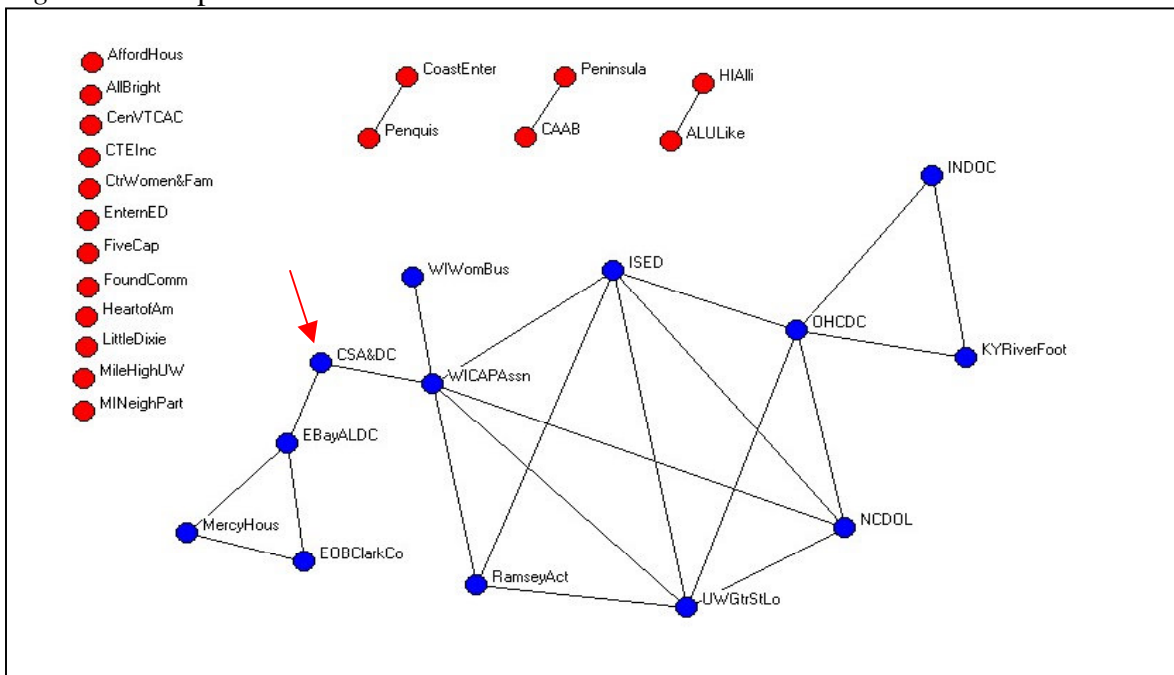
Structurally speaking, weak ties (or shortcuts) are those parts of a network that connect together highly clustered nodes of a network, but are themselves not part of a tight cluster. In the 1999 Grantee Network (Figure 4.2), CSA&DC plays this type of bridging role. However, the theory of weak ties relies on more than structural aspects of a network in order to identify bridging ties. A structurally weak tie in a network has only as much value as the concepts by which tie strength is operationalized and indexed (Marsden & Campbell, 1984). For example, while CSA&DC in Figure 4.2 structurally meets the definition of a weak tie, it might not serve as a weak tie in terms of the normative application of the theory (Granovetter, 1983), i.e., does it really "bridge" nodes in a network other than structurally speaking? What roles do the weak ties play in linking together denser clusters of the network?

By 2004, CSA&DC is just another node in a cluster (see Figure 4.3). Green nodes represent grantees that received grants in 1999, with the most centrally-between grantees labeled.

Figure 4.3 Graph of the Largest Component of the 2004 Grantee Affiliation Network
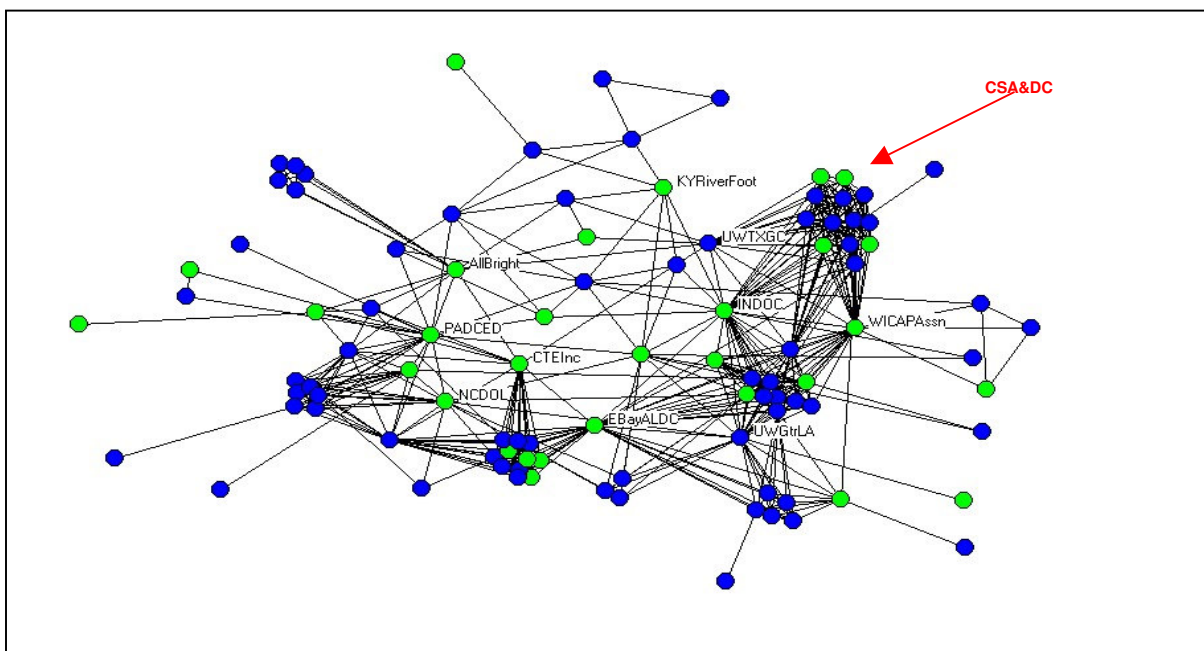
Similar changes can be found for the affiliation network of financial partners.

Figure 4.4 (below) presents the graphs of the 1999 affiliation network of financial

partners and the largest component of the network of 2004 financial partners.

Figure 4.4 (A) Graph of the 1999 Financial Partner Affiliation Network; (B) Graph of the
Largest Component of the 2004 Financial Partner Affiliation Network

(A)

(B)
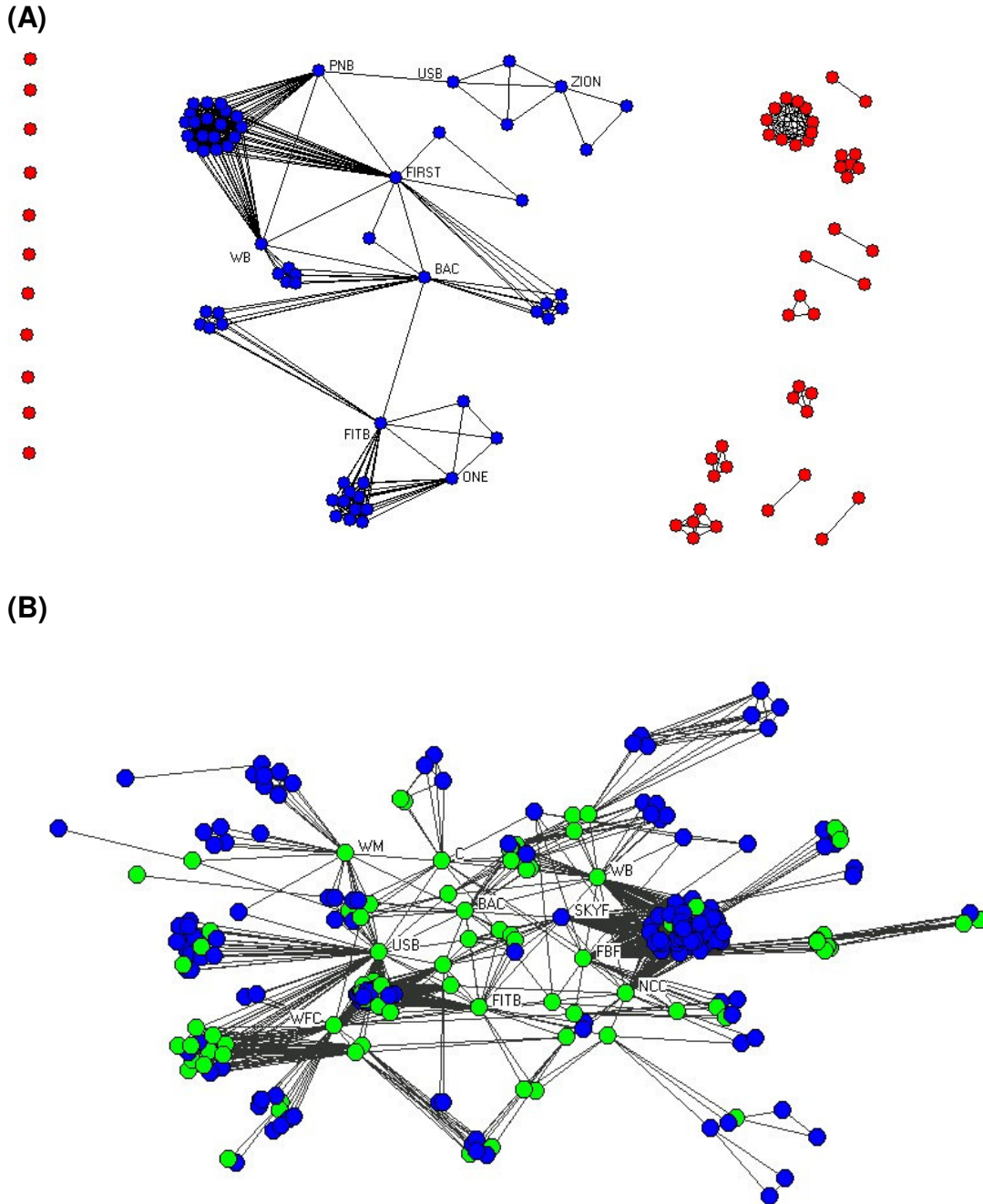
A list of the most central banks as measured by normalized betweenness scores shows the persistence of a few banks as central nodes (see Table 4.5, below). Interestingly, however, many of the nodes that were central in the 1999 network became *more* central in 2004 by virtue of mergers (such as can be seen with the merger of Firstar (FIRST) with US Bank (USB)).

Table 4.5 Ten Most Central Nodes in the Largest Component of the 2004 Financial Partner Network as Measured by Betweenness

Bank	Normalized Betweenness in 2004 Network	Rank* in 2004 Network Largest Component	Normalized Betweenness 1999	Rank* in 1999 Bank Network Largest Component	Difference in Normalized Betweenness Scores 1999-2004
USB	30.843	1	4.272	6	+26.571
FIRST (USB in 2004)	--	--	8.429	3	--
FBF	16.446	2	0	10	+16.446
SUB (FBF in 2004)	--	--	0	10	--
WB	15.381	3	6.262	4	+9.119
FU (WB in 2004)	--	--	0	10	--
WFC†	15.019	4	0	10	+15.019
PNB (WFC in 2004)	--	--	5.034	5	--
NCC	13.418	5	0	10	+13.418
FITB	12.819	6	10.206	2	+2.613
C	11.555	7	0	10	+11.555
CALFED (C in 2004)	--	--	0	10	--
WM	10.76	8	0	10	+10.76
SKYF	10.034	9	N/A	N/A	N/A
BAC	9.837	10	13.166	1	-3.329

*Note: Ranks for normalized betweenness determined by ordinal ranking of frequency of scores.
† A 1999 subsidiary of ZION became WFC by 2004, but many other ZION banks remained with the 1999 bancorporation. Therefore, although it is not included in this chart for simplicity, this merger may account for some of the change in centrality for WFC.

Of the ten most central banks according to betweenness scores, SKY Financial (SKYF) was the only bank that did not have a presence in the 1999 network. On the

other hand, Fleet Bank (FBF), as well as its future subsidiary, Summit Bank (SUB); Wells Fargo (WFC); National City Bank (NCC); Citibank (C) and its future subsidiary, California Federal Bank (CALFED); and Washington Mutual (WM) all increased their share in betweenness centrality from 1999 to 2004. Bank of America (BAC) became less central, in terms of betweenness, and Wells Fargo seems to have enjoyed an increase in its centrality partly due to its acquisition of Pacific Northwest (PNB).[22]

So It's a Small World

  While the implications of the study for future research on asset development strategies, multi-sector development, and for the field of social work will be discussed in Chapter 5, it is useful here to put the current study's findings in the context of current research on small world networks. Following from the connections sought in the popular *Kevin Bacon Game*, Watts and Strogatz (1998) used the actor database to measure average path length and the clustering coefficient for the resultant network. With an average path length of 3.65 and a clustering coefficient of .79, the authors found that each actor in the network could be connected to every other actor in the network by an average of four steps—"six degrees of separation" worked for every actor in the network (on average), not just for Kevin Bacon (Watts, 2003). Their findings also revealed "any actor's costars were very likely (80 percent of the time) to have starred with each other" (Watts, 2003, p.95).

  Putting the current study's results in the same framework, every financial partner in the largest component of the 2004 network can link to every other financial partner in the component by an average of three steps (L_A = 2.9). Every grantee in that same

---

[22] One wonders what the effect of the recent Fleet Bank-Bank of America merger or others might have on the network structure given the changes in centrality for other mergers that took place between 1999-2004.

116

component is linked to every other one by an average of three steps, as well ($L_A = 2.7$).

In about 84 percent of the time, if two grantees share the same partners, their partners will also share the same partners. Over 90 percent of the time (93 percent), any credit union/banks' partners will have partnered with each other. Although these findings do not have the same cache as those for Watts and Strogatz's actor network, they do lead to some very interesting questions for further research (discussed in Chapter 5).

Shortcut development.

For example, one area that requires additional study is what additional ties do to a network over time. Kogut and Walker (2001) found in their study of ownership ties in the network of German enterprises that the network retained its small world properties even under various simulated restructuring conditions. With a greater range in longitudinal data for the AFI demonstration project, such changes in the small world structure could be studied. Even the limited comparison of the 1999 network and the 2004 network shows remarkably similar clustering and average path length values despite large increases in the size of the affiliation networks (see Table 4.6, below).

Table 4.6 Changes Over Time in Density, Clustering Coefficient and Size of Network 1999-2004

Network	Size of Full Network	Size of Largest Component	Clustering Coefficient of Largest Component	Average Path Length of Largest Component	Density of Largest Component
1999 Grantee Network	38	13	.692	2.64	.269
2004 Grantee Network	137	99	.837	2.69	.111
1999 Bank Network	116	62	.943	2.71	.207
2004 Bank Network	311	255	.930	2.98	.081

The percentage of clustering rose for the grantee affiliation network (and decreased for the financial partner network by a negligible amount). The overall densities of the networks decreased by half as much between 1999 and 2004 with average path lengths remaining between two to three steps on average between network nodes. Even with larger densities in their early structure, the affiliation networks were exhibiting small world properties.

Clearly, shortcut ties, which contribute only miniscule amounts to the density of a large network (Newman, 2003), are assisting in keeping the network highly clustered, despite the near tripling of financial partners and quadrupling of grantees. How do these ties develop? In their study of the privacy of internet networks, Ramakrishnan, Mirza, Grama, and Karypis (2001) explain that weak ties can emerge in three different contexts. In one setting, a weak tie can represent an individual who has no real "allegiance" to any particular group *and* who rarely extends ties to the network, but who happens to bridge two or more clusters. A second type of tie is a person who is tied most closely to a particular cluster and then branches out to a different cluster. A third type of tie, one in which Ramakrishnan et al. indicate is the classic type of weak tie, is the person who is not tied to any particular cluster, and who extends ties to many different clusters throughout the network, but never strongly ties to any cluster (Ramakrishnan et al., 2001).

As was discussed earlier, weak ties have meaning: they are not simply structural aspects of a network. For Ramakrishnan et al., a tie is a common rating of a music sharing network. The authors found that certain weak ties could isolate individuals and

make them more prone to hacker attacks: "One wonders if weak ties will happen at all, if concerns are raised about their compromise" (Ramakrishnan, et al., 2001, p. 11).

The identification of conceptually weak ties (as opposed to simple structural ones) in the AFI network would need to take into account the changes in both the Grantee Network (i.e., its growth over time from 38 grantees in 1999 to 157 grantees in 2004)[23] *and* the changes in the Financial Partner Network. Changes could be attributed to the creation and dissolving of bank partnerships by grantees (for numerous reasons) or to the mergers and acquisitions of banks during the 1999-2004 time period. It is an understatement to say that the US financial sector is becoming more centralized. After data collection was completed for this study, announcements were made of the Bank of America-Fleet Bank merger, the JP Morgan Chase-Bank One merger, and a proposed merger between SunTrust and National City Bank (to name a few).

Whether partnering banks in one part of the country speak to their colleagues in another part of the country is debatable. In one case, a large bank has partnerships with several grantees in one state but branch personnel in another state have been cool to the idea of partnerships (S. Shalit, personal communication, September 30, 2003). In another case, according to a grantee contact, a merging bank's willingness to continue the partnership with the grantee was uncertain even though this merging bank partnered with several other grantees in the demonstration project. Local decisions appear to influence banks' choices to participate in the AFI demonstration. Although the current study did not collect this type of data, it is an interesting area for further research. Perhaps what is

---

[23] Grantee numbers as provided by USDHHS.

considered a "weak" tie on the local level becomes a stronger tie in the national

framework. This issue deserves further study.

Classes of small world networks.

Amaral et al. (2000) found that small world networks fall into three classes. In

one case, connectivity (i.e., distribution in the number of ties per node) decays as a power

law as the number of ties per node increases. This type of small world network is

considered "**scale**-free" because new ties are most likely to connect to the most highly

connected nodes (Amaral et al., 2000). The authors found that two other classes of small

world networks seem more limited in where ties are added. In "broad-scale" networks,

the distribution of ties observes the power-law but has a sharp drop off at larger numbers

of ties per node (p. 11150). "Single-scale" networks have a "fast decaying tail" (p.

11151), which means that at a certain limit of number of ties per node, the distribution

drops off dramatically.

The authors argue that the scale free nature—or "preferential attachment" (p.

11151)—of tie additions can be influenced by the number of nodes no longer seeking

additional ties: "every actor will stop acting" (p. 11151). Cost is also a factor in the

addition of new ties, which the authors illustrate in their example of an airport hub that

can no longer accept new airlines. The power-law relationship is evident in the small

world of the big world, as well. People are limited in the number of friends they can have

simply by the time that they allot to developing their friendships (Watts, 2003).

Therefore, at some point, tie-increase in a small world network will reach a critical

maximum—and it is at this threshold that the power-law relationships breaks down.

As interorganizational collaboration is tied to cost reductions (at least as far as costs pertaining to mitigation of uncertainty in transactions, e.g., Oberschall & Leifer, 1986), the thresholds at which point the benefits of adding partners dissolve must be given some attention. Moreover, cost *increases* due to additional partnerships must also be accounted for in future research. For example, of the 38 grantees in 1999, over half retained the same partnerships (in number and in partner) that they had in the first year of the project. Yet by 2004, some grantees had become "connected" to the network, or had become more central, by virtue of the addition of grantees with the same partners or the addition of banks to existing grantees. Others grantees remained isolated components.

These changes to the network may affect the costs associated with the formation of new ties even if a grantee has not, itself, made changes to its local partnership structure. This is an important part of the small world concept—small changes on local levels can have far reaching changes in the global network. Given that the AFI network has many more ties than are reflected in this study's data of grantee-financial partnerships, subclusters and the network as a whole may be far denser or centralized than the current data reveal.

<center>**Limitations of the Study**</center>

The limitations of the study fall into two groups. The first group of limitations derives from the sampling and data collection processes, which could affect the accuracy of the data and the generalizability of the results. The second group of limitations emerges from the development of the methodology used to analyze small world networks.

<center>121</center>

Limitations due to Sampling and Data Collection

Sampling adequacy is a cornerstone in research in order to generalize about the topic under study. In network analysis, it is important to identify the boundaries of the network to be studied: Will the full network be studied or a sample of it? In the present study, a full network was available: all grantees participating in the AFI demonstration project were contacted (or a contact was attempted) to identify their current (and if applicable, past) financial partners. Nevertheless, it is debatable whether the full network was actually sampled.

The AFI network was chosen for the research project because it exhibited multi-sector properties. However, only two sectors are represented in the sample. As will be discussed in later in this Limitations section, the network of grantees and their financial partners provides little data to make generalizations of the AFI network beyond the structure created by grantee-financial partner relationships. From a sampling standpoint, the available data provided an interesting picture of the network, albeit a limited one. Given more time and resources, the sampling of network partners should be increased so that additional sectoral partners (e.g., faith-based entities, higher education institutions, and public sector agencies) are included in the depiction of the network structure.

Data Accuracy

Several issues arose during the course of sampling and data collection, which may have affected the accuracy of the network data. Researcher errors could have been made during the data collection phase, and in fact, one important lesson found in working with network data is the need to be aggressive in checking their consistency and accuracy. The dynamic change that characterizes the current climate of the financial sector can

make accurate identification of banks and other financial intermediaries difficult. The

strict boundary on changes of bank identities due to mergers was made for this reason,

with a cutoff set at March 30, 2004. It is very likely that the network became denser

since March 2004 with the addition of new partners, the addition of new grantees

(through FY 2003 grants), and the mergers and acquisitions in the financial sector (as

noted earlier in this chapter). Moreover, while the researcher is confident that the bank

identifications are accurate, it is possible that a bank that was identified as a small

independent bank was indeed a subsidiary of a larger bank of the network. This

limitation must be taken into account when reviewing the findings.

Furthermore, grantee contacts may have misunderstood the question regarding

financial partners, or the question of whether they were indeed operating an IDA

program, or the researcher did not properly clarify the request for data. In a few

instances, grantee contacts did not identify their AFI program by that term, and it took

several minutes before the contact understood the purpose of the call. A few contacts of

grantees that were identified by USDHHS as having received grants indicated that their

organization did not have an IDA, AFI or savings program for low-income persons. It is

possible that these organizations did indeed have such a program but that the contact was

misinformed. In all cases, the researcher attempted to speak to a contact who was either

the Executive Director or a person in charge of programs for the organization. In most

cases, the person in charge of the IDA program was the contact. Nevertheless, errors

may have been made during this part of the data collection process.

The sample of financial partners must also be qualified by the accuracy with

which partners were identified by contacts. In one case, a grantee refused to confirm the

information from USDHHS but allowed the researcher to use the information that was listed by USDHHS ("just use what is publicly available"). In this specific instance, the data provided by USDHHS was used for the analysis, but it may not accurate reflect the array of financial partners for the grantee. In a separate case, a contact refused to answer any questions that did not come from grantor agencies.

Some grantees serve as pass-throughs or financial administrators for the grant, subsequently subgranting the funds to local organizations. In some of these cases, the contact knew only a few of the local banks being used, and thus there may be additional partners used by these local programs, which are not represented in the network. Related to this issue is that these subgranted programs are not represented in the network, and only the main grantees are shown as connected with the financial partners. Therefore, it is possible that with a higher degree of sampling (sampling beyond the original dyadic relationship), a different network would have been identified.

Staff changes were found to be frequent among the grantees' contacts, and it is possible that some grantee contacts who were asked to recollect the partners they had in 1999 (if applicable) were not able to accurately recollect the identities of these banks.

Finally, a small portion of the original sample of grantees could not be contacted despite repeated attempts. In one case, a program was operating out of a church, and the contact did not have a phone but could only be contacted by fax. It was decided by the author to preclude this grantee from the analysis. In another case, repeated attempts and messages did not return data for analysis. Further attempts to contact the programs or find information through other local organizations or through the internet yielded no meaningful results.

In most cases, these programs were assumed defunct, but they may have had an active program. In one case, the person who was the main contact for a program was not able to be contacted due to illness and responded long after the data analysis had commenced. These data were not included in the analysis, but are available for future research. In all cases, researcher error at any number steps in the process of sampling, data collection, and data analysis could account for inaccuracy of the findings, although steps were taken (often repeatedly) to check the accuracy of the data during the course of data collection and analysis.

Methodological Limitations

Since the publishing of Watts and Strogatz's landmark article in 1998, the interest in small world analysis has increased tremendously in the field of network analysis. The sociological community readily accepted its potential application to the dynamics of interorganizational networks. As small world analyses have increased in the literature, a corresponding increase has been found in the breadth of its application to real world networks. Methodologically, the small world concept developed out of random network theory (e.g., Erdős & Rényi, 1959 in Newman, 2003) and work on large, sparsely connected networks by Milgram and colleagues in the 1970s.

In any discipline that combines the theories of many scholarly areas—in this case theoretical mathematics, physics, and sociology (especially the study of networks)—the successful application of that discipline to its inherent parts can often be challenging. Without a doubt, the rigorousness of research is an implicit requirement for a new discipline or theoretical line of study, as well as the careful evaluation of prior research, in order to best promote what is rigorous and critique what needs work.

The difficulty in applying mathematical theory to the field of sociology (or social work!) is that sociological concepts are based on real world experiences and relations while much of contemporary mathematics is based in the abstract. The challenge is to find a common ground between the two disciplines so that benefits may be shared. For the field of social work, that challenge is even more demanding given its focus on practice. Studies of abstract relationships seem to have little relevance to the goal of helping people.

However, the concept of small world networks is compelling, and intuitively appeals to a relationship-oriented social worker who wants to help people and organizations collaborate more successfully. Moreover, applying small world concepts to real world examples is a desired direction for study (Watts, 1999, 2003), particularly because the structure of small world networks has the potential to explain a number of real world relationships

Probably the most difficult part of the present study was the need to understand advanced statistical mathematics in order to grasp the concepts underpinning the study of small world networks. At times it appeared that once converging disciplines were again diverging into the often mutually exclusive territories of theoretical mathematics and sociology. A few questions (best answered by experts in the field of mathematics) arose while performing the small world analyses, and these are discussed below.

Issues with the small world statistic.

Kogut and Walker (2001) developed a ratio of the two actual-random calculations in order to compare small world findings ("How Small is Germany's Small World…" p. 325). Baum et al. (2002) called this the "Small World Statistic," (p. 17) by which a

critical value for networks of a particular size and average number of ties could be compared to other networks. The small world statistic is calculated as follows (Baum et al., 2002; Kogut & Walker, 2001):

$$SW_{STATISTIC} = \frac{C_A / C_R}{L_A / L_R} \quad \begin{array}{l} \text{(Clustering Coefficient for Actual Network over} \\ \text{the Clustering Coefficient for Random Network)} \\ \\ \text{(Average Path Length of Actual Network over} \\ \text{the Average Path Length for Random Network)} \end{array}$$

Taking off from Kogut and Walker's work, Baum et al. (2002) determined that an *a priori* critical value for Kogut and Walker's ratio could be estimated and then compared to the found small world statistic. A small world would thus be revealed by values for the $SW_{STATISTIC}$ that are larger than $SW_{CRITICAL}$. Baum et al. argued that small world "critical values" are positively related to the size of a network, i.e., that the value of the $SW_{STATISTIC}$ (and thus its critical value) will increase with an increase in a network's *n*, and that such critical values could be estimated based on the values found in prior research.

Although this positive relationship between the $SW_{CRITICAL}$ and *n* seems intuitively possible, a few substantial issues that make such comparisons ill-advised. One issue is that the small world statistic has as its denominator the ratio of actual mean path length to random mean path length. In a small world network, these values should be close in value (Watts & Strogatz, 1998; see also Watts, 1999, 2003), the "closest" values approaching 1.00. Therefore, the value of the overall small world statistic is most

dependent on the value of the clustering coefficient ratio, which does not have a linear relationship with network size (Newman, 2003).

The clustering coefficient measures the degree to which nodes that are connected to a particular node are also connected to one another, averaged over the entire network (Kogut & Walker, 2001; Watts, 1999). Small world networks are expected to have high clustering coefficients, as opposed to the clustering coefficients of a random network of equal size and number of ties, which should exhibit much less clustering behavior (Watts, 1999). Watts' random network exhibits the properties of the random network developed by Erdős & Rényi in the 1940s (1946 in Watts, 1999). The numerator of the small world statistic is determined by calculating C_{ACTUAL} over C_{RANDOM}, with a small world network exhibiting potentially very high values for this calculation.

While an increase in the size of the network can translate into an increase in the clustering coefficient ratio, the relationship observes a power-law rather than a linear one (Amaral et al., 2001; Watts, 1999; Watts & Strogatz, 1998). Therefore, a very large *n*, and a small *k* (as is a requirement for the small world analysis, see Chapter 3) can make C_{RANDOM} (calculated as *k/n*)—and thus the denominator of the clustering coefficient ratio—very, very small. Figure 4.6, on the next page, was created using the data depicted in Table 4.2, on page 105 (in this chapter), as well as resulting clustering coefficient and average path length ratios to map the relationship between *n* and the small world statistic. The graph in Figure 4.5 reveals a power law relationship between these two values with the seventeen studies used to make the graph.

Figure 4.5 Power Law Relationship of Network Size to Small World Statistic, 17 Studies*

Small World Statistic Compared to Size of Network for 17 Selected Studies
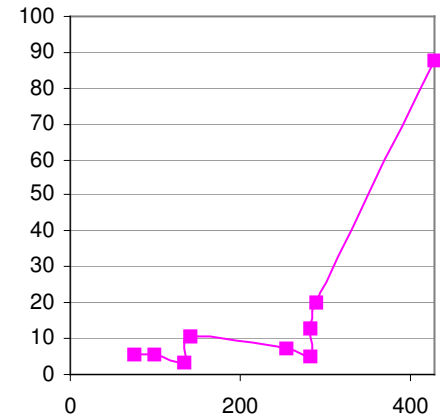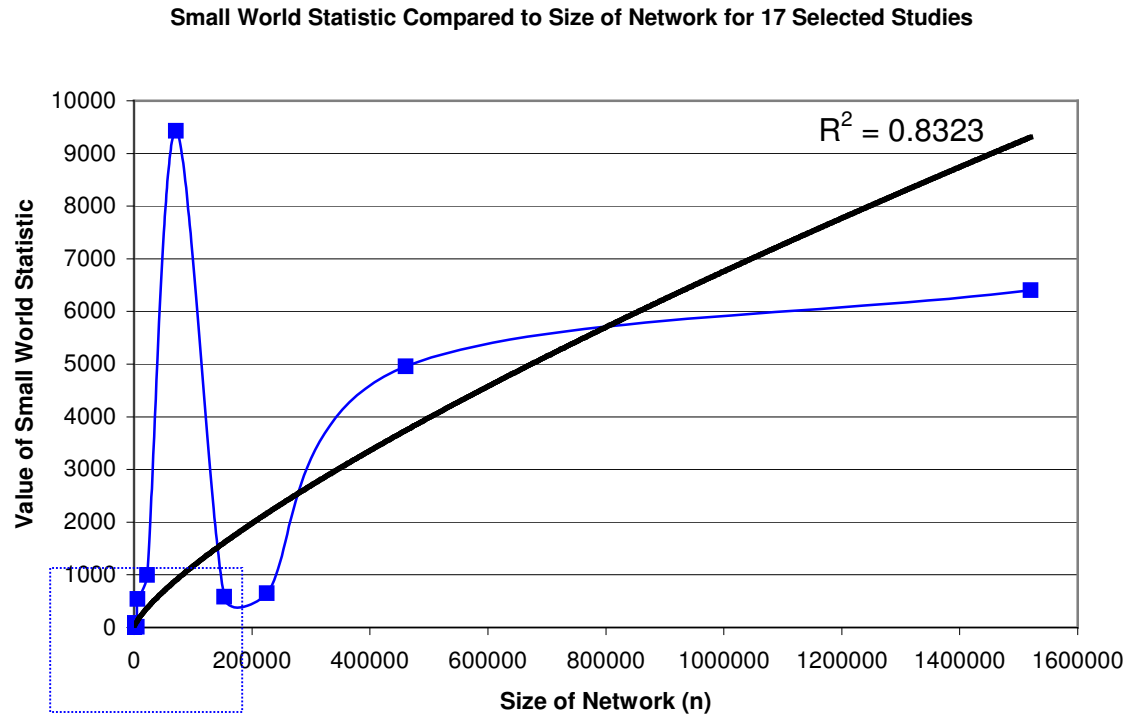
See Inset

*Note: The seventeen studies used to make this graph are listed in Table 4.2 of this chapter.

A power law trend line for the graph (in black) has an R^2 value of .83, indicating a good fit for the power relationship with the data. The inset to the right depicts the nine studies with smaller sized networks. The outlier point to the top left of the main graph is the study by Pastor-Satorras, Vázquez, and Vespignani (2000) (in Albert & Barabási, 2002) of the network of the internet at the domain level. It should also be noted that the values for *n* jump substantially once past the lower *n* levels depicted in the inset graph. The final point in the inset has an $n = 429$ (Kogut & Walker, 2001), while the next highest point depicted in the main graph has an $n = 4,941$ (Watts & Strogatz, 1998). Also, two points in the inset have *n*-values = 282, and the close proximity of small world statistic values show this as the same point.

Even if a power relationship can be identified between *n* and $SW_{STATISTIC}$, path lengths increase logarithmically (i.e., very slowly). Increases in network size are a function of random graph dynamics (Newman, 2003), and it is not likely that one would find a large network that did not have a small path length (Bollobás, 1985 in Newman, 2003). Watts and Strogatz (1998) contributed the clustering coefficient to the small world effect to develop the concept of a small world network—it was not only short path lengths that made it a small world, but is was also that these shortcuts connected denser parts of a network.

Given that the clustering coefficient has a value between 0 and 1, and the ratio of the denominator of $SW_{STATISTIC}$ will approach 1, variance in the statistic is most dependent on the value of C_{RANDOM} (or *k/n*). Since C_{RANDOM} is based on the Erdős & Rényi random graph, it will likely follow a power law relationship, which although is somewhat

predictable, is not an adequate measure of small world criticality and cannot be easily

determined from an *a priori* argument.

Another issue regarding the small world statistic is that the calculations for the

random network are only approximations of actual random network values (Watts, 1999;

Watts, personal communication, 2004), which can differ substantially from values for a

"created" random network of equal nodes and ties. Watts and Strogatz (1998) created

this type of random network to compare to the values found for the actual network.

Therefore, when the path length ratio is computed using the network's size (*n*) and

number of ties (*k*) [as $L_{ACTUAL} = \ln(n)/\ln(k)$], the computed statistic will not necessarily

match the value found by the authors with their *created* random network. The

interchanging of the approximation formula for L_{RANDOM} [$\ln(n)/\ln(k)$] with the use of

values for "real" random networks makes specious any meaningful conclusions about

size and the value of the $SW_{STATISTIC}$. Suffice it to say that the field of small world

network analysis has a great deal of potential that requires additional study. For these

reasons, a $SW_{CRITICAL}$ value was not used in the present study, although it had been

planned in the proposal.

Issues regarding centralization.

The criteria for the small world analysis discussed by Watts (1999, 2003) include

an *a priori* requirement of network decentralization. However, the literature is vague as

to what is considered a centralized network, and whether there is a cut-off point for

centralization that would preclude a network from a small world analysis. One

suggestion has been to control for centralization via large hubs using the methods

detailed by Newman et al. (2001) (M. Schilling, personal communication, April 21,

131

2004). These are the "scale free" networks discussed earlier in this chapter in reference to Amaral et al.'s work (2001). There is still some debate in the field as to whether such centralized networks can still be considered small world networks.

Schilling (personal communication, April 21, 2004) asks whether we should distinguish cluster-tying short paths that derive from a few centralized hubs from short paths that are caused by random or long-spanning links. If the definition of a "random" link conforms to Watts' view of agency-derived randomness, then it is possible that despite a hub-structured network, short paths originating from hub centers could be "random," and thus leading to a small world network structure. Future research will have to determine the methods by which partner decisions are made—i.e., if they are created via some sort of structure (e.g., a bank is "known" for pursuing such ties or this is the only bank available), or if the decisions of the person or organization seeking such partnerships causes these linkages to occur (and thus, via agency, and thereby random choice).

Such influences of structure and agency on network design and characteristics may help to elucidate and quantify theories of isomorphism put forward by DiMaggio & Powell (1983)—how such decisions are made, when they are made, and the effects such decisions have on the development of a network of relations. Institutional development typically relies on market forces and the intermediary properties of financial partners to determine how a network is connected and the strength of the ties among partners. Could it be that these decisions are determined less by market forces than by the individual decisions of participating organizations and partners?

There are clearly many areas for potential research using small world network concepts. However, until the issue of centralization in small world networks is resolved or more fully developed, a cut-off value will remain an elusive criterion in small world analysis. The next chapter discusses the major implications for the present study and how its findings can lead to research in the development of multi-sector relationships and institutional change.

Chapter 5: Summary and Implications

Following a summary of the study's results, this chapter examines the implications of the dissertation study. First, the chapter discusses the implications for the field of asset development and how network analysis may assist in understanding the participation of financial intermediaries. The chapter ends with implications for social work.

Summary of the Results of the Dissertation Study

The analyses of the network of AFI grantees and their financial partners revealed that their two corresponding affiliation networks comprised small worlds in 2004. Although a small world analysis was not performed on the 1999 network data, average path lengths and clustering coefficients were computed for the 1999 network to compare with the findings for the 2004 network. Table 5.1 summarizes these findings.

Table 5.1 Major Findings of the Small World Analysis

- Both the affiliation network of grantees and the affiliation network of financial partners were found to be small world networks in 2004.

- Average path lengths did not vary much between 1999 and 2004. The bank affiliation network's largest component went from an average path length of 2.7 steps to just under 3 steps between affiliated banks. The average path length for the grantee affiliation network's largest component held constant at an average 2.6 steps.

- Clustering coefficients remained near in value between 1999 and 2004, although for the grantee affiliation network's largest component, the coefficient rose over time (.69 to .84). However, the clustering coefficient of the largest component of the bank affiliation network decreased slightly (.94 in 1999 and .93 in 2004).

Both affiliation networks (the network of grantees and the network of financial partners) experienced substantial growth between 1999 and 2004. The size of the largest components in the affiliation networks also increased over time. However, the density of the networks decreased (see Table 5.2, below).

Table 5.2 Summary of the Findings on Network Sizes and Densities

- The number of financial partners in the network grew from 116 in 1999 to 311 different banks and credit unions in 2004.
- The number of AFI grantees grew from 38 to 137 from 1999 to 2004.
- The size of the largest components also grew substantially over the five-year period: Nine banks connected to one another in 1999, and 255 were connected in 2004. Thirteen grantees connected to one another in the largest component in 1999, while 99 grantees connected in 2004.
- By 2004, the densities of the two affiliation networks had halved, which indicates that the networks became more sparsely connected over time.

Two tests of correlation were performed on the 2004 grantee affiliation network data. Neither Quadratic Assignment Procedure (QAP) tests showed strong correlations, although both were found to be significant (see Table 5.3, below).

Table 5.3 Summary of Results of QAP Tests on the 2004 Grantee Network

- There was a moderate (Pearson Correlation = .385, p<0.001), significant relationship between the number of ties among grantees and the overlap of those ties, indicating that the presence of weak ties had some influence on the structure of the network
- A Grantee's USDHHS regional designation did not correlate strongly (although significantly) with the pattern of affiliations derived from shared financial partnerships (Pearson Correlation =.165, p<.001).

A number of centrality analyses were performed on the data. Betweenness centrality measures of individual nodes in the affiliation networks revealed some interesting patterns between 1999 and 2004. Table 5.4 summarizes these results.

Table 5.4 Betweenness Centrality in the Affiliation Networks

- Of the ten grantees that had the highest scores for betweenness centrality, eight of them had been in the network since 1999.
- Of the ten financial partners that had the highest scores for betweenness centrality in 2004, all but one had been in the network since 1999.
- Five of the ten most central financial partners had merged with at least one other bank in the network. In each case, the bank and its merging partner(s) had been present in the network since 1999.
- In both the financial partner and grantee affiliation networks, one member stayed within the top three most central positions—each rising from third most central in 1999 to the most central by 2004 (US Bank, as merged with Firstar and the East Bay Asian Local Development Corporation).

While few generalizations can be made about the findings, there is some evidence that the financial partner affiliation network changed in part due to mergers taking place in the 1999-2004 period. This may not seem to be new or significant news, but it does highlight the degree to which changes in one sector (in this case the financial sector) can affect the structure of relations in another sector. The implications of the study are discussed in the following sections.

Implications for the IDA Movement and Asset Development

This study's findings have implications for identifying the longitudinal development of local IDA program partnerships and the network of the larger IDA movement; for understanding the institutions by which programs make financial partner

decisions and the processes that influence financial partners to participate in IDA programs; and for developing methods that can build capacity into future IDA projects. The following sections of the dissertation relate the implications of the study's findings to a recent study of financial intermediary participation in IDA programs conducted by Stegman and Kim (2004) at the Center for Community Capitalism at the University of North Carolina at Chapel Hill, as well as to ongoing research on small world networks.

The findings of the present study focused on the development of a small world structure in a large multi-sector, interorganizational network. Over time, the AFI demonstration project network nearly tripled in size. However, as new programs and partners were added, the network became more sparsely connected—new partners and programs connected to few others. The AFI network grew locally as new local AFI programs were funded and partners were added to existing local projects, as one might expect in a long-term demonstration project that emphasized the creation of new sites and the expansion of old sites with each year of successive funding. Yet this was not always *geographic* local growth—many of the added partners were multinational banks that served multiple regions of the country. With the bank mergers, more AFI grantees shared financial partners, and many of these larger banks formed the shortcut connections between clusters. In many ways, the participation of larger banks, which served multiple US regions, was the driving force in the development of the network's small world structure.

This finding supports recent research that argues that isomorphic tendencies in the financial services industry are substantial factors in bank participation in IDA programs

(Stegman & Kim, 2004). The authors found that banks participating in multiple IDA programs were more likely to standardize their savings products and procedures across participation sites and that newer program partners were more likely to mimic the norms and standards developed by older financial partners. Other normative pressures from the industry's professional associations (e.g., the American Bankers Association) also provided standardizing guidance to financial intermediaries.

Interestingly, Stegman and Kim also found that banks were more likely to pursue activities related to compliance with the Community Reinvestment Act (CRA) in serving low- and moderate-income populations before a merger or acquisition was to take place. However, the authors noted that few of these activities were related to IDA programs and that banks favored more traditional forms of CRA compliance activities, such as the offering of low rate mortgages and other "tested" products. Nevertheless, the isomorphism described by DiMaggio and Powell (1983 in Stegman & Kim, 2004) plays a key role in bringing new financial partners to the IDA movement.

Longitudinal Development of the Network

How the local partnering decisions have affected the development of the AFI network should be an important next step in understanding the network's longitudinal development. Although the longitudinal analyses of networks is possible and has a long history (e.g., Katz & Powell, 1953 in Faust & Skvoretz, 2000), challenges emerge when the network under study has changed so dramatically in size and structure that comparisons of individual nodes provide little meaningful data. Large network data sets can be unwieldy and difficult to acquire, and therefore, they limit how well network

138

analytic methods can represent the dynamical nature of networks over time (Suitor, Wellman, & Morgan, 1997; Willer & Willer, 2000; Zeggelink, 1994). While the local developments in the AFI network can be seen to affect the larger network's structure, the network's size makes it difficult to isolate individual effects. Nevertheless, such research could help us to understand how the AFI programs' choices in financial partners have created and contributed to the isomorphic tendencies found by Stegman and Kim (2004).

One method that has recently been proposed to capture local and global changes to a network comes from gene sequencing techniques, which have been applied to social science relationships; e.g., Abbott's study of employment careers (1995) and Giuffre's study of artists' careers (1990, both in Stark & Vedres, 2003). We have seen that small world analysis captures the dynamics of structure-actor interactions. However, Stark and Vedres' longitudinal study of the multi-sector interactions of foreign investment and Hungarian enterprises demonstrates that specific patterns in tie development can be analyzed over an entire network by comparing "typical pathways" (p. 13) instead of the average path lengths used in small world analysis.

The authors argue that the meaning of ties must be understood both in a "temporal context," as well as within the structural context of a network (p. 12). For Stark and Vedres, local action must be understood in terms of changes happening in local network structure (at the neighborhood level of a node). They explain that, in the network of Hungarian enterprises, it is not as important to know the tie paths beyond two steps ("owners of owners," p. 12), as it is to know how the ties developed within the neighborhood.

To study typical pathways, the authors categorized local tie development by size of a node's neighborhood and the neighborhoods of all ties to which the node was directly tied (its "alters"), and the "cohesiveness" of those neighborhoods as measured by the number of path lengths of two or fewer steps. They then used the seven resulting categories of neighborhoods to map the development of local connections of enterprises, and to create "typical pathways" for network development (e.g., an enterprise starts as a single node, adds three partners, moves into a centralized hub scheme, and eventually develops into a well-connected cluster). These typical pathways could then be analyzed statistically to develop models of tie development.

Typical pathway analysis may be one way to capture the dynamic nature of local IDA networks and allow us to better understand the longitudinal development of their multi-sector partnerships. Does securing a large, multinational bank as a partner ensure greater legitimacy for the program, and thus ensure that additional partners will want to participate? Or do IDA programs develop gradually through partnerships with financial intermediaries, which eventually provide incentives for larger bank participation? How do these individual partnership choices affect the development of standards that govern the participation of financial intermediaries in IDA programs? Such research could identify common partnership arrangements and how such arrangements affect the institutional arrangements that standardize and create institutional isomorphic pressures on the financial sector.

Institutional Implications for Asset Development Policy

This study focused on 157 IDA programs that receive federal funding through the Assets for Independence demonstration project. For many of these programs, federal funds are their primary sources of financial support. Similarly, Stegman and Kim (2004) found that a majority of the 302 IDA programs they studied were reliant on public funds. They found that 77 percent of the programs working with banks were likely to have public funds as their primary source of matching funds for IDA accounts (p. 26). The authors argued that public funding plays a substantial role in the IDA movement's legitimacy. Moreover, they asserted that the more public policy options there were to fund IDA programs, the more likely there would be incentives for financial intermediary participation. New incentives, such as the tax credits offered by the much-discussed but never-passing Savings for Working Families Act, would help to build the legitimacy of IDA programs as a legitimate option for banks and other financial intermediaries seeking to boost their CRA rating (Stegman & Kim, 2004).

One could argue that, in general, public policies not only create wealth inequalities, by virtue of the advantage conferred to the wealthy over the poor in regressive asset-building policies, but they also support the institutionalized relationships that confer advantage to already powerful sectors: "[T]he *Golden Rule of Capital* (*sic.*) is that those who have the capital make the rules" (Sherraden, 2003, p. 106). Certainly asset-building policies that expand savings opportunities for the poor—such as the Assets for Independence Act—are more progressive than traditional institutional structures; however, one wonders if these policies provide access without actually changing the

dominant institutional arrangements that disempower and impoverish people in the first place. The consolidation of power (through network centralization) by larger financial intermediaries found in the present study seems to indicate that the structure of the AFI network mimics the power structure in the larger institutional environment. In the short-term of the five years studied by this research, the network appears to have moved toward dominant institutional structures.

Nevertheless, it is important to emphasize the *incremental* approach of the asset-building model. Asset development is a long-term strategy, building wealth over generations, as Sherraden found in his review of asset-building policies in Singapore, the US, and the United Kingdom (2003). Asset-building uses an incremental, pluralist approach to integrate economic classes rather than to revolutionize them. As argued numerous times in this dissertation, the institutional environment exerts powerful influences on how changes can occur. Therefore, an incremental approach makes subtle changes within policies and institutional arrangements that can eventually make significant changes in wealth-building opportunities for the poor. However, a structural assessment of the institutional arrangements of asset-building policies reveals strong (and thus power-conferring and resource-maintaining) roles for the financial and public sectors. Local stakeholders seem to be left out of the loop.

To answer Sherraden's (2003) question about the methods scholars should use to assess the effectiveness and appropriateness of asset-building policy choices, perhaps one way is to determine the degree to which policies support the development of local financial intermediaries, local businesses, and local wealth creation. In her study of a

rural IDA program along the Texas-Mexico border, Nyman (2004) found that a key strength of the program was the involvement of grassroots groups in its development and implementation. With grassroots participation, the assets built by individuals and families participating in the program contributed to the development of community assets, especially in the use of a community credit union as a financial partner.

Future research on asset-building programs must ask how asset-building institutional arrangements create advantage and wealth within communities. Which entities supply (and thus control) the resources? Which entities hold the savings accounts? Where are these funds invested? Which entities benefit most from public sector incentives? Asset-building policies should reduce dependence and build community *inter*dependence. Clearly, partnerships with outside resource-generating entities are critical to community development and to changing institutions (e.g., Ashman et al., 1998; Brown & Ashman, 1999; Lawrence et al., 2001). However, those partnerships can be developed strategically so that the bridging advantages are conferred to local communities rather than to already powerful sectors.

More research is needed to understand the development of power structures in local and national IDA networks. The present study focused on the network relationships of those programs connected to the largest component of the AFI network. However, many grantees and their partners within the 2004 sample were not connected to the largest component. Nearly a quarter of all the AFI grantees and nearly a fifth of all financial partners existed within unconnected dyads or components in 2004. Future

studies should endeavor to identify how the development of these isolated programs differs from their more connected counterparts.

Studies of small world networks have been limited to a network's largest components because of the requirement for full connectivity of the network. However, real world networks are rarely fully connected. Recent research by Latora and Marchiori (2001) has identified methods that could be used to include isolated dyads and components in small world analysis.

Real world networks often encompass many different systems, which may offer alternatives to those relationship choices in the network. The authors' study of the ties of the Boston transportation system led them to see that while the underground system, alone, was not a small world network, the *addition* of the city's bus transportation system did lead to small world properties. Latora and Marchiori developed measures of local and global efficiency, which allowed ties to be weighted by additional small world conferring ties (e.g., an underground station is connected to a bus terminal). This weighting allowed them to capture the clustering and path lengths of real world networks that might be denser than the small world ideal or even might be made up of unconnected components (Latora & Marchiori, 2001).

The largest component of the AFI network studied in the present dissertation was found to be a small world network. However, future studies using the Latora and Marchiori method may be able to identify how the larger network structure differs when isolated IDA projects are added into the analysis. Additionally, their measures of efficiency on the local and global level may be able to explain the processes by which

144

legitimacy and power are consolidated or conferred within the network. For the authors, efficiency within the network referred to the speed with which a message could be sent to each member of that network. By including unconnected nodes in their study of the transportation network, they found that network efficiency could be increased.

The institutional isomorphism found by Stegman and Kim (2004) in their study of banks and credit unions' participation in IDA programs highlights the importance of institutional supports and communication on the development of local programs. Nevertheless, institutional isomorphism may not explain how small, isolated programs develop outside a larger institutional structure. The literature on strategic bridging has shown through case studies that partner differences have meaning (e.g., Brown & Ashman, 1999; Lawrence & Hardy, 1999).

An approach to measuring the flow of information in the AFI network similar to the efficiency measures of Latora and Marchiori may be able to identify how such information and legitimacy affect the financial partner choices of the isolated grantees. One might find different isomorphic processes among these isolated programs that, while contributing to the overall development of the IDA movement, follow different paths of local network development that are governed by a different set of norms, mimetic processes, and coercive pressures. With such an understanding of the differing roles of institutional pressures in the development of local asset-building projects, policies can be crafted to address specific needs, e.g., the needs of small programs serving rural populations; issues for large, multi-regional and urban programs; and resources for programs that emphasize comprehensive community development.

Building Capacity in Asset Development Programs

Given that the influences of the financial sector on asset development strategies are evident here in the most limited of samples, what are the broader implications on the larger array of multi-sector initiatives? On the one hand, as seen in the previous sections, network analysis can be used to identify the structural differences within the network among programs that collaborate with a dominant core, and ones that collaborate with independent or local entities. These may be related to structural changes in the network on the local level or related to institutional processes that influence local partnering decisions. However, local processes related to practical aspects of collaboration are equally important. As discussed in Chapter 2 of the dissertation, networks can be studied in terms of the structures of a network, the institutional norms and ideals that govern its relationships, and by the collaborative processes that create the network.

Stegman and Kim (2004) found that many financial intermediaries identified the capacity of local partnering nonprofits as a major determinant of the scale of IDA projects, and thus of the level of participation of a bank or credit union. As discussed in Chapter 2 of this study, much of strategic bridging literature focuses on the development of local capacities to create sustainable, scalable institutional change. For the strategic bridging organization, this is a critical part of the collaborative process (Brown, 1993; Nyman, 2004). Institutional pressures and network development will have little effect on a local project if a nonprofit organization is unable to meet the needs of its partners.

The banking partners interviewed by Stegman and Kim (2004) indicated that their nonprofit partners needed to create and follow screening and enrollment procedures that

146

more closely aligned with those of the financial intermediary. Poor enrollment, in general, was a major issue for banks: They identified the poor marketing strategies of their partners and inadequate capacities of the programs to increase and retain new participants as the largest factors for inhibiting IDA program expansion (pp. 38-39).

Norms and procedures for enrollment relate to the prior section's discussion of institutional isomorphism within the IDA network. It is interesting that the authors reported that banks wished these procedures to align more closely with the banks' own procedures. Clearly, as found in the strategic bridging literature, norms will develop as part of a negotiated process among partners representing different sectors. For the bridging entity (in this case, the nonprofit organization), an important challenge is to define a common language and identify communication patterns among partners (Brown, 1993)—in this case, how partners define and approach enrollment of participants.

However, while the marketing of the program to potential participants can also be analyzed in relation to the gradual institutionalization of the IDA savings strategy for low- and moderate-income populations (see Beverly & Sherraden, 1999), it may also reflect important aspects of network development. Network analysis methods are emerging as an important tool for understanding how community resources are linked and identifying which groups, organizations or resources remain unconnected (Davies, 2003; Church et al., 2002). Closer ties to these local groups may assist programs in accessing new participants.

In a small world model, a network analysis of the linkages among a community's assets (whether they be people, organizations or groups) could show that a relationship

built between a particular organization and a stakeholder group will form a shortcut, thereby making the network stronger or more efficient. Stronger ties to grassroots groups on the local level may strengthen the IDA movement, in general, in its pursuit to scale up its services and influence.

Burt (2000) would argue that the social capital derived through shortcuts confers advantages to the person (or organization) creating the tie. However, these ties are not without their costs. "Bridge relationships" that confer social capital advantages have also been found to decay much more quickly than other types of relationships because they span across diverse groups, which makes them more difficult and costly to maintain (Burt, 2002). Similar findings were found by Ashman et al. (1998) and Lawrence and Hardy (1999) in their studies of bridging organizations seeking legitimacy from diverse constituencies and stakeholders. Benefits gained in local legitimacy, as well as increased control and access to diverse resources, are difficult to sustain. Moreover, as similar shortcuts are created in a small world network, the benefits of the original shortcut can diminish (Wilhite, 2001). New institutional economics would argue that if those costs were too great, they would cancel out the incentives to create or maintain the ties (North, 1991). For the nonprofit organization, bridging the needs of local stakeholders and their financial partners may be challenging, especially if those financial partners represent powerful, dominant structures (as found by Lawrence & Hardy, 1999).

Future research on interorganizational relationships in the IDA movement should include multiple participating sectors in its analysis. The present study analyzed the network's relationships only in terms of single grantee organizations and their financial

148

partners. The inclusion of grassroots groups and other local stakeholders, as well as public entity partners and other participating organizations, would yield a better understanding of the true capacity and potential capacity of the programs to scale up services.

The small world model is also useful in determining potential areas where local and global networks are fragile or vulnerable. For example, recent analyses of terrorist networks have identified methods for "destabilizing" networks by identifying critical individuals (central actors or bridges) and mapping patterns of communications and resource-sharing (Carley, Lee, & Krackhardt, 2002). Similar analyses of the larger IDA network could identify the partnerships that need to be strengthened by forging additional relationships or by diversifying the existing relations (e.g., creating multiple relationships between the same organizations or people). Future studies of the IDA movement's network of local collaborations, and the intercluster linkages formed among the different partners of those local collaborations can identify strategic relationships that can boost the capacities of local programs and strengthen the IDA movement's goals for scalable and sustainable programs.

Clearly, the collection of meaningful network data will have a beneficial effect on the study of the AFI partner network. The present study provided, as planned, a jumping off point for further study. However, the findings here must be limited by the fact that the network, as structurally identified by grantee-financial partner relationships, reveals little in terms of meaningful data regarding how and why these ties developed, or what the consequences of the ties will be for future development of the program. Emerging

methods such as typical pathway analysis and efficiency measures that capture the small world properties of "real" networks can be used to elaborate the findings for this study, and thereby increase our understanding of the local influences on global structure.

The final section of this dissertation discusses the implications of the study for the field of social work.

Implications for Social Work

Perhaps the greatest implication of the present study on the field of social work is the connection it makes between local action and institutional change. Small world analysis provides one mechanism for studying this relationship. Social workers who endeavor to make social change a primary goal of their work can use the methods described in this dissertation to identify potential partners and assess the strength of the partnerships of the organizations within which they work. Strategic bridging models, developed through qualitative research, indicate that an organization's collaborative motivations and its position in the institutional environment will influence the types of legitimacy and resources it needs to facilitate programs. Organizations must balance the need for institutional legitimacy and resources with the legitimacy and connections it must retain with its local stakeholders. Could the small world model assist social workers in finding this balance? If institutional change is one goal for collaboration, strategically forging partnerships—creating shortcuts—across diverse groups to strengthen a network or to improve its efficiency may be an important factor in making change happen.

This dissertation report began with a discussion of the context in which contemporary social work takes place. Relationships with social welfare institutions are increasingly privatized and contractual with emphases placed on bottom line efficiencies, demonstrated effectiveness, and multi-sector partnerships (e.g., Schmid, 2004). Simultaneously, there has been a rising trend in the involvement of local stakeholders in the planning, implementation, and evaluation of social welfare interventions (Ahmadi, 2003; Lucas, 2001). The involvement of local stakeholders, as well as the growing number of institutional partners, has created a complex, uncertain and dynamic environment within which social workers perform their work. Moreover, our feelings of self-efficacy can be eroded when social change seems nearly impossible in light of the myriad institutional factors that influence the success or failure of social welfare interventions.

If our social welfare strategies are to be synthesized into a larger institutional framework—instead of remaining as isolated and temporary interventions—social work relationships with new partners and sectors, such as the financial sector, will need to be explored with much more rigor and attention to the multi-institutional context. Institutional analysis themes from New Institutional economics and sociology reveal an interaction between local decisions and partnerships and the larger, overarching movement toward institutional development and change. We can work to affect institutional change—however, institutional norms also affect our work. With a growing number of alternative disciplines joining social workers in asset development and social development strategies, it will be important for social workers to know and understand

the larger institutional mechanisms governing the behavior of our new collaborative partners.

Rather than simply looking at the resource exchanges or legitimacy concerns on an interorganizational level—partnerships within sectors, for example—the small world perspective considers *multiple* interorganizational relationships. Multi-sector partnerships forged by one organization can affect other organizations, even if those organizations are not directly tied to the first. The small world model lets us think not simply in terms of multi-organizational or multi-sector relations but also in terms of multi-collaboration networks—while still focusing on those individual strategic ties.

The findings of this dissertation highlight the need for social workers to think beyond the typical social welfare framework. As multi-sector initiatives, such as those used in asset development approaches, become more frequent means to provide social services, social workers will play critical roles in ensuring that unrepresented groups and individuals are brought into the collaborative process.

Social workers have long understood the value of identifying untapped resources (Kretzman & McKnight, 1993) and community strengths (Chapin, 1995). In new models of social welfare, such as those developing in the field of social enterprise, the mobilization of existing community assets is also an essential component of successful projects (Alvord et al., 2002). Research on social movements indicates that endogenous networks of relationships in communities can yield important resources for social change efforts, including local leadership, communication networks, and community gathering places (Oberschall, 1973 in Crossley, 2002). Moreover, the use of existing resources,

formally bridged from existing informal networks, can help to retain local resources within community (Nyman, 2004). Kretzman & McKnight (1993) argued that often it is not that a community lacks resources but that these resources are not yet connected to the effort. By focusing on the multi-institutional resources available to social welfare initiatives, social workers can broaden their practice influence and strengthen their social change efforts.

Bridging Shortcuts to the Unrepresented

Social workers play an important role in the interprofessional discussion of the changing nature of social welfare. Because of our commitment to local stakeholders and the community settings in which we work, we can amplify the voices of those who are most affected by the current inequalities and socially unjust institutional arrangements of the dominant culture. As network analysis becomes a more frequent method for understanding how large communities operate, this facilitation role will become increasingly important, and will be especially critical if programs such as asset-building initiatives are to be successful in restructuring dominant institutional arrangements.

Even when data are available, local stakeholders may not be adequately represented because they are not formally organized. One international example is that local stakeholder groups have only recently become formalized and legitimated partners in international development due in part to the failure of "structural adjustment programmes" (Lucas, 2001, p. 185) in alleviating poverty. Implemented by large institutional entities such as the World Bank and the International Monetary Fund in the late 20th century, structural adjustment programs are characterized by external operation

153

and control structures; institutional reforms in trade, labor markets, manufacturing and

financial markets; and the privatization of former state-run services (SAPRIN, 2002)[24].

Recent research that focuses on understanding the effects of the programs on local

stakeholders reveals such institutional strategies may actually *increase* poverty:

> More to the point, the economic policies that comprise the core of
> structural adjustment policies have failed to engender the healthy
> economies promised by their architects…Poverty and inequality are now
> far more intense and pervasive than they were 20 years ago, wealth is
> more highly concentrated, and opportunities are far fewer for the many
> who have been left behind by adjustment" (SAPRIN, 2002, p. 185).

Social development strategies, in contrast, include local stakeholders and

populations who are traditionally "left behind" by such initiatives (Ahmadi, 2003).

Rather than focusing on organizational activities to determine outcomes, network

analyses of social development strategies can identify the emerging relationships among

the different partners in a project, including those of traditionally invisible stakeholders

(e.g., Davies' informal study of a multi-country network in Africa, 2003). The

amplification of local stakeholder voices is just as important an issue for domestic

initiatives. For example, Nyman's (2004) study of a local IDA project underscores the

importance of stakeholder participation in creating comprehensive and sustainable

community development in rural U.S. communities.

As social network analysis becomes a more frequent method for evaluating

collaborative structures, social workers must not only be educated in network analytic

---

[24] SAPRIN stands for "Structural Adjustment Participatory Review International Network," a global-level
research and advocacy network spanning the public, for profit and nonprofit sectors in international
development.

techniques, but we must also have a thorough enough understanding of those methods and the theories behind them to allow us to critique the findings of community studies using these methods and theories. In much the same way that our own perceptions of community networks must broaden (i.e., understanding how the institutional arrangements of other sectors impact social welfare institutions), we can serve as critics of other perceptions of communities. We must be able to ask: Which voices are missing? Which groups are not represented? Which data are missing? Which networks are invisible? These questions not only capture the strengths of a community, which network analyses may miss, but they also critique how networks are operationalized, how they are evaluated, and how network ties are valued.

Social workers can also help to disseminate their knowledge of networks to local communities. Armed with this knowledge, local grassroots groups can take ownership of critical community data and thereby have a voice in policies and community-based strategies, as Batliwala (2002) found in her case studies of transnational grassroots movements:

> Data are used not only to increase visibility, but as a basis of both contestation and partnership with state and multilateral actors. [T]he data are owned and controlled by the movement, and used strategically by its leaders—not by remote researchers or outside institutions. This contests the assumption that grassroots actors are incapable of engaging sophisticated, complex policy debates without experts interceding for them in this capacity. (pp. 405-406)

There are many opportunities for social workers to enter the dialogue on social networks and their analysis, as practitioners, researchers and students. We can become bridgers in this burgeoning field by facilitating the access of forgotten voices and

communities. Finally, we can incorporate the knowledge learned from the analysis of networks into our understanding of the institutional context of social welfare.

Understanding the Institutional Context

In whatever manner change develops or manifests, the current institutional structures that govern relations and exchanges, the emergence of norms, and the development of innovations and policies must be understood *before* changes are implemented. The results of this dissertation study support the need for a multi-institutional perspective of social change. Large networks are informed not only by the institutional norms of social welfare, but they are also influenced by the institutional norms of other sectors. What are the structures of those other sectors? What are the institutional norms that affect institutional arrangements within and among those sectors?

If social workers are to be change agents, then we must situate ourselves where change needs to take place. Our dedication to the poor and to disenfranchised groups should be supplemented by an institutional perspective that reveals how social justice issues can be seen as part of a greater network of interrelationships. Individuals and organizations operate in systems, as do institutions. However, it is our ultimate concern with the well-being of individuals, whether as single persons or as groups, that makes us accountable to the stakeholders of our efforts. Without this institutional perspective, our practice methods are incomplete. With that perspective, we can assess our true impact as a profession.

For those who want to make significant social change, the knowledge of current institutional arrangements—from a multiple-disciplinary perspective—is essential.

Social change cuts across disciplines. No longer the solely the realm of social work, the design, delivery and evaluation of human services are discussed in schools of business as social entrepreneurs enter sectors that are traditionally staffed by social workers. Asset development programs focus on economic models for changing communities (in part influenced by Sherraden's 1991 work). Economists argue that political institutions need to support contracts and private property rights in order for market systems to function properly (e.g., Harber et al., 2003). A growing understanding of interconnectedness is changing our approaches to social welfare. Therefore, our profession's influence in the development of domestic social policy (including asset-building policy) and programs must also reflect an understanding of this multi-institutional context.

In a small world, knowledge of social welfare is no longer enough to make significant and lasting change. I suggest that one of the reasons why we feel disempowered to make social change happen is because we limit our professional roles to a few sectors, and thus we do not know where we sit in the global network of the small world. However, in whatever manner social work is performed, in whichever setting it takes place, social workers abide by a code of ethics and a set of values that necessitate an ideology of social justice. Whether this happens on the micro, interpersonal level, or on the macro level of social movements, we are moved to empower our stakeholders and ourselves toward social change.

Social workers have the opportunity to become the strategic bridgers in social development and in social welfare. By broadening our tools of intervention, and by going beyond our traditional social work roles, we can find ways to use the models,

157

strategies and theories of other disciplines to energize and empower communities for institutional change. Along this line, strategic bridging presents a hopeful model for changing disempowering systems. This and other models of collaboration should be investigated and tested in our practice settings; studied and developed through social work research; and disseminated and taught in social work programs. By broadening the social work paradigm, and forging strategic shortcuts with other disciplines, we stop being passive recipients of institutional change and become institutional change agents.

Appendix A: Glossary of Terms

Actor [of a network] – An individual or organization serving as part of a network of relations.

Adjacency data [of networks] – Relational data that represent the common partnerships or affiliations among a set of cases or common cases among a set of affiliations.

Affiliations – Relationships or events by which network cases are related. An *affiliation matrix* (or *affiliation-by-affiliation matrix*) refers to a matrix of the specific adjacency data that represents the common cases among a set of cases. An *affiliation network* refers to the resulting graph of the adjacency data from an affiliation matrix.

AFI grantee – An organization or entity that has served as the grant recipient for an Assets for Independence (AFI) Demonstration Project grant from the U.S. Department of Health and Human Services to administer or implement an Individual Development Account program.

Agency derived ties – Network ties which are created by network actors, but which are not determined by the existing structure of a network (for opp., see *structure derived ties*) (Watts, 2003, p. 72).

Altruistic bridges – Strategic bridging organizations which have been designed or mandated for the bridging role, which is problem-focused, and which seeks to transform the relations among the organizations of different sectors (Westley & Vredenburg, 1991).

Alters [of network nodes] – The nodes to which a specific node is directly tied.

Asset accumulation – In the context of asset development strategies, refers to the building of financial wealth through saving mechanisms and/or the purchase of high-return assets (also *asset-building* strategies).

Asset development – Economic development strategies that help individuals to build or retain assets (as in asset accumulation) or the building of community assets and resources (such as small business development).

Average minimum path length [of networks] – A statistic used in small world analysis (*L*), which measures the value of the shortest path between two nodes, averaged across the entire network.

Border federation – A type of bridging organization that shares the values of organizations that are peripheral (i.e., border organizations) to a dominant institutional paradigm (from Lawrence & Hardy, 1999, p. 59).

Border entities – Organizations that operate peripheral to, contrary to, or in opposition of dominant institutional structures, entities, or paradigms (in the context of Border federations, see above).

Bridging organization – An organization, business, or other entity that serves as a non-neutral mediator of interorganizational, collaborative relations among entities and organizations that operate in different institutional sectors.

Butterfly effect – Referring to a metaphor describing how small changes can have large effects, which was developed by Lorenz (1963) who described how a butterfly's movements could affect weather patterns on the other side of the world.

Capacity-building – The development of infrastructure, knowledge, services, techniques, and/or the funding of organizations, programs or groups so that they have the capacity to perform a service or function or to expand.

Case-by-affiliation [network data] – Referring to network relational data wherein the data represents the relationships among a set of cases to the events or affiliations to which they are related or when they happen. Also known as a *two-mode* or *bipartite* matrix.

Case-by-case matrix – A matrix of network data that represents the common partnerships of a set of cases (similar to an affiliation-by-affiliation matrix, see *affiliations*).

Center-extension – A type of bridging organization that shares the values of an organization centrally located within a dominant paradigm, and which thus attempts to communicate these values to the more peripheral organizations with which it collaborates (Lawrence & Hardy, 1999, p. 58)

Centrality – Referring to the number of nodes to which another node is connected (*point centrality*), which can be measured by its *degree centrality* (see below). *Network* or *global centrality* refers to the distances of a node to other nodes in a network, wherein globally central points are those that tie to many other points through short distances (Scott, 2000, pp. 85-86).

Centralization – Centralization can be measured in multiple ways. One measures the number of points to which a node is connected, with those points that are directly connected to more points being more central (*degree centrality*). Alternatively, those points that are tied to other points by short distances reflect *closeness centralization*. Nodes that most frequently lie on the shortest distances between other points reflect *betweenness centralization*.

Change agents – Referring to the roles wherein social workers become facilitators or catalysts in communities to assist in social and economic change efforts.

Civil Society Research Organizations (CSROs) – Grant-making organizations that fund and support grassroots groups and Non-Governmental Organizations in the developing world (Ashman et al., 1998)

Clustering [in networks] – Referring to groups of points in a network that have more ties or stronger ties to one another than they do to other network points.

Clustering coefficient (of networks) – A statistic used in small world analysis (C), which measures the probability that two points will be connected given that they are each connected to another, third point.

Clustering level (in dendrograms) – The measurement of the minimum number of ties a node will share with the other members of its clique (see *network clustering* and *network cliques*).

Collaboration conveners – Organizations who initiate collaborative partnerships and groups (Wood & Gray, 1991).

Community development bank – A type of Community Development Financial Institution (CDFI), to which the U.S. government has approved its CDFI status as a financial intermediary with the primary goal to facilitate the economic development of a low-income community or communities. Community development banks often provide targeted lending and financial capital for investment in small businesses and other economic development strategies.

Community social capital – Social relationships that are built and which emerge among individuals, organizations, and institutions within a geographic community that strengthen the community and make it better able to address social, economic and political goals.

Complete graph – A graph of a network of relations in which all points in the graph are connected to every other graph in the network.

Component [of a network] – A group of points in a network that are connected to the group through at least one direct tie (see *isolated*)

Connectivity – The distribution of the average number of ties per node in a network as a fraction of all nodes in a network or its largest component (Watts, 2003). *Full connectivity* refers to a network wherein all members are tied to it by at least one tie.

Context-dependence – The view that knowledge and meaning are constructed through the deliberate discussion of multiple groups, as opposed to context-independence, wherein knowledge and meaning are identified from an objective point that synthesizes the knowledge or meaning (Fitzpatrick, 2002, p. 163).

Density [of networks] – The extent to which a network is complete as measured by its *density ratio*: the number of ties a particular node has within a cluster of its network divided by all the number of all possible ties that could be had within the network.

Devolution – Referring to the withdrawal of the public sector as the primary provider of social welfare services in favor of a role that funds nonprofit and for profit entities to provide, implement, manage, and administer those services through contracts.

Domain – The analytical level at which organizations are categorized as groups of like entities, which allows the analysis and identification of interorganizational relationships, such as into institutional sectors (e.g., the public sector) or as organizations with similar goals (e.g., community-based health centers). Trist (1983) argued, "inter-organizational domains are concerned with field-related organizational populations" (p. 270).

Dyad [of a network] – Graphic representation of a network or a subnetwork component composed of one tie linking two points, or a specified two-node relation within a network.

Egoistic bridges – Strategic bridging organizations which have volunteered for the bridging role, which focuses on the needs of the bridging organization, and which seeks to maintain the current relations among the collaborating organizations and sectors (Westley & Vredenbug, 1991).

Efficiency [of networks] – The speed at which communication can be passed across a network. *Local efficiency* is the "average efficiency of local subgraphs" (Latora & Marchiori, 2001, p. 2). Global efficiency refers to the speed with which information can be passed across the entire network.

Exogenous organization – An organization that serves a community but does not have its main location in the community and/or has not originated within the community (i.e., is not a *grassroots* organization).

Financial education - Education and/or training and familiarization with basic banking and family finance methods given to participants of Individual Development Account programs or as a stand-alone program. Also known as *financial literacy* or *financial training*.

Financial intermediary – An organizational entity that performs financial services. This term is used to distinguish between the organizations that perform such services and the financial institutions— which are norms, etc.—that govern financial services and transactions with such entities.

Financial partner [of AFI grantees] – A bank, thrift, savings and loan, credit union, community development bank, or other financial intermediary that partners with a grantee of the Assets for Independence Demonstration Project for the purposes of holding participants and/or reserve accounts for the project.

Fissioning – The breaking apart of a collaborative group of organizations (Lawrence & Hardy, 1999, p. 66)

Fragmented network – A network that is composed of several small, unconnected components (Watts, 2003, p. 79).

Geodesic – The shortest path length between two nodes of a network.

Global effect [in networks] – An effect that has widespread and broad impact on the structure of a network. Also *global change*.

Global network (in network analysis) – Referring to an entire network under study, as opposed to a *local network*, which can refer to a specific cluster, subnetwork, or node neighborhood within a larger network.

Grassroots – Local, endogenously-created groups of individuals and/or organizations created to advance and advocate for local goals and purposes; especially in terms of social justice, political enfranchisement, and social and economic development issues. *Grassroots institutions* are norms and

standards, both informal and formal, that are derived from grassroots ideologies, and which inform and govern grassroots behavior, practices, structures and relationships. *Grassroots networks* are informal and formal groups of grassroots organizations that are tied through mutual goals or other relations.

Hierarchical [organizational structure] – In reference to the fluidity of organizational boundaries, is a tightly bounded organizational structure that is regulated by formalized rules and constraints, and which uses decision-making standards that determine the decision-making power of individuals in the organization (Douglas & Wildavsky, 1982 in Lawrence & Hardy, 1999). Contrast with *market* and *sectarian*.

Homophily [in networks] – In a social network, the tendency of people to associate with like persons, i.e., the tendency toward the creation of clusters.

Incidence data – Relational data that communicates the incidences of a particular case happening with a particular event, or a case related to a particular affiliation. Also known as 'two-mode' data, referring to the two sets of data implied (e.g., cases and affiliations). Incidence data may be represented in an *incidence matrix*, which is a case-by-affiliation matrix. An *incidence network* is a graphic representation of the matrix, within which all cases and all affiliations (or events) are represented.

Individual Development Account (IDA) – A matched savings account in which a person can save for a high-return asset, such as a home, a small business, or higher education. In the context of this dissertation, the IDA is specific to those three uses, has specific match requirements, and is designated for low-income persons.

Individual social capital - Social relationships that are built and which emerge among individuals that strengthen an individual's position within a network or community by providing the individual with increased access to resources, improving the individual's power within a social network, or conferring some other benefit to that individual in his or her network environment.

Institutions – Persistent, replicable, and synthesizing norms and ideals (Fararo & Skvoretz, 1986) that characterize the interactions of individuals and larger social groups in social, economic, and political environments. *Dominant institutions* are those institutions that exert powerful influence and govern a large majority of social behavior, practices, structures and relationships.

Institutional arrangements – Persistent, replicable and synthesizing paradigms of relations (esp. among organizations or institutional sectors) in which exchanges, transactions and other relations between entities are expected to conform to, and be maintained and enforced by institutional norms.

Institutional change – Changes to norms, ideals, and expectations for behavior and institutional arrangements that provide for a sustainable, participatory, and pluralistically beneficial movement from the current dominant culture of disengagement and disenfranchisement of the poor to one that supports opportunities for their sustained economic growth and social development.

Institutional environment – An abstract term denoting the level at which institutions are analyzed and which encompasses the institutions, their development, synthesis and interplay, as well as their mechanisms, structures, arrangements, sectors.

Institutional mechanisms – Modes and instruments by which institutions affect human and organizational behavior (e.g., see *isomorphic processes*).

Institutional movements – Changes and developments in institutions.

Institutional sectors – Categories of institutions that encompass similar institutional types, structures or mechanisms (esp. pertaining to institutions governing behavior of organizations and interorganizational relations, e.g., the nonprofit and public sectors).

Institutional structures - Persistent, replicable and synthesizing paradigms of a *group* of relations among organizations and institutional sectors to which they are expected to conform to, and be maintained and enforced by institutional norms.

Interorganizational learning – The development of knowledge, skills, and understanding leading to sustainable and beneficial interorganizational relations (see *organizational learning*, *program learning*, and *social learning*).

Intersectoral partnerships – Interorganizational relationships that span across institutional sectors, esp. related to the relations among organizational entities in the nonprofit, private, and public sectors.

Isolated [nodes/dyads] – The state of node not being directly connected to another node within a network. When a *dyad* is isolated, the dyadic nodes are connected to one another but are not directly connected to a third node in the network. Isolated components may be small groups of connected nodes that are disconnected from a larger network component. (see *node*, *dyad* and *component*).

Isomorphic processes – Institutional mechanisms by which organizations are led to conform to the structures of legitimised organizations (thus becoming isomorphic). DiMaggio & Powell (1983) identified three isomorphic processes: 1) *coercive isomorphism*, which develops by way of pressures from the state and other powerful entities; 2) *mimetic isomorphism*, which develops when organizations that are faced with uncertainty seek to replicate institutionally legitimized forms; and 3) *normative isomorphism*, which develops when organizational structures are communicated through professional institutions (e.g., professional associations).

k – a statistic used in small world analysis that measures the level of sparsity in a network, i.e., the average number of ties among network nodes compared to the number of network nodes. When *k* is much smaller than the number of nodes in the network, the network is sparsely connected.

Large-scale networks – Networks with a large number of nodes. In many cases, the identification of a network as being 'large-scale' relates to how easily the network data are managed and analyzed by the software currently available for network analysis. Typical examples from the real world, which can include thousands, if not millions, of nodes, include the Internet, neural networks, transportation systems and disease contagion maps.

Legitimacy – The act or state of being credible or conferring authority. Institutional legitimacy refers to that credibility or authority conferred by institutional agreement or mandate.

Local global culture – Homogeneity of cultures, especially those in large cities, despite cultural, political and ideological differences (Ahmadi, 2003, p. 16).

Local network [in network analysis] – Subparts of a network that act as or can be distinguished as a discrete set of network relations, and which may affect the larger network (see *global network*).

Maintenance purposes – Organizational goals (esp. in interorganizational relations) to ensure that current interorganizational structures, roles and relations persist. Westley & Vredenburg (1991) argued that *egoistic bridges* performed in this capacity.

Market [organizational structure] – In reference to the fluidity of organizational boundaries, is permeable organizational structure determined by market institutional mechanisms (e.g., financial reward), and is thus flexible (Douglas & Wildavsky, 1982 in Lawrence & Hardy, 1999). Contrast with *hierarchical* and *sectarian*.

Match rates [for IDAs] – In reference to Individual Development Accounts, an incentive to save that is a proportion at which a participant's savings are complemented (matched) by funds from nonprofit organizations, foundations, public grants, and private businesses.

Mediating entities –Organizations that facilitate the development and enforcement of institutions (e.g., rules, laws, standards) for the interaction of individuals and organizations or exchanges made in those interactions (esp. pertaining to New Institutional Economics, e.g., North (1993)).

Microenterprise – A very small, privately-held, for-profit company, which is either a sole-proprietorship or a business that employs very few employees, and which is able to be capitalized with small amounts of investment (e.g., less than $1,000).

Multi-institutional dynamics – The development, persistence, change and intersection of institutions. Also termed *multi-sector dynamics* when specifically referring to the dynamical intersection of multiple institutional sectors.

Multiplier effect – A metaphor for a large effect that successively builds on an initial intervention or change, which is based on the multiplier effect commonly associated with the expansion of the money supply through financial intermediaries lending more money than what they currently hold.

Multi-sectoral – Pertaining to the interaction of multiple institutional sectors (usu. more than two sectors), especially when referring to interorganizational relations spanning such sectors (see *intersectoral partnerships*). When such relations include partners representing more than two sectors, they comprise a *multi-sectoral collaboration*. An economic or social welfare intervention, which requires the collaboration of organizations from multiple institutional sectors, is a *multi-sectoral intervention*. The resulting network of relations from such collaborative partnerships is a *multi-sectoral network*.

Mutual influence – In an interorganizational setting, the ability of all organizational partners to affect the decisions and/or decision-making processes of the other partners, regardless of differences in organizational power in the relationships.

Neighborhood [of a node] – All nodes in a network that are directly connected to a specific node.

Network cliques – A structural property of a network that categorizes neighborhoods or groups of nodes according to the number of structural ties that holds the group or neighborhood together. *Network cliquishness* refers to the degree to which a network can be divided into such groups.

Network clustering – A qualified characteristic of a subpart of a network that categorizes neighborhoods or groups of nodes according to a qualified relation or qualified property of the node (e.g., a social network may have clusters of males and clusters of females, or a cluster may be defined by a type of relationship, acquaintances and family relationships).

Nodes [of networks] – The points in a graphic representation of a network. *Node positions* refer to the type of structure developed by a specific location of a node in a network, which, by virtue of that position, convey a node role, e.g., a node holding a 'bridging position' between two clusters of nodes. The mathematical notation (x, y), which indicates the position of the node on a graph is made up of two *vertices*, "x" and "y".

Non-market institutions – Institutions that guide economic behavior, but which do not derive from typical market mechanisms from which emerge institutions for economic exchange (Oberschall & Leifer, 1986). These can be formal institutions, such as those emerging from political sectors, or informal institutions, such as those generated through social relationships.

Order and randomness [in networks] – Types of network configurations based on the predictability of the ties linking nodes. *Ordered networks* have predictable ties – a common example is a lattice. The ties of *random networks* are unpredictable. Erdős & Rényi (1960 in Watts, 2003) argued that each network tie was independent of every other tie. The Hungarian mathematician, Rapoport (e.g., 1957 in Watts, 2003) argued that *random-biased nets* could be constructed using formula that obey certain rules, but are basically randomly generated. Watts (2003) argued that in small world networks, ordered clusters of nodes could be connected by random, cluster-spanning ties.

Organizational learning – The development of knowledge, skills, and understanding leading to sustainable and beneficial organizational structures, roles, and goal attainment (described by Brown & Ashman, 1999) (see *interorganizational learning*, *program learning*, and *social learning*).

Participant Account [for IDAs] – The financial intermediary account (such as at a bank, thrift, credit union, savings & loan, community development bank, etc.) that holds the savings of an Individual Development Account program participant.

Path length [in a network] – The number of steps, node-by-node, to get between two nodes in a network (see *average minimum path length*).

Problem domain – The intersection of institutional sectors wherein problems (e.g., social welfare problems) can be defined and shared cooperatively (Kalegaonkar & Brown, 2000). Nyman (2004) termed this the *opportunity domain* to connote the positive opportunities multi-sectoral parties have for establishing sustainable multi-sector solutions to problems.

Program learning – The development of knowledge, skills, and understanding leading to sustainable and beneficial development, implementation, maintenance, and/or evaluation of an organizational program (described by Brown & Ashman, 1999) (see *interorganizational learning*, *organizational learning*, and *social learning*).

Proto-institutions – Defined by Lawrence et al. (2002) as "practices, technologies, and rules that are narrowly diffused and only weakly entrenched, but have the potential to become widely institutionalized" (p. 283).

Pure bridge – A type of bridging organization that is ideologically centered between peripheral and central (dominant) organizations with which it partners (Lawrence & Hardy, 1999, p. 58).

Reciprocity [in networks] – That a relationship between a pair of nodes is of equal value and weight for each of the nodes, i.e., a tie from point A to point B is also a tie from point B to point A. A *symmetrical relationship* would be one that has equal value for both A and B or is one that is acknowledged by A and B.

Referent organizations – An organization that participates in an interorganizational relationship or collaboration, but which does not serve as a primary operating organization toward the partnership or collaborative goals. Trist (1983) several types of referent organizations and related these types to categories of domain development.

Relational data – Data that describe the relations among members of a network. Scott (2000) distinguishes this type of data from attribute data that would define a set of variables. Streeter & Gillespie (1992) classified relational data into the two types of properties they describe: 1) *relational properties*, which are explained through the types of relationships represented in a network; and 2) *structural properties*, which are the structures that are revealed in the analysis at the individual, group or global network levels.

Reserve Account [for IDAs] – The financial intermediary account (such as at a bank, thrift, credit union, savings & loan, community development bank, etc.) that holds the operational, administrative, and matching funds of an Individual Development Account program.

Roles [of network actors] – Functions of a node in the structure of a network as conveyed by its position in the network or within its local neighborhood.

Scale [in networks] – Pertaining to the connectivity of a network. Amaral et al. (2000) described different types of scale in networks. In *scale-free* networks, the distribution of connectivity decays a power-law as the number of nodes increases, which makes it more likely for new ties to be added to well-connected nodes. In *broad-scale* networks, the distribution of ties observes the power-law but has a sharp drop off at larger numbers of ties per node (p. 11150). *Single-scale* networks have a "fast

decaying tail" (p. 11151), which means that at a certain limit of number of ties per node, the distribution of new ties drops off dramatically.

Sectarian (organizational structure) – In reference to the fluidity of organizational boundaries, is a tightly bounded organizational structure that is regulated by formalized rules and constraints, and which uses decision-making standards that determine the decision-making power of individuals in the organization (Douglas & Wildavsky, 1982 in Lawrence & Hardy, 1999). Contrast with *market* and *sectarian*.

Shortcuts [in networks] – Ties that connect clusters and/or distant nodes in a network, and which thus reduce the geodesic between a pair of nodes.

Small world analysis – The testing of a network to determine if its average minimum path length and clustering coefficient conform to small world properties when tested against a randomly generated network of the same number of nodes and ties. The *small world network method* includes tests to ensure the network under study meets the assumptions for size, sparsity, decentralization and clustering. A *small world network* is one that meets these assumptions, and when a small world analysis is performed, is shown to have a much higher clustering coefficient than its random iteration but has a similar average minimum path length.

Social capital – Following Burt (2000), a metaphor for a valued item exchanged or developed through a network relationship of individuals (e.g., resources, power, trust, values), which, when exchanged, can convey benefits or improve the positions of those who exchange the item, and can benefit a cluster or entire network in the exchange. Such capital is socially-derived, i.e., through social relationships; and may also be social in nature (as opposed to financial capital, which specifically refers to monetary exchanges).

Social change – A change in social institutions that improve the equality, power, opportunities, and circumstances of disenfranchised and/or impoverished peoples. *Social justice* refers specifically to the building of power and improvement of power relations between disenfranchised groups and groups benefiting from dominant institutions.

Social development – An improvement in circumstances of disenfranchised and/or impoverished people that combines economic development strategies and social change goals, and usually includes the participation and leadership of the persons affected by the problem, including political mobilization and other policy-related strategies. A social development approach employs these diverse methods for the purpose of social change.

Social enterprise – A broad term that encompasses a recent movement toward ethical investments by individuals and corporations, corporate social responsibility, a reframing of cooperative movements, and the development of business enterprises that address social change goals. May also include the development of for-profit programs and services to supplement funding for nonprofit organizations.

Social learning – The development of knowledge, skills, and understanding leading to sustainable and beneficial development of social relationships. When performed on a multi-sector level, social learning supports multi-sector capacity-building, mutual influence in decision-making, and the

building of sustainable, multi-sectoral relationships (described by Brown & Ashman, 1999) (see *interorganizational learning*, *organizational learning*, and *program learning*).

Stakeholder group – A group of individuals and/or organizations that are brought together through a common characteristic or interest, and which hold, by virtue of this common interest, one of several different stakes in a developing or changing program, project, movement or event. Usually refers to groups that will benefit from the changes or developments, but can equally refer to a group that will not benefit.

Strategic bridging – A type of collaborative, interorganizational partnership that is multi-sectoral and in which an organization or other entity serves as a mediator among the collaborating parties. This organization is called a strategic bridging organization (SBO).

Strategic choice – Referring to *agency-derived ties* that are strategically chosen by network actors to improve their position, power, or access to resources in a network, or to make changes to the structure of subparts or entire networks.

Structural adjustment programmes – Economic development programs emerging in the late 20th century in which global entities, such as the World Bank and the International Monetary Fund, intervened in developing economies to control and reform the economies of lesser developed countries.

Structural holes – An area of a network where two or more clusters within the network lack a connecting tie (e.g., a *weak tie*). Burt (2000) explains that structural holes can confer advantage and power to those nodes that span the structural hole and connect clusters within a network.

Structure-derived ties – Network ties whose development is influenced by the existing structure of a network (for opp., see *agency derived ties*) (Watts, 2003, p. 72).

Sustainability – The purposeful and positive persistence of an organization, interorganizational structure or multi-sector collaboration in order to ensure that the services or programs it provides continue to positively serve a population.

Ties [of networks] – The relationships between and among network nodes. Network ties can be described by their relative strength to one another wherein *strong ties* are those ties that comprise the ties of network clusters, and are thus more similar to each other than to other ties in a network; and *weak ties* are ties that link network clusters, and are thus less-strongly associated with a particular cluster, and which may have similarities to other types of cluster ties in a network. Ties may also be classified as weighted or unweighted. *Weighted* ties indicate the level of reciprocity in a relationship, whereas *unweighted* ties simply reflect whether or not a relationship exists between a pair of nodes.

Transactions – Relations among persons or organizations in which items of value are exchanged. Items may be physical, such as goods, services or money, or may abstract, such as legitimacy, trust, or power.

Transformative purposes – Organizational goals (esp. in interorganizational relations) to seek changes to the current interorganizational structures, roles and relations persist. Westley & Vredenburg (1991) argued that *altruistic bridges* performed in this capacity.

Transitivity – The number of ties formed between triad groups in a network.

Triadic closure [in networks] – The development of a triad (group of three, tied nodes in a network) over time. Rapoport (e.g., 1957) argued that when an individual was a friend with two other individuals, it was likely that those two friends would develop a relationship (thus closing the triad).

Unidirected [matrix] – A matrix representing the relations of a network in which each row/column and column row pair (usu. showing a "0" for a lack of a relationship and a "1" for a relationship between a pair of nodes or between a case and an affiliation or event).

Appendix B: Assets for Independence Grantees (through Federal Year (FY) 2002)

Contact Success	Acronym	Grantee Name	State	USDHHS Region	1999 Sample	2004 Sample
X	2ndDist	2nd District Educational Charitable Development Project	DC	III		X
X	5thAveComm	Fifth Avenue Committee, Inc.	NY	II		X
X	ActFABC	Action for a Better Community	NY	II		X
X	AffordHous	Affordable Housing Partnership of Albany County, Inc.	NY	II	X	X
X	AidtoVics	Aid to Victims of Domestic Abuse, Inc.	FL	IV		X
X	AllBright	Allston Brighton Community Development Corporation	MA	I	X	X
X	AlternFCU	Alternatives Federal Credit Union	NY	II		X
X	ALULike	ALU Like, Inc.	HI	IX	X	X
X	AtlCoop	Atlanta Cooperative Development Corporation	GA	IV		X
X	BethelNL	Bethel New Life, Inc..	IL	V		X
X	CAA	Community Action Agency	MI	V		X
X	CAAB	Capitol Area Asset Building Corporation	DC	III	X	X
X	CAAOKC	Community Action Agency of Oklahoma City and OK/CN Counties	OK	VI		X
X	CACStaBarb	Community Action Commission of Santa Barbara County	CA	IX		X
X	CACSTX	Community Action Council of South Texas	TX	VI		X
X	CalebCDC	Caleb Community Development Corporation	LA	VI		X
X	CamdenCo	Camden County Council on Economic Opportunity, Inc.	NJ	II		X
X	CAPSonCo	Community Action Partnership of Sonoma County	CA	IX		X
X	CAPSvcs	CAP Services, Inc.	WI	V		X
X	CASA	CASA of Oregon	OR	X		X
X	CathChar	Catholic Charities of the Diocese of La Crosse, Inc.	WI	V		X
X	CathFamSvcs	Catholic Family Services	TX	VI		X
X	CenVTCAC	Central Vermont Community Action Council, Inc.	VT	I	X	X
X	CityofLA	City of Los Angeles	CA	IX		X
X	CityofSA	City of San Antonio Department of Community Initiatives	TX	VI		X

171

Contact Success	Acronym	Grantee Name	State	USDHHS Region	1999 Sample	2004 Sample
X	CityofTucs	City of Tucson	AZ	IX		X
X	CityVision	City Vision, Inc.	MI	V		X
X	CoastEnter	Costal Enterprises, Inc.	ME	I	X	X
X	CommIMPACT	Community IMPACT! Nashville	TN	IV		X
X	CommSvcNet	Community Service Network, Inc.	MA	I		X
X	CoOpprty	Co-Opportunity, Inc.	CT	I		X
X	CSA&DC	Community Services Agency and Development Corporation	NV	IX	X	X
X	CTDOL	State of Connecticut Dept. of Labor	CT	I		X
X	CTEInc	CTE Incorporated	CT	I	X	X
X	CtrWomen&Fam	The Center for Women & Families	KY	IV	X	X
X	Dist7MT	District 7 Human Resources Development Council	MT	VIII		X
X	EBayALDC	East Bay Asian Local Development Corporation	CA	IX	X	X
X	ElPasoCo	El Paso County, Texas	TX	VI		X
X	ElPasoCollab	El Paso Collaborative for Economic and Community Development	TX	VI		X
X	ElPuente	El Puente Community Development Corporation	TX	VI		X
X	EmpRes	Employment Resources, Inc.	MA	I		X
X	EnternED	Enterprise Plus Economic Development	CA	IX	X	X
X	EOASav	Economic Opportunity Authority for Savannah Chatham County Area	GA	IV		X
X	EOAWashCo	Economic Opportunity Agency of Washington County	AR	VI		X
X	EOBClarkCo	Economic Opportunity Board of Clark County	NV	IX	X	X
X	FamSvcs	Family Services Woodfield	CT	I		X
X	FirstCoast	First Coast Workforce Development, Inc.	DL	IV		X
X	FirstState	First State Community Loan Fund	DE	III		X
X	FiveCap	Five Cap, Inc.	MI	V	X	X
X	FoundComm	Foundation Communities, Inc.	TX	VI	X	X
X	FreshMini	Fresh Ministries, Inc.	FL	IV		X
X	GreatRivers	Great Rivers Community Trust	MO	VII		X
X	GulfCoast	Gulf Coast Community Services Associates	TX	VI		X

Contact Success	Acronym	Grantee Name	State	USDHHS Region	1999 Sample	2004 Sample
X	HaciCDC	Hacienda Community Development Center	OR	X		X
X	HeartofAm	Heart of America Family Services	KS	VII	X	X
X	HIAlli	Hawaii Alliance for Community Based Economic Development	HI	IX	X	X
X	HuntCtyMiss	The Huntington City Mission, Inc.	WV	III		X
X	IIBoston	International Institute of Boston	MA	I		X
X	ILCAA	Illinois Community Action Association	IL	V		X
X	INDOC	Indiana Department of Commerce, Community Development Division	IN	V	X	X
X	ISED	Institute for Responsible Fatherhood & Family Revitalization	MD	III	X	X
X	ISED	Institute for Social and Economic Development	IA	VII		X
X	JackCoCAC	Jackson County Civic Action Committee, Inc.	MS	IV		X
X	JEDI	Jefferson Economic Development Institute	CA	IX		X
X	KYRiverFoot	Kentucky River Foothills Development Council, Inc.	KY	IV	X	X
X	LakotaFund	The Lakota Fund	SD	VIII		X
X	LDCofENY	Local Development Corporation of East New York	NY	II		X
X	LearnEx	The Learning Exchange	MO	VII		X
X	LittleDixie	Little Dixie Community Action Agency, Inc.	OK	VI	X (ONLY)	—
X	MercyHous	Mercy Housing California	CA	IX	X	X
X	MesaCAN	Mesa Community Action Network, Inc.	AZ	IX		X
X	MileHighUW	Mile High United Way	CO	VIII	X	X
X	MINeighPart	Michigan Neighborhood Partnership	MI	V	X	X
X	MOAssnCA	Missouri Association for Community Action	MO	VII		X
X	Montachu	Montachusett Opportunity Council, Inc.	MA	I		X
X	MountHope	Mount Hope Housing Company, Inc.	NY	II	X	X
X	NCDOL	North Carolina Department of Labor Wake County	NC	IV	X	X
X	NECommFCU	Northeast Community Federal Credit Union	CA	IX		X
X	NELADelataCDC	Northeast Louisiana Delta Community Development Corporation	LA	VI		X
X	NewAmFound	Anew America Community Corporation	CA	IX		X

Contact Success	Acronym	Grantee Name	State	USDHHS Region	1999 Sample	2004 Sample
X	NewarkPC	Newark Preschool Council, Inc.	NJ	II		X
X	NewCDC	New Community Development Corporation	NE	VII		X
X	NewEntFund	New Enterprise Fund, Inc.	VA	III		X
X	NewVNewV	New Visions, New Ventures, Inc.	VA	III		X
X	NHComLF	New Hampshire Community Loan Fund	NH	I		X
X	NoDadeCDC	North Dade Community Development Corporation	FL	IV		X
X	NPAssist	Non-Profit Assistance Corporation	NY	II		X
X	NWMIHSA	Northwest Michigan Human Services Agency, Inc.	MI	V		X
X	NWNMCDC	Northwest New Mexico Community Development Corporation	NM	VI		X
X	OakLiv	Oakland Livingston Human Services, Inc.	MI	V		X
X	OFANE	Organization for a New Equality	MA	I		X
X	OHCDC	Ohio Community Development Corporation	OH	V	X	X
X	OIC	OIC of the Midwest	MO	VII		X
X	OwsleyCo	Owsley County Action Team	KY	IV		X
X	PADCED	Pennsylvania Department of Community and Economic Development	PA	III	X	X
X	PartAccts	Partnership Accounts for Individual Development	IL	V		X
X	Peninsula	Peninsula Community Foundation	CA	IX	X	X
X	Penquis	Penquis Community Action Program	ME	I	X	X
X	PeopleInc	People Incorporated of Southwest Virginia	VA	III	X	X
X	PeoplesCDC	People's Community Development Corporation	MO	VII		X
X	PortHous	Portland Housing Center, Inc.	OR	X		X
X	RamseyAct	Ramsey Action Programs, Inc.	MN	V	X	X
X	ReDevOpps	Redevelopment Opportunities for Women, Inc.	MO	VII		X
X	RiverCo	Riverside County Department of Community Action	CA	IX	X	X
X	SENDCAA	Southeastern North Dakota Community Action Agency	ND	VIII		X
X	SFranFoun	San Francisco Foundation community Initiatives Fund	CA	IX		X
X	SoARCD	South Arkansas Community Development	AR	VI		X

Contact Success	Acronym	Grantee Name	State	USDHHS Region	1999 Sample	2004 Sample
X	SoFinPart	Southern Financial Partners	AR	VI		X
X	SoMDTriCo	Southern Maryland Tri-County Community Action	MD	III	X	X
X	SpokeNeigh	Spokane Neighborhood Action Program	WA	X		X
X	StarkCo	Stark County Out of Poverty Partnership, Inc.	OH	V		X
X	SteFamFou	Steans Family Foundation	IL	V		X
X	StudAltern	Student Alternatives Program, Inc.	TX	VI		X
X	SuffolkCDC	Suffolk Community Development Corporation	NY	II		X
X	TotalAct	Total Action Against Poverty in Roanoke Valley	VA	III		X
X	TulEdFund	Administrators of the Tulane Education Fund	LA	VI		X
X	TuscaHous	Tuscaloosa Housing Authority	AL	IV		X
X	UniComCtrs	United Community Centers, Inc.	TX	VI		X
X	UpETNHAD	Upper East Tennessee Human Development Agency, Inc.	TN	IV		X
X	UrbLeague	The Urban League of the Upstate, Inc.	SC	IV		X
X	UWCommSvcs	United Way Community Services	MI	V		X
X	UWForsyCo	United Way of Forsyth County	NC	IV		X
X	UWGtrLA	United Way of Greater Los Angeles	CA	IX		X
X	UWGtrStLo	United Way of Greater St. Louis, Inc.	MO	VII	X	X
X	UWKingCo	United Way of King County	WA	X		X
X	UWMetroAtl	United Way of Metropolitan Atlanta	GA	IV		X
X	UWSEPA	United Way of Southeastern Pennsylvania	PA	III		X
X	UWTXGC	United Way of the Texas Gulf Coast	TX	VI		X
X	WCarolCA	Western Carolina Community Action, Inc.	NC	IV		X
X	WECOFund	WECO Fund, Inc.	OH	V		X
X	WestEnt	West Enterprise Center	CA	IX		X
X	WestHous	Westchester Housing Fund	NY	II		X
X	WestPCDC	West Perrine Community Development Corporation	FL	IV		X
X	WICAPAssn	Wisconsin Community Action Program Association, Inc.	WI	V	X	X
X	WIWomBus	Wisconsin Women's Business Initiative Corporation	WI	V	X	X

Contact Success	Acronym	Grantee Name	State	USDHHS Region	1999 Sample	2004 Sample
X	WomSelfEmp	Women's Self Employment Project	IL	V	X	X
X	YouthBuild	YouthBuild USA	MA	I		X
X	YWCAGtrPitt	YWCA of Greater Pittsburgh	PA	III	X	X
X	YWCARMC	YWCA of Rochester and Monroe County	NY	II		X
X	—	CHARO Community Development	CA	IX	—	—
X	—	Community Action of Greene County	NY	II		—
X	—	Douglas Community Development Corporation	OR	X		—
X	—	John Lewis Coffee Shop, Inc.	IA	VII		—
X	—	Mountain Association for Community Economic Development	KY	IV		—
X	—	Neighborhood Housing Services of Fort Worth and Tarrant County	TX	VI		—
Too late	—	New Jersey Department of Community Affairs	NJ	II		—
X	—	People for People, Inc.	PA	III		—
X	—	Prison Fellowship Ministries	VA	III		—
X	—	St. Martin's Child Center, Inc.	MO	VII		—
X	—	Zion Non-Profit Charitable Trust	PA	III		—
	—	Banana Kelly Community Improvement Association, Inc.	NY	II		—
	—	Concord Community Development Corporation	NY	II		—
	—	Lower Eastside People's Federal Credit Union	NY	II		—
	—	Mission of Mercy Empowerment Center, Inc.	MD	III		—
	—	Maryland Center for Community Development	MD	III		—
	—	After School Music Program, Inc.	VA	III		—
	—	South Carolina Association of Community Development Corporations, Inc.	SC	IV		—

Appendix C: Financial Partner Information

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
A1FCU	American 1 Federal Credit Union	www.american1fcu.org A Michigan FCU formed by Jackson Co-op Services.
AB	American Bank (Fond du Lac)	www.ambank.com A local state chartered bank/subsidiary of Main Street Financial Services Corp.
ABCW[1]	AnchorBank	Holding company: Anchor BanCorp Wisconsin, Inc. www.anchorbank.com Serves southern WI.
ABI	American State Bank (Sioux Center)	www.ambankiowa.com Independent bank
ABN[2]	LaSalle Bank	Holding company: LaSalle Bank Corporation www.lasallebank.com Holds LaSalle Bank and Standard Federal Bank serving Chicago and MI. Is a subsidiary of ABN AMRO, a Dutch banking company and the largest foreign bank in the US by assets. ABN AMRO is a superregional bank serving more than 75 countries.
ABOM	Alliant Bank (was listed as Community 1st Bank of Miissouri)	www.alliantbank.com Changed name in Dec. 2003 to "Alliant Bank." Very small bank in Missouri serving Monroe City and Booneville. Website, www.pjms.net/portfolio/web.html is not working yet. (Source of information: www.parismo.org/MonroeCountyAppeal/2003Archives/20031218_wk51.htm)
AFCU	Alternatives Federal Credit Union	www.alternatives.org A CDFI in Ithaca
AFGECU	AFG Employees Credit Union (Church Hill, TN)	www.afgcreditunion.com In nearby Kingsport, TN. Serves employees of AFG. No information available on website, which is in development.
AHI	Arvest Bank & Trust (was listed as Springdale Bank and Trust)	Holding company since 1989: Arvest Holdings, Inc. www.arvest.com/sbt/. Serves AR, OK & MO and is looking to purchase Superior Financial. Walton family (Wal-Mart) owns majority of holdings.
AJB	Andrew Johnson Bank	Small bank serving local areas in Tennessee. Website, www.andrewjohnson.com, not currently working.
ALLE[2]	Allegiant Bank	Holding company: Allegiant Bancorp www.allegiantbank.com. Serves the St. Louis area. To be bought by National City Corporation (NCC-NYSE).
ALLE[2]	Allegiant Bank (was listed as Southside National Bank, St. Louis)	Former holding company, Southside Bancshares Corp., was bought in 2001 by Allegiant Bancorp (see information for Allegiant Bancorp, above) (Source: www.media.corporate-ir.net/media_files/NSD/ALLE/reports/EDGAR9-30-01.pdf.)
AMFI[1]	AMCORE Bank (Rock Falls)	Holding company: AMCORE Financial, Inc. www.amcore.com Serves northern IL and southern WI.
ANB	Amarillo National Bank	Holding Company: Amarillo National Bancorp. Independent bank.
ART	Artisans' Bank (from Artisans Bank)	www.artisansbank.com Independent bank chartered in 1861 in Wilmington.
ASB	Asian Bank	www.theasianbank.com Independent bank serving multilingual Asian customers in Philadelphia since 1999.
ASBC[1]	Associated Bank	Holding Company: Associated Banc-Corp www.associatedbank.com or www.assocbank.com
ASO[2]	AmSouth Bank	Main subsidiary of AmSouth Bancorporation www.amsouth.com
ASO[2]	AmSouth Bank (was listed as First American Bank, Bristol, TN)	Located in Bristol, a dual-state city. Bought by AmSouth Bancorporation, Inc. in 1999 (see above info) (source: www.bizjournals.com/memphis/stories/2000/05/01/story8.html)

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
AZFCU	South Park/Pueblo Gardens Comm. CU (Division of AZ FCU)	www.azfcu.org/about_afcu/history.htm -- Organized in 1936 as the Phoenix City Employees Federal Credit Union. Has merged with eight other credit unions since 1981, including one listed in 2001.
BAC[2]	Bank of America	Holding company: Bank of America Corporation www.bankofamerica.com. Third largest bank in US (behind Chase Morgan and Citibank). Merged with FleetBoston as of 4-1-04, which will expand its holdings into Latin America. In 1998, NationsBank merged with BankAmerica, becoming Bank of America. (Merger not reflected in analysis).
BACCU	Bethel AME Church Credit Union (Saginaw)	No information available over the internet on this credit union, except for the fact that it exists. The AME church has several credit unions throughout the US (and in MI).
BBP	Bank of Brookfield-Purdin	Once called "Bank of Purdin", now serves both Purdin and Brookfield communities in its four MO branches. Independent bank.
BBT[2]	BB&T	Holding company: BB&T Corporation www.bbandt.com Branch Banking and Trust is one of North Carolina's oldest banks.
BBT[2]	BB&T (was listed as First Virginia Bank Southwest)	Acquired by BB&T in October 2003 (see above information).
BBT[2]	BB&T (was listed as First Vantage Bank/Tri-Cities)	First Vantage Bank was bought by BB&T in 2003 (see above information). Originally owned by First Virginia Banks, Inc. (when it was listed as FVB on the NYSE).
BCAR[3]	Bank of the Carolinas	www.bankofthecarolinas.com Serves central NC.
BCFCU	Bar-Cons Federal Credit Union	www.barcons.org/800/default.htm Established in 1965 for the teachers of Bartholomew Consolidated School Corporation. Now membership includes teachers in surrounding counties, county employees and other employees of area businesses.
BFC	Bremer Bank	Parent corporation: Bremer Financial Corporation www.bremer.com Has banks in Minnesota, North Dakota and Wisconsin. Privately held by employees (no public stock), Otto Bremer Foundation and directors. Independent bank.
BFCU	Bethex Federal Credit Union (Bronx)	www.bethexfcu.org/ A community development credit union
BFSB	Bedford Federal Savings Bank	www.bedfed.com -- Mutually owned thrift in IN, serving Lawrence County since 1937.
BK[2]	The Bank of New York	Holding company: The Bank of New York Company, Inc. www.bankofny.com serves NY metro areas.
BLUG[3]	BlueRidge Bank (Floyd)	No website listed. Large community bank based in Floyd and serving VA.
BMO[2]	Harris Bank	Harris Bankcorp, Inc., serves Chicago, Arizona and Florida www.harrisbank.com. Holding company: Bank of Montreal, aka BMO Financial Group www.bmo.com, Canada's oldest and 5th largest.
BNCC[1]	BNC National Bank (Bismark)	Holding company: BNCCORP, Inc. www.bnccorp.com Operates BNC National Bank in ND, MN, and AZ.
BNK[2]	People's Heritage Bank (Portland)	Holding company: Banknorth Group, Inc. www.banknorth.com/default_banknorth.aspx Does business in NY as "Evergreen Bank", and has merged with several other companies in the Northeast, including Bancorp Connecticut, American Financial Holdings, Ipswich Bancshares, and Warren Bancorp. Also includes Bank of New Hampshire, People's Heritage Bank (in ME) (since 1999), and plans to buy CCBT Financial Companies (in MA).
BOAB[3]	Green Lake State Bank (Green Lake)	Holding company: The Baraboo Bancorporation, Inc., which holds several other small banks and is traded OTC. Bank website: www.glsb.com a one-branch bank serving Green Lake, Wisconsin since 1902.

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
BOH[2]	Bank of Hawaii (Honolulu)	Holding company: Bank of Hawaii Corporation www.boh.com. Once a vast international company (e.g., Asia and other countries) as Pacific Century Financial, the now BOH Corporation focuses on HI.
BOKF[1]	Bank of Oklahoma	Holding Company: BOK Corporation www.bokf.com, which also owns, Bank of Texas, Bank of Arkansas, Colorado State Bank and Trust, and Bank of Albuquerque.
BOM	The Bank of Marion (Marion)	www.bankofmarionva.com Serving SW VA. Chartered in 1874, is an independent bank.
BOOM	Bank of Old Monroe	Very small bank serving Missouri areas. No website available.
BPSB	Bippus State Bank	www.bippusbank.com Small bank serving Indiana.
BSB	Bangor Savings Bank (Bangor)	www.bangor.com Serves ME areas.
BSI	Bath Savings Institution	www.bathsavings.com Small bank serving Maine since 1852.
BT	Bankers Trust	Holding company: BTC Financial Corporation www.bankerstrust.com Serves Des Moines and Cedar Rapids, IA. Has a "name change guarantee" that will give customers $100 if they change their name through a merger (Source: https://www.bankerstrust.com/terminal.cfm?category_id=20&sub_id=71&term_id=128). Assumed to not be "Bankers Trust Corporation", which merged with Deutsche Bank AG in 1999, which then became the largest bank in the world and is now being charged with securities fraud.
BTC	Bank of Tennessee	"BancTenn Corp" subsidiary Bank of Tennessee www.happybanking.com/default.asp
C[2]	Citibank (also listed as Citibank, F.S.B., Washington, DC; Citibank F.S.B., Fairfield; Citibank, N.A., New York)	Citibank, N.A. (Citibank (West)), Citibank, F.S.B.) is banking arm of Citigroup, Inc. and is the largest multinational financial company in the world (rising above the Japanese Mizuho Financial in 2003). (www.citigroup.com and www.citibank.com)
C[2]	California Federal Bank (also listed as Cal Fed Bank)	Recently purchased by Citibank in 2002 www.citibank.com, itself an arm of Citigroup, which provides financial services, etc. (see above).
CAC[4]	Camden National Bank (was listed as Camden Federal)	Holding company: Camden National Corporation www.camdennational.com Serves ME.
CACB[5]	Bank of the Cascades (Bend)	Holding Company: Cascade Bancorp www.botc.com
CAPFCU	Appalachian Federal Credit Union (was listed as Central Appalachian Peoples Federal Credit Union)	Dropped "Central" and "Peoples" (Source: August 2003 www.wkkf.org/Programming/RenderRes.aspx?CID=160&ID=3765). No website found.
CATC[3]	Cambridge Trust Co (Harvard Square)	Holding company: Cambridge Bancorp www.cambridgetrust.com
CB	Citizens Bank	Holding Company: Citizens Bancorp www.citizensebank.com Serves Oregon.
CBB	Community Bank of the Bay	www.communitybankbay.com/index.html
CBC[2]	Elkhart Community Bank	Holding company: Capitol Bancorp Ltd. www.capitolbancorp.com/comppro.html Holds several one-branch community banks in MI, AZ, IN, NV, NM, CA, and TX. Elkhart was started in 1999, bank website: www.elkhartbank.com
CBCF[1]	Citizens Bank (Saganaw) (also listed as F&M Bank)	Holding company: Citizens Banking Corporation www.citizensonline.com Owns F&M Banks in Wisconsin and Iowa (since Nov. 1999), and also owns Citizens Bank in Michigan and Illinois. Bank website: www.fmbanks.com (CBCF sold its Minnesota F&M locations in 2001.)
CBI	Centier Bank	www.centier.com Small bank serving Indiana since 1895

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
CBIN[5]	Community Bank of Southern Indiana	Holding company: Community Bank Shares of Indiana, Inc. www.communitybanksi.com (website is not currently working). Also holds Community Bank of Kentucky.
CBK	Central Bank	www.mycentralbank.com/main.html Founded in 1947, serves the Howard County area in Indiana. Privately owned.
CBKC	Central Bank of Kansas City (Missouri)	www.centralbankkc.com A family-owned community bank serving Kansas City area of Missouri, open since 1950. Specializes in economic development community involvement.
CBPA	Community Bank	www.commbankna.com Serving Allegheny, Washington, and Greene Counties in PA. Started in 1904. Used to be known as the "First National Bank of Carmichael, Pennsylvania".
CBSS[1]	Compass Bank	Holding company Compass Bancshares, Inc. www.compassweb.com Operates in the south and southwest.
CBU[2]	Grange National Bank	Formerly owned by Grange National Bank Corp., the holding company was purchased by Community Bank System, Inc. in 2003. It was merged into the corporation's subsidiary, Community Bank (Source: www.mergerstat.com/bookstore/tsearch.htm). Although NY-based, the corporation also serves PA through its acquisitions. Bank website: www.communitybankna.com.
CBY	Central Bank (also First National Bank)	Holding company: Central Bancompany, Inc. www.centralbancompany.com Owns several different banks serving MO, including Central Bank, several First National Banks, Empire Bank, etc. Independent Bank. Assumed to be this company because both grantee and corporation are based in Jefferson City, MO.
CCB	Carter County Bank	www.cartercountybank.com Started in the early 40's, serves Carter County, TN. Locally-owned.
CCBT	Capitol City Bank and Trust	www.capitolcitybank-atl.com Open since 1994, serves a primarily African-American customer base in Atlanta and other Georgia areas.
CCFCU	Community Choice Federal Credit Union	Changing its name from Near Eastside Community Federal Credit Union to the current name in 2003 (Source: http://www.incuplace.org/nr20030220.asp), it is Indiana's only CDCU, located in Indianapolis. Started in 1981. No website found.
CCOFCU	City-County Federal Credit Union (was listed as Wendell Phillips FCU, Minneapolis)	Purchased by City-County Federal Credit Union www.ccfcu.org in 2001 (source: www.mcda.org) serves MN.
CCU	Capital Credit Union	www.capitalcu.com Opened in 1934 and serves persons living or working in Outagamie, Calumet, Winnebago or Brown Counties in Wisconsin.
CDBK[3]	Bank of Floyd	Holding company: Cardinal Bankshares Corporation www.bankoffloyd.com Serves SW VA.
CENCU	Centra Credit Union	www.centra.org Serves people who live or work in 16 Indiana counties. Started in 1940 as "Cummins Employees Federal Credit Union" in Columbus, IN.
CF[2]	Charter One Bank	Holding company: Charter One Financial, Inc. www.charterone.com, of which Charter One Bank is its main subsidiary.
CFB[2]	Commercial Federal Bank	Holding company: Commercial Federal Corporation www.comfedbank.com, which serves several states in the midwest & southwest.
CFBX[1]	Community First National Bank	Holding company: Community First Bankshares www.communityfirst.com Serving western and midwestern states. Soon to be bought by BNP Paribas.
CFCU	Community First CU	www.communityfirstcu.org Serves persons living and working in five counties of northeastern WI.

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
CFFG	Community First Bank	Holding company: Community First Financial Group, headquartered in Indianapolis. People's Trust Bank recently become Community First Bank. The bank serves Corydon, IN. Its former website www.peoples-corydon.com is not working.
CFR[2]	Frost National Bank (was listed as Frost Bank)	Holding company: Cullen/Frost Bankers www.frostbank.com
CITCU	Citadel Credit Union	http://pcu.citadelfcu.org/default.asp Started in 1937 as the "Lukens Steel Company Employees Credit Union", and now serves 200 different employee groups and residents of Chester County and Lancaster, PA.
CITFCU	CitizensFirst Credit Union	www.citizensfirst.com Started in 1937 in Oshkosh, WI. Now serves six counties in WI.
CMA[2]	Comerica Bank (Detroit)	Holding Company: Comerica Incorporated www.comerica.com/cma/cda/stateLogin with HQ in Detroit.
CMCU	Cory Methodist Church CU	No website available. Located in Cleveland, OH and presumably started by the Cory United Methodist Church.
CNBC	City National Bank of New Jersey	Holding company: City National Bancshares Corporation www.citynatbank.com -- Grantee oversees community projects www.state.nj.us/dca/dhcr/ida.htm and www.state.nj.us/dca/dhcr/idacontact.doc
CNBKA[1]	Century Bank	Holding company: Century Bancorp, Inc. www.century-bank.com Serves small and medium-sized businesses in MA.
COAT	Coatsville Savings Bank (was listed as Coatesville Federal Savings)	www.coatesvillesavings.com Changed name in 1991 to "Coatesville Savings Bank". Established in 1919, serves the Coatesville and Oxford areas of PA, independently owned.
COFCU	Choice One Federal Credit Union	www.choiceone.org/default.asp Started in 1941 by Bell Telephone employees. Now serves over 200 different employee groups in PA.
COI[6]	Co-Opportunity, Inc.	Organization holds IDAs through its "limited equity co-operatives" www.volunteersolutions.org/uwcact/org/218599.html
COMCU	Community Credit Union	www.communitycreditunion.com
COMN	Community National Bank	www.cnb1.com/home.htm Locally owned, serving northeast IA, held by Community National Bancorporation (not related to company with same name in GA). Opened in 1997.
CSB	Carver State Bank	www.carverstatebank.com Established in 1927, the bank is a cornerstone of the African American community in Savannah, GA.
CUNACU	CUNA Credit Union (Madison)	www.cunacu.org Formed in 1935 by the Credit Union National Organization, Inc. serving south central WI. In 2002, Portage Credit Union merged with the company, and in 2003, the WI Farm Bureau Credit Union merged with the company.
CVAL[1]	First Financial Bank	Holding company: Chester Valley Bancorp, Inc. www.ffbonline.com Serves Chester County and western PA. While the corporation has been around since 1989, the bank was founded in 1922.
CVLY[1]	PeoplesBank	Holding company: Codorus Valley Bancorp, Inc. www.peoplesbanknet.com Started in 1864, operates in York County, PA.
CVNB&T	Cumberland Valley National Bank (Richmond)	Cumberland Valley National Bank & Trust www.cvnb.com Merged with Corbin Deposit Bank & Trust (also of KY)
CYN[2]	City National Bank	Subsidiary of City National Corporation www.cnb.com, which serves CA
CZBS[3]	Citizens Trust Bank	Holding company: Citizens Bancshares Corporation, one of the largest minority-owned financial companies in the US. Serves Georgia and Alabama, headquartered in Atlanta www.ctbatl.com/frame_set/home.html.

181

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
CZFS[3]	First Citizens National Bank	Holding company: Citizens Financial Services, Inc. www.firstcitizensbank.com Serves three counties in PA.
CZNC[3]	Citizens & Northern Bank	Holding company: Citizens & Northern Corporation www.cnbankpa.com Serves northern PA.
CZPY[3]	Citizens Trust Company	Holding company: Citizens Bancorp, Inc. www.citizenstrustcompany.com Serves three-county area in PA.
DB	Dollar Bank (Pittsburgh)	Dollar Bank, FSB www.dollarbank.com Founded in 1855, strongly independent bank serves Pittsburgh and Cleveland areas.
DCOM[1]	Pioneer Savings Bank	Holding company: Dime Community Bancshares, Inc. www.dsbwdirect.com The bank branch of Dime Savings Bank of Williamsburg is known as "Pioneer Savings Bank." Operates in NYC and Long Island.
DFC	Bank Midwest	Parent company: Dickinson Financial Corporation www.bankmw.com Serves St. Louis and Kansas City areas of MO. Also owns financial entities serving military employees. Privately owned by Dickinson family.
DNBF[3]	Downingtown National Bank	Holding company: DNB Financial Corporation www.dnb4you.com Operating in PA.
EB	Enterprise Bank	Holding Company: Enterprise Bancorp, Inc. www.ebtc.com Serving MA, has shareholders but is not publicly traded
ECFCU	Episcopal Community Federal Credit Union (was listed as Episcopal Federal Credit Union)	www.ladiocese.org/creditunion/ Members are members of Los Angeles diocese or program participants.
EXSR[3]	Exchange Bank of Sonoma County (Santa Rosa)	www.exchangebank.com Serving Sonoma County, CA.
F&MB	Farmers & Merchants Bank of Craig County	Small Bank serving VA Craig County (no website)
F&MBS	Farmers & Merchants Bank Stuttgart	Holding company: Farmers & Merchants Bankshares, Inc. (locally owned) www.fmbarkansas.com
FBF[2]	Fleet Bank (also Listed as Fleet National Bank)	Holding company: FleetBoston Financial Corporation www.fleetboston.com one of the 10 largest banks in the U.S. and operates in about 25 other countries. Prime subsidiary is Fleet National Bank. Merged with Bank of America 4-1-04 (merger information not reflected in analysis).
FBF[2]	Progress Bank	Formerly a subsidiary of Progress Financial Corporation, headquartered in Blue Bell, PA (founded in 1878), the company merged with Fleet Bank in 2004 (see information above).
FBF[2]	Summit Bank	Acquired by FleetBoston in 2001 (see information above). Before that time, the company was held by Summit Bancorp (SUB on the NYSE).
FBNKO[1]	First Bank	Holding company: First Banks, Inc. www.firstbanks.com Has banks in IL, MO, TX, and CA.
FBOPC	First Bank of Oak Park (Chicago)	Holding company: FBOP Corporation www.fbopcorporation.com has subsidiaries in IL, TX, AZ & CA. Bank website: www.1stbankofoakpark.com
FBOT	First Bank	www.firstbanktn.com Started in 1890, First Bank of Tennessee serves Rhea and Roane Counties in TN.
FCBM	First Citizens Bank	www.fcbmaine.com/info.html Locally owned and managed bank in Aroostook County, Maine since 1990.

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
FCBOK	First Commercial Bank	Headquartered in Edmond, OK and also serves OKC. Requested State Charter from National Bank status in 2002 (Source: http://www.osbd.state.ok.us/Banks/Agenda/agd02jun.pdf). No website found.
FCCU	Fox Communities CU	www.foxcommunitiescu.org Created in 1937 to serve Locks Mill employees. Through various mergers, it now serves people in six WI counties, as well as selected company employees.
FCEN	First Century Bank	www.fcbtn.com Started in 1899 as Clairborne National Bank to serve the Appalachian area. Was renamed in 2000 as First Century Bank. Family owned.
FCFCU	Fergus County Federal Credit Union	www.ferguscountyfcu.com
FC-FCU	First Community FCU	www.1stcomm.org Serves Kalamazoo County, started 1938 as the Parchment Employees FCU.
FCNCA[1]	First Citizens Bank	Parent company: First Citizens BancShares, Inc. www.firstcitizens.com of First-Citizens Bank & Trust operating in NC, VA, & WV, as well as Atlantic States Bank in GA and FL. IronStone Bank (the new name for Atlantic States Bank) has branches in TX, CA, & AZ with others planned in NM & CO.
FCUCU	Faith Community United CU	Organized by Mt. Sinai Baptist Church www.faithcommcu.com/aboutus.htm
FDEF[1]	First Federal Bank of Defiance County	Holding company: First Defiance Financial Corporation www.first-fedmidwest.com Name is actually First Federal Bank of the Midwest. Serving Ohio counties.
FDFCU	FirstDay Financial Federal Credit Union (was listed as Dayton Area School Employees CU)	www.firstdayfinancial.org/aboutusHistory.htm Changed name to FirstDay Financial. Was called "Dayton Ohio Teachers Federal Credit Union," although the web page did list the other name at the top. Served Dayton since 1935.
FEBB	Farmers Exchange Bank	Located in Neshkoro, WI, Farmers Exchange Bank serves Marquette and neighboring counties. Its former holding company, Golden Sands Bankshares, Inc. was bought by FEB Bancshares, Inc. in 1999 (completed 2002) and shortened its name from Farmers Exchange Bank of Neshkoro (Source: Federal Reserve: http://a257.g.akamaitech.net/7/257/2422/14mar20010800/edocket.access.gpo.gov/2002/02-30973.htm).
FFBC[1]	Sand Ridge Bank	First Financial Bancorp purchased Sand Ridge Financial Corporation in 1999 (although Sand Ridge Bank still goes by that name). Serves several communities throughout IN. Bank's website does not discuss the merger per se, however, First Financial Bancorp's site does www.ffbc-oh.com/sandridge.html.
FFBNF	First Federal Bank of North Florida	Website (as provided by contact) www.ffbnf.com does not work currently, but bank was confirmed by contact. Bank has been serving FL areas since 1922.
FFBT	First Farmer's Bank & Trust	www.ffbt.com Small, privately held bank in Indiana since 1885.
FFSN	First Federal Savings of Newark (was listed as First Federal Savings & Loan, Newark)	www.firstfederalsandl.com Chartered in 1934, is a mutually-owned company.
FHLB-SF	Federal Home Loan Bank of San Francisco (with Citibank)	www.fhlbsf.com One of 12 banks established by Congress in 1930s, owned by member financial institutions in CA, NV, and AZ. Membership in CA listed here: www.fhlbsf.com/membership/dir/memberlistb.asp
FIB	First Interstate Bank	www.firstinterstatebank.com Serves MT & WY. In 1984, purchased franchise of First Interstate Bancorp, and when that CA-based bank was merged with another, First Interstate kept its name.
FINB	First Independence National Bank	www.finb.com Independent bank serving Detroit.

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
FITB[1]	Fifth Third Bank	Holding company: Fifth Third Bancorp www.53.com operating in midwest, AZ and FL. Name comes from 1908 merger of Cincinnati's Fifth National Bank and Third National Bank (per Hoovers).
FITB[1]	Fifth Third Bank (was listed as Old Kent Bank)	www.oldkent.com Owned by Fifth Third Bancorp since 2001.
FKFS[1]	First Keystone Federal	Holding company: First Keystone Financial, Inc. www.firstkeystone.com Serves Chester, Delaware and Montgomery Counties in PA.
FMB	Farmers and Merchants Bank of Rockford (was listed as Farmers and Merchants Bank)	www.e-fmbank.com Small bank serving WA.
FNBH	The First National Bank of Hebbronville (was listed as 1st National Bank of Hebbronville)	www.fnbhebb.com Small bank serving SW Texas
FNB[2]	First National Bank of Pennsylvania	Holding company: F.N.B. Corporation www.fnbcorporation.com Having moved its headquarters to FL in 2001, it spun off its FL assets and moved back to PA in 2004. Federal Reserve document notes that FNBPA works with the Greater Erie Community Action Committee to implement the state's Family Savings Account program (Source: www.occ.treas.gov/ftp/craeval/mar02/249.pdf).
FNBP[1]	First National Bank	Holding company: FNB Corporation www.fnbonline.com (Grantee in Christiansburg, VA), which also holds FNB Southwest and Salem Bank & Trust.
FNEX	First National Exchange Bank (Roanoke)	Small bank serving Roanoke, VA (two branches). No website available.
FNFG[1]	First Niagara (was listed as Troy Savings Bank)	Holding company: First Niagara Financial Group, Inc. www.fnfg.com The company serves NY. It acquired Troy Financial Group in 2004.
FNSB	Franklin Savings Bank	www.fsbme.com Small bank serving western Maine since around 1868.
FRBK[1]	Republic First Bank (was listed as First Republic Bank)	Holding company: Republic First Bancorp, Inc. www.rfbkonline.com Serves Philadelphia and NJ areas. Also owns First Bank of Delaware, serving Wilmington, DE. Changed name from First Republic Bank.
FSB	First Sentry Bank	www.firstsentry.com Small independent bank
FSBI[1]	Fidelity Bank	Holding company: Fidelity Bancorp, Inc. www.fidelitybancorp-pa.com Bank website: www.fidelitybank-pa.com Serving Pittsburgh since 1927.
FSBK	Farmers State Bank	www.fscbank.com Open since 1878, it is a three-branch bank in MO (locally owned).
FSBM	First State Bank of Middlebury	www.fsbmiddlebury.com -- Locally owned, serving areas of Indiana since 1910.
FSBSD	First State Bank of San Diego, TX	Small bank serving South TX. Is Duval County's depositor (Source: www.caller2.com/2000/august/26/today/local_ne/2830.html). No website available.
FSFF[1]	First Security Federal Savings Bank	Holding company: First SecurityFed Financial, Inc. Serves Eastern European immigrants (e.g., Ukrainian) in the Chicago and Philadelphia areas. No website available. To be purchased by MB Financial, Inc. (MBFI-NASDAQ) (Source: www.ukrweekly.com/Archive/2004/030403.shtml).
FTB	Firstrust Bank	www.firstrust.com/fr/aboutus_index.htm Started in 1934 to serve Philadelphia, now serves several PA counties and Burlington County in NJ. Family owned.
FTFC[1]	First Federal (also listed as First Federal Savings, La Crosse)	Holding company: First Federal Capital Corporation www.firstfed.com Although the bank still retains the "Savings" in its name in some areas, it commonly goes by First Federal Capital Bank. Serving Minnesota, Wisconsin and Illinois. Headquartered in La Crosse.

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
FTN[2]	First Tennessee Bank	Holding company: First Tennessee National Corporation www.firsttennessee.com Owns First Tennessee Bank, and other subsidiaries operate in MS, AR, & TN. Also owns First Horizon Home Loans, which serves 35 states. Looking to change name to First Horizon.
FULT[1]	Fulton Bank	Holding company: Fulton Financial Corporation www.fult.com Multibank corporation serving PA, MD, NJ, and DE. Not to be confused with the Fulton County National Bank, which is a much smaller bank serving portions of PA, but which uses its full name to identify itself.
FULT[1]	Swineford National Bank	www.swineford.com Bought in 1996 by Fulton Financial Corporation (see above).
GABC[1]	First American Bank	www.firstamericanbankfab.com/fab/index.htm Serving Knox County since 1888, First American joined German American Bancorp in 1999 (thus joining other IN community banks: First State Bank, Peoples Bank, and German American Bank -- www.germanamericanbancorp.com
GB	Guaranty Bank	www.guarantybanking.com/about/gbstory.asp Serving SE Wisconsin areas and parts of IL. Founded in 1923.
GCB	Greenfield Co-operative Bank	www.greenfieldcoopbank.com Three locations in MA.
GCSB	Grant County State Bank	Holding company: Grant County State Bancshares, Inc. (headquartered in Swayzee, IN), is increasingly becoming employee-owned (source: www.chicagofed.org/publications/applicationsbulletin/march_6_2004.pdf). No website available.
GHCCU	Greater Harrisburg Community Credit Union	www.ghccu.com Serves persons who live, work, worship, and volunteer in the city of Harrisburg, PA. Started in 2001.
GMB	Great Midwest Bank	www.greatmidwestbank.com/default.htm Serves WI areas.
GSI	Gardiner Savings Institution (was listed as Gardener Savings Bank)	Small bank serving Maine areas -- no website.
HBAN[1]	Huntington Bank (also listed as Huntington National Bank (Toledo) and The Huntington National Bank	Parent company: Huntington Bancshares Inc. www.huntington.com Has bank offices in OH, MI, KY, IN & WV and plans to purchase Unizan Financial (OH)
HBC[2]	HSBC Bank USA	Holding company: HSBC Holdings, plc www.us.hsbc.com Is the UK's largest banking company—superregional. HSBC Bank USA is held by its US subsidiary, HSBC USA, and serves NY, CA, PA, FL, OR, and WA.
HBEK[1]	Humboldt Bank	Holding company: Humboldt Bancorp www.humboldtbancorp.com Liquidated its subsidiary, Bancorp Financial Services, and merged subsidiaries Capital Valley Bank and Tehama Bank. Recently acquired California Independent Bancorp.
HBEK[1]	Feather River State Bank	Was held by California Independent Bancorp until it was acquired by Humboldt Bancorp (see above).
HBKA[3]	Highlands Union Bank	Holding company: Highlands Bankshares www.hubank.com Serves VA, NC, and TN.
HBNC[5]	Horizon Bank	Holding company: Horizon Bancorp, Inc. www.horizon-bancorp.com Headquartered in Indiana, serves NW IN and SW MI.
HCB	Heritage Community Bank	Operates in Greeneville, TN. Opened in 2004 (Source: Greenville Sun, 1-16-04).
HCCU	Hacienda Community Credit Union	Just recently formed, HCCU will be holding the participant IDAs (per grantee contact).
HCU	Heartland CU	www.heartlandcu.org: Based in Madison, WI, it serves SW WI and eastern OH.
HE[2]	American Savings Bank	www.asbhawaii.com Subsidiary of Hawaiian Electric Industries and is third-largest bank in Hawaii.

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
HIB[2]	Hibernia National Bank	Holding company: Hibernia Corporation www.hibernia.com Louisiana's largest bank with branches in Texas and Mississippi. Also plans to purchase TX's Coastal Bancorp.
HOMF[1]	Home Federal Savings Bank	Holding company: Home Federal Bancorp www.homf.com Founded in 1908, the bank converted from a thrift to a commercial bank and serves southern IN.
HRBT[1]	Hudson River Bank & Trust Company	Holding company: Hudson River Bancorp, Inc. www.hudsonriverbank.com Serves upstate NY's "Capital District".
HTBP	Clyde Savings Bank	Holding company: www.hometrustbanking.com Started in 1926, Clyde Savings Bank is one of three community bank affiliates of HomeTrust Bank. Changed its name in 2003.
HTHR[1]	Hawthorne Savings	Holding company: Hawthorne Financial Corporation www.hawthornesavings.com Serves SE CA. Commercial Capital Bancorp (CCBI-NASDAQ) plans to purchase the holding company.
HU[2]	Hudson United Bank	Holding company: Hudson United Bancorp www.hudsonunitedbank.com Serving CT, NJ, NY, and PA. It bought the assets of the failed Connecticut Bank of Commerce. Caters to small and medium-sized businesses.
IBCB	Community Bank of Lawndale	www.cblbank.com Holding company is Sable Bancshares, Inc., which was bought by International Bank of Chicago (IBC Bancorp, Inc.) www.inbk.com in 2003 (source - Bank Mergers & Acquisitions, Vol 18, No. 12 -- http://www.snl.com/products/samples/MMA/sample1.pdf) No info available on IBC Bancorp on Hoovers.
IBCP[1]	Independent Bank West	Holding company: Independent Bank Corporation www.ibcp.com Serves throughout MI areas with its subsidiary (similarly titled) banks.
IBOC[5]	International Bank of Commerce	Holding company: International Bancshares Corporation http://www.iboc.com Serves S. Texas with International Bank of Commerce and Commerce Bank. Majority shareholder is Tony Sanchez, former TX gubernatorial candidate. To buy OK Local Financial.
ICB	Independence Community Bank (was listed as Independence Savings Bank)	Parent company: Independence Community Bancorp www.myindependence.com Serves Brooklyn. Plans to purchase Staten Island Bancorp, parent of SI Bank & Trust.
IFC[2]	Irwin Union Bank & Trust	Holding company: Irwin Financial Corporation www.irwinfinancial.com Is primarily a mortgage company, but has two subsidiaries: Irwin Union Bank & Trust, which provides banking services to IN, MI, and NV; and Irwin Union Bank, which serves AZ, KY, MO, NV, and UT.
INB	Inter National Bank	www.inbweb.com Founded in 1985, the bank is expanding throughout south and south-central Texas, as well as in El Paso.
INVN	Investors National Bank	Three-branch bank in Missouri, headquartered in Chillicothe. aka Investor's Federal Bank. No website available. Held by IFB Holdings, Inc. (Source: www.occ.treas.gov/ftp/craeval/aug03/23232.pdf)
JCB	Johnson County Bank	Has just created new website www.johnsoncountybank.com, but it is not fully functional. Located in Mountain City, TN.
JPM[2]	Chase Bank of Texas (also listed as Chase Manhattan Bank, Stamford, CT)	www.jpmorganchase.com Second largest financial services firm in US with 2001 merger of JP Morgan and Chase Manhattan. Seeking purchase of Bank One (waiting for regulatory approval).
KEY[2]	Key Bank (Portland)	Holding company: KeyCorp www.key.com Interstate bank.
KSB	Kennebec Savings Bank	www.kennebecsavings.com Started in 1870, serves small area of Maine
LARL[5]	Laurel Savings Bank	Holding company: Laurel Capital Group, Inc. www.laurelsb.com Serves Pittsburgh, as well as Allegheny and Butler Counties in PA.

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
LB	Legacy Bank	Holding company: Legacy Bancorp. Chartered in 1999, Legacy Bank was recently awarded the third largest CDFI grant by the Treasury Department, and is the only CDFI in Wisconsin (Source: www.thewheelerreport.com/releases/Oct03/Oct8/1008legacydistressed.PDF). It is also the first bancorp in the US to be organized by African-American women. Located in Milwaukee. No website found.
LBT	Lafayette Bank & Trust	www.lbtbank.com Small bank serving areas in Indiana since 1899.
LFC	Scott Valley Bank	Holding company: Learner Financial Corporation www.scottvalleybank.com Provides banking services to northern CA areas.
LKFN[1]	Lake City Bank	Holding company: Lakeland Financial Corporation www.lakecitybank.com Founded in 1872, serves northern IN.
LOSB	Lake Osceola State Bank (Scottville)	www.losb.com (Website for customers only) Emerged from West Shore Corp., a grouping of local banks to get computer services. In business since 1969.
LXBK[1]	Lexington State Bank	Holding company: LSB Bancshares, Inc. www.lsbnc.com Serves north central NC.
MBVT[1]	The Merchants Bank	Holding company: Merchants Bancshares, Inc. www.mbvt.com Serves the VT area.
MCBC[1]	Macatawa Bank	Holding company: Macatawa Bank Corporation www.macatawabank.com Purposely local community bank serving the Michigan area (although merged with Grand Bank in 2001).
MCFCU	Midwest Community FCU (Defiance)	www.midwestcommunity.org Serves seven counties in Ohio. No history on website.
MCGB	McGehee Bank (McGehee)	www.mcgeheebank.com A four-branch bank in SE AR, was started in the early 40's.
MCU	Marine Credit Union	www.marinecu.com Serves certain counties and employees of Wisconsin.
MFBD	Merchants & Farmers Bank of Dumas (Dumas)	www.mfbanknet.com Serves SE AR, started in 1909, and is subsidiary of M&F Financial Corporation (a two-branch bank holding company).
MFC	MidFirst Bank	Holding company: Midland Financial Company www.midfirst.com Started in 1982 and serves OK.
MFFCU	Mennonite Financial FCU	www.mennonitefinancial.com Serves Mennonites, Amish, Brethren in Christ, and Anabaptists in the US. Chartered in 1955. Located in PA and OH.
MI[2]	M & I Mid-State Bank (also listed as M&I Bank of Southern Wisconsin, Dodgeville and M&I Marshall & Illsley Bank)	Holding company: Marshall & Ilsley Corporation www.micorp.com Bank subsidiary is M & I Marshall & Ilsley Bank (www.mibank.com) locations in WI, MN, MO, AZ, NV, IL & FL. Certain locations were merged with M&I Corp in 2001 and other dates.
MMBI[3]	Fortress Bank (Westby)	Holding company: Merchants and Manufacturers BanCorp www.mmbancorp.com (since 2002), which is itself a member of Community BancGroup www.communitybancgroup.com. Bank website: www.fortressbanks.com
MNBI	Mercantile National Bank of Indiana	www.mercantileweb.com Started in 1932, the bank is family-owned. It is based in Hammond, IN and serves NE IN.
MORE[1]	Monroe Bank	www.monroecountybank.com Holding company is Monroe Bancorp, headquartered in Bloomington, IN, since 1892
MRBK[1]	Bank of Southern Maryland	Holding Company: (since 1971) Mercantile Bankshares Corporation www.mercantile.net Recently bought F&M Bancorp, which owned Farmers and Merchants Bank. Holdings include Mercantile Safe Deposit and Trust, Annapolis Bank and Trust, Baltimore Trust, Calvert Bank, Chestertown Bank, Citizens National Bank, County Bank, Farmers and Mechanics Bank, Fidelity Bank, First National Bank of St. Marys, Forest Hill Bank, Marshall National Bank and Trust, The National Bank of Fredericksburg, Peninsula Bank, Peoples Bank, Potomac Valley Bank, St. Michaels Bank, and Westminster Union Bank. Bank website: www.bankofsouthernmd.com

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
MRBK[1]	Calvert Bank and Trust (Prince Frederick)	Community Bank, but an affiliate of Mercantile Bankshares Corporation since 1982 (see above). Bank website: www.calvertbank.com
MRBK[1]	First National Bank of St. Mary's (Leonardtown)	Holding company: Mercantile Bankshares Corporation (since 1980), see above. Bank website: www.firstnationalstmarys.com.
MSFG[1]	Regional Bank	Holding company: MainSource Financial Group www.mainsourcefinancial.com Serves "Kentuckiana." Bank website: www.regionalbank.com
MSTI[3]	BankIllinois	Holding company: Main Street Trust, Inc. www.bankillinois.com (bank website) Other subsidiaries include The First National Bank of Decatur, and FirsTech.
MTB[2]	M & T Bank	Holding company: M&T Bank Corporation (Manufacturers and Traders Trust Company) www.mandtbank.com. In 2003, bought Allfirst and Allied Irish Banks. Serves NY, PA, VA, MD, WV & DC.
NATCOM	National Bank of Commerce in Superior	Holding company: NATCOM Bancshares, Inc. www.nbofc.com Serves Wisconsin areas
NBI	The National Bank of Indianapolis	Holding company: The National Bank of Indianapolis Corporation www.nbofi.com Serves Indianapolis area. Privately owned.
NCC[2]	National City Bank (also listed as National City Bank of Michigan)	Holding company: National City Corporation www.nbronline.com Serves IL, MI, IN, OH (base), KY & PA
NCF[2]	Central Carolina Bank & Trust Company	Holding company: National Commerce Financial Corporation www.ncfcorp.com Serves the SE also holding National Bank of Commerce (aka NBC Bank) (in the SE), Central Carolina Bank & Trust, and half of First Market Bank
NCF[2]	NBC Bank	Holding company: National Commerce Financial Corporation (see above)
NCFCU	NorthSide Community Federal Credit Union	http://collaboratory.nunet.net/itrc/ncfcu/ Serves persons living or working in the Northside Chicago area.
NECFCU	Northeast Community FCU	www.necfcu.org (is updating website) Located in San Francisco, CA. Collaborates with the Asian and Pacific Islander Business and Information Services (apiBIS).
NHCFCU	New Horizons Community FCU	Serves the Kensington and Fishtown areas of Philadelphia, founded through the New Kensington Neighborhood Advisory Committee in the 1980s (Source: www.ncua.gov/org/orgchart/ocud/CreditUnionPartnerships.pdf).
NKSH[5]	The National Bank of Blacksburg	Holding company: National Bankshares, Inc. www.nbbank.com Started in 1891, the corporation holds this bank and Bank of Tazewell County. Serves SW VA.
NPBC[1]	National Penn Bank	Holding company: National Penn Bancshares, Inc. www.natpennbank.com Serves SE PA. Plans to buy Peoples First (holding company for Peoples Bank of Oxford).
NSBM	Norway Savings Bank	Holding company: Norway Bancorp, Inc. www.norwaysavingsbank.com Serves western and southern Maine since 1866.
NSBV	Northern State Bank of Virginia	www.nsbov.com Locally owned bank in Virginia, MN
NSBVT	Northfield Savings Bank	www.nsbvt.com Started in 1867, the bank became a mutual holding company in 2001. Serves central VT.
NWIN[3]	Peoples Bank SB	Holding company: NorthWest Indiana Bancorp. Small bank serving areas of Indiana since 1910. Bank website: http://www.peoplesbanksb.com

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
NWSB[1]	Northwest Savings Bank	Holding company: Northwest Bancorp, Inc. www.nwsb.com Holds Northwest, serving PA and NE OH, and Jamestown Savings Bank, serving SW NY. The Bancorp is three-quarters owned by a mutual holding company.
ONB[2]	Old National Bank	Holding company: Old National Bancorp www.oldnational.com Serves IN, IL, KY, OH, and TN.
ONE[2]	Bank One	Holding company: Bank One Corporation www.bankone.com Is the sixth largest US Bank and serves southern and midwestern states. To be purchased by JP Morgan Chase.
OSUFCU	OSU FCU	www.osufederal.com/about_us Started in 1954 as the "Oregon State College Federal Credit Union". When the school changed its name to Oregon State University, so did the credit union.
OURCU	O.U.R. Credit Union	O.U.R. FCU is situated in Eugene Oregon (Source: Credit Union Association of Oregon) serving low-income populations. No website listed.
PBCT[1]	People's Bank (also was listed as Peoples Savings Bank, Bridgeport)	www.peoples.com Founded in 1842, operates in CT and is the largest state-chartered bank in that state. Operates as a mutual holding company.
PBIX[1]	Patriot Bank	Holding company: Patriot Bank Corp. www.patriotbank.com Serves Philadelphia. To be bought by Susquehanna Bancshares.
PCBC[1]	Santa Barbara Bank & Trust	Holding company: Pacific Capital Bancorp www.pcbancorp.com Holds Pacific Capital Bank, which operates as several subsidiaries, including Santa Barbara Bank & Trust. Serves central CA coast.
PCPFCU	People's Community Partnership FCU	www.pcpfcu.org (website not working) Started in 2001 to serve Oakland.
PCU	Patelco Credit Union	www.patelco.org San Francisco-based, started by the Pacific Telephone and Telegraph Company to serve its employees, now the 10th largest CU in the US
PFBT	Phoenixville Federal Bank & Trust	www.phoenixfed.com Open since 1912, in 1939 it was given a federal charter as the Phoenixville Federal Savings & Loan Association. Serves Phoenixville, Collegeville, Royerford, and Pikeland, PA.
PFSB	People's Federal Savings (Allston)	www.pfsb.com Local bank serving MA areas
PMGB	Planters & Merchants (Gillett)	Planters and Merchants Bank is a one-branch bank in Gillett, AR. It is not to be confused with the much larger Merchants and Planters' Bank, also serving AR areas. No website found.
PNBL	The Pioneer National Bank of Ladysmith	Local bank (no website could be found)
PNC[2]	PNC Bank (also listed as Pittsburgh National Bank)	Holding company: The PNC Financial Services Group, Inc. www.pnc.com The PNC Bank serves DE, KY, NJ, OH & PA. Pittsburgh National Bank was formerly owned by Pittsburgh National Corporation until a merger in 1983.
PPFR[3]	Peoples Bank of Oxford	Holding company: Peoples First, Inc. www.peoplesoxford.com Serves SE PA and NE MD. To be bought by National Penn Bancshares.
PRWT[5]	PremierWest Bank (also listed as Mid Valley Bank)	Holding company: PremierWest Bancorp www.premierwestbank.com for PremierWest Bank and CA-based Mid Valley Bank (as of 2004)
PSBM	PeoplesBank	www.bankatpeoples.com Started in 1885, now is PeoplesBank. Serves several communities in MA.
PVSA[1]	Parkvale Savings Bank	Holding company: Parkvale Financial Corporation www.parkvale.com Serves Pittsburgh areas.

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
QCRH[5]	Quad-City Bank and Trust	Holding company: QCR Holdings, Inc. www.qcbt.com Formerly Quad City Holdings, the holding company operates the bank in IA and in Moline, IL. The company also owns Cedar Rapids Bank and Trust Co., which opened for business in 2001.
RB	Community First Bank	Community First Bank of Glendive, which was held by the Community First Bancorporation, which was slated in 2002 to be bought by Richey Bancorporation – Grantee website: www.hrdc7.org/idas.htm
RBCAA[1]	Republic Bank & Trust Company	Holding company: Republic Bancorp, Inc. www.republicbank.com Serves KY and IA, as well as nationwide internet customers.
RBOA	Reliance Bank	www.reliancebank.com A mutual savings bank, has been in business for "200 years". Has seven branches in PA.
RBS[7]	Commonwealth Bankitizens Bank (also listed as Citizens Bank, Citizens Bank of Massachusetts and Citizens Bank of Pennsylvania)	Commonwealth Bank became a part of the superregional The Royal Bank of Scotland Group in 2003 through the large US subsidary, Citizens Financial Group, Inc.'s purchase of Commonwealth Bancorp in 2003. RBS trades on the FTSE. Citizens Financial Group www.citizensbank.com serves New England, and is the U.S. retail banking arm of the Royal Bank of Scotland
RCCU	Riverside County's Credit Union	www.rccu.org Serves residents and employees of Riverside County, CA. Originally founded to serve area teachers.
RCU	Royal Credit Union (RCU)	www.rcu.org Started in 1964 by the employees of the UniRoyal plant in WI, but has expanded membership to 27 other WI groups.
REBC[1]	National Bank of the Redwoods	Holding company: Redwood Empire Bancorp www.nbronline.com Serves CA areas.
RY[2]	RBC Centura Bank (was listed as Centura Bank)	Bought by the Royal Bank of Canada 2001 www.rbccentura.com The formerly named Centura Banks serves the southeast US. Through RBC Centura, it also owns Eagle Bancshares (GA), Admiralty Bancorp (FL) and Provident Financial Group (FL).
SB	StonehamBank (was listed as Stoneham Savings Bank)	www.stonehambank.com Small local bank once known as Stoneham Co-Operative Bank
SB&T	Salin Bank & Trust	Holding company: Salin Bancshares, Inc. www.salin.com A family-owned bank serving Indiana. Has bought various individual and small group purchases (leftovers from larger mergers, e.g., BankOne).
SCICAPCU	SCICAP Credit Union (Leon)	Stands for South Central Iowa Community Action Program Credit Union (http://www.iowacommunityaction.com/SCICAPprograms.htm)
SDC	Delta Southern Bank (Ruralville)	Changed to current name in 2002. Was "Bank of Ruleville," merged with Southern Development Bancorporation in 2001 www.southerndevelopmentbancorp.com, and combined with Delta Bank & Trust. Open since 1902 (Source: http://www.msbusiness.com/archives/24v39n/Metro/13738.php).
SDC	First National Bank of Phillips Co.	www.fnbpc.com -- Holding company is Southern Development Bancorporation (see above). Holding company also owns The Good Faith Fund, Delta Southern Bank, the grantee, Southern Financial Partners (the grantee), and other development corporations & companies
SEFCU	State Employees FCU	www.sefcu.com/membership/history.html Started in 1934 to serve state employees in Albany, NY, the CU recently changed its name to "SEFCU". Has merged with several credit unions since its inception.
SENFCU	Sentry FCU	www.sentryfcu.org/sentryfcu Founded in 1969 for the employees of Scott Paper Company, it now serves all of Delaware County, PA.
SF	Security First (Rushville)	www.security1stbank.com/aboutus Bank & other financial services serves NE & SD (branch listed is in NE). Formerly Stockmens National Bank.

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
SFC	Stockman Bank of MT	Holding company: Stockman Financial Corporation www.stockmanbank.com Originally started from Miles City Bank in 1953, has grown through acquisition to serve MT and WY.
SFCU	Schuylkill Federal Credit Union	www.schuylkillfcu.com/index.html Chartered in 1958 as the "Pottsville Belco Employees Federal Credit Union" and changed name in 1983. Serves several employee groups in the Pottsville, PA area.
SFNC[1]	Simmons First National-Pine Bluff	Holding company: Simmons First National Corporation www.simmonsfirst.com One of the largest in AR. Includes community banks under the brand name and is buying six more AR banks from Union Planters.
SFSB	Security Federal Savings Bank	www.secfedbank.com A mutual financial institution serving Cass and Howard Counties of IN.
SIFS	Sanford Institution for Savings	No website available. Depositor-owned, mutual savings bank serving York County areas in Maine. Chartered in 1933 (source: http://www.seacoastonline.com/2003news/yorkweekly/12242003/business/67210.htm)
SKYF[1]	Sky Bank	Holding company: Sky Financial Group, Inc. www.skyfi.com Serves OH, MI, IN, PA, and WV. Plans to buy Ohio's Second Bancorp.
SOTR[1]	SouthTrust Bank	Holding company: SouthTrust Corporation www.southtrust.com is the largest in AL and has 700 branches in the SE and Texas. It is buying FloridaFirst Bancorp.
SOV[2]	Sovereign Bank	Holding company: Sovereign Bancorp, Inc. www.sovereignbank.com One of the largest US thrifts, has over 500 branches throughout the Northeast. It bought First Essex Bancorp in 2004 and is looking to purchase Seacoast Financial Services (of MA).
SRCE[1]	1st Source Bank	Holding company: 1st Source Corporation www.1stsource.com Serves N Indiana and SW Michigan.
SSB	Seattle Savings Bank	Holding company: Seattle Financial Group www.seattlesavingsbank.com Has several mortgage subsidaries and operates in WA, AK, AZ, CA, FL, HI, ID, MI, MN, NV, OK, OR, PA and TX. The bank was created in 1999. Locally owned through company.
SSBMO	Senath State Bank	A very small bank serving Kennett, Arbyrd, and Senath, MO. No website found for bank. (Source: www.thebuzz.semissourian.com/main.wsi?group_id=174)
SSFCU	Security Service FCU (San Antonio)	www.ssfcu.org Worldwide credit union started in 1956 in San Antonio to service the USAF Security Service Command.
STAR	STAR Financial Bank	Holding company: STAR Financial Group, Inc. www.starfinancial.com Serves central and northeast Indiana since 1943. Name is based on the first letters of the founders' names.
STBA[1]	S&T Bank	Holding company: S&T Bancorp, Inc. www.stbank.com Operates in western PA.
STI[2]	SunTrust Bank	Holding company: SunTrust Banks, Inc. www.suntrust.com Operates throughout FL, GA, MD, TN, VA & DC.
STSA[1]	Sterling Savings Bank	Holding company: Sterling Financial Corporation (unrelated to PA company) www.sterlingsavingsbank.com Has branches in WA, OR, ID, MT. Bought Empire Federal Bancorp (MT) in 2003 and Klamath First Bancorp (OR) in 2004.
SUBI[1]	SunBank	Holding company: Sun Bancorp, Inc. www.sunbancorp.com Serves central and northeastern PA. Unrelated to NJ corporation of the same name that serves Philadelphia, but operates under the name Sun National Bank.
SUM	Summit Bank	www.summitbankdirect.com Serving AR areas and appears to be a local bank
SUMSC	Summit National Bank	Holding company: Summit Financial Corporation www.summit-bank.com/home.html Serves upstate SC.

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
SUSQ[1]	First Susquehanna Bank & Trust	Holding company: Susquehanna Bancshares, Inc. www.susqbanc.com Serves PA, MD, and NJ with various subsidiary banks. Bank website: www.thefirst.com
SVB	Siuslaw Bank (was listed as Siuslaw Valley Bank)	Holding company: Siuslaw Financial Group, Inc. www.clicksvb.com Chartered in 1964, changed name in 2002 to Siuslaw Bank. Serves Lane County, primarily.
SWBT[1]	Southwest Bank of TX, NA	Holding company: Southwest Bancorporation of Texas, Inc. www.swbanktx.com Serves the Houston-Galveston area, and as of 2004 the Dallas area with its purchase of Lone Star Bank.
SWFCU	School Workers FCU	www.schoolworkersfcu.org Founded in 1941, serves selected school workers and members of various churches, and residents of various counties in NC. In 2002, merged with Rowan-Iredell Area CU.
TCFCU	T&C Federal Credit Union (Pontiac)	https://www.tcfcu.org/newhome/home.php3 Started in 1936, to serve employees of General Motors Truck Corporation in Pontiac, MI. It now serves Oakland County as well as several other employee groups in MI.
THSB	Terre Haute Savings Bank	www.thsbank.com Since 1869 locally owned and operated in the Wabash Valley of IN.
TIN[2]	Guaranty Bank	Holding company: Temple-Inland Financial Services, Inc. (dba Guaranty Financial Services) provides banking [loan] services to CA and TX. Indirect subsidiary of Temple-Inland, Inc. (TIN) Websites: www.guarantygroup.com & www.bank.guarantygroup.com
TOFC[1]	Tower Bank & Trust	Holding company: Tower Financial Corporation www.towerbank.net Formed Tower Bank & Trust in 1999 to serve as a community bank institution where many local banks had been merged into larger ones. Serves Fort Wayne with three branches.
TRBS[1]	Texas State Bank	Holding company: Texas Regional Bancshares, Inc. www.trbsinc.com Serves Rio Grande Valley, Corpus Christi and Houston areas of TX. Second-tier holding company, Texas Regional Delaware, owns the bank.
TSI	The Savings Institute	http://savingsinstitute.com Incorporated in 1842 as the Willimantic Savings Institute. Serves MA areas
TUFCU	The United FCU	www.tufcu.com Serves Morgantown, WV and Mt. Pleasant & Uniontown, PA. No information available on history from website.
UB[2]	Union Bank of California	Holding company: UnionBanCal Corporation www.uboc.com Operates in CA, OR, WA and the Pacific Rim. Mitsubishi Tokyo Financial Group, one of Japan's largest banking companies, owns two-thirds of the corporation.
UB&TC	United Bank and Trust Company (was listed as United Bank and Trust)	No website listed, but bank is located in New Orleans and is a CDFI, among other community development titles.
UBI	United Bank of Philadelphia	Holding company: United Bancshares, Inc. www.unitedbankofphila.com Is an African-American, privately controlled holding company serving Philadelphia since 1992. Not to be confused with United Bancshares, Inc. of OH, or with United Bankshares in WV.
UCBH[1]	United Commercial Bank	Holding company: UCBH Holdings, Inc. www.ibankunited.com Caters to Chinese-American community in California with multi-lingual service,
UMPQ[1]	Umpqua Bank	Holding company: Umpqua Holdings Corporation www.umpquabank.com Serves OR and SW WA. Bought Centennial Bancorp in 2002.
UNB[4]	Union Bank (Morrisville)	Holding company: Union Bankshares, Inc. www.unionbankvt.com Also holds Citizens Bank & Trust and Union Bank serving VT.
UNIZ[1]	Unizan (also listed as UNB and United National Bank)	Holding company: Unizan Financial Corp. www.unizan.com Created through a 2002 merger of BancFirst Ohio and UNB Corp (www.united-bank.com leads to unizan.com). Huntington Bancshares is purchasing the holding company.

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
USB[2]	Bay View Bank (San Leandro)	Holding company: U.S. Bancorp www.usbank.com Operates mainly in western and mid-western states.
USB[2]	US Bank (was listed as Firstar Bank)	Firstar acquired US Bancorp (holding company for US Bank) in 2001, but took its name (see above).
USB[2]	US Bank (was listed as Mercantile Bank, Firstar)	Mercantile Bancorporation merged with Firstar in late '90s. Firstar acquired US Bancorp (holding company for US Bank) in 2001 (see above).
USFCU	Ukrainian Self-Reliance Federal Credit Union	The Ukrainian SelfReliance of Western Pennsylvania Federal Credit Union serves the southeast PA areas since 1973 (started in Pittsburgh). Ukrainian Selfreliance is a nonprofit group www.samopomich.com
UVSP[1]	Univest National Bank & Trust (was listed as Union National Bank & Trust Company)	Holding company: Univest Corporation of Pennsylvania www.univest-corp.com Formed the bank in 2003 with a merger of Union National Bank and Pennview Savings Bank. Serves SE PA.
VDCU	Vermont Development Credit Union	www.vdcu.org Founded in 1989 by Burlington Ecumenical Action Ministry. In 2002, VDCU partnered with Banknorth Vermont to create the Vermont Affordable Lending Partnership.
VOCU	Valley Oak Credit Union (Clovis)	www.valleyoak.org Serves Tulare & Madera counties in CA, as well as selected groups in other CA counties.
VYFC[3]	Valley Bank	Holding company: Valley Financial Corporation (no website listed). Serves the Roanoke, VA area.
WAIN[1]	Wainwright Bank	Holding company: Wainwright Bank & Trust Company www.wainwrightbank.com Founded in 1987, the bank serves the Boston area.
WBC	Peoples Bank of Madison County (was listed as Peoples Bank and Trust Co of Madison County, Richmond)	www.whitakerbank.com Chartered as Peoples Bank & Trust in 1970. Together with several other KY banks, they now form Whitaker Bank Corporation of Kentucky to serve E. KY.
WB[2]	Wachovia Bank (was listed as First Union and as Merchant's National Bank)	Holding company: Wachovia Corporation www.wachovia.com Formed in 2001 when First Union took over Wachovia and took smaller corp.'s name. Now the 4th largest bank in US. First Union bought Merchant's National Bank.
WBK	The First National Bank (Cass Lake)	Federal Reserve document (www.federalreserve.gov/releases/h2/20010825/h2.pdf) cites decision to allow Western Bancorporation to buy bank in 2001. Formerly owned by Cass Lake Company, a one-bank holding corporation.
WBNK[5]	Waccamaw Bank	Holding company: Waccamaw Bankshares, Inc. www.waccamawbank.com Started in 1997, and became a one-bank holding company in 2001. Serves southeastern NC.
WBS[2]	Webster Bank	Holding company: Webster Financial Corporation www.websterbank.com Serves CT.
WCBO[1]	West Coast Bank	Holding company: West Coast Bancorp www.westcoastbancorp.com Unrelated to CA company, serves OR & WA.
WCCU	WESTconsin Credit Union (Menomonie)	www.westconsincu.org. Started as Menomonie Farmers Credit Union in 1939. Serves western Wisconsin counties.
WFC[2]	Wells Fargo Bank (also listed as Wells Fargo Bank Northwest, N.A.; Norwest Bank WI, Milwaukee; Norwest Bank Minnesota South, Bermidii; and Norwest Banks Nevada, Reno	Holding company: Wells Fargo & Company www.wellsfargo.com Is 5th largest in US, and doing international trade with HSBC. Bought Pacific Northwest Bancorp in 2003.
WFC[2]	Marquette Bank	Marquette Bancshares, Inc., based in Minneapolis, was purchased by Wells Fargo in 2002 (see above) (source: http://www.bizjournals.com/milwaukee/stories/2001/10/01/daily44.html?jst=s_rs_hl)

Acronym[†]	Financial Partner Name*	Holding Company (if applicable), Background and Other Information on Financial Partners
WFSB	Washington Federal Savings Bank	Holding company: WFSB Mutual Holding Company www.washfed.com Serves PA areas.
WL[2]	Wilmington Trust	Holding company: Wilmington Trust Corporation www.wilmingtontrust.com Operates in DE, MD & PA. Growing into other states and countries through acquisition.
WM[2]	Washington Mutual Bank	Holding company: Washington Mutual, Inc. www.wamu.com Is the largest thrift in the US and operates nationwide. Is selling its Washington Mutual Finance Division (consumer loans) to CitiFinancial .
WPBT	West Plains Bank & Trust Co.	www.westplainsbank.com Serves West Plains, MO and surrounding areas.
WTCU	West Texas Credit Union (El Paso)	http://westtex.cuportal.com/portal.asp Founded in 1964, was chartered to serve state employees in the West Texas area. Now serves many different employee groups and residents of the area through mergers with other employee credit unions.
WTNY[1]	Whitney National Bank	Holding company: Whitney Holding Corporation www.whitneybank.com Serves LA, AL, FL, MS & TX.
WVFC[1]	West View Savings Bank	Holding company: WVS Financial Corp. www.westviewcc.net/westviewsavingsbank.htm Serves Pittsburgh, PA.
WYPT[1]	Waypoint Bank	Holding company: Waypoint Financial Corporation www.waypointbank.com Serves PA and MD. To be bought by Sovereign Bancorp.
ZION[1]	California Bank & Trust	Subsidiary of Zions Bancorporation since 1998 http://www.zionsbancorporation.com
ZION[1]	National Bank of Arizona	www.nbarizona.com Subsidiary of Zions Bancorporation since 1994

Notes:
* Duplicate names are for information purposes only to indicate name changes, mergers, or other pertinent information.
[†] Unless noted otherwise (see below), acronyms were created by the researcher.
[1] Acronym as listed on the National Association of Secuities Dealers Automatic Quotation System (NASDAQ).
[2] Acronym as listed on the New York Stock Exchange (NYSE).
[3] Acronym as listed in "Over the Counter" (OTC) public stock offerings.
[4] Acronym as listed on the American Stock Exchange (AMEX).
[5] Acronym as listed on the NASDAQ SC ("Small Cap") stock offerings.
[6] Organization holds its own accounts.
[7] Acronym as listed on the London Stock Exchange (FTSE). "FT" stands for "Financial Times," the name of a financial newspaper originally partnering with the London Stock Exchange to provide the stock index.

Appendix D: Data Language (DL) Files

<u>1999 Incidence Network</u>

```
dl
nr=38 nc=116
row labels embedded
column labels embedded
format = nodelist2
data:
AffordHous HBC PSB SEFCU TROY
AllBright CCFC EBTC PFSB PSBM SOV
ALULike BOH HE
CAAB C
CenVTCAC MBVT NSBVT UNB VDCU
CoastEnter BSB BSI CAC CCU GSI KSB NSBM SIFS
CSA&DC PNB USB
CTEInc CMB SUB TSI
EBayALDC CALFED CBB USB ZION
EOBClarkCo ZION
Enter+ED VOCU
FiveCap IBCP LOSB
FoundComm CBSS
HIAlli BOH
HeartofAm UNBC
INDOC BPSB CBI FFBT FITB FSBM LBT MORE MSFG NWIN ONE SB&T SRCE STAR
ISED ABI BAC BTCFC DCFCU FIRST QCRH SCICAPCU
KYRiverFoot CVNB&T FITB ONE WBC
LittleDixie FUB&T
MercyHous CIB WM ZION
MINeighPart CMA
MileHighUW KEY WFC
MountHope BFCU
NCDOL BAC CENB FCNCA HTBP LXBK RIACU WB
OHCDC BAC BFO FDEF FDFCU FFSN FITB HBAN
PADCED FBF PNC
Peninsula C
Penquis BNK BSB CAC FCBM FNSB GSI NSBM SIFS
PeopleInc BLUG BOM FAB FU FVB HBKA
RamseyAct BFC FIRST WPFCU
RiverCo CNC
SoMDTriCo MRBK
CtrWomen&Fam NCC RBCAA
UWGtrStLo ALLE BAC FIRST
WICAPAssn AB ABCW ASBC BOAB CBCF CBL CFBX CUNACU FBS FIRST FTFC MCU MI
NATCOM PCCU PNB PNBL RCU WB WCCU WCNB WIFSB
WIWomBus MI
WomSelfEmp BMO
YWCAGtrPitt DB
```

2004 Incidence Network

```
dl
nr=137 nc=311
row labels embedded
column labels embedded
format = nodelist2
data:
2ndDist C RY
ActFABC CF
TulEdFund HIB UB&TC WTNY
AffordHous DCOM FNFG HBC HRBT MTB PSB SEFCU
AidtoVics BAC
AllBright CBSS CFG CNBKA FBF PFSB PSBM WAIN
AlternFCU AFCU
ALULike BOH HE
AtlCoop CCBT CZBS
BethelNL FBOPC
CalebCDC HIB ONE
CamdenCo WB
CAPSvcs ABCW CBCF CCU CFCU FCCU FEBB FTFC GMB MI
CAAB C
CASA CB OSUFCU OURCU PRWT SVB UMPQ WCBO WM
CathChar MI
CathFamSvcs ANB
CenVTCAC MBVT NSBVT UNB VDCU
CityofLA WM
CityofSA CFR SSFCU WFC
CityofTucs AZFCU
CityVision FC-FCU HBAN MCBC
CoastEnter BSB BSI CAC COMCU GSI KSB NSBM SIFS
CAAOKC BOKF FCBOK MFC
CACStaBarb PCBC WFC
CAA A1FCU
CACSTX FNBH FSBSD IBOC TRBS
CAPSonCo EXSR
CommIMPACT ASO FBOT FTN USB
CommSvcNet SB
CSA&DC WFC
CoOpprty COI FBF PBCT WBS
CTEInc C FBF JPM PBCT TSI
Dist7MT FCFCU FIB RB SFC USB
EBayALDC C CBB PCPFCU USB WM ZION
EOASav CSB
EOAWashCo AHI
EOBClarkCo WFC
ElPasoCollab WFC
ElPasoCo INB WFC
ElPuente WFC WTCU
EmpRes CATC
EnternED UB VOCU
FamSvcs C PBCT
5thAve ICB
FirstCoast FFBNF
FirstState ART WL
FiveCap IBCP LOSB
```

```
FoundComm CBSS
FreshMini STI WB
GreatRivers USB
GulfCoast SWBT WFC
HaciCDC HCCU
HIAlli BOH HE
HeartofAm UNIZ USB
ILCAA AMFI NCC ONE
INDOC BCFCU BFSB BPSB CBC CBI CBIN CBK CCFCU CENCU CFFG FFBC FFBT FITB
FSBM GABC GCSB HBAN HBNC HOMF IFC LBT LKFN MNBI MORE MSFG NBI NWIN ONB
RBCAA SB&T SFSB SRCE STAR THSB TOFC USB WFC
ISED ABI BT COMN QCRH SCICAPCU USB
IIBoston CFG
JackCoCAC SOTR
JEDI LFC PRWT
KYRiverFoot CVNB&T FITB ONE WBC
LDCofENY MTB
MercyHous HBEK WM ZION
MesaCAN WFC ZION
MINeighPart CMA
MileHighUW WFC
MOAssnCA ABOM BBP BOOM CBY DFC FSBK INVN SSBMO USB WPBT
Montachu EB GCB SOV
MountHope BFCU C
NewCDC CFB
NewEntFund CDBK FNBP NKSH
NHCommLF CFG
NewVNewV WB
NewarkPC CNBC
NPAssist C
NCDOL BAC BBT BCAR FCNCA HTBP LXBK NCF RY SWFCU WB WBNK
NoDadeCDC WB
NECommFCU FBNKO NECFCU PCU UCBH WM
NELADeltaCDC HIB
NWMIHSA FITB
NWNMCDC WFC
OakLiv BACCU CBCF FITB NCC TCFCU
OHCDC BAC FDEF FDFCU FFSN FITB HBAN MCFCU SKYF UNIZ
OIC USB
OFANE CFG
OwsleyCo CAPFCU
PADCED ASB CBPA CBU CITCU COAT COFCU CVAL CVLY CZFS CZNC CZPY DNBF FBF
FKFS FNB FRBK FSBI FSFF FTB FULT GHCCU HU LARL MFFCU MTB NCC NHCFCU
NPBC NWSB PBIX PFBT PNC PPFR PVSA RBOA RBS SENFCU SFCU SKYF SOV STBA
SUBI SUSQ TUFCU UBI USFCU UVSP WB WFSB WVFC WYPT
PartAccts MSTI
Peninsula C
Penquis BNK BSB CAC FBF FCBM FNSB GSI KEY NSBM SIFS
PeopleInc ASO BBT BLUG BOM HBKA WB
PeoplesCDC BAC
PortHous CACB WM
RamseyAct BFC CCOFCU NSBV WBK WFC
ReDevOpps USB
RiverCo C CNC FHLBSF RCCU TIN
SFranFoun C
SoARCD SUM
SENDCAA BFC BNCC CFBX
```

SoFinPart F&MBS MCGB MFBD PMGB SDC SFNC
SoMDTriCo MRBK
SpokeNeigh FMB STSA USB WFC
StarkCo UNIZ
CTDOL FBF WB WBS
SteFamFou BMO IBCB ONE
StudAltern IBOC
SuffolkCDC C
CtrWomen&Fam NCC RBCAA
HuntCtyMiss FSB
LakotaFund SF
LearnEx CBKC
NewAmFound CBB WM
UrbLeague SUMSC
TotalAct BBT F&MB FCNCA FNEX NCF VYFC WB
TuscaHous CBSS
UniComCtrs WFC
UWCommSvcs FINB NCC
UWForsyCo BAC
UWGtrLA BAC ECFCU HTHR UB USB WM ZION
UWGtrStLo ALLE BAC USB
UWKingCo SSB USB WM
UWMetroAtl SOTR WB
UWSEPA CFG
UWTXGC CBSS JPM WFC
UpETNHAD AFGECU AJB BTC CCB FCEN HBKA HCB JCB
WECOFund CMCU FCUCU
WestEnt HBEK REBC
WestPCDC C
WestHous BK C WB
WCarolCA FCNCA RY
WICAPAssn AB ASBC BOAB CITFCU CUNACU FTFC GB HCU LB MCU MI MMBI NATCOM
PNBL RCU USB WCCU WFC
WIWomBus MI
WomSelfEmp ABN BMO NCFCU
YouthBuild CFG
YWCAGtrPitt DB
YWCARMC C

1999 Largest Component – Incidence Network

```
dl
nr=13 nc=62
row labels embedded
column labels embedded
format = nodelist2
data:
CSA&DC PNB USB
EBayALDC CALFED CBB USB ZION
EOBClarkCo ZION
INDOC BPSB CBI FFBT FITB FSBM LBT MORE MSFG NWIN ONE SB&T SRCE STAR
ISED ABI BAC BTCFC DCFCU FIRST QCRH SCICAPCU
KYRiverFoot CVNB&T FITB ONE WBC
MercyHous CIB WM ZION
NCDOL BAC CENB FCNCA HTBP LXBK RIACU WB
OHCDC BAC BFO FDEF FDFCU FFSN FITB HBAN
RamseyAct BFC FIRST WPFCU
UWGtrStLo ALLE BAC FIRST
WICAPAssn AB ABCW ASBC BOAB CBCF CBL CFBX CUNACU FBS FIRST FTFC MCU MI
NATCOM PCCU PNB PNBL RCU WB WCCU WCNB WIFSB
WIWomBus MI
```

2004 Largest Component – Incidence Network

```
dl
nr=99 nc=255
row labels embedded
column labels embedded
format = nodelist2
data:
2ndDist C RY
TulEdFund HIB UB&TC WTNY
AffordHous DCOM FNFG HBC HRBT MTB PSB SEFCU
AidtoVics BAC
AllBright CBSS CFG CNBKA FBF PFSB PSBM WAIN
CalebCDC HIB ONE
CamdenCo WB
CAPSvcs ABCW CBCF CCU CFCU FCCU FEBB FTFC GMB MI
CAAB C
CASA CB OSUFCU OURCU PRWT SVB UMPQ WCBO WM
CathChar MI
CityofLA WM
CityofSA CFR SSFCU WFC
CityVision FC-FCU HBAN MCBC
CoastEnter BSB BSI CAC COMCU GSI KSB NSBM SIFS
CACStaBarb PCBC WFC
CommIMPACT ASO FBOT FTN USB
CSA&DC WFC
CoOpprty COI FBF PBCT WBS
CTEInc C FBF JPM PBCT TSI
Dist7MT FCFCU FIB RB SFC USB
EBayALDC C CBB PCPFCU USB WM ZION
EOBClarkCo WFC
ElPasoCollab WFC
ElPasoCo INB WFC
ElPuente WFC WTCU
EnternED UB VOCU
FamSvcs C PBCT
FoundComm CBSS
FreshMini STI WB
GreatRivers USB
GulfCoast SWBT WFC
HeartofAm UNIZ USB
ILCAA AMFI NCC ONE
INDOC BCFCU BFSB BPSB CBC CBI CBIN CBK CCFCU CENCU CFFG FFBC FFBT FITB
FSBM GABC GCSB HBAN HBNC HOMF IFC LBT LKFN MNBI MORE MSFG NBI NWIN ONB
RBCAA SB&T SFSB SRCE STAR THSB TOFC USB WFC
ISED ABI BT COMN QCRH SCICAPCU USB
IIBoston CFG
JackCoCAC SOTR
JEDI LFC PRWT
KYRiverFoot CVNB&T FITB ONE WBC
LDCofENY MTB
MercyHous HBEK WM ZION
MesaCAN WFC ZION
MileHighUW WFC
MOAssnCA ABOM BBP BOOM CBY DFC FSBK INVN SSBMO USB WPBT
Montachu EB GCB SOV
```

```
MountHope BFCU C
NHCommLF CFG
NewVNewV WB
NPAssist C
NCDOL BAC BBT BCAR FCNCA HTBP LXBK NCF RY SWFCU WB WBNK
NoDadeCDC WB
NECommFCU FBNKO NECFCU PCU UCBH WM
NELADeltaCDC HIB
NWMIHSA FITB
NWNMCDC WFC
OakLiv BACCU CBCF FITB NCC TCFCU
OHCDC BAC FDEF FDFCU FFSN FITB HBAN MCFCU SKYF UNIZ
OIC USB
OFANE CFG
PADCED ASB CBPA CBU CITCU COAT COFCU CVAL CVLY CZFS CZNC CZPY DNBF FBF
FKFS FNB FRBK FSBI FSFF FTB FULT GHCCU HU LARL MFFCU MTB NCC NHCFCU
NPBC NWSB PBIX PFBT PNC PPFR PVSA RBOA RBS SENFCU SFCU SKYF SOV STBA
SUBI SUSQ TUFCU UBI USFCU UVSP WB WFSB WVFC WYPT
Peninsula C
Penquis BNK BSB CAC FBF FCBM FNSB GSI KEY NSBM SIFS
PeopleInc ASO BBT BLUG BOM HBKA WB
PeoplesCDC BAC
PortHous CACB WM
RamseyAct BFC CCOFCU NSBV WBK WFC
ReDevOpps USB
RiverCo C CNC FHLBSF RCCU TIN
SFranFoun C
SENDCAA BFC BNCC CFBX
SpokeNeigh FMB STSA USB WFC
StarkCo UNIZ
CTDOL FBF WB WBS
SteFamFou BMO IBCB ONE
SuffolkCDC C
CtrWomen&Fam NCC RBCAA
NewAmFound CBB WM
TotalAct BBT F&MB FCNCA FNEX NCF VYFC WB
TuscaHous CBSS
UniComCtrs WFC
UWCommSvcs FINB NCC
UWForsyCo BAC
UWGtrLA BAC ECFCU HTHR UB USB WM ZION
UWGtrStLo ALLE BAC USB
UWKingCo SSB USB WM
UWMetroAtl SOTR WB
UWSEPA CFG
UWTXGC CBSS JPM WFC
UpETNHAD AFGECU AJB BTC CCB FCEN HBKA HCB JCB
WestEnt HBEK REBC
WestPCDC C
WestHous BK C WB
WCarolCA FCNCA RY
WICAPAssn AB ASBC BOAB CITFCU CUNACU FTFC GB HCU LB MCU MI MMBI NATCOM
PNBL RCU USB WCCU WFC
WIWomBus MI
WomSelfEmp ABN BMO NCFCU
YouthBuild CFG
YWCARMC C
```

Appendix E: Degree and Closeness Centrality Statistics for 2004 Networks

Table D-1 Degree Centralization Statistics: Study and Example Affiliation Networks

	Maximum Degree Value	Minimum Degree Value	Mean Degree Value (Average number of neighbors)	Standard Deviation	Degree Centralization Index (%)
Grantee Affiliation Network *N* = 99	34	1	10.85	7.47	**24.11% (.2411)**
Fin. Part. Affiliation Network *N* = 255	87	1	20.68	19.69	**26.32% (.2632)**
Example Network (Clusters) *n* = 14	7	6	6.143	0.350	**7.69% (.0769)**
Example Network (3-point) *n* = 3	2	1	1.33	0.471	**100.00% (1.00)**

Table D-2 Closeness Centralization Statistics: Study & Example Affiliation Networks

	Maximum Closeness Value (%)	Minimum Closeness Value (%)	Mean Closeness Value (%)	Standard Deviation Value (%)	Closeness Centralization Index (%)
Grantee Affiliation Network n_{04G} = 99	52.69	23.90	38.20	5.97	**29.43% (.2943)**
Fin. Part. Affiliation Network n_{04B} = 257	47.48	21.49	34.35	5.05	**26.41% (.2641)**
Example Network (Clusters) *n* = 14	68.42	50.00	52.63	6.45	**35.43% (.3543)**
Example Network (3-point) *n* = 3	100.00	66.67	77.78	15.71	**100.00% (1.00)**

Discussion of Degree and Closeness Centralization Measures

Although the financial partner affiliation network is over twice the size of the grantee affiliation network, the two share relatively similar network centralization scores (far right column of Table D-1), both under the 50 percent cut-off value. The example network's centralization scores exhibit much greater differences between the two index scores (7.46 percent for the cluster graph and 100 percent for the 3-point graph). One might reasonably assume, therefore, that the relative centrality indices of the two 2004 affiliation network samples reveal aspects of centralization in addition to the high clustering effects of the centralized nodes of the 2004 incidence network. That is to say, the relationships among grantees and relationships among financial partners in the two networks have both clustering and centralization characteristics in their core structures.

In the two affiliation networks, US Bank (USB) in the financial partner network was the most central when measured by degree centralization and is directly adjacent to 87 other financial partners in the network. In the grantee network, the Indiana Department of Commerce (INDOC) and the East Bay Asian Local Development Corporation (EBayALDC) share the same raw degree scores, and each link through financial partners with 34 other grantees in the network.

Table D-2 summarizes the closeness statistics for the two study networks and the examples. The percentage values presented in Table D2 are the inverse sum geodesics and related statistics expressed as percentages (Borgatti et al., 2002). The closeness centralization scores for the 2004 financial partner and grantee networks fall under the .50 cut-off value. Again, despite the much smaller sizes of the two example networks, their closeness centrality indices are greater than those for the 2004 networks.

Appendix F: 1-Clique Memberships in the 2004 Affiliation Networks

Table E-1 1-Clique membership in 2004 Grantee Network of cliques sized ≥ 3

Cl. No.	Grantee Members*	Cl. No.	Grantee Members*
1	CommIMPACT Dist7MT EBayALDC GreatRivers HeartofAm INDOC ISED MOAssnCA OIC ReDevOpps SpokeNeigh UWGtrLA UWGtrStLo UWKingCo WICAPAssn	17	CalebCDC ILCAA KYRiverFoot SteFamFou
2	CASA CityofLA EBayALDC MercyHous NECommFCU NewAmFound PortHous UWGtrLA UWKingCo	18	CalebCDC NELADeltaCDC TulEdFund
3	EBayALDC INDOC MesaCAN SpokeNeigh UWGtrLA WICAPAssn	19	CityVision INDOC OHCDC
4	EBayALDC MercyHous MesaCAN UWGtrLA	20	CTEInc CoOpprty FamSvcs
5	2ndDist CAAB CTEInc EBayALDC FamSvcs MountHope NPAssist Peninsula RiverCo SFranFoun SuffolkCDC WestHous WestPCDC YWCARMC	21	CtrWomen&Fam ILCAA OakLiv PADCED UWCommSvcs
6	AffordHous LDCofENY PADCED	22	CtrWomen&Fam INDOC OakLiv
7	AidtoVics NCDOL OHCDC PeoplesCDC UWForsyCo UWGtrLA UWGtrStLo	23	ILCAA KYRiverFoot OakLiv
8	AllBright CTDOL CTEInc CoOpprty PADCED Penquis	24	INDOC KYRiverFoot NWMIHSA OHCDC OakLiv
9	AllBright CTEInc UWTXGC	25	NCDOL OHCDC PADCED
10	AllBright FoundComm TuscaHous UWTXGC	26	2ndDist NCDOL WCarolCA
11	AllBright IIBoston NHComLnFund OFANE UWSEPA YouthBuild	27	2ndDist NCDOL WestHous
12	AllBright Montachu PADCED	28	NCDOL TotalAct WCarolCA
13	CACStaBarb CSA&DC CityofSA EOBClarkCo ElPasoCo ElPasoCollab ElPuente GulfCoast INDOC MesaCAN MileHighUW NWNMCDC RamseyAct SpokeNeigh UWTXGC UniComCtrs WICAPAssn	29	HeartofAm INDOC OHCDC UWGtrLA UWGtrStLo
14	CAPSvcs CathChar WICAPAssn WIWomBus	30	OHCDC OakLiv PADCED
15	CTDOL CamdenCo FreshMini NCDOL NewVNewV NoDadeCDC PADCED PeopleInc TotalAct UWMetroAtl WestHous	31	HeartofAm OHCDC StarkCo
16	CTDOL CTEInc PADCED WestHous		

Table E-2 1-Clique membership in 2004 Financial Partner Network of cliques sized ≥ 3

Clique No.	Financial Partner Members
1	BCFCU BFSB BPSB CBC CBI CBIN CBK CCFCU CENCU CFFG FFBC FFBT FITB FSBM GABC GCSB HBAN HBNC HOMF IFC LBT LKFN MNBI MORE MSFG NBI NWIN ONB RBCAA SB&T SFSB SRCE STAR THSB TOFC USB WFC
2	AB ASBC BOAB CITFCU CUNACU FTFC GB HCU LB MCU MI MMBI NATCOM PNBL RCU USB WCCU WFC
3	FMB STSA USB WFC
4	USB WFC ZION
5	ABOM BBP BOOM CBY DFC FSBK INVN SSBMO USB WPBT
6	ALLE BAC USB
7	ASO FBOT FTN USB
8	BAC ECFCU HTHR UB USB WM ZION
9	BAC FITB HBAN UNIZ USB
10	ABI BT COMN QCRH SCICAPCU USB
11	C CBB PCPFCU USB WM ZION
12	FCFCU FIB RB SFC USB
13	SSB USB WM
14	ABCW CBCF CCU CFCU FCCU FEBB FTFC GMB MI
15	ABN BMO NCFCU
16	AFGECU AJB BTC CCB FCEN HBKA HCB JCB
17	AMFI NCC ONE
18	ASB CBPA CBU CITCU COAT COFCU CVAL CVLY CZFS CZNC CZPY DNBF FBF FKFS FNB FRBK FSBI FSFF FTB FULT GHCCU HU LARL MFFCU MTB NCC NHCFCU NPBC NWSB PBIX PFBT PNC PPFR PVSA RBOA RBS SENFCU SFCU SKYF SOV STBA SUBI SUSQ TUFCU UBI USFCU UVSP WB WFSB WVFC WYPT
19	BACCU CBCF FITB NCC TCFCU
20	BAC BBT BCAR FCNCA HTBP LXBK NCF RY SWFCU WB WBNK
21	BBT F&MB FCNCA FNEX NCF VYFC WB
22	ASO BBT BLUG BOM HBKA WB
23	BFC CCOFCU NSBV WBK WFC
24	BFC BNCC CFBX
25	BK C WB
26	BMO IBCB ONE
27	BNK BSB CAC FBF FCBM FNSB GSI KEY NSBM SIFS
28	BSB BSI CAC COMCU GSI KSB NSBM SIFS
29	CB OSUFCU OURCU PRWT SVB UMPQ WCBO WM
30	CBSS CFG CNBKA FBF PFSB PSBM SOV WAIN
31	CBSS FBF JPM
32	CBSS JPM WFC

33	CFR SSFCU WFC
34	C CNC FHLBSF RCCU TIN
35	COI FBF PBCT WBS
36	CVNB&T FITB ONE WBC
37	DCOM FNFG HBC HRBT MTB SEFCU
38	EB GCB SOV
39	C FBF JPM PBCT TSI
40	C FBF WB
41	FBF WB WBS
42	FBNKO NECFCU PCU UCBH WM
43	FC-FCU HBAN MCBC
44	BAC FDEF FDFCU FFSN FITB HBAN MCFCU SKYF UNIZ
45	HBEK WM ZION
46	HIB UB&TC WTNY
47	FITB NCC SKYF
48	FITB NCC ONE
49	FITB NCC RBCAA
50	C RY WB
51	BAC SKYF WB

Appendix G: Methods for Performing a Quadratic Assignment Procedures (QAP)

The Quadratic Assignment Procedure (QAP) tests used in the dissertation study follow the methods discussed by Borgatti & Feld (1994) in their tests of Granovetter's (1973) "Strength of Weak Ties" argument. The QAP was used to test the correlation between two sets of matrices. One set compared the non-dichotomized ties of the 2004 and the overlap of ties among grantees. A second set compared the non-dichotomized ties with ties based on a grantee's USDHHS region.

Testing Overlap

To perform the first correlation test, a matrix depicting the "overlap" (Borgatti & Feld, n.p) must be created. This matrix is created by the following steps (see Figure F1, on the next page for an illustration):

1) The non-dichotomized relations matrix is *Dichotomized* (so that relationships are either shown by a "1", indicating a "strong relationship" or a "0", indicating a weak relationship).

2) A *Transposed* matrix is created from the dichotomized matrix, which "transposes" the rows and columns of the dichotomized matrix.

3) The Dichotomized matrix is multiplied by the Transposed matrix, which creates a *Connection* matrix that indicates all times "two actors are connected by the same third party" (Borgatti & Feld, n.p.).

The Connection matrix and the original Non-Dichotomized matrix are used for the QAP, which assesses the strength of correlation and significance of the relationship via a Pearson Correlation Coefficient. The QAP compares the "observed correlation" against a "distribution of random correlations" (Borgatti & Feld, n.p.). The Pearson Correlation statistic reflects the "proportion of random correlations that are as large or larger than the observed correlation" (Borgatti & Feld, n.p.).

Figure F1 The QAP Test of the Strength of Weak Ties Argument
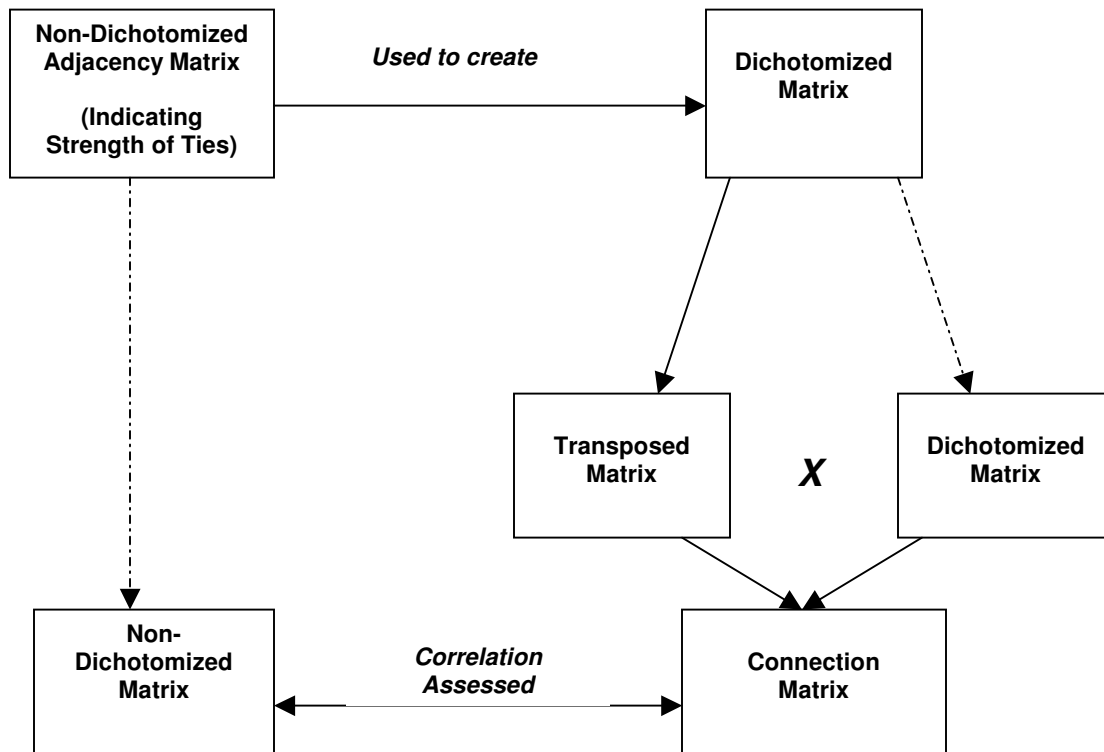
Testing Correlation of USDHHS Region

   A similar procedure was used to test the correlation between the shared ties with financial partners and the shared ties through USDHHS regional designation. A non-dichotomized matrix of the grantee ties with financial partners was tested against a non-dichotomized matrix of ties based on region. Unlike the first QAP test, the second procedure did not require the transposing of matrices or other manipulation of network data. The results of the QAP tests are discussed in Chapter 4 of the main body of the dissertation report.

References

Ahmadi, N. (2003). Globalisation of consciousness and new challenges for international social work. *International Journal of Social Welfare, 12* (1), 14-23.

Albert, R., & Barabási, A.-L. (2002). Statistical mechanics of complex networks. *Review of Modern Physics, 74* (1), 47-97.

Alvord, S.H., Brown, L.D., & Letts, C.W. (2002). *Social entrepreneurship and social transformation: An exploratory study* (Working Paper #15). Cambridge, MA: Harvard University, Kennedy School of Government, The Hauser Center for Nonprofit Organizations.

Amaral, L.A.N., Scala, A., Barthélémy, M., & Stanley, H.E. (2000). Classes of small-world networks. *Procedures of the National Association of Science, 97* (21), 11149-11152.

Amir, V., & Auslander, G.K. (2003). Inter-organizational collaboration among social workers: The case of community mental health centers and local social service departments in Israel. (Research Note). *British Journal of Social Work, 33* (4), 557-566.

Ashman, D., Brown, L.D., & Zwick, E. (1998). The strength of strong and weak ties: Building social capital for the formation and governance of Civil Society Research Organizations. *Institute for Development Research Reports, 14* (IDR Report No. 2). Retrieved from http://www.jsi.com/idr/IDRreports.htm

Austin, M.J., & Kruzich, J.M. (2004). Assessing recent textbooks and casebooks in human service administration: Implications and future directions. *Administration in Social Work, 28* (1), 115-137.

Batliwala, S. (2002). Grassroots movements as transnational actors: Implications for global civil society. *Voluntas: International Journal of Voluntary and Nonprofit Organizations, 13* (4), 393-409.

Baum, J.A.C., Shipilov, A.V., & Rowley, T.J. (2002). *Where do small worlds come from?* Version 5.0 of paper presented at the Conference on Institutions and Organizations in Honor of James G. March, Lucca, Italy, July 2002. Retrieved October 4, 2003 from http://wpweb2k.gsia.cmu.edu/obt/baum.pdf

Benini, A. (1999). Network without a center? A case study of an organizational network responding to an earthquake (Research Note). *Journal of Contingencies and Crisis Management, 7* (1), 38-47.

Beresford, P. (2000). Service users' knowledge and social work theory: Conflict or collaboration. *British Journal of Social Work, 30* (4), 489-503.

Beverly, S.G., & Sherraden, M. (1999). Institutional determinants of saving: Implications for low-income households and public policy. *Journal of Socioeconomics, 28* (4), 457-473.

Borgatti, S. (2002a). *Centrality and network flow*. Paper presented at the Sunbelt International Social Networks Conference, New Orleans, LA. (Paper available at: http://

---------- (2002b). Flow processes and the structural importance of nodes. Lecture presented at the Cambridge Colloquium on Complexity and Social Networks, The John F. Kennedy School of Government, Harvard University. (Power point presentation available at: http://www.ksg.harvard.edu/complexity/papers/Borgatti)

Borgatti, S.P., & Feld, S.L. (1994). How to test the strength of weak ties theory. *Connections, 17* (1), 45-46.

Borgatti, S.P., Everett, M.G., Freeman, L.C. (2002). *UCINET 6.0 Version 1.00*. Natick: Analytic Technologies

Brinkerhoff, J.M. (2002). Assessing and improving partnership relationships and outcomes: A proposed framework. Evaluation and Program Planning, 25 (x), 215

Brown, L.D. (1983). *Managing conflict at organizational interfaces*. Reading, MA: Addison-Wesley Publishing Company.

--------- (1987). Development partnerships: Problem-solving at institutional interfaces. In *Where Development Policies, Programs and Projects Meet: Managing the interfaces*. Panel paper presented at the American Society for Public Administration, Boston, MA (presented paper used as resource).

---------- (1993). Development Bridging organizations and strategic management for social change. *Institute for Development Research Reports, 10* (IDR Report No. 3). Retrieved from http://www.jsi.com/idr/IDRreports.htm

Brown, L.D., & Ashman, D. (1999). Social capital, mutual influence, and social learning in intersectoral problem solving in Africa and Asia. In D.L. Cooperrider, & J.E. Dutton (Eds.), *Organizational dimensions of global change: No limits to cooperation* (pp. 139-167). Thousand Oaks, CA: Sage Publications.

Brown, L.D., & Tandon, R. (1994). Institutional development for strengthening civil society. *Institutional Development (Innovations in Civil Society), 1* (1), 3-17.

Burt, R.S. (1992). *Structural holes: The social structure of competition*. Cambridge, MA.

----------- (2000). The network structure of social capital. Pre-print for a chapter in R.I. Sutton, & B.M. Staw (Eds.). *Research and Organizational Behavior, 22*, Retrieved from http://gsbwww.uchicago.edu/fac/ronald.burt/research/NSSC.pdf.

----------- (2002). Bridge decay. *Social Networks, 24* (3), 333-363

Burt, R.S., Gabbay, S.M., Holt, G., & Moran, P. (1994). Contingent organization as a network theory: The culture-performance contingency function. *Acta Sociologica, 37*, 345-370.

Carley, K.M., Lee, J.-S., & Krackhardt, D. (2002). Destabilizing networks. *Connections, 24* (3), 79-92.

Chapin, R.K. (1995). Social policy development: The strengths perspective. *Social work, 40* (4), 506-514.

Cherin, D.A. (2000). Organizational engagement and managing moments of maximum leverage: New roles for social workers in organizations. *Administration in Social Work, 23* (3/4), 29-46.

Church, M., Bitel, M., Armstrong, K., Fernando, P., Gould, H., Joss, S., et al. (2002). *Participation, relationships and dynamic change: New thinking on evaluating the work of international networks*. Working Paper No. 121. London, UK: Development Planning Unit, University College London.

Claiborne, N. (2004). Presence of social workers in nongovernment organizations. *Social Work, 49* (2), 207-218.

Cohen, B.J. (1999). Fostering innovation in a large human services bureaucracy. *Administration in Social Work, 23* (2), 47

Coleman, J.S. (1990). Commentary: Social institutions and social theory. *American Sociological Review, 55* (3), 333-339.

Corporation for Enterprise Development. (17 July 2004) *Policy Updates.* (E-mail)

Covey, J., & Brown, L.D. (2001). Critical cooperation: An alternative form of civil society-business engagement. *Institute for Development Research Reports, 17* (IDR Report No. 1). Retrieved from http://www.jsi.com/idr/IDRreports.htm.

Cramer, R., Debroy, P., Parrish, L., & Boshara, R. (27 February 2004). *Federal assets policy report and outlook 2004*. Washington, D.C.: New America Foundation.

Crossley, N. (2002). *Making sense of social movements*. Buckingham, UK: Open University Press.

Dart, R. (2004). The legitimacy of social enterprise. *Nonprofit Management & Leadership, 14* (4), 411-424.

Davies, R. (2003). *Network perspectives in the evaluation of development interventions: More than a metaphor.* Paper presented at the Enterprise Development Impact Assessment Information Service (EDIAIS) Conference, November 24-25, 2003, Manchester, UK. Available online: http://www.enterprise-impact.org.uk/pdf/Davies2.pdf

Davis, K.E. (2004). Social work's commitment to social justice and social policy. In Davis, K.E., & Bent-Goodley, T.B. (Eds.), *The color of social policy*. Alexandria, VA: Council on Social Work Education, pp. 229-241.

DiMaggio, P.J., & Powell, W.W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review, 48* (2), 147-160.

Edwards, K. (2003). State policy update. *Assets: A quarterly update for innovators*. (1), 4. St. Louis, MO: Center for Social Development, George Warren Brown School of Social Work, Washington University.

Edwards, K., & Mason, L.M. (May 2003). *Policy Report: State policy trends for individual development accounts in the United States: 1993-2003*. St. Louis, MO: Center for Social Development, George Warren Brown School of Social Work, Washington University.

Eggertsson, T. (1996). A note on the economics of institutions. In Alston, L.J., Eggertsson, T., & North, D.C. (Eds.), *Empirical studies in institutional change*. New York: Cambridge University Press, pp. 6-24.

Fararo, T.J., & Skvoretz, J. (1986). Action and institution: Network and function: The cybernetic concept of social structure. *Sociological Forum, 1* (2), 219-250.

Farmakopoulou, N. (2002). What lies underneath? An inter-organizational analysis of collaboration between education and social work. *British Journal of Social Work, 32* (8), 1051-1066.

Faust, K., & Skvoretz, J. (2000). Comparing networks across space and time, size and species. *Sociological Methodology, 32* (1), 267-299.

Ferguson, C. (2004). Governance of collaborations: A case study. *Administration in Social Work, 28* (2), 7-28.

Fitzpatrick, T. (2002). Debate: The two paradoxes of welfare democracy. *International Journal of Social Welfare, 11* (x), 159-169.

Freeman, L.C. (1979). Centrality in social networks: Conceptual clarification. *Social Networks, 1* (2), 215-239.

Gambone, M.A. (2004). Challenges of measurement in community change initiatives. In Fulbright-Anderson, K., Kubisch, A.C., & Connell, J.P. (Eds.) New approaches to evaluating community initiatives, Vol. 2: Theory, measurement, and analysis. Denver, CO: Aspen Institute. Available http://www.aspeninstitute.org

Gil de Gibaja, M. (2001). An exploratory study of administrative practice in collaboratives. *Administration in Social Work, 25* (2), 39

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology, 78*: 1360-1380.

---------- (1983). The strength of weak ties: A network theory revisited. *Sociological Theory, 1*, 201-233.

Gray, B. (1989). *Collaborating: Finding common ground for multiparty problems*. San Francisco: Jossey.

Gray, M., Collett van Rooyen, C., Rennie, G., & Gaha, J. (2002). The political participation of social workers: A comparative study. *International Journal of Social Welfare, 11* (x), 99-110.

Gray, M., Healy, K., & Crofts, P. (2003). Social enterprise: Is it the business of social work? *Australian Social Work, 56* (2), 141-154.

Guare, J. (1990). *Six degrees of separation: A play*. New York: Vintage Books.

Gummer, B. (2002). The socio-cultural context of organizational behavior (Notes from the Management Literature). *Administration in Social Work, 26* (3), 71-88.

Harber, S., North, D.C., & Weingast, B.R. (2003). If economists are so smart, why is Africa so poor? *Hoover Digest, 4*. Available online at: http://www.hooverdigest.org/034/haber.html

Healy, K. (2002). Managing human services in a market environment: What role for social workers? *British Journal of Social Work, 32* (5), 527-540.

Hoefer, R. (2003). Administrative skills and degrees: The "best place" debate rages on. *Administration in Social Work, 27* (1), 725-46.

Holme, P., Edling, C.R., & Liljeros, F. (2004). Structure and time evolution of an Internet dating community. *Social Networks, 26* (1), 155-174.

Homan, M.S. (1994). *Promoting community change: Making it happen in the real world*. Pacific Grove, CA: Brooks/Cole Publishing Company.

Hopkins, K.M., & Hyde, C. (2002). The human service managerial dilemma: New expectations, chronic challenges and old solutions. *Administration in Social Work, 26* (3), 1-15.

Kadushin, C. (2004). Review: Too much investment in social capital? *Social Networks, 26* (1), 75-90.

Kalegaonkar, A., & Brown, L.D. (2000). Intersectoral cooperation: Lessons for practice. *Institute for Development Research Reports, 16* (IDR Report No. 2), Retrieved from http://www.jsi.com/idr/IDRreports.htm

Koehly, L., & Wasserman, S. (1996). Classification of actors in a social network based on stochastic centrality and prestige. *Journal of Quantitative Anthropology, 6* (1), 75-99.

Kogut, B., & Walker, G. (2001). The small world of Germany and the durability of national networks. *American Sociological Review, 66* (3), 317-335.

Kretzman, J.P., & McKnight, J.L. (1993). *Building communities from the inside out*. Evanston, IL: Center for Urban Affairs and Policy Research, Northwestern University.

Lahtinen, J., Kertész, J., & Kaski, K. (2001). Scaling of random spreading in small world networks. *Physical Review E, 64* (057105), 1-3.

Lang, R.E., & Hornburg, S.P. (1998). Editors' introduction: What is social capital and why is it important to public policy? *Housing Policy Debate, 9* (1), 1-16.

Latora, V., & Marchiori, M. (2001). Efficient behavior of small-world networks. *Physical Review Letters, 87* (19), 198701-01-198701-04.

Lawrence, T.B., & Hardy, C. (1999). Building bridges for refugees: Toward a typology of bridging organizations. *The Journal of Applied Behavioral Science, 35* (1), 48-70.

Lawrence, T.B., Hardy, C., & Phillips, N. (2002). Institutional effects of interorganizational collaboration: The emergence of proto-institutions. *Academy of Management Journal, 45* (1), 281-290.

Lewis, B.M. (2003). Issues and dilemmas in faith-based social service delivery: The case of the Salvation Army of Greater Philadelphia. *Administration in Social Work, 27* (3), 87-106.

Libby, M.K., & Austin, M.J. (2002). Building a coalition of non-profit agencies to collaborate with a county health and human services agency: The Napa County Behavioral Health Committee of the Napa Coalition of Non-Profits (Management Notes). *Administration in Social Work, 26* (4), 81-99.

Lorenz, E. N. (1963). Deterministic non-periodic flow. *Journal of Atmospheric Science, 20*, 130-141.

Lucas, E. (2001). Social development strategies of a non-governmental grassroots women's organisation in Nigeria. *International Journal of Social Welfare, 10* (x), 185-193.

Lyons, K. (2000). The place of research in social work education. *British Journal of Social Work, 30* (4), 433-447.

Marra, M. (2004). Knowledge partnerships for development: What challenges for evaluation? *Evaluation and Program Planning, 27* (x), 151-160.

Marsden, P.V., & Campbell, K.S. (1984). Measuring ties strength. *Social Forces, 63* (2), 482-501.

McDonald, C., Harris, J., & Wintersteen, R. (2003). Contingent on context? Social work and the State in Australia, Britain, and the USA. *British Journal of Social Work, 33* (2), 191-208.

Mendel, S.C. (2003). The ecology of games between public policy and private action: Nonprofit community organizations and bridging and mediating institutions. *Nonprofit management & Leadership, 13*, (3), 229-236.

Midgley, J. (2001). The United States: Welfare, work and development. *International Journal of Social Welfare, 10* (x), 284-293.

Midgley, J., & Tang, K-1. (2001). Social policy, economic growth and developmental welfare. *International Journal of Social Welfare, 10* (x), 244-252.

Mizrahi, T., & Rosenthal, B.B. (2001). Complexities of coalition building: Leaders' successes, strategies, struggles, and solutions. *Social Work, 46* (1), 63-78.

Mulroy, E.A. (2003). Community as a factor in implementing interorganizational partnerships: Issues, constraints, and adaptations. *Nonprofit Management & Leadership, 14* (1), 47

---------- (2004). Theoretical perspectives on the social environment to guide management and community practice: An organization-in-environment approach. *Administration in Social Work, 28* (1), 77-96.

Newman, M.E.J. (2003). Random graphs as models of networks. In S. Bornholdt & H.G. Schuster (Eds.) *Handbook of graphs and networks*. Berlin, Germany: Wiley-VCH. Chapter available at: Condensed Matter 0202208, http://aps.arxiv.org/abs/cond-mat/0202208/.

Newman, M.E.J., Strogatz, S.H., & Watts, D.J. (2001). Random graphs with arbitrary degree distributions and their applications. *Physical Review E, 64* (026118), pp. 1-17.

North, D.C. (1991). Institutions. *Journal of Economic Perspectives, 5* (1), 97-112.

---------- (1993). Institutions and credible commitment. *Journal of Institutional and Theoretical Economics*, *149* (1), 11-23.

---------- (1996). Epilogue: Economic performance through time. In Alston, L.J., Eggertsson, T., & North, D.C. (Eds.), *Empirical studies in institutional change*. New York: Cambridge University Press, pp. 342-355.

Nuñez, M., & Wilson-Grau, R. (April 2003). *Towards a conceptual framework for evaluating international social change networks*. Retrieved from: Monitoring and Evaluation News (MandE). Cambrige, UK: REMAPP http://www.mande.co.uk/docs/TowardsaConceptualFrameworkforEvaluatingNetworks.pdf

Nyman, K. (2004). The complex challenges of building assets in rural communities and strategic bridging solutions. In Scales, T.L. & Streeter, C.S. (Eds.), *Rural social work: Building and sustaining community assets*. Belmont, CA: Wadsworth, pp. 206-225.

Nyman, K., & Moore, A. (2002). *Intersecting strategic bridging theory and institutional analysis for understanding multi-sector collaborations.* Paper presented at the annual program of the Council on Social Work Education, Nashville, TN.

Oberschall, A., & Leifer, E.M. (1986). Efficiency and social institutions: Uses and misuses of economic reasoning in sociology. *Annual Review of Sociology, 12*: 233-253.

Oppel, R.A. (1999, July 21). THE MARKETS: Market Place: A company short on buzz but long on results. *The New York Times*, p. C1.

Padilla, Y.C., Lein, L., & Cruz, M. (1999). Community-based research in policy planning. *Journal of Community Practice, 6* (3), 1-22.

Parsons, T. (1934/1990). Prolegomena to a theory of social institutions. *American Sociological Review, 55* (3), 319-333.

Patti, R. (2003). Reflections on the state of management in social work. *Administration in Social Work, 27* (1), 1-11.

Polack, R.J. (2004). Social justice and the global economy: New challenges for social work in the 21st century. *Social Work, 49* (2), 281-290.

Poole, D.L. (2003). Scaling up CBOs for second-order devolution in welfare reform. *Nonprofit Management & Leadership, 13* (4), 325-341.

Poole, D.L., & Colby, I.C. (2002). Do public neighborhood centers have the capacity to be instruments of change in human services? *Social Work, 47* (2), 142-152.

Popple, K. (2000). Community work (Critical Commentary). *British Journal of Social Work, 30* (1), 109-114.

Putnam, R.D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon & Schuster.

Ramakrishnan, B.J., Mirza, B.J., Grama, A.Y., & Karypis, G. (2001). When being weak is brave: Privacy issues in recommender systems (Technical Report). Available through e-prints.org : http://citebase.eprints.org/cgi-bin/citations?id=oai:arXiv.org:cs/0105028

Rapoport, A. (1957). A contribution to the theory of random and biased nets. *Bulletin of Mathematical Biophysics, 19*, 257-271.

Reilly, T. (2001). Collaboration in action: An uncertain process. *Administration in Social Work, 25* (1), 53-74.

Reisch, M., & Sommerfeld, D. (2003). Interorganizational relationships among nonprofits in the aftermath of welfare reform. *Social Work, 48* (3), 307-319.

Robison, L.J., & Flora, J.L. (2003). The social capital paradigm: Bridging across disciplines. *American Journal of Agricultural Economics, 85* (5), 1187-1193.

Root, L.S. (2000). Education and training in the workplace: Social work interventions in the private sector. *Administration in Social Work, 23* (3/4), 13-28.

Scales, T.L., & Streeter, C.L. (2004). Introduction: Asset building to sustain rural communities. In Scales, T.L. & Streeter, C.S. (Eds.), *Rural social work: Building and sustaining community assets*. Belmont, CA: Wadsworth, pp. 1-6.

Schmid, H. (2004). Organization-environment relationships: Theory for management practice in human service organizations. *Administration in Social Work, 28* (1), 97-113.

Scott, J. (2000). *Social network analysis: A handbook*. 2nd edition. London: Sage Publications.

Seidman, E., & Tescher, J. (2004). *From unbanked to homeowner: Improving the supply of financial services for low-income, low-asset customers.* Paper presented at the symposium Building Assets, Building Credit: A Symposium on Improving Financial Services in Low-Income Communities, Harvard University, November 18-19, 2003.

Sharma, S., Vredenburg, H., & Westley, F. (1994). Strategic bridging: A role for the multinational corporation in Third World development. *Journal of Applied Behavioral Science, 30* (4), 458-476.

Sharp, J.S. (2001). Locating the community field: A study of interorganizational network structure and capacity for community action. *Rural Sociology, 66* (3), 403-424.

Shaw, I.F. (2003). Cutting edge issues in social work research (Critical Commentary). *British Journal of Social Work, 33* (1), 107

Sherraden, M. (1991). *Assets and the poor: A new American welfare policy.* Armonk, NY: M.E. Sharpe, Inc.

--------- (2003). Individual accounts in social security: Can they be progressive? *International Journal of Social Welfare, 12* (1), 97-107.

Sherraden, M.S., Slosar, B., & Sherraden, M. (2002). Innovation in social policy: Collaborative policy advocacy. *Social Work, 47* (3). 214-221.

Skvoretz, J. (2000). Looking backwards into the future: Mathematical Sociology then and now. *Sociological Theory, 18* (3), 510-517.

Ssewamala, F.M., & Sherraden, M. (2004). *Integrating savings into microenterprise programs for the poor: Do institutions matter?* (Working Paper No. 04-05). St. Louis, MO: Center for Social Development, George Warren Brown School of Social Work, Washington University.

Stark, D., & Vedres, B. (2003). *The social times of network spaces: Sequence analysis of network formation and foreign investment in Hungary, 1987-2001.* Paper presented at the Workshop on Networks and Markets, Santa Fe Institute, Santa Fe, NM, May 2003. Available online at: http://www.sociology.columbia.edu/downloads/other/dcs36/social_times.pdf

Stegman, M.A., & Kim, P.H. (2004). *Legitimizing Individual Development Accounts (IDA) within financial institutions*. Paper presented at the 2004 IDA Learning Conference, New Orleans, LA, September 2004. Available online at: http://www.cfed.org/documents/II9%20Financial%20Institutions%20 and%20IDAs %20Experiences%20and%20 Attitudes%20%20Legitimizing%20IDAs%20 within%20FIs.pdf

Streeter, C.L., & Gillespie, D.F. (1992). Social network analysis. *Journal of Social Service Research, 16* (1/2), 201-222.

Structural Adjustment Participatory Review International Network. (2002). *The policy roots of economic crisis and poverty: A multi-country participatory assessment of structural adjustment.* Washington, D.C.: Author. Available at www.saprin.org.

Suitor, J.J., Wellman, B., & Morgan, D.L. (1997). It's about time: How, why, and when networks change. *Social Networks, 19* (1), 1-7.

Thompson, N. (2002). Social movements, social justice and social work. *British Journal of Social Work, 32* (6), 711-712.

Travers, J., & Milgram, S. (1969). An experimental study of the small world problem. *Sociometry, 32* (4), 425-443.

Trevillion, S. (2000). Social work, social networks and network knowledge. *Social Journal of Social Work, 30* (4), 505-517.

Trist, E. (1983). Referent organizations and the development of inter-organizational domains. *Human Relations, 36* (3), 269-284.

U.S. Department of Health and Human Services. (2000). *Assets for Independence Demonstration Project: Report to Congress for Fiscal Year 1999.* Washington, D.C.: Author.

-------- (March 2003). *The Assets for Independence Demonstration Program: Second interim report to Congress covering activities of grantees selected in FY 1999 and FY 2000.* Washington, D.C.: Author.

Waddell, S. (1997). Outcomes of social capital strategies of banks and community-based organizations in the United States: The four pros: property, profit, processes, and products. *Institute for Development Research Reports, 13* (IDR Report No. 1). Retrieved from http://www.jsi.com/idr/IDRreports.htm

Waddell, S., & Brown, L.D. (1997). Fostering intersectoral partnering: A guide to promoting cooperation among government, business, and civil society actors. *Institute for Development Research Reports, 13* (IDR Report No. 3), On-line serial: www.jsi.com/idr/IDRreports.htm.

Watts, D.J. (1999). Networks, dynamics, and the small-world phenomenon. *American Journal of Sociology, 105* (2), 493-527.

-------- (2003). *Six degrees: The science of a connected age.* New York: W.W. Norton & Company.

Watts, D.J., & Strogatz, S.H. (1998). Collective dynamics of 'small-world' networks. *Nature, 393* (x), 440-442.

Weiss, I. (2003). Social work students and social change: On the link between views on poverty, social work goals and policy practice. *International Journal of Social Welfare, 12* (x), 132-141.

Westley, F., & Vredenburg, H. (1991). Strategic bridging: The collaboration between environmentalists and business in the marketing of green products. *The Journal of Applied Behavioral Science, 27* (1), 65-90.

Wilhite, A. (2001). Bilateral trade and 'small-world' networks. *Computational Economics, 18* (x), 49-64.

Willer, R., & Willer, D. (2000). Exploring dynamic networks: Hypotheses and conjectures. *Social Networks, 22* (2), 251-272.

Wimpfheimer, S. (2004). Leadership and management competencies defined by practicing social work managers: An overview of standards developed by the National Network for Social Work Managers. *Administration in Social Work, 28* (1), 45-56.

Wood, D.J., & Gray, B. (1991). Toward a comprehensive theory of collaboration. *Journal of Applied Behavioral Science, 27* (2), 139-162.

Zeggelink, E. (1994). Dynamics of structure: An individual oriented approach. *Social Networks, 16* (3), 295-333.

VITA

Kristen Elisa Reid was born in Chicago, Illinois on April 5, 1968, the daughter of Alice Allen Reid and John Stephen Reid. She grew up in Hawaii and attended Punahou School. In 1986, she entered college at The George Washington University in Washington, D.C. In 1987, she participated in a study-abroad program in Paris at the American University of Paris where she decided to complete her undergraduate studies and earned a B.A. in European Cultural Studies in 1990. During the following years, she worked in the human services field and decided to pursue a graduate degree in social work. She began the MSSW program at the University of Texas' School of Social Work in 1993 and entered the doctoral program in 1997. As well as working in the social work and asset development fields throughout this period, she has worked on numerous research projects on social welfare issues and collaboration in the asset development and social welfare sectors. In 2004, she wrote a chapter on strategic bridging strategies for asset development in rural areas for *Rural Social Work: Building and Sustaining Community Assets*, edited by T. Laine Scales and Calvin L. Streeter.

Permanent Address: 2566 12th Avenue West, Seattle, Washington 96119

This dissertation was typed by the author.

221