

Research Article

Social Capital and Economic Development: A Neighborhood Perspective

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Sean Safford's 2009 book Why the Garden Club Couldn't Save Youngstown introduces a revolutionary idea that much of a community's economic resilience is tied to the social capital that exists within it. Recent research suggests that social capital not only benefits those who develop it, but it can serve as a source of economic development in the communities in which it arises. Past quantitative research on the economic benefit of social capital has only examined the city or higher levels of aggregation. This study measures social capital in three diverse socioeconomic neighborhoods to better understand how social capital can serve as a tool for economic development. An ordered probit regression model was developed to examine how individual and neighborhood levels of social capital benefit households within these communities. Moreover, this study addresses how differences in social capital across neighborhoods are explained by both individual and neighborhood characteristics.

Keywords: Social Capital, Neighborhood, Economic Development

Social capital is broadly defined as “the information, trust, and norms of reciprocity inherent in one’s social networks” (Woolcock, 1998, p. 153). There is a growing consensus that social capital has an economic payoff for those individuals (Erickson, 2001; Kim & Aldrich, 2005; Knack & Keefer, 1997) and communities (Engbers, Rubin & Aubuchon, 2016; Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997; Oh, Lee, & Bush, 2014; Safford, 2009) that invest in it. In some instances, it may be the determining factor in whether a community recovers from economic decline (Safford, 2009).

Over the past 30 years, there has been an evolving body of literature on social capital and economic development, which demonstrates that strong social networks foster entrepreneurial activity (Kim & Aldrich, 2005), improve job prospects (Erickson, 2001), and support the development of human capital (Croninger & Lee, 2001). There also has been significant developments in the understanding of the effects of social capital on the outcome that matters most for many people: household income. However, this body of literature on social capital’s income-enhancing effects has been constrained by concerns about aggregation and the use of methodology with limited ability to demonstrate causation.

This paper looks at the relationship between economic resilience and social capital at the micro-level. This paper builds upon past research by looking at individuals’ stock of social capital and its effect on their household income. Individuals are studied in the context of their neighborhood to control for macro-economic effects and to see the relative impact of neighborhood versus extra-neighborhood social capital.

Literature Review

Over the past 30 years, there has been exponential growth in the number of studies conducted on social capital’s antecedents and effects (Engbers, Thompson, & Slaper, 2016). Because of this

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growth and the significant amount of conceptual diffusion that has taken place, it is critical to distinguish between different types of social capital and their effects.

Putnam (2000) defines social capital as the “connections among individuals- social networks and the norms of reciprocity and trustworthiness that arise from them” (p. 19). Social capital refers to interpersonal resources individuals can access through networks of both strong and weak social relationships (Beaudoin, 2011). Alternatively, Coleman (1988) defines social capital by its function within a social structure and suggests that changes in the relationships among people facilitate certain actions by actors.

At the most basic level, studies of social capital have tended to distinguish between bridging and bonding social capital (Putnam, 2000). Bridging social capital refers to the concept by which individuals are linked to others who fall outside their primary social circle. These relationships need not be substantive and are judged by their quantity and not their quality. Their primary advantage is that they provide access to non-redundant information. In terms of their economic effect, they provide access to customers, producers and suppliers necessary for economic growth (Kim & Aldrich, 2005). For example, Safford’s (2009) comparative case analysis of rust belt cities finds that bridging social capital explained Allentown, Pennsylvania’s recovery in the face of economic decline. Unlike in Youngstown, Ohio, where social capital was concentrated among the economic elite, Allentown’s bridging social capital cuts across ethnic, religious, and economic groups. These cross-cutting ties were sufficient to rebuild the economy in Allentown.

Bonding social capital differs from bridging social capital in that its quality is based on intensity. Bonding relationships are high in trust and are usually found within homogenous communities or in relationships based in shared history or experience such as familial or long-term friendship and work relationships (Coleman, 1988; Collins, Neal, & Neal, 2014; Putnam, 2001). The literature on bonding social capital also has emphasized the importance of community-based groups (Von Schnurbein, 2014). Nonprofits and other collective identity or service groups provide a place where individuals generate trust and form strong social ties. In recent years, these types of groups also have come to serve an important role in fostering economic development (Borzaga & Defourney, 2001; Stadtler & Probst, 2012).

Economic Development

Economic development refers to the intentional process of increasing the trajectory of a community’s economic growth curve (Feldman, Hadjimichael, Kemeny, & Lanahan, 2014). A community’s economic development has been linked to a wide range of characteristics that include the community’s institutions, geography, economic conditions and social characteristics (Rodrik, Subramanian, & Trebbi, 2004). Community characteristics, such as a sound rule of law, clear state authority and a government with sufficient capacity to provide services and enforce contracts are critical for economic development (Rodrik et al., 2004). The economic development benefits derived from certain communities are based on that community’s inherent geographic characteristics. Consider how climate, access to natural and other resources, transportation costs and proximity to knowledge centers shift a community’s economic potential. Likewise, economic trajectories are determined by the degree of market integration with a community, its macroeconomic conditions, the occupational and industrial mix of a community, and access to capital (Rodrik et al., 2004). Last, economic development is determined by social conditions. Among these, human capital has received the most attention in the literature (Benhabib & Spiegel, 1994; Machlup, 2014). However, entrepreneurial and business culture (Harrison & Huttington, 2000) and social capital (Engbers, Rubin, & Aubuchon, 2017) also have been shown to be important.

The effects of economic development are numerous, affecting both social and economic conditions. Among economic factors, economic development is tied to job creation, GDP growth, trade, and increases in personal and household income. This study focuses on one aspect of economic development, which is the fostering of household income growth.

Determinants of Personal Income Growth

Like the process of economic development, personal and household income outcomes are associated with a wide range of determinants. These include both individual and social outcomes. Human capital accumulated through schooling and level of work experience are the biggest predictors of increases in income (Heckman, Stixrud, & Urzua, 2006). However, other factors such as personal health (Deaton, 2003), participation in illegal activities (Heckman et al., 2006), conducive family situations (Ellwood & Jencks, 2004), and access to transportation also are significant determinants (Hayaloğlu, 2015).

These individual factors are moderated by the social and economic conditions in which the household resides. In their study of U.S. counties, Rupasingha, Goetz, and Freshwater (2002) find that in addition to the economic characteristic of the individuals, household income is also affected by social characteristics such as higher levels of ethnic diversity, lower levels of income inequality, and higher levels of social capital, the latter of which is particularly important for this study.

Culture

Culture, understood as “shared social practices and the values and beliefs that legitimate them” (Coyle, 1993, p. 20), has been found to be an important foundation for social capital (Fukuyama, 1996) and subsequent economic development. For example, early work by Weber (1905), expounded on by Landes (1998), attribute the culture derived from the Protestant belief system, such as hard work, thriftiness, and “honesty in business” (Triglia, 2001, p. 429), as particularly important determinants of economic growth and development in Northern Europe and the United States. These particular cultural traits, coupled with the Protestant ethic’s application of universal human rights to all individuals (Maridal, 2013), lead to a much broader understanding of the social circle and facilitated the establishment of social networks that have been instrumental in influencing economic growth and development of an area (Triglia, 2001).

A well-cited example that builds on Weber’s (1905) thesis of how cultural attitudes and behavior shape economic conditions can be found in Banfield’s (1958) analysis of social and economic life in the small village of Chiaromonte in Southern Italy. Banfield observed that the villagers tended to maximize the interests of their immediate family over the interest of the citizenry to such an extent that it led to isolation, nepotism and widespread corruption. Banfield (1958) coined this lack of bridging social capital “amoral familism” and concluded that it prevented the village from addressing limitations on economic development such as extreme poverty, illiteracy, and basic infrastructure.

Using data from the World Values Survey, Marini (2004) and Maridal (2013) further developed and quantified Weber (1905) and Banfield’s (1958) work by showing that certain cultural characteristics that stimulate achievement-motivation (see also McClelland, 1961) and develop social capital are necessary for economic growth and development. Achievement motivation is particularly important in the production stage, while social capital is necessary in the exchange stage and serves to enlarge economic markets.

Social Capital and its Economic Effect

While some of the earliest influential work on social capital has had an economic focus to it (Putnam, Leonardi, & Nanetti, 1994), more recent studies have made strides in using econometric analysis to demonstrate quantifiable effects of social capital on economic outcomes (Engbers, Rubin, & Aubuchon, 2017; Oh et al., 2014).

From a theoretical standpoint, there are multiple reasons to suspect an effect of social capital on economic development. These have been most clearly articulated by Woolcock (1998) who suggests that social capital effects job and income creation in four ways, which fit within a two-by-two matrix along the dimensions of embeddedness/autonomy and micro/macro scales. Micro social capital includes integration and intracommunity ties (embeddedness) or the linkage between extra-community networks (autonomy). In contrast, macro social capital features the synergy of state–society relations (embeddedness) or the organizational integrity of institutional capacity (autonomy). Macro embeddedness helps foster ties that help groups overcome parochial interests necessary for long-term development, such as when procedural requirements like citizen commissions encourage good governance while mobilizing community actors around shared interests. Macro autonomy is concerned with the use of traditional hierarchy for increased performance. Formal organizations reduce collective action problems and facilitate the achievement of more socially optimal outcomes. Thus, communities with effective administrative systems are better able to deliver public services and foster trust in government.

At the micro level, embeddedness leads to access to the necessary economic resources that individuals need for economic advancement. For instance, consider how families, religious and ethnic groups or other tight-knit communities provide access to capital necessary for economic activity. Last, micro autonomy encourages economic actors to reach out beyond their primary community's interests to build linkages with outside groups. This reduces the likelihood that economic resources are not drained by the community of origin (Woolcock, 1998). Empirically, these conclusions are demonstrated in a wide range of contexts. The following sections will begin with an examination of individuals within a context to better understand how social capital affects economic development outcomes, followed by a section on international and regional effects.

Individuals and Context

There is increasing evidence of an empirical relationship between social capital and economic development (Engbers, Rubin, & Aubuchon, 2017; Helliwell & Putnam, 1995; Rupasingha et al., 2002; Oh et al., 2014; Woodhouse, 2006). However, the research presented above is limited in a number of ways. First, the international and regional studies usually do not acknowledge that social capital exists in a context. Consequently, to obtain a fuller understanding of social capital's effects on household income, it is useful to study individuals within a meaningful context. Studies of nations or metropolitan areas may underrepresent effects if the effect size is masked by the unit of analysis. Studies such as the one presented here allow analysis of specific types of social capital relationships. Conversely, the qualitative studies presented above highlight the importance of context in the economic effects of social capital but rarely use a methodology appropriate for demonstrating clear association. This study attempts to rectify these shortcomings by applying quantitative techniques at the neighborhood level in order to better understand the effects of social capital on household income.

International and Regional Studies

One of the earliest studies to establish a link between social capital and economic development came from Putnam, Leonardi, and Nanetti (1994). In their qualitative analysis of Italian regions, they argue that Northern Italy has surpassed the South because of its unique stock of social capital. Unlike the South, where there is an established history of criminal and governmental corruption, Northern Italy exhibits a high degree of grassroots accountability. A tradition of involvement in civil society organizations and healthy governance in the North led to economic and political systems that overcame a history of authoritarianism to lead to more rapid economic growth (Putnam et al., 1994).

The findings from Putnam et al. (1994) since have been supported by statistical analysis. One early econometric approach found that trust and civic cooperation were a major predictor of economic performance and that these social capital effects were particularly prominent in countries with effective government, legal, and political systems. Interestingly, the same study found no economic effect associated with membership in civic organizations (Knack & Keefer, 1997). These results are at odds with those from a study by Dakhli & De Clercq (2004) using a similar survey methodology. This study suggests positive effects of trust and associational membership – but not civic behavior on cross-national innovation. This is further supported by a study that examined international development between 1970 and 1992 in 34 countries and found that social capital as measured by levels of trust has a significant impact on endogenous growth (Whiteley, 2000).

In addition to Safford's regional U.S. comparative study of bridging social capital, as discussed earlier, a regional study of two Australian towns facing similar economic challenges finds important economic effects (Woodhouse, 2006). Using a mix of qualitative and quantitative techniques and considering a wide range of social capital measures, such as informal associations (generalized reciprocity and bonding social capital), bridging social capital, family and work social capital, community engagement, and thin trust, this study finds that the greatest impact on economic development comes from bonding social capital, which results in higher employment rates and a larger proportion of high income households (Woodhouse, 2006).

The quantitative research is equally inconclusive about the type of social capital that affects economic development. One of the first large-scale quantitative studies of social capital and economic outcomes found that bonding social capital, as measured by the number of civic institutions per 10,000 individuals, was statistically and substantively related to growth in per capita income (Rupasingha et al., 2002). Conversely, a recent study of social capital in the 50 largest municipalities in America suggests that bonding social capital has no effect on per capita income at the metropolitan level. However, they do find that social capital has an effect second only to education in predicting job creation. This is most prominent for their measures of bridging social capital (Engbers, Rubin, & Aubuchon, 2017). This suggests that the loose networks associated with bridging social capital foster community-level economic development by reducing transaction costs and by increasing the multiplier effects associated with economic development (Engbers & Rubin, 2016).

The value of bridging social capital for municipal economic development is further supported by evidence that shows that the number of nonprofits but not the volume of volunteering matters. In other words, volunteering intensively for one organization (a measure of bonding social capital) has no statistical effect on a community's per capita income or job creation. However, the presence of nonprofits within a community as a gathering place for cross-cutting interaction creates positive economic effects (Engbers, Rubin, & Aubuchon, 2017). Likewise, Oh et al. (2014) show that social capital in the form of intra-local and inter-local economic development partnerships

results in more joint ventures and public/private partnerships and the resulting economic development.

Individual

As with social capital studies at other units of aggregation, the earliest work on individuals was qualitative in nature. This study found that being a member of a tight-knit community such as that found when one lives in an ethnic enclave leads to access to economic and other entrepreneurial resources. Consequently, bonding social capital provides access to resources that might be unavailable through traditional financial systems (Light, Kwoun, & Zhong, 1990). Likewise, a qualitative study of job success found that individuals with high levels of social networks are able to find better jobs and are of more appreciable value to their employers (Erickson, 2001).

The quantitative research that followed has tended to focus on the benefits of bridging social capital that accrue to individuals. Much of this research focuses on the benefits of social capital to entrepreneurial activity, including the fact that those with larger social networks are much more likely to engage in entrepreneurial activity (Kim & Aldrich, 2005) and that the size of an entrepreneur's social network is influential in their financial success (Baron & Markman, 2003). These effects are both direct through the skills associated with social capital (e.g., emotional intelligence, effective communication ability) and indirect through the social network and the benefits it provides in terms of access to resources and customers.

Methods

This study attempts to learn more about how neighborhood and individual characteristics influence economic development and social capital. Past research only examines social capital at the city level or higher, but little is known at the neighborhood level. Methodologically, this study replicates Safford's (2009) findings using an alternative methodology. Unlike Safford's (2009) study, which effectively utilizes case studies and social network analysis, the methodology of this paper uses survey analysis of three Evansville neighborhoods with different socioeconomic status and policy interventions in order to better understand how social capital can serve as a tool for economic development and an explanation for why some communities lag in jobs and growth. This study examines the effect of social capital across neighborhoods in Evansville and shows that those differences are explained by both characteristics of the neighborhood and individual. This study shows the relationship of social capital in multiple forms (e.g., bonding social capital, trust, neighborhood involvement) across neighborhoods in its association with household income.

It is not the intent of the authors to suggest that this method is superior to past qualitative studies but rather to triangulate past qualitative studies with quantitative data, thus presenting an alternative methodological approach (one that mixes quantitative data with analysis of micro regions), which enriches our understanding of the relationship between social capital and economic development.

Study Context

Evansville, Indiana, is a city located on the banks of the Ohio River in the southern part of the state of Indiana. Evansville is the third largest city in Indiana. Evansville is an industrialized city that has experienced population decline and job loss throughout the past 20 years. The 2010

Census population for Evansville is 117,429. Evansville's population is 80.9% White, 12.6% African American, 2.6% Hispanic, and 1% Asian, according to the 2010 U.S. Census (US Census, 2016). In the same census, 87.2% of the population age 25 or older in Evansville have a high school diploma or higher, while 18.5% of the population 25 years or older have a bachelor's degree or higher.

A study of a mid-size city like Evansville provides a number of benefits. A lot of studies have been published on larger cities, but much can be learned from studies of medium-size and smaller cities that share similar neighborhood dynamics and have faced similar economic challenges (Gilderbloom, Hanka, & Ambrosius, 2012; Hanka, Ambrosius, Gilderbloom, & Wresinski, 2015)

Within the City of Evansville, the sample consists of residents within the boundaries of the Dexter, Glenwood, and Mt. Auburn neighborhoods. These neighborhoods were chosen because of their diversity in terms of affluence, city investment, and policy intervention. The boundaries of the cities can be found in figures 1, 2, and 3. There are 177 households in the Dexter neighborhood, 276 households in the Glenwood neighborhood, and 51 households in the Mt. Auburn neighborhood.

Data Collection

Safford's (2009) study of Allentown, Pennsylvania, and Youngstown, Ohio, argues that some rust belt communities have fared better than others. Using social network analysis, he finds that Youngstown failed to rebound from economic decline in the 1980s because the social capital dynamics of the community limited access to resources and expertise necessary for recovery. Safford's study is relevant to this study in understanding the economic effects of social capital on the neighborhood and individual level. For this study, data were collected through a 34-question survey instrument that looked at various social, economic, and demographic indicators. A combination of methods was utilized to increase the response rate. First, a trained graduate student employee from the Master of Public Administration (MPA) at the University of Southern Indiana, a high school intern interested in social research, and two faculty supervisors went door-to-door in the three neighborhoods (Dexter, Glenwood, and Mt. Auburn) from Monday–Saturday in the spring and summer during various times of the day (in the morning between 10 a.m. to 12 noon, early to mid-afternoon and in the evening after 6:30 p.m.) and asked the head of household to complete the survey instrument. This step was designed to increase the number and quality of survey data, and it enabled the development of a definitive list of addresses for the second stage of the study.

During the second stage, residents who were unable to be contacted by door-to-door canvassing were sent a mail survey. As is best practice in survey research to increase response rates, households were sent a postcard priming the respondent to complete the study. One week later, the survey was mailed with a self-addressed stamped envelope (Dillman, Smyth, & Christian, 2009).

The sample contained 504 usable addresses in the three neighborhoods (a number of them were vacant). Completed surveys were received from 121 respondents from the three Evansville neighborhoods (57 in Dexter, 33 in Mt. Auburn, and 31 in Glenwood); 37% of the completed surveys from Dexter, 36% of the completed surveys from Mt. Auburn, and 24% of the completed surveys from Glenwood were completed going door-to-door; 63% of the completed surveys from Dexter, 64% of the completed survey from Mt. Auburn and 76% of the completed surveys from Glenwood were completed by the respondent sending the completed survey back to us by mail.

Figure 1. Mount Auburn Neighborhood

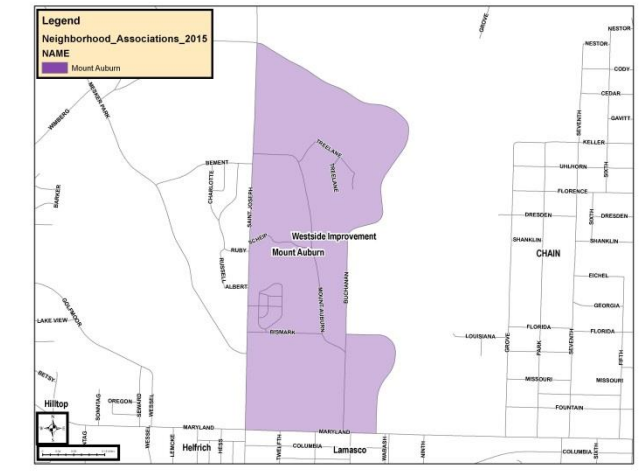


Figure 2. Glenwood Neighborhood

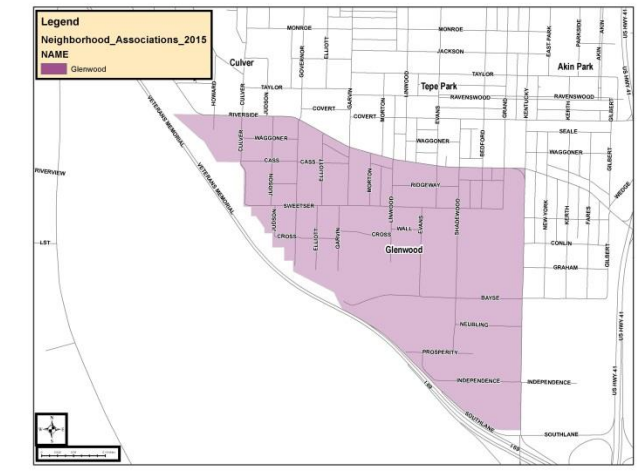
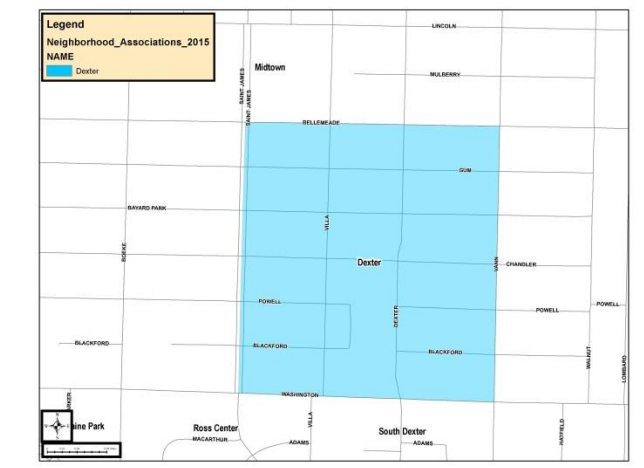


Figure 3. Dexter Neighborhood



Our survey response rate was 24%. Response rates differed by neighborhood with the most disadvantaged neighborhood, Glenwood, exhibiting an 11% response rate. The middle-income neighborhood, Mt Auburn, had a response rate of 65%, while the more affluent Dexter neighborhood had a response rate of 32%.

Variables

The unit of analysis is the individual, but the model includes neighborhood-level variables to account for contextual effects on social capital. The study emphasizes the neighborhood level because past quantitative studies of the economic effects of social capital have been limited to higher levels of aggregation. In addition to traditional individual-level control variables often used in neighborhood studies, such as homeownership, median income, hours worked, education level, and employment status, the study uses a variety of measurements common in the social capital literature that capture neighborhood-level effects on social capital, such as frequency of socialization, a four-question neighborhood involvement index, a four-question neighborhood attachment index, and the number of neighbors known (Engbers, Thompson, & Slaper, 2017).

An additional advantage of this study is that it controls for macro-economic causes of income because all the participants are spatially concentrated within the same labor market. This study seeks to predict household income with bridging social capital variables, such as how many neighbors do you know by first name, how many neighbors do you know by face, number of different organizations respondent volunteered for in the past 12 months, socialization (that reflect a wider range of connections) measured as an average of the following four items: had friends over to your home, been in the home of a friend of a different race or had them in your home, been in the home of someone of a different neighborhood, been in the home of someone you consider to be a community leader or had one in your home. Participation is another variable measured as an average of the seven kinds of participation from this survey: how many times the respondent worked on a community project, donated blood, attended any public meeting in which there was a discussion of local or school affairs, attended a political meeting or rally, attended any club or organizational meeting, given \$25 or more to charity, or volunteered.

Our bonding social capital variables are bonding social capital measured as a ratio of hours volunteered per week divided by the number of organizations volunteer over the last 12 months. Generalized trust is measured using the standard general social survey measure of trust. Neighborhood attachment is measured as a mean based on a four-question index ranging from “0” (not answering the question at all) to “4” (answered positively on every attachment question). Neighborhood involvement is measured a mean based on a four-question index ranging from “0” (not answering at all) to “3” (answered positively on every involvement question).

We include other social capital controls, such as the average number of volunteer hours per week; population density measured in population per square mile within the neighborhood’s boundaries, and a number of economic controls, such as average hours per week worked; college graduation rate measured in percent of the population with a college degree, median neighborhood income measured in thousands of dollars, and a dummy variable specifying male.

Table 1. Descriptive Statistics for Neighborhood Human and Social Capital

| Variable | Dexter | Glenwood | Mt. Auburn |
|--|---------|----------|------------|
| College Grad Rate ^s (percent) | 67.3 | 37.9 | 42.4 |
| Socialization ^s (mean) | 3.824 | 3.464 | 3.318 |
| Average Number of Hours Volunteered Per Week ^s | 4.438 | 3.96 | 10.75 |
| Neighborhood Attachment ^s (mean) | 1.866 | 2.467 | 1.628 |
| Median Income ^c (\$ U.S.) | 46,521 | 30,161 | 33,916 |
| Population Density ^c (per square mile) | 3785.71 | 1027.2 | 269.1 |
| Homeownership ^c (percent) | 96.4 | 74.1 | 93.9 |
| Median Age ^c (years) | 39.56 | 33.24 | 43.55 |
| Percent Below Poverty Line ^c | 2.4 | 25 | 14.8 |
| Median Housing Value ^c (\$ U.S.) | 137,064 | 89,894 | 100,380 |
| Percent Foreign Born ^c | 1.8 | 4.1 | 0 |
| Percent Non-white ^c | 2.0 | 60 | 5 |
| Neighborhood Involvement ^s (mean) | 1.298 | 1.533 | 1.34 |
| Participation ^s (mean) | 2.68 | 2.326 | 2.438 |
| Number of Memberships ^s | 3.075 | 1.821 | 2.33 |

s(survey)

c(2010 Census data)

Method of Analysis

To better understand the effects of social capital on household income, a generalized logistic regression model using maximum likelihood estimation techniques was used to estimate the relationship between an ordinal dependent variable and a set of independent variables. For this logistic regression, the dependent variable is a four-point Likert measure of income: 1) less than \$25,000 per year; 2) \$25,000–\$50,000 per year; 3) \$50,001–\$75,000 per year; and 4) more than \$75,000 per year. While the model nests individuals within their neighborhood context, the limited number of neighborhoods leads one away for a hierarchical model. Rather, the model was run using robust standard errors clustered around each of the three neighborhoods. STATA was used to perform the regression using the following specification¹ for the final analysis:

$$y_i^* = \beta_1^* \text{College grad} + \beta_2^* \text{Frequency of socialization} + \beta_3^* \text{Different organizations volunteered in past 12 months} + \beta_4^* \text{Average Number of Hours Volunteered per week} + \beta_5^* \text{employment} + \beta_6^* \text{Know neighbors by face} + \beta_7^* \text{Currently enrolled in school} + \beta_8^* \text{Neighborhood attachment} + \beta_9^* \text{Trust} + \beta_{10}^* \text{Male} + \beta_{11}^* \text{Bonding social capital} + \beta_{12}^* \text{Median neighborhood income} + \varepsilon_i$$

Results

The results presented below highlight the important contextual differences in which social capital operates.

¹ This model is somewhat truncated from the variables described above and represented in the descriptive statistics because of concerns about degrees of freedom in the model.

Table 2. Descriptive Statistics for Interval Variables

| Variable | Mean | Stand. Dev. | Minimum | Maximum |
|--|---------|-------------|---------|---------|
| Socialization Average Number of Hours Volunteered Per Week | 3.5911 | 1.57783 | 1 | 9 |
| Know Neighbors by Face | 5.48485 | 8.96144 | 0 | 60 |
| Neighborhood Attachment | 19.5329 | 35.5206 | 0.1 | 300 |
| Bonding Social Capital | 1.95592 | 0.7303 | 1 | 4.5 |
| Median Income | 1.72698 | 2.70344 | 0 | 15 |
| | 38891.9 | 7358.52 | 30161 | 46521 |

Table 3. Frequencies

| Variable | % Frequency |
|-------------------------------------|-------------|
| College Graduate | |
| Yes | 51% |
| No | 49% |
| Different Organizations Volunteered | |
| 1 | 38% |
| 2 | 19% |
| 3 | 21% |
| 4 | 7% |
| 5 | 8% |
| 6 | 4% |
| 7 | 1% |
| 8 | 2% |
| Employed | |
| Yes | 57% |
| No | 43% |
| Enrolled in School | |
| Yes | 97% |
| No | 3% |
| Trust | |
| Most People Can Be Trusted | 64% |
| You Can't Be Too Careful | 36% |
| Gender | |
| Male | 70% |
| Female | 30% |
| Household Income | |
| < \$25,000 | 14% |
| \$25,000 - \$50,000 | 26% |
| \$50,001 - \$75,000 | 20% |
| > \$75,000 | 40% |

Descriptive Statistics

The neighborhood human and social capital descriptive statistics have been calculated in table 1. Measures are drawn from either the 2010 Census or the survey instrument. This table includes variables not found in this model because of concerns about degrees of freedom. Dexter is the most affluent among the three neighborhoods with a 2010 median household income of \$46,521, compared with Evansville's 2010 median household income of \$35,469 (U.S. Census, 2016). Only 2.4% of Dexter's population is below the poverty level of Evansville, compared with Glenwood's

Table 4. Generalized Logistic Regression Results for Household Income

| Income Level | Variable | Unstandardized Coef. | Robust Stand. Error | Z |
|--------------|--|----------------------|---------------------|-------|
| <\$25k | Socialization | 23.2784*** | 3.0985 | 7.51 |
| | Different Organizations Volunteered | -885.91*** | 112.91 | -7.85 |
| | Average Number of Hours Volunteered Per Week | 1650.15*** | 210.129 | 7.85 |
| | Know Neighbors by Face | 7.5594*** | 0.9665 | 7.82 |
| | Neighborhood Attachment | 177.887*** | 24.0353 | 7.4 |
| | Trust | -364.49*** | 48.6205 | -7.5 |
| | Bonding Social Capital | -3332.6*** | 424.88 | -7.84 |
| | Constant | 1388.75*** | 175.574 | 7.91 |
| \$25K-\$50K | Socialization | -0.6737** | 0.3044 | -2.21 |
| | Different Organizations Volunteered | 2.3901 | 1.7500 | 1.37 |
| | Average Number of Hours Volunteered Per Week | -1.7933 | 1.5612 | -1.15 |
| | Know Neighbors by Face | -0.128 | 0.1063 | -1.2 |
| | Neighborhood Attachment | -0.8958 | 1.3401 | -0.67 |
| | Trust | 0.0125 | 1.9968 | 0.01 |
| | Bonding Social Capital | 5.3242 | 4.7698 | 1.12 |
| | Constant | -0.2382 | 2.7511 | -0.09 |
| \$50K-75K | Socialization | -0.3938 | 0.3159 | -1.25 |
| | Different Organizations Volunteered | 0.4625** | 0.2163 | 2.14 |
| | Average Number of Hours Volunteered Per Week | -0.1252*** | 0.0449 | -2.79 |
| | Know Neighbors by Face | 0.1707*** | 0.0506 | 3.38 |
| | Neighborhood Attachment | -1.2053*** | 0.3319 | -3.63 |
| | Trust | -2.0904* | 1.2161 | -1.72 |
| | Bonding Social Capital | 0.5252*** | 0.1629 | 3.22 |
| | Constant | 0.4479 | 0.3577 | 1.25 |

*p<.1; **p<.05; ***p<.001

Pseudo R² = 0.8718

2010 median household income at \$30,161 and 25% of Glenwood’s population is below the poverty level. Mt. Auburn’s median income is \$33,916, slightly lower than Evansville’s median household income but higher than Glenwood’s; 14.8% of Mt. Auburn residents live below the poverty level, which is higher than Dexter’s but lower than Glenwood’s and Evansville’s as a whole (20.5%) (U.S. Census, 2016).

Median housing value was the highest in the Dexter neighborhood at \$137,064, while Glenwood’s median housing value is \$89,894, which is much lower than the median housing value for the City of Evansville (\$107,876). Dexter’s population of college graduates (39.6%) is twice as high as Mt. Auburn’s (18.3%), which is slightly higher than Glenwood’s (20.9%).

Table 2 provides descriptive statistics for the interval variables, including socialization, average hours volunteered per week, know respondent by face, neighborhood attachment, bonding social capital, and median income. Table 3 provides the frequencies of the variables college graduate, number of different organizations volunteered, employment status, enrolled in school, trust, gender, and household income.

Table 5. Generalized Logistic Regression Results for Household Income

| Income Level | Variable | Unstandardized Coef. | Robust Stand. Error | Z |
|--------------|--|----------------------|---------------------|--------|
| <\$25K | College Grad | 33.45* | 19.34 | 1.73 |
| | Socialization | -37.04*** | 10.80 | -3.43 |
| | Different Organizations Volunteered | -22.84*** | 5.03 | -4.54 |
| | Average Number of Hours Volunteered Per Week | 32.30*** | 8.30 | 3.89 |
| | Employment | -118.30*** | 35.06 | -3.37 |
| | Know Neighbors by Face | 0.07 | 0.08 | 0.92 |
| | Enrolled in School | 40.64** | 20.16 | 2.02 |
| | Neighborhood Attachment | -51.88*** | 17.17 | -3.02 |
| | Trust | 269.05*** | 76.80 | 3.50 |
| | Male | 51.05*** | 13.27 | 3.85 |
| | Bonding Social Capital | -61.38*** | 19.91 | -3.08 |
| | Median Income | 0.02*** | 0.00 | 3.70 |
| | Constant | -364.65*** | 126.01 | -2.89 |
| \$25K-\$50K | College Grad | -297.29*** | 13.41 | -22.17 |
| | Socialization | -59.78*** | 3.00 | -19.94 |
| | Different Organizations Volunteered | 328.48*** | 16.94 | 19.39 |
| | Average Number of Hours Volunteered Per Week | -177.60*** | 9.44 | -18.81 |
| | Employment | -284.86*** | 13.63 | -20.89 |
| | Know Neighbors by Face | -32.47*** | 1.53 | -21.16 |
| | Enrolled in School | -1327.22*** | 61.13 | -21.71 |
| | Neighborhood Attachment | 301.55*** | 14.27 | 21.13 |
| | Trust | -548.12*** | 25.10 | -21.84 |
| | Male | -191.12*** | 10.13 | -18.87 |
| | Bonding Social Capital | 409.65*** | 22.92 | 17.87 |
| | Median Income | -0.01*** | 0.00 | -23.54 |
| | Constant | 3216.08*** | 142.79 | 22.52 |
| \$50K-75K | College Grad | 0.07 | 0.38 | 0.18 |
| | Socialization | 0.71*** | 0.04 | 18.39 |
| | Different Organizations Volunteered | 2.18*** | 0.31 | 7.05 |
| | Average Number of Hours Volunteered Per Week | -0.78*** | 0.05 | -15.64 |
| | Employment | 4.42*** | 0.11 | 38.97 |
| | Know Neighbors by Face | 0.58*** | 0.13 | 4.36 |
| | Enrolled in School | 23.65*** | 2.70 | 8.76 |
| | Neighborhood Attachment | -8.06*** | 1.29 | -6.24 |
| | Trust | 0.14 | 0.22 | 0.64 |
| | Male | 7.04*** | 0.79 | 8.86 |
| | Bonding Social Capital | 5.38*** | 0.43 | 12.54 |
| | Median Income | 0.00*** | 0.00 | 6.69 |
| | Constant | -89.77*** | 9.60 | -9.36 |

*p<.1; ***p,<.001
Pseudo R²= 0.5319

Table 4 presents the results from the generalized logistic regression model predicting household income with the social capital variables but without any controls for human capital or neighborhood characteristics. Approximately 87% of the variation in household income is explained by the included variables in this model. All of the predictors are significant for household income less than \$25,000. Number of different organizations volunteered, trust, and bonding social capital are negative, while socialization, average number of hours volunteered per week, know person by face, and neighborhood attachment are positive. The magnitude of the coefficients for these variables is largely determinative with bonding social capital, volunteering for different organizations and trust as having an odds ratio of near 0. The odds ratio for the other coefficients is so high that they have an overwhelming likelihood of falling into a higher income category. For household income between \$25,000-\$50,000, only socialization is significant at the 0.05 level and is in the negative direction. This translates into an odds ratio of 0.51 of falling into a higher income bracket. When predicting higher household income (\$50,001-\$75,000), socialization is negative and not significant. Number of different organizations volunteered is positive and significant at the 0.05 level, but trust is negative and significant at the 0.10 level. At this income category (\$50,001-\$75,000), there is a more moderate effect of the social capital variables with odds ratios ranging from 0.12 for trust to 1.69 for bonding social capital. However, these results should be considered with caution, as the introduction of control variables influences these findings.

Our generalized logistic regression model in table 5 includes the variables from table 4 plus college attainment, employment status, school enrollment, a dummy variable specifying male, and median income of the respondent's neighborhood. The pseudo R^2 of this model is approximately 53%. For household income less than \$25,000, number of individuals known by face is not significant, and college grad is significant at the 0.10 level.² All other variables are statistically significant with odds ratios ranging from near zero for socialization, number of different organizations volunteered, employment status, neighborhood attachment and bonding social capital to a largely determinative odds ratio for college graduation, average number of hours volunteered per week, trust, male and enrollment in school. The odds ratio for neighborhood median income is 1.02.

Consequently, men, students, and college graduates are more likely to be in a higher income household than women, non-students, and non-college graduate respondents. Likewise, as one increases his or her average number of hours volunteered per week and level of trust, that person's likelihood of being in the next higher income category increases dramatically.

For household income between \$25,000-\$50,000, all predictors are significant at the 0.001 level. The number of different organizations volunteered, neighborhood attachment, and bonding social capital are positive predictors, while the other coefficients are negative. The odds ratios range from near zero for college graduation, socialization, average number of hours volunteered per week, employment status, knowing neighbors by face, enrollment of school, trust and male to almost deterministic odds ratios for number of different organizations volunteered, level of trust, and level of bonding social capital. Similar to the lower income category, being male and enrolled in school (though not a college graduate) increases the likelihood of being in a higher income category. Likewise, increasing levels of trust increase the likelihood of being in a higher income bracket. However, unlike those in the under \$25,000 bracket, having a higher level of bonding

² The percentage of college graduates and percentage employed are sensitive to model specification in terms of both their statistical significance and direction of impact even after neighborhood controls are included. Caution should be exercised in interpretation of these variables.

social capital and participating in a greater number of organizations is associated with a dramatic increase in the likelihood of being in a higher income category.

For household income between \$50,001–\$75,000, being a college graduate and having a higher degree of trust are no longer significant. The odds ratio for neighborhood attachment and neighborhood income are near zero, but enrollment in school, being male and having bonding social capital are quite high. The odds ratios for the other variables are much more moderate: socialization (2.03), number of different organizations volunteered (8.85), average number of hours volunteered per week (0.92), employment status (83.1), and knowing neighbors by face (1.79). This suggests that men, those enrolled in school, and those with a high degree of bonding social capital are much more likely to be in a higher income category. For those individuals with incomes between \$50,000 and \$75,000, increasing socialization, the number of different organizations volunteered, the average number of hours volunteered per week and the number of neighbors known, will experience an increased likelihood of being in the highest income category. Additionally, those who are employed would also experience a greater likelihood of being in the next income category.

Discussion and Limitations

These results points to three contributions of this study: 1) a surprising finding about differences across income categories; 2) a nuanced understanding of the relative value of bridging and bonding social capital for economic development; and, 3) the importance of neighborhood context in understanding the effect of social capital.

First, the generalized logistical model enables us to see that the impact of social capital is contingent upon the income category of interest. While being male or a student significantly increases the likelihood of being in a higher income for all economic strata, the social capital effects of the other variables of interest depend on the larger economic situation. For those individuals in the lowest income category (household incomes less than \$25,000 a year), the range of social capital indicators is more limited than for higher income categories. Only level of trust and average number of hours volunteered per week have a substantive effect. The average number of hours volunteered per week is only statistically and substantively significant for the lowest income category suggesting either a bonding effect of social capital or perhaps more likely a skill-building effect of volunteering where increased volunteering either signals marketable skills or workforce readiness. This is in contrast to those in the \$50,000–\$75,000 income category, whose probability of being in a higher income category is influenced by a wider range of social capital indicators, including bonding social capital, socialization, the number of different organizations volunteered, and knowing neighbors by face. That said, the odds ratio for these are lower. This suggests that, while a wider range of social capital is influential for higher income individuals, the odds of increasing income categories associated with this social capital is more tempered. For those in the \$25,000–\$50,000 income category, a moderate number of social capital variables including trust, bonding social capital, and the number of organizations are associated with a change in income status and the change in likelihood is fairly dramatic. Consequently, studies of social capital and economic development that do not differentiate between income categories may mask or amplify the effect of social capital on income.

Second, until recent years, the preponderance of emphasis on developing social capital has been on building bonding social capital as represented by the emphasis on involvement in voluntary organizations found in the work of Putnam and others. However, recently, scholars have tended to focus on the economic benefits of bridging social capital (Engbers, Rubin, & Aubuchon, 2017;

Table 6. Sample Population Comparison by Neighborhood

| | Dexter | | Glenwood | | Mt. Auburn | |
|--------------|--------|--------|----------|--------|------------|--------|
| | Survey | Census | Survey | Census | Survey | Census |
| College Grad | 67.3 | 45 | 37.9 | 19% | 42.4 | 22 |
| % White | 94 | 85 | 40 | 27% | 94 | 96 |
| % Black | 2 | 6 | 60 | 51% | 0 | 2 |

Safford, 2009). This study finds a role for bridging and bonding social capital. The direct measure of bonding social capital has a significant effect in increasing the odds of membership in higher income categories for the two middle income strata investigated in this study. Likewise, trust, which is often classified as a form of bonding social capital, appears to be associated with increasing income for the two lowest income categories. The focus on trust supports one of the traditionally conceived causal mechanisms of social capital: the reduction of transaction costs. By building greater networks of trust, there is less need for formal, and often costly, transaction enforcement mechanisms. This increases the net economic benefit of any relationships. For medium and high-income categories, the effect of bridging social capital as measured by the number of different organizations volunteered and knowing neighbors by face appears to have a greater effect. Consequently, one should be hesitant to espouse blanket support for either bonding or bridging social capital but rather to consider the moderating effect of economic and social network in judging the effect of social capital. This is in many ways consistent with both the weak and strong ties argument (Granovetter, 1973). Furthermore, unlike past research (Engbers, Rubin, & Aubuchon, 2017), which found bridging social capital’s effect on job creation but not income, this study finds an effect on income, thus stressing the importance of unit of analysis in social capital research. Aggregation at the MSA level may mask the effect on personal income that can be found when studies examine individual and neighborhood effects.

Third, the neighborhood-level controls are statistically significant, thus suggesting that neighborhood effects are important in understanding income. This is most clearly visible as one compares the model with only social capital variables in table 4 to the model with human capital and neighborhood controls in table 5. Many of the variables that were not statistically significant in table 4 become statistically significant in table 5 showing that a failure to control for neighborhood-related effects masks the potential impact of social capital. This important finding suggests that, while social capital can be used for economic gain regardless of the neighborhood context,³ the effect needs to be understood within a cultural context. Thus, groups such as Habitat for Humanity that attempt to build social capital as a means of revitalization are not misdirected in their efforts but must take a more nuanced approach to thinking about social capital’s effects.

The consistency with past research and the high levels of statistical significance in light of moderate sample sizes bolster the argument presented above, but some limitations remain. Perhaps the biggest concern includes issues stemming from the lower response rates.

First, the response rate differed among neighborhoods with low income neighborhoods exhibiting lower response rates. This raises the risk of selection bias. This bias is undoubtedly a problem. As seen in table 6, the sample collected from this survey differs from census estimates in significant ways, including more education and more white. Likewise, the low response rate may introduce other forms of bias such as the likelihood that survey respondents differ from non-respondents

³ An early specification of the model included interaction terms for the neighborhoods and the social capital variables. These interactions were not statistically significant lending further credence to this claim.

regarding other unmeasured characteristics such as being more extroverted or having other soft skills.

A second area of concern is perfect multicollinearity of control variables, which limits the number of neighborhood controls included. The model above included median income as a control of neighborhood-level dynamics.⁴ To better understand the effects of context, a wider range of neighborhood controls is needed. To do this would require increasing the number of neighborhoods examined, which should be pursued by future scholars.

Third, the use of household income creates some limitations in interpretation of the data. Because the respondent may not be the primary income earner for the household, he or she may be unable to effectively judge household income. Alternatively, and perhaps more of a concern, the connection between social capital and household income is more tenuous. The respondent may have a high degree of social capital, but this capital is unlinked to household income.

Despite these conclusions, this study aids our understanding of social capital and economic development by showing there are personal income benefits associated with social capital and that these benefits accrue to those with bridging and bonding social capital. However, this effect is depending on economic context and current economic status. Moreover, social capital effects appear to exist across neighborhood and that while neighborhood context is important for understanding income, the neighborhood effect does appear to nullify the effect of social capital.

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⁴ The model was run with alternative neighborhood controls included such as racial composition, population density, and unemployment. These models were minimally different than the presented models in terms of coefficients on social capital variables.

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