SOCIAL CAPITAL, PLACE IDENTITY, AND ECONOMIC CONDITIONS IN

APPALACHIA

by

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TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Awareness is growing that conventional economic development, characterized by activities such as business recruitment, industrial park and infrastructure development, and incentives funded by government agencies, has had limited success in many persistently distressed communities. This has been especially true in the American Appalachian region, where decades of intervention have not solved instances of entrenched poverty and other social challenges across the region. To address these limitations, there is growing interest in alternative strategies, including the development of social capital, to affect economic change in Appalachia.

Social capital can be defined as the networks and relationships among members of a community expressed through norms of behavior including altruism, trust, and reciprocity. This research utilizes a mixed methods approach to explore the relationship between social capital and economic outcomes in the Appalachian region. Additionally, I explore the relationship of place identity as an indicator of social capital in its own right and its influence on behavioral indicators of social capital including trust, reciprocity, and altruism. First, using existing measures of social capital and economic distress, I determine if a spatial relationship exists between social and economic conditions in Appalachia. Second, I introduce the concept of place identity as an additional measure of social capital to determine its role in economic outcomes. Finally, I explore the relationship of place

identity and social capital at the individual level using economic games with participants in an Appalachian town.

My research provides quantitative, and importantly, spatial understanding of the relationship between social capital and economic conditions in Appalachia. Additionally, it brings a geographic perspective to research that has largely been conducted by sociologists and economists, providing new insight and a deeper understanding of this relationship.

I. INTRODUCTION

Community developers, planners, and the organizations and agencies that support them, are recognizing the limitations of conventional economic development practices and looking to new strategies to affect change (e.g. Flora and Flora 2003; Briggs 2004; Gress 2004; Hutchinson 2004; Rohe 2004; Green and Haines 2016). Along these lines, *social capital*, is being recognized as a collective, place-based asset that can be leveraged to address community challenges. Social capital, despite having no formal definition (Portes 1998; Durlauf 2002), can be considered to be how residents of a place engage with one another, the relationships they maintain, as well as accepted norms of behavior and trust (Putnam 1993, 2007; Flora et al. 2015; Weaver and Knight 2017).

Leveraging community-based assets and building local capacity is a relatively recent approach to economic development. Historically, economic developers have taken a more top down approach, relying on external assets, and not always reflecting community priorities and concerns (Keefe 2009; Lowery 2014). Evidence indicates that this approach contributes to continued inequality of outcomes, including reinforcing existing spatial patterns of economic distress and even worsening existing conditions, largely because it is not responding to real local needs, instead pursuing an externally focused agenda (Barbier 1987; Woolcock 1998; Markesen and Deller 2015). The failure of conventional economic development to address persistent poverty, particularly in a region like Appalachia, has contributed to exploration of alternative approaches grounded in local values and leveraging local assets such as social capital (e.g. Swyngedouw et al. 2002; Keefe 2009; Farley and Bush 2016; Perdue and Sanchagrin 2016; Weaver et al. 2016).

High social capital contributes to a community's ability to engage in identifying common challenges, developing strategies to address them, and, critically, having the capacity to implement those solutions (Keefe 2009). Recognizing the value of leveraging community capacity to achieve accepted goals, rather than relying on external interventions, has led to non-profits, foundations, and governmental agencies to embrace this approach with funding and support (Easterling 2008; Keefe 2009; Pender et al. 2012).

Despite growing support for, and investment in, social capital as an alternative economic development strategy, empirical evidence related to the efficacy of this approach is quite mixed (Portes 1998; Woolcock 1998; DeFilippis 2001; Durlauf 2002). Having no accepted definition, nor standard methodology for measuring social capital, contributes to the inconclusive findings (Durlauf 2002). Additionally, the challenge of measuring the outcomes of community and economic development interventions makes evaluating the relationship between social capital and economic change even more difficult (Lachapelle et al. 2010). This results in qualitative studies being adopted when researching this relationship (e.g. Putnam 1993; Keefe 2009; Flora et al. 2015; Nettle 2015). Qualitative studies allow researchers to incorporate local characteristics and context more effectively than may be possible through quantitative methods.

Quantitative methods tend to be much less costly, and less time-consuming, allowing researchers to explore larger geographic scales than is possible through qualitative methods. However, quantitative approaches may overlook critical local attributes that may affect results in specific areas. Therefore, researchers must evaluate the goals of their research in order to select methods most appropriate for their studies (Weaver et al. 2016). For this research, I utilize a mixed methods approach combining spatial statistics and

2

economic games to address different aspects of social capital and their relationship to economic outcomes.

For my research, I will be exploring the relationship between social capital and economic conditions in the American Appalachian region. Appalachia has been targeted by external actors and interventions since the early 1800's when its extensive forests were felled for lumber to serve a growing nation (Williams 2002). Since the 1930s and accelerating in the 1960's with the creation of the Appalachian Regional Commission (ARC), Appalachia has received more positive external intervention in a sustained effort to overcome the entrenched poverty of the region (Eller 2012). These efforts have had mixed results, at best, with much of the region continuing to struggle economically (Portes 1998; Woolcock 1998; DeFilippis 2001; Durlauf 2002). Over the last decade, the ARC has begun to adopt a new approach to economic development in the region. This has included explicit efforts to foster social capital as a means to addressing economic stagnation (Markley et al. 2008; Ezzel et al. 2012).

This interest by the ARC represents an opportunity for my research to contribute to our understanding of the relationship between social capital and economic outcomes in the region. It provides additional empirical evidence bolstering support for a connection between the two phenomena, as well as providing insight into the spatial characteristics of social capital and economic outcomes across the Appalachian region.

With the Appalachian case in mind, this dissertation adopts a three-pronged approach to study and characterize the patterns of association between social capital and economic conditions from an explicitly geographic perspective. First, I draw on publicly accessible secondary datasets to map and interrogate the geographic distributions of

established, quantitative county-level measures of economic distress and social capital in the administrative Appalachian region, which contains 420 counties spread across thirteen states (Rupasingha et al. 2006; ARC, n.d.-a). The spatial patterns of distress and social capital are analyzed for evidence of spatial cross-correlation to add to the mixed body of evidence on the relationship between these two phenomena. To the extent that most of the quantitative literature on this relationship relies on conventional, aspatial statistical techniques (e.g. Leonard et al. 2010; Baliamoune-Lutz 2011), a spatial analysis contributes to the literature by revealing not just *if* economic distress and social capital exhibit a systematic relationship; but also *where* and *in what form* such relationships exist (see Chapter III).

Second, I add to quantitative investigations of social capital that rely on secondary data by supplementing an established measure (Rupasingha et al. 2006) with one that considers the role of *place* in social capital. Whereas the existing empirical social capital literature provides instructive means for operationalizing certain elements of social capital with secondary data—such as networks and institutions (e.g. Temkin and Rohe 1998; Rupasingha et al. 2006)—these means tend to be relatively ageographical, apart from the fact that they are measured for locations in space. Yet, many views on collective social capital point to its intimate association with and dependence on a geographic place (e.g. Flora et al. 2015). Within this line of inquiry, one phenomenon that might facilitate the growth and development of social capital (e.g. Putnam et al. 1993; Putnam 1995) is shared *place identity* (e.g. Forrest and Kearns 2001). For that reason, the contributions of the second phase of my quantitative analysis are to: (1) establish that Appalachian place identity is an indicator of social capital; (2) propose a quantitative marker of Appalachian

place identity; and (3) to detect a systematic relationship between Appalachian place identity (as social capital) and economic conditions, controlling for other influential variables (see Chapter IV).

Third, I explore whether the associations between social capital and economic conditions/outcomes that I observed in secondary data at a regional scale also hold at a more human scale. To do so, I collected primary data through economic experimental protocols that are mostly absent from geographic literature—being used instead primarily by sociologists and economists (e.g. Glaeser et al. 2000; Camerer 2003; Guala 2005; Ensminger and Cook 2014). Such experimental protocols are "celebrated by some social scientists for their ability to reliably measure components of social capital. Unlike surveys, well-designed experiments reveal actual behaviors and actions as opposed to stated behavior and actions" (Weaver, Unpublished; also Durlauf 2002). Thus, while secondary measures of social capital are forced to rely on rough proxies such as the presence of certain types of formal organizations (e.g. Rupasingha et al. 2006; Weaver et al. 2016), economic experiments enable researchers to collect data on elements that are intimately intertwined with most definitions of social capital—characteristics such as trust, prosociality, cooperativeness, and willingness to help a group of people at a personal cost to oneself (e.g. Glaeser et al. 2000; Camerer 2003; Wilson and O'Brien 2009).

On that backdrop, I worked in conjunction with a community partner (Coffee Tree Books) to facilitate economic experiments with residents of Morehead, Kentucky. Morehead is an Appalachian town that ranks poorly on several U.S. Census socioeconomic indicators (US Census n.d.) and is the county seat of Rowan County, identified by the ARC as having high economic distress. This project received approval from the Institutional

Review Board (IRB) at Texas State University (IRB Number 2017557). As part of the data collection process—and to align with the second phase of my secondary data analysis (see above)—participants in the experiments were asked to rank the importance of various types of place-based identity to their personal identities as individuals (e.g. Appalachian identity, Morehead identity, Kentucky identity) (e.g. Cooper and Knotts 2013). Using that information in conjunction with the experimental data allowed me to explore relationships between elements of social capital (e.g. trust and prosocialty, which can be measured experimentally—see Chapter V), various *scales* of place identity (regional, state, local), and economic outcomes (degree of cooperation as measured experimentally—see Chapter V).

Purpose and Outline of the Dissertation

Social capital is regularly studied by sociologists and economists; but geographers are not without a stake in the game (e.g. Lovell 2009). As Mohan and Mohan (2002:191) observe, social capital offers geographers a framework "to explain different spatial patterns". This dissertation adopts that framework as it attempts to explore and improve our understanding of patterns of spatial inequality in the large-extent, multi-jurisdictional administrative Appalachian region (e.g. Moore 2005); and to understand whether or not associations between social capital and economic conditions/outcomes observed at a regional scale are similar to those observed at a more human scale. In route to those contributions, the dissertation accentuates the critical, frequently overlooked role that geography can play in empirical social capital research. By using explicitly spatial analytical techniques (Chapter III), engaging with and attempting to measure its domain of place identity (Chapter IV; e.g. Forrest and Kearns 2001), and infusing otherwise aspatial

experimental data collection methods with considerations of place and place identity (Chapter V), the dissertation seeks to contribute to both the methodology and body of empirical results related to the concept of *social capital*. Apart from these contributions to the scholarly social capital literature, it is important to note that the relationship between social capital and economic outcomes is also of keen interest to practitioners from numerous fields (Vidal 2004; Woolcock 2004; Easterling 2008; Flora et al. 2015; Green and Haines 2016). Most importantly, the federal Appalachian Regional Commission (ARC) is increasingly re-orienting its practice away from conventional and externally-driven interventions toward efforts that aim to build social capital in Appalachian communities (e.g. Keefe 2009; Pender et al. 2012). Accordingly, the results of the dissertation may be able to inform, challenge, or support active, on the ground public decision-making and planning efforts in the Appalachian region.
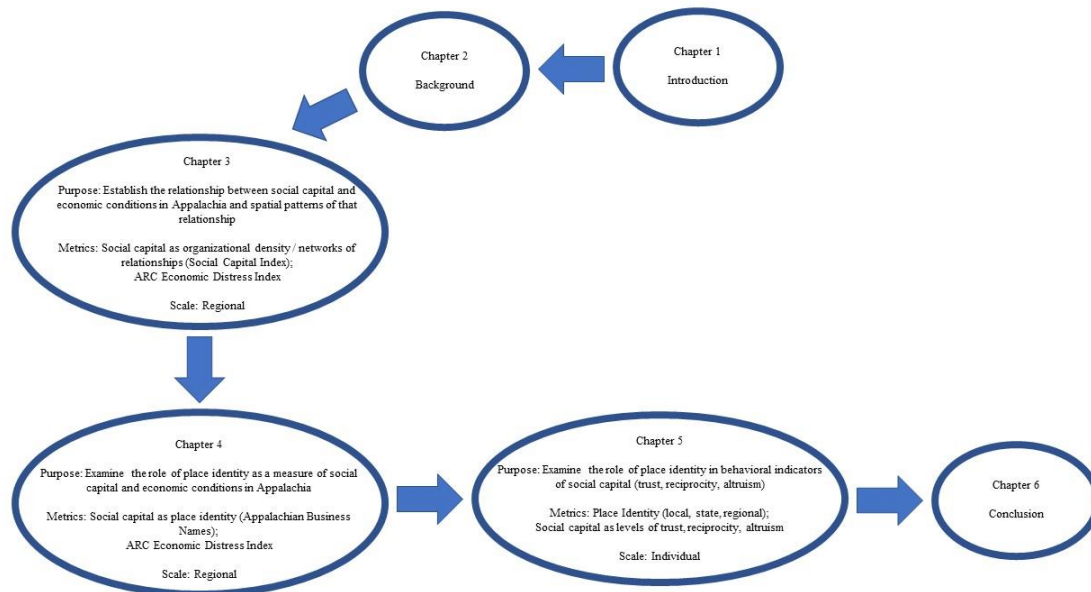
Figure 1.1: Dissertation Outline

The dissertation is contained in six chapters. Chapter I provides an introduction to the dissertation and an overview of the research. Chapter II contains background information, context, and the conceptual framework. Chapters III - V describe the research conducted, methods, and results (see Figure 1). Chapters III and IV have been accepted for publication in *Applied Geography* and *Southeastern* Geographer, respectively, and Chapter V is currently under review for publication. Because each chapter was written as a standalone publication, note that there is some redundancy in background information, framing, and literature review throughout the dissertation. Finally, Chapter VI is a conclusion that summarizes the overall findings from the research and provides direction for potential policy implications and future research directions from the results.

II. BACKGROUND

<u>Social Capital in Community and Economic Development</u>

At least in the United States, *conventional* economic development is based on the idea that "there is no such thing as bad growth and no such thing as too much growth" (Leo and Anderson 2006:169). Among the interventions used in pursuit of these desires is business recruitment and attraction (bringing in employers from elsewhere), often through incentives such as free land and buildings, tax breaks, and even direct financial reimbursement (Keefe 2009). This approach contributes to patterns of spatial inequality as some places because of attributes including location, accessibility, political influence, financial resources, and related assets are more successful in recruiting new businesses than others.

Despite the recognized and increasingly apparent limitations of such externally driven models (e.g. Bingham 1983; Eller 2012; Lowery 2014; *The Economist* 2015), demand for new jobs and tangible results enables them to thrive well into the current moment, especially in chronically distressed areas like some parts of Appalachia (e.g. Perdue and Sanchagrin 2016). Yet, interventions that leverage relationships and networks to foster more grassroots, locally directed development—which may be more sustainable in the long run than traditional recruitment (Markesen and Deller 2015)—are occupying substantially more territory in the economic development landscape today than they did in recent decades (Portes and Landolt 2000; Rohe 2004; Rahe 2013). At least part of the reason for this growth in locally driven development is linked to a rapidly increasing interest in the concept of *social capital* among practitioners (and scholars) in community

and economic development (e.g. Flora and Flora 2003; Briggs 2004; Gress 2004; Hutchinson 2004; Rohe 2004; Green and Haines 2016).

Although social capital has no universal definition (Woolcock 2004), most researchers and practitioners who draw on the concept are acquainted with Robert Putnam's (1995) contention that it means features of social organization "that facilitate coordination and cooperation for mutual benefit" (p. 65). The precise 'features' that Putnam and others say make it possible for community members to cooperate for mutual gain are (1) social networks, (2) behavioral norms, and (3) trust. Thus, social capital is said to incorporate a combination of at least these three elements (Dinda 2008). It is these elements of networks, norms, and trust that contribute to community capacity to play an active role in identifying challenges and opportunities rooted in local values and priorities, thereby reducing the need for external interventions (Barbier 1987; Keefe 2009).

Social capital is a response to the prevalence of the view during much of the 20th century that decisions were made to maximize individual gain rather than benefitting the larger community (Wilson and O'Brien 2009). Researchers are moving away from this individualistic concept and recognizing the role of culture and society in influencing and defining behaviors that are acceptable to the community (Boyd and Richerson 2009). These behaviors, and the capacity to influence them, are the foundation of social capital, and thus social capital becomes a collective asset the community can leverage to address challenges and achieve identified goals (Putnam 1993; Rupasingha et al. 2006).

Social capital can serve as one avenue to fostering economic change, as part of a holistic approach to community development (e.g. Portes and Landolt 2000; Lovell 2009). It is not the sole source of community wealth and, therefore, it is not a panacea to the social

and economic challenges found in struggling communities. However, given the attention the concept has received in contemporary planning (e.g. Briggs 2004; Gress 2004; Hutchinson 2004), policy (Rupasingha et al. 2006; Rahe 2013), and community development (Temkin and Rohe 1998; Keefe 2009) discourses, social capital-building offers a feasible alternative to conventional economic development—one that is, by definition and design, more contextually sensitive and inwardly-focused relative to earlier pro-growth efforts (e.g. Keefe 2009).

Appalachia represents an excellent study area for developing a more thorough understanding of social capital and its implications on economic vitality. Growing acceptance of Appalachian identity, along with increased community engagement and action are contributing to economic change in the region (Keefe 2009; Fisher and Smith 2012; Weaver and Holtkamp 2016). Additionally, the Appalachian Regional Commission has decades of data on economic conditions in the region, which is why this research utilizes the ARC boundary (Figure 2.1) as the study area for two of the dissertation chapters. Despite many definitions of Appalachia (see Weaver and Holtkamp [2016]), the ARC boundary is widely accepted in the literature and by researchers (Strickland 1999; Williams 2002) and given the data available from the ARC represents a meaningful boundary for this study.

<u>Appalachia</u>

Appalachia can be defined as a physiographic region based on terrain and vegetation as well as by the cultural identity and vernacular unique to the region (Fenneman 1916; Reed 1976; Zelinsky 1980; Cooper and Knotts 2010); however, it is

also a political region delineated and served by the federal Appalachian Regional Commission (Figure 2.1). Although these boundaries overlap, and it might be possible to define a core area of Appalachia (e.g. Cooper et al. 2011; Weaver 2016; Weaver and Holtkamp 2016), no single boundary encapsulates all of the characteristics and definitions of this diverse American region (Cooper et al. 2011).

Historically, Appalachia remained relatively unnoticed, home to small farmers and loggers until the late 18th Century. Around that time, the region became the object of interest of local-color writers, who romanticized what they defined as the otherness of Appalachia and its inhabitants against the mainstream society of the rest of America. In addition, churches began to invest in the region, seeking to bring up what they perceived to be backwards and primitive people in need of proper church indoctrination (Williams 2002). This perception by outsiders created "…the identification of Appalachia as a strange land inhabited by a peculiar people" (Shapiro 1978:xvii). The stereotyping of the region as isolated, suspicious, and backwards continues to the present, ignoring the complexity and diversity of the region and undermining opportunities for social and economic advancement (Batteau 1980).

Although the perception of Appalachia was that of isolation and backwardness, in fact, the region was becoming ever more connected to the rest of the country by rail lines that provided access to the abundant natural resources of the region. Coal and timber extraction became primary sources of employment in Appalachia, with textile mills and other manufacturing developing along the periphery of the region that was more accessible to markets. Much of the land was owned by outsiders or large corporations
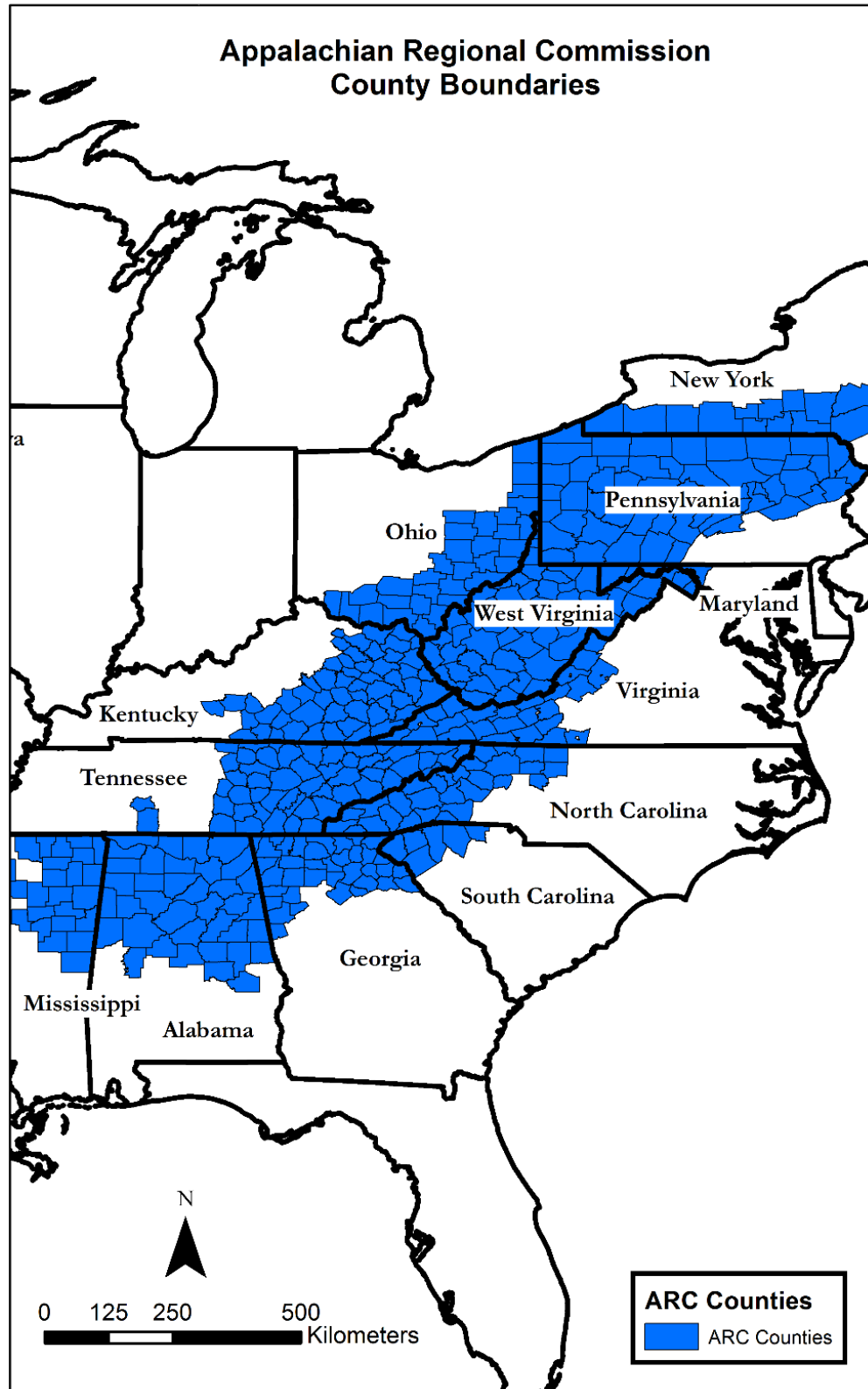
Figure 2.1: ARC Boundary

and workers lived in company towns controlled by the companies that employed them (Biggers 2006). Appalachia could be described as an internal colonial dependency (Brown and Schafft 2011). This is a condition in which a peripheral area (in this case Appalachia) is exploited for resources with minimal investment of economic or political capital in the region. Outside interests control the process and patronage systems are installed to control the local population. These types of situations often lead to widespread poverty and economic harm (Brown and Schafft 2011). This describes the historic development of Appalachia as much of the land was (and still is) owned by outsiders and state and local political systems are controlled by those same outside interests (Shapiro 1978; Gaventa 1980; Eller 2008).

The lack of local control and sense of exploitation led to widespread labor unrest throughout the early 20th Century. This included several violent encounters between miners and the companies, often supported by local and State law enforcement, to the level of requiring intervention from Federal troops to quell the violence (Williams 2002). Violence and unrest contributed to the continued perception of Appalachia as a separate space, unlike the rest of the country and left behind by social development (Shapiro 1978).

Significant government intervention to address the challenges of Appalachia began during the 1930's as part of the New Deal response to the Great Depression. In 1960, presidential candidate John F. Kennedy visited the region bringing the poverty of the region to national attention. This attention contributed to the Appalachian Regional Development Act, passed by President Lyndon B. Johnson as part of his War on Poverty after President Kennedy's assassination (Williams 2002).

Information from the Appalachian Regional Commission (ARC) describes how the Appalachian Regional Development Act also established the ARC as a regional agency comprised of a partnership of Federal, State, and local governments that is tasked to:

> 1) Increase job opportunities and per capita income in Appalachia to reach parity with the nation.
> 2) Strengthen the capacity of the people of Appalachia to compete in the global economy.
> 3) Develop and improve Appalachia's infrastructure to make the Region economically competitive.
> 4) Build the Appalachian Development Highway System to reduce Appalachia's isolation

The ARC initially included counties in Alabama, Georgia, Kentucky, Maryland, North Carolina, Pennsylvania, Tennessee, Virginia and all of West Virginia (Strickland 1999). This region incorporated the core of what has been defined as Appalachia, as well as the periphery area. The ARC region was expanded in 1967 to include portions of New York, Ohio, South Carolina, and even Mississippi. The addition of these regions, particularly Mississippi, was a political maneuver to expand support for funding improvements in the region (Watts 1978; Widner 1990; Gattrell and Fintor 1998). Legislative change made it more difficult to add new counties to the agency, and the boundaries have remained the same since 1967. In this configuration, it includes 420 counties spanning 13 states (Figure 2.1). The political boundary differs from the physiographic boundary in its inclusion of the counties in Mississippi and its exclusion of the "upland Piedmont in the Carolinas and Virginia and the Blue Ridge in Virginia and Maryland" (Ulack and Raitz 1982:733).

Over its 50-year history, the Appalachian Regional Commission has focused on improving conditions in the region. Because it was created by Congress to serve as the

primary actor in developing the region, the boundary of the ARC has become the accepted demarcation of Appalachia. This is in spite of the political nature of some of the areas included and the fact that the boundaries do not completely align with other accepted definitions of the region.

Despite the prolonged intervention and the work of the ARC, much of Appalachia continues to struggle economically (Lowery 2014; *The Economist* 2015). Economic benefits from infrastructure and investments by the ARC and other organizations have primarily benefitted urban areas and fringe areas of Appalachia, bypassing much of the region (Bingham 1983; Eller 2008). This represents an opportunity to explore the efficacy of a new approach that focuses less on traditional investments in infrastructure, business recruitment, and workforce development, and more on building community engagement and social capital to support grassroots, locally driven activities to improve economic vitality (e.g. Keefe 2009; Fisher and Smith 2012).

The entrenched poverty of the region may, in part, be traced to the history of exploitation and control of the region by outsiders (Shapiro 1978; Gaventa 1980; Eller 2008). Putnam (1993) found a significant correlation between the level of local organization and associational activity and the quality of local governance and economic conditions. Southern Italy experienced an autocratic government, controlled by outsiders that opposed local organizations and association which has contributed to modern conditions of economic stagnation and poor governance (Putnam et al. 1993). Appalachia has had a similar experience, where outside interests controlled local political activity and resisted local organization and development (Shapiro 1978). "Appalachia has experienced growth without development that has left the region modernized and altered but lacking

16

the improved public resources needed to support the new lifestyles" (Eller 2008:266). This lack of internal capacity is changing, leading to new opportunities for development in the region (Keefe 2009; Fisher and Smith 2012).

Since the 1960s an awakening of Appalachian culture has occurred. Residents are embracing and celebrating their heritage and identity as Appalachians. Music, food, and handicrafts are being recognized as unique and distinctly American art forms, worthy of acceptance as valuable in their own right (Eller 2008). This contributes to a growing sense of Appalachian identity, which is benefitting economic growth in the region (Weaver and Holtkamp 2016). This acceptance of identity is also leading to growth in participatory development and social capital as tools to address local challenges (Keefe 2009). My research contributes to our understanding of what, if any, affect this new approach, focusing on social capital, is having on economic conditions in Appalachia.

Conceptual Framework

As laid out in the preceding section, economic development in Appalachia has historically been driven by outside interests seeking to exploit the resources of the region (Keefe 2009). When the entrenched poverty in Appalachia was brought to public attention, initially in the 1930s, then more forcefully in the 1960s (e.g. Shapiro 1978; Gaventa 1980; Eller 2008), the approach to addressing it continued the neoliberal, corporate development paradigm that had created many of the challenges in the region (Fisher and Smith 2012).

This modernist paradigm is perhaps best expressed in the preponderance of investments made by the federal Appalachian Regional Commission. The ARC has invested billions of dollars into Appalachia, but primarily in roads, industrial parks, and

other tools of conventional economic development (Williams 2002; Eller 2008). This investment in physical infrastructure has not led to widespread economic and social improvements, with much of Appalachia still mired in persistent poverty (Bingham 1983; Eller 2012; Lowery 2014). Most importantly to this dissertation, the ARC's long history of conventional development, marked by limited efficacy left little room for citizen participation (Keefe 2009; Lowery 2014; *The Economist* 2015). As such, until recently (e.g. Pender et al. 2012), large-scale development efforts in Appalachia created little opportunity to build or leverage any social capital that might exist in the region. It is perhaps for this reason that "Appalachian communities still struggle with problems largely defined and 'solutions' provided by non-Appalachian individuals and agencies" (Keefe 2009:6).

In response to these criticisms, there is increasing interest in the *participatory turn* (Mohan 2007; Fisher and Smith 2012) in development in Appalachia (Eller 2008; Keefe 2009). Rather than solutions being imposed by external power brokers, which may not reflect local priorities or concerns, participatory development recognizes the value of local cultures and identities and seeks to empower local people to address their own challenges (Mohan 2007; Brunie 2009). Participatory development leverages the value available in social organization and the relationships of community members. This paradigm seeks to build capacity in communities and leverage existing resources to foster more sustainable, long term economic and social development (Easterling 2008).

The success of the participatory development model rests on local capacity to address local challenges (Portes and Landolt 2000; Lovell 2009; Fisher and Smith 2012). It also requires networks of relationships to access additional knowledge and resources

18

when needed (Putnam et al. 1993; Dinda 2008). This model provides an opportunity to fundamentally change communities because it fosters self-reliance rather than continued reliance on external resources to progress (Kumar 2002). Participatory development relies on the willingness of citizens to engage in the development process (Barbier 1987; Boyd and Richerson 2009). It requires a foundation of trust and a willingness to contribute to the public good (Flora et al. 2015; Weaver and Knight 2017). These are the fundamental characteristics of social capital (Putnam et al. 1993; Brunie 2009).

Interest in participatory development is entering the mainstream, to the point that even the ARC has recently adopted an asset-based development approach that is focused on this participatory development paradigm (e.g. Markley et al. 2008; Ezzell et al. 2012; Pender et al. 2011). This makes research on social capital in Appalachia a timely undertaking that is immediately relevant to on-the-ground development efforts.

III. QUANTIFYING THE RELATIONSHIP BETWEEN SOCIAL CAPITAL

AND ECONOMIC CONDITIONS IN APPALACHIA[1]

Introduction

Conventional economic development tends to rely on external interventions, such as infrastructure development and business recruitment, as means for improving conditions in targeted communities (Keefe 2009; Lowery 2014). Research suggests that solutions imposed from the outside contribute to patterns of spatial inequality, as interventions are frequently poorly connected to the internal dynamics of localities in which they are applied (e.g. Swyngedouw et al. 2002; Keefe 2009; Farley and Bush 2016; Perdue and Sanchagrin 2016; Weaver et al. 2016). As such, benefits may not meet local expectations, and conditions of distress often persist or even worsen (Barbier 1987; Woolcock 1998; Markesen and Deller 2015). This durability of unequal outcomes has heightened interest in alternatives to conventional practices that advocate for grassroots initiatives tailored to existing community assets and capacities.

Growing evidence points to *social capital* as playing a key role in community development and affecting positive community change (e.g. Flora and Flora 2003; Briggs 2004; Gress 2004; Hutchinson 2004; Rohe 2004; Green and Haines 2016). Despite having no universal definition (e.g. Portes 1998; Durlauf 2002), there is widespread support for the idea that *place-based* social capital deals with the degree to which the residents of a geographic neighborhood are characterized by (1) effective social networks and (2) norms

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of mutual trust and reciprocity that facilitate collective action (Putnam 1993, 2007; Flora et al. 2015; Weaver and Knight 2017). In such scenarios, communities might be capable of playing active roles in visioning, agenda-setting, decision-making, and implementing action to improve their well-being from the ground up—thereby reducing the need for conventional, top-down (external) development that may not reflect local values and priorities (Barbier 1987; Keefe 2009). Philanthropic organizations and government agencies at multiple levels have taken an acute interest in this concept and are providing funding for programs that develop social capital as a means of achieving economic change (Easterling 2008; Keefe 2009).

Despite the sustained increase in attention being paid to social capital by scholars, practitioners, and policymakers, the empirical evidence for an association between social capital and community outcomes is mixed and inconclusive (Portes 1998; Woolcock 1998; DeFilippis 2001; Durlauf 2002; Westlund and Adam 2010). Such circumstances exist largely because no standard method for quantifying social capital exists (e.g. Portes 1998; Durlauf 2002; Westlund and Adam 2010). Additionally, many community and economic development outcomes are themselves either intangible (Lachapelle et al. 2010) or, when tangible, still difficult to measure with conventional data sources (Weaver and Knight 2017). Indeed, a recent meta-analysis of 65 empirical social capital studies found that discordant quantitative support for a relationship between social capital and economic performance is heavily influenced by inconsistency in the measurement of both of these phenomena (Westlund and Adam 2010).

Because social capital and economic performance both resist quantification, then, many studies of social capital rely on qualitative data collection methods (e.g., Putnam

21

1993; Keefe 2009; Flora et al; 2015; Nettle 2015). Qualitative or mixed methods studies tend to be better suited than purely quantitative social capital investigations to capture the context of a specific study area, and to unpack the depth of the relationships that might exist between social capital and community outcomes. Yet, because of data acquisition costs, these studies tend to be limited in their geographic scopes. By contrast, quantitative analyses that rely on secondary datasets are often able to cover much larger geographic extents—but are, expectedly, quite limited in their collective ability to account for local context or dig deeper into causal relationships. Hence, it is up to social capital researchers to weigh these trade-offs at the outset of their empirical investigations (for a fuller discussion of these trade-offs, see Weaver et al. 2016:65).

In the present case, our focus is on the American Appalachian region, which represents a timely and fascinating case on the measurement of social capital and its relationship to economic outcomes. For decades, Appalachia has been on the receiving end of targeted (conventional) development interventions from external agencies aimed at overcoming entrenched poverty within the region (Keefe 2009). Although some areas have benefitted from these interventions, benefits have largely accrued in spatially uneven patterns, and much of the region continues to struggle with poverty and decline (Bingham 1983; Eller 2008; Lowery 2014; *The Economist* 2015). A primary actor in Appalachian development is the federal Appalachian Regional Commission (ARC), established in the 1960s to combat Appalachian poverty (Watts 1978; Williams 2002). For much of its history, many of the ARC's initiatives could be classified as *conventional* development that has sought to impose external solutions on Appalachia's problems (Keefe 2009). However, within the past decade, the ARC has shown explicit interest in building *social*

capital in Appalachia as a means for improving quality of life (Markley et al. 2008; Ezzel et al. 2012).

Current empirical research on the relationships between social capital and economic outcomes in Appalachia is therefore valuable for at least three reasons. First, it will offer new insights into the extant mixed body of evidence on these phenomena in general. Second, as the ARC continues to experiment with social capital-building as a means for addressing regional economic challenges, it can offer timely feedback on the geographies of, and links between, social capital and socioeconomic outcomes throughout the large and multijurisdictional Appalachian region. Finally, and relatedly, as Westlund and Adam (2010:904) observe, much of the (inconclusive) quantitative evidence for an association between social capital and economic performance exists in the form of coarse-grained, cross-national studies—thus, "the future of social capital research on aggregate levels lies in studies on sub-national levels". By exploring associations in intra-regional geographic patterns of social capital and economic performance, our study on Appalachia will take an incremental step in advancing this finer resolution program of research in quantitative social capital studies.

With the Appalachian case in mind, the remainder of this article relies on existing—albeit imperfect—measures from secondary data sources to evaluate patterns of association between social capital and economic distress in statistical and spatial analyses. The choice of a quantitative study rests on the fact that the Appalachian region, as defined by the ARC, covers roughly 531,000 square kilometers, and consists of 420 U.S. counties in 13 different states (ARC n.d.). In terms of the trade-off articulated above, the geographic extent of our study area makes in-depth qualitative data collection cost prohibitive. Accordingly, we

draw on secondary indicators—principally an index of social capital developed by

Rupasingha and colleagues (2006) and the ARC's annual index of economic distress—to

investigate the following questions:

> 1) What is the geographic distribution of economic distress in Appalachia?
> 2) What is the geographic distribution of social capital in Appalachia?
> 3) What is the spatial relationship between economic distress and social capital in Appalachia?

Given these three research questions, a fourth contribution of the article is its

geographic focus, and its attendant use of spatial statistical methods to interrogate

associations between social capital and economic performance (for comparison, note that

much of the prior literature in this area uses conventional, aspatial methods [see Westlund

and Adam (2010)]). That being said, it bears repeating that our interest lies in *identifying*

patterns and quantifying their associations. In that sense, the applied spatial analysis is

aimed at uncovering practical, surface-level information that has value for geographers,

planners, and developers seeking more clarity on the (lack of) association between social

capital and economic performance at subnational levels (e.g., Westlund and Adam

2010:904). Accordingly, we do not attempt to resolve the longstanding question of

whether social capital *causes* better economic performance or vice versa (refer to Portes

1998).

Literature Review

Conventional Economic Development

Conventional economic development focuses on attracting new jobs to

communities by investing in assets such as new highways and industrial parks, as well as

providing tax abatements and other incentives. Through the lens of political economy, such

actions create competition between localities, where growth happens through "the ability (of a given place) to attract government-subsidized development (defense contracts, military bases, government infrastructure projects, etc.) and create a pro-business climate (low local taxes, anti-union sentiment, etc.)" (Mencken et al. 2006:109). Metrics of success include dollars invested and jobs created in the short term, rather than longer-term indicators of sustainable, locally adaptive development (Markesen and Deller 2015). Prioritizing external investments—and the differential abilities of localities to attract such investments—produces patterns of spatial inequality, as some places—by nature of location, access, political connections, and so on—"succeed" in this model of economic growth while others "fail" (Markusen 1996; Tolbert et al. 1998; Leo and Anderson 2006).

The notion that there are winners and losers in conventional economic development stems at least in part from the fact that actors in the global economy are increasingly mobile, with businesses moving to areas that minimize production costs and maximize profits. "Restructuring of the economy has had a profound effect in rural areas where extractive and goods-producing jobs continue to decline and fewer high-end service jobs emerge at all" (Duncan 2014:244). Some localities have responded by attempting to lower production costs relative to those of the competitor regions, resulting in "lowering wages and reproduction costs to the lower common denominator" (Markusen 1996:294). Problematically, despite efforts to reduce costs for businesses, well-paying jobs continue to decline in many un- or under-competitive geographic locations (Mencken et al. 2006). Such an outcome is especially true for rural areas like Appalachia, which have struggled economically despite decades of conventional interventions (Keefe 2009).

Economic activity in rural areas has historically been driven by external interests focusing on extracting natural resources and exploiting lower costs and regulations (Gaventa 1980; Eller 2008). Extraction has been subsidized by federal investments in railroads (and, later, highways) that provide "outsiders" with access to resource-rich regions. This sanctioned extraction creates what Putnam (1993) would call *vertical relationships*: "patronage and personalistic allocation of opportunities, and a concentration of power among landowners who maintain rigid control over peasants" (Duncan 2014:245). Rather than widespread wealth, benefits accrue to the elite, most of whom hail from locations well outside the resource-rich region (Shapiro 1978; Gaventa 1980; Eller 2008). For Appalachia, where economic activity was historically driven by such outside interests, local organization and development were routinely neglected, exacerbating geographical concentrations of poverty (Shapiro 1978; Keefe 2009). Whereas some argue that persistent poverty within Appalachia is a failure to engage with a globalizing economy, it is instead the "*impacts* of globalization" that contribute to economic stagnation (Fisher and Smith 2012:2). As lower cost countries become more technically advanced and even more connected to the global economy, they become attractive destinations for businesses (Markusen 1996). Local, domestic economic development practices are typically unable to offset these competitive advantages to keep existing businesses, or recruit new ones, to maintain local economic vitality (Mencken et al. 2006). Economic decisions are being driven by multi-national corporations which have no connection to place or community and seek only the most efficient and cost-effective locations for production (Fisher and Smith 2012).

Persistent inefficacy of conventional development approaches with respect to improving conditions in chronically distressed areas has led researchers and practitioners to explore alternatives that leverage local assets rather than relying on external inputs (Markesen and Deller 2015). Engaging with local residents, tapping into existing networks and relationships, and building self-reliance are increasingly recognized as a recipe for more sustainable social and economic change (Easterling 2008; Keefe 2009; Fisher and Smith 2012). Within this discourse, social capital is often conceptualized as the capacity to achieve development that meets community priorities and goals rather than satisfying external expectations (Keefe 2009).

Social Capital

Although no universally accepted definition of social capital exists, researchers who study the concept as a community-level asset tend to see it as made up of two factors: (1) relationship structure–for example, networks size, configuration, and density; and (2) relationship content—for example, norms, institutions, and values (Bartkus and Davis 2009:2).

The interplay of these factors is important for understanding the potential role that social capital has in community and economic development. If we consider social capital as an asset for community building and think of it in terms of value and resources, then it can be considered "the sum of actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit" (Nahapiet and Ghoshal 1998:243). Robert Putnam defines social capital as "features of social organization, such as norms, and networks that can improve the efficiency of

society by facilitating coordinated action" (Putnam et al., 1993:167). This functional approach is focused on the *outcomes* of social capital, that of organizing communities to address common challenges.

Communities with high social capital "value solidarity, civic participation, and integrity" (Putnam et al., 1993:5). When present, these norms of behavior are often reinforced by the social structure of the community. An expectation exists that laws will be followed, leaders will be honest and fair, and good behavior will be reciprocated by others. Social structure is developed through community engagement such as participating in sport clubs, civic organizations, voting, and related activities. It is argued that high level of participation, and the relationships established through participation, build networks and connections within the community (Putnam 1993). These networks spread trust and an expectation of reciprocity that increases the likelihood of people supporting and contributing to community investments, which may result in improved economic prosperity (Putnam 1993).

With respect to networks, at least two varieties of group-level social capital are implicated by Putnam's definition: relationships between individuals *within* a group, and relationships *between* groups. Putnam calls the former variety *bonding* social capital and the latter *bridging* social capital (1993). Ronald Burt refers to these manifestations as, respectively, *closure*, or the strengthening of relationships within a group; and *brokerage*, or the building of relationships between groups that increases access to information and resources (Burt 2009). In some situations, particularly in rural areas, a community may have high levels of bonding social capital (e.g., Keefe 2009); yet, because of limited

bridging social capital, they remain economically challenged due to an undersupply of resources needed to affect change (Woolcock 1998; Dekker and Uslaner 2001).

Social capital is a return to concepts that were prevalent in the 19th Century and early 20th Century that viewed "societies as like organisms in their own right" (Wilson and O'Brien 2009:155). This concept was de-emphasized during the 20th Century in favor of an individualistic view that all decisions were made to maximize their individual gain (Wilson and O'Brien 2009). Social scientists have retreated from this individualistic approach and refocused on the role of culture and societies in influencing behavior and adaptation. In this regard, social capital takes on a group-level meaning: groups either *collectively* possess or do not possess norms and mechanisms to enforce those norms. More generally, groups either possess or do not possess the ability to act collectively for the good of their communities. It must be noted, though, that the ability to act collectively is not a universally good thing. Rather, collective action can work to exclude certain types of individuals from group benefits; facilitate socially harmful behavior; and insulate groups from outside opportunities, among other things (for a more detailed discussion, see Portes [1998]).

Social capital can be especially vital in rural communities, where "personal life and business operations are sustained by long-standing personal networks" (Duncan 2014:201). As discussed above, economic processes in rural communities are often driven by outside interests, focusing on extracting value rather than contributing to long term vitality (Keefe 2009). In some cases, particularly in Appalachia, there has been sustained efforts to undermine social capital and community to limit labor organizing and other efforts to reclaim local control (Gaventa 1980; Bingham 1983; Eller 2008). In response, rural

29

communities are more explicitly recognizing the strength of community and embracing shared identity and connection to place to overcome decades of external control and begin to address local economic and environmental challenges from the grassroots (e.g. Keefe 2009; Fisher and Smith 2012). Social capital, as a community-based asset, can therefore act as a leverage point for rural communities to address economic challenges.

Drawing on these ideas, Rupasingha and colleagues (2006) developed an index of social capital that they quantified at the county level for the entire United States. While the index is widely embraced by academic researchers (e.g. Dinda 2008; Sherrieb et al. 2010, Malecki 2012), recall that relying on secondary indicators to measure social capital has numerous drawbacks (Besser 2009; Weaver et al. 2016; Weaver and Knight 2017). Most prominently, secondary data does not directly measure social capital. Instead, secondary measures act as proxies for social capital, such as Putnam's associational density (1993). Proxies vary in their ability to capture the essence of social capital. For example, participation in groups and associations may not contribute to better economic conditions by itself—but may be an indicator that certain social conditions are present, which, if properly exploited, could be mobilized to improve local conditions. Additionally, it is possible that organizations in distressed areas are marginalized, such that even when participation in them is high, citizens have limited influence on outcomes (DeFilippis 2001). Having to rely on measures of formal organizations and associations downplays the presence of informal relationships and groups that do not show up in most secondary datasets (Rahe 2013). Other indicators, including voter and Census participation, are measures of prosocial behavior, but not necessarily behaviors that contribute to a sense of community or relationship to place.

Despite these issues, however, it is necessary to recall that social capital researchers often face trade-offs between precision of measurement and extent of study area (e.g., Weaver et al. 2016). Although primary methods may allow for collection of more precise and context-specific proxy measures of social capital, as the size of a study area increases, the cost of primary data collection increases rapidly. In this case, the ARC region contains 420 counties, situated in thirteen different states. Thus, while the social capital index developed by Rupasingha and colleagues (2006) is not without its limitations (e.g., Besser 2009), it is a theoretically-grounded point of entry for conducting social capital research in a large and multijurisdictional study area (e.g., Isserman et al. 2009).

Appalachia

Over its 50-year history, the Appalachian Regional Commission (ARC) has focused on improving conditions in Appalachia. Because it was created by Congress to serve as the primary actor in developing the region, the boundary of the ARC's jurisdiction has become a relatively standard demarcation of Appalachia in empirical research (e.g., Williams 2002). This is true in spite of the political nature of the boundaries, which do not completely align with other established and perceptual definitions of the region (e.g., Ulack and Raitz 1982; Weaver and Holtkamp 2016). The ARC boundary is shown in Figure 3.1. While it is beyond the scope of this article to engage with the history of the ARC, we note that it is a:

> "multijurisdictional economic development agency…established by the
> U.S. government to 'meet the physical and social needs' of Appalachia,

primarily through 'federally funded projects such as highways, vo-tech centers, and hospitals' (Gatrell and Fintor 1998:886-7)" (Weaver and Holtkamp 2016:204).

Additional information on the ARC and its mandates can be found in Gatrell and Fintor (1998) and Williams (2002). More relevant at present is that, despite the prolonged existence of the ARC, much of Appalachia continues to struggle economically (Lowery 2014; *The Economist* 2015). Outputs from infrastructure and other investments by the ARC and other organizations have primarily benefitted urban and urban-adjacent areas, bypassing much of Appalachia and resulting in uneven geographic patterns of distress and stability (Bingham 1983; Eller 2008). As such, attention has turned to alternative approaches—especially social capital-building—that focus less on conventional development and more on community engagement and capacity building to improve quality of life for Appalachian residents (e.g. Keefe 2009; Fisher and Smith 2012). With that in mind, the next section describes the data and methods that we use to look for an empirical association between social capital and economic performance in the Appalachian region.
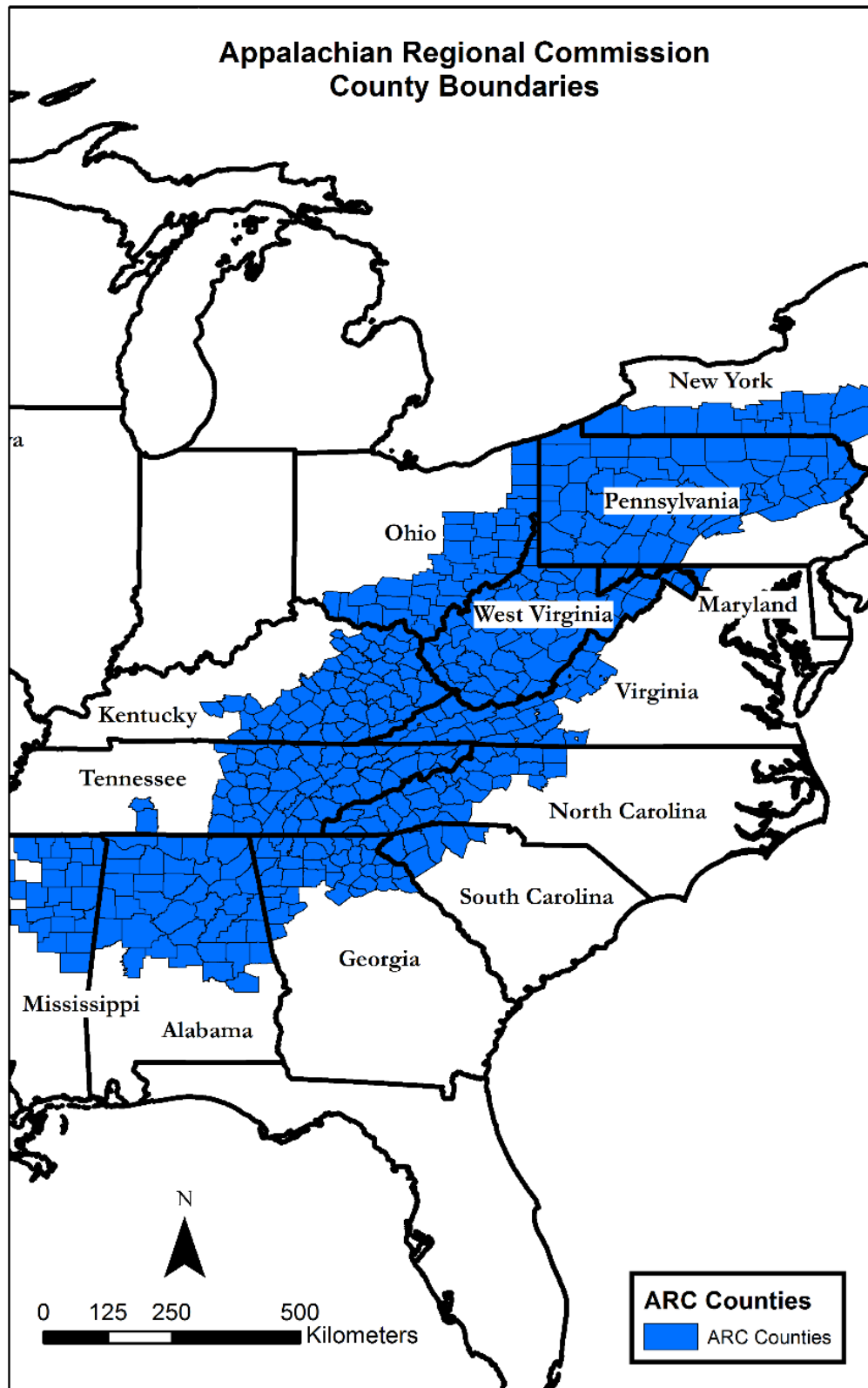
Figure 3.1 The Appalachian Region as Defined by the ARC

<u>Data and Methods</u>

Recall that this article is motivated by three central research questions:

1) What is the geographic distribution of economic distress in Appalachia?
2) What is the geographic distribution of social capital in Appalachia?
3) What is the spatial relationship between economic distress and social capital in Appalachia?

To answer these questions, we adopt the county as our unit of analysis. Counties are consequential analytical units in the administrative Appalachian region for three reasons. First, the ARC plans, implements programs, and monitors "economic distress" at the county level (ARC 2014). Therefore, county-level analyses have utility for practical and policymaking reasons in the Appalachian region. Second, the ARC boundary covers more than 531,000 square kilometers. While finer-resolution spatial analysis is possible for such an extensive study area, county-level resolution allows for meaningful engagement with broader intra-regional patterns of development (e.g., Moore 2005). Finally, as articulated above, because there are neither universal theoretical nor universal operational definitions of social capital, the task of measuring the phenomenon consistently across political boundaries has proven difficult (e.g., Westlund and Adam 2010). Among other challenges, different jurisdictions collect and make available different types of data. In such cases, empirical research can benefit from supra-jurisdictional agencies (like the ARC) that collect and report consistent data across political boundaries. For present purposes, two such datasets exist to facilitate our investigation: (1) the Rupasingha et al. (2006) social capital index, which is available for all counties in the U.S.; and (2) the ARC's index of economic distress, which is available for all 420 counties in the ARC region.

In the former case, because we are interested in the current geographic distributions of social capital and economic distress and their spatial association (refer to research

questions #1 - #3), we draw on the most recent (2014) release of the Rupasingha et al. (2006) social capital index. Because the ARC Index of Economic Distress is released annually (ARC 2014), we can likewise obtain that measure for 2014. Even though our immediate objective is to uncover current conditions, it is worthwhile to note that: given the time series (ARC index) and panel (Rupasingha et al. index) nature of our datasets, it is feasible that they can be used to uncover temporal as well as spatial patterns. However, as a first cut for studying the geographic association between social capital and economic outcomes in Appalachia, a static spatial analysis of the most up-to-date data will reveal whether a systematic relationship exists between these phenomena in the here and now. It is to this insight that our current project is directed. Still, we both encourage and are actively pursuing additional work to uncover more dynamic patterns of associations in these metrics over time.

Social Capital and Economic Distress Indices

Rupasingha and colleagues first released their nation-wide, county-level social capital index in 1990, with updates in 1997, 2005, 2009, and 2014 (http://aese.psu.edu/nercrd/community/social-capital-resources). Because selected indicators have varied slightly over time, we zero in on the most recent dataset, which features fourteen indicators:

> Religious Organizations
> Civic and Social Organizations
> Business Associations
> Political Organizations
> Professional Organizations
> Labor Organizations
> Bowling Centers
> Recreation and Fitness Facilities

Public Golf Courses and Country Clubs
Sports Clubs and Teams
Population
Voter Turnout
Census Response Rate
Number of non-profits

These variables are rooted in an understanding of social capital as an aggregate, place-based attribute, and their selection draws heavily on Putnam's (1993, 2000, 2001) conceptualization of social capital a synthesis of networks, norms, and trust. Specifically, the authors selected the indicators because they speak to organizational density, an important measure of social capital to the extent that "associational activities enable communities to solve collective action problems by promoting cooperation" (Rupasingha et al. 2006:85). The argument is that the relationships between members of various clubs and organizations provide foundations for trust, reciprocity, and other behaviors that contribute to social capital (Rupasingha et al. 2006). Using this justification as a jumping off point, Rupasingha et al. (2006) combine the aforementioned indicators into a composite score that is measured for every county in the United States. The resulting social capital index is largely a measure of bonding social capital—focusing on the relationships between members of organizations—rather than bridging capital or the relationships between different groups. Thus, future research in this area will benefit from creating supplementary measures of social capital.

Next, the ARC computes an annual Index of Economic Distress to measure economic conditions in Appalachian counties. The index is a composite of three indicators:

1) Three-year average unemployment rate from the US Department of Labor, relative to the national average;
2) Per capita market income which is personal income, less transfer payments, divided by total population, relative to the national average;
3) Poverty rate from the US Census Bureau, relative to the national average.

For each county these indicators are summed and averaged to create an overall score that describes an Appalachian county's level of economic distress relative to the national average. An index value of 100 suggests that a county's distress is on par with the national average. Values below 100 indicate that a county is less distressed than an average U.S. county, while values above 100 suggest that a county is more distressed than average. The mean 2014 ARC index for the 420-county Appalachian region is 137.95 (sd = 30.72), indicating that, on average, Appalachian counties are more economically distressed than a typical U.S. county.

Methods

To assess current spatial patterns of social capital and economic distress we rely on two main methods. First, basic geovisualization techniques are used to generate choropleth maps that show variation in the two variables across the 420-county region. Second, tests for the detection of clusters involve surveilling all the subgeographies (here, counties) of an entire study area (the ARC region) to discover "hot spots" of a phenomenon of interest (Besag and Newell, 1991). The objective is to identify "areas that merit further investigation" (Besag and Newell 1991:144). Accordingly, such tests can be effective at targeting spaces for policy or program intervention.

One class of statistics used for static detection of clusters is *Local Indicators of Spatial Autocorrelation* (LISA). LISAs atomize global statistics (e.g., Moran's I) so that

(1) the type and significance of spatial clustering of an event of interest is determinable at each subarea (e.g., county) in a study region, and (2) the sum of all subarea LISAs in a study region is proportional to the relevant global statistic (Anselin 1995). There are several varieties of LISAs (Anselin 1995). Perhaps the most common LISA in spatial analysis is the local Moran's I (Anselin 1995), which we employ below to test, separately, observed patterns of (1) social capital and (2) economic distress against the null hypothesis of spatial randomness.

Whereas geovisualization and tests for the detection of clusters provide tentative answers to our first two research questions, the two methods allow for, at best, "eyeball" statements about the geographic relationship between our operational definitions of social capital and economic distress. On that note, a bivariate extension of the local Moran's I statistic can be used to compute the degree of spatial cross-correlation between the two patterns (Anselin et al. 2006). Spatial cross-correlation measures the extent to which one variable (in our case, social capital) is correlated with a second variable (here, economic distress) in its surrounding "neighborhood". The method essentially assesses whether high (low) values of social capital are (non-)randomly embedded or found in multi-county neighborhoods characterized by high (low) values of economic distress. Our expectation, derived from literature introduced earlier, is that the social capital index will have low values in areas characterized by high economic distress, and vice versa. We supplement these analyses with an aspatial Pearson correlation analysis to quantify the overall relationship between the two indices in our study region. The results of that exercise are broken down for metropolitan or "urban" counties, and non-metropolitan or "rural" counties, in Appendix I.

To perform the analyses, we relied on GeoDa software (https://spatial.uchicago.edu/software). For all univariate and bivariate cluster analyses, we used a spatial weights matrix based on queen contiguity, which is a common spatial neighborhood definition for areal data, whereby counties that share borders or points of intersection are classified as neighbors (e.g., Anselin and Rey 2014). For univariate cluster analysis, GeoDa reports five types of findings: (1) spatial *clusters* that are characterized by high values of the given variable being surrounded by high values; (2) spatial *outliers* that are characterized by high values of a given variable being surrounded by low values; (3) spatial *clusters* whereby low values are surrounded by low values; (4) spatial *outliers* whereby low values are surrounded by high values; and (5) counties for which the null hypothesis of spatial randomness cannot be rejected at our adopted level of confidence (99%). For the bivariate analysis, there are five analogous cluster types: those characterized by: (1) high social capital surrounded by high economic distress; (2) high social capital surrounded by low economic distress; (3) low social capital surrounded by low economic distress; (4) low social capital surrounded by high economic distress; and (5) locations for which significant spatial cross-correlation is not detected.

<u>Results and Discussion</u>

Figure 3.2 maps the ARC economic distress index (on left) and the Rupasingha et al. (2006) social capital index (on right) by county.[2] A simple visual comparison seems to indicate that high economic distress coexists with low social capital in eastern Kentucky, northeastern Tennessee, and southern West Virginia. This area has been identified by

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[2] Note: the categories that appear in the legend in the left panel of Figure 2 come directly from the ARC. That is, the ARC bins values of its Economic Distress Index in order to classify counties into one of five "types": (1) distressed; (2) at-risk; (3) transitional; (4) competitive; or (5) attainment.

multiple researchers, using multiple methods, as the "core" of Appalachia (e.g., Raitz and Ulack 1981; Cooper et al. 2011; Weaver and Holtkamp 2016). This part of Appalachia is home to some of the highest concentrations of poverty in the region, and has been beset by the decline of coal and manufacturing, the growing opioid epidemic, and other challenges (Fisher and Smith 2012; *The Economist* 2015). Also noteworthy is that most of the ARC-classified "Competitive" counties (Fig. 3.2, on left) are in Pennsylvania, where some of the highest values of social capital in the region are located (Fig. 3.2, on right).
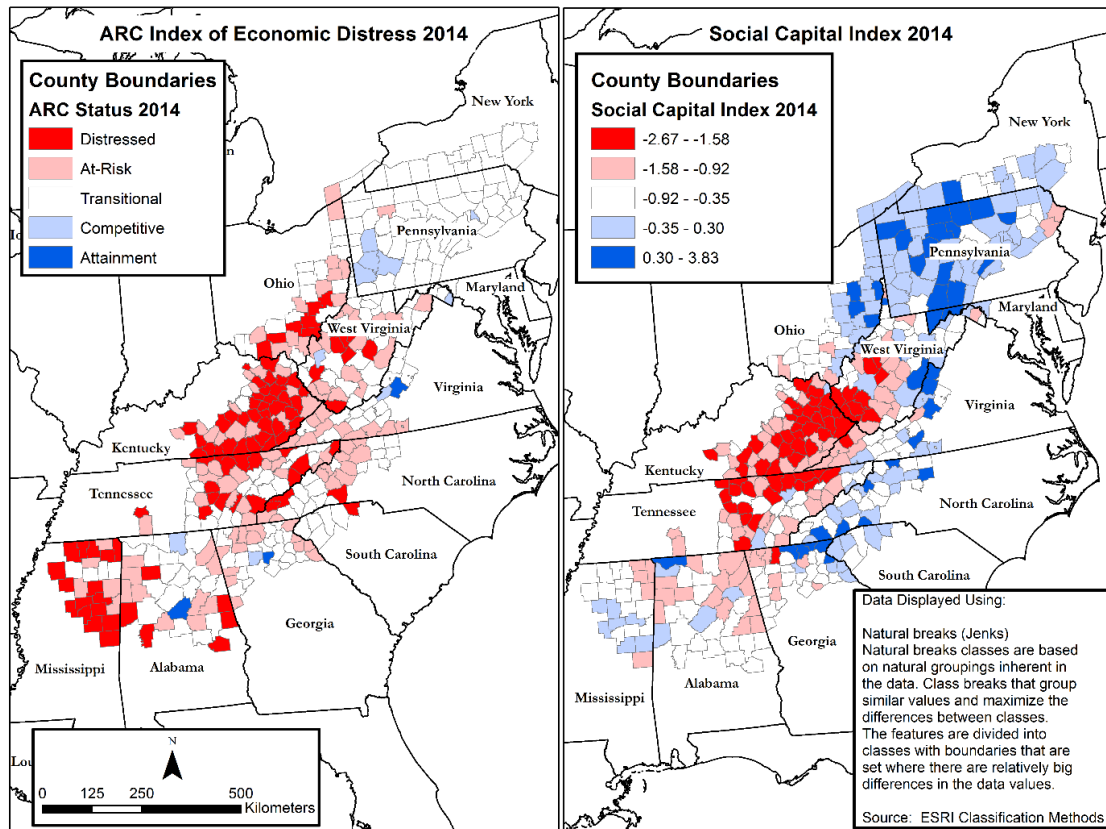
Figure 3.2. Economic Distress and Social Capital by County

Figure 3.3 adds weight to the "eyeball" estimates from Figure 3.2 by showing empirically detected spatial clusters and outliers in the ARC distress index (on left) and social capital index (on right). By and large, the areas flagged above through our visual

40

analysis are the same areas that are flagged by our more rigorous use of the local Moran's I LISA. Figure 3.4 shows a scatterplot of the spatial cross-correlation between the ARC economic distress index and the social capital index. This slope of the line is equal to the global bivariate Moran's I statistic. The value of the slope is -0.393, which is highly
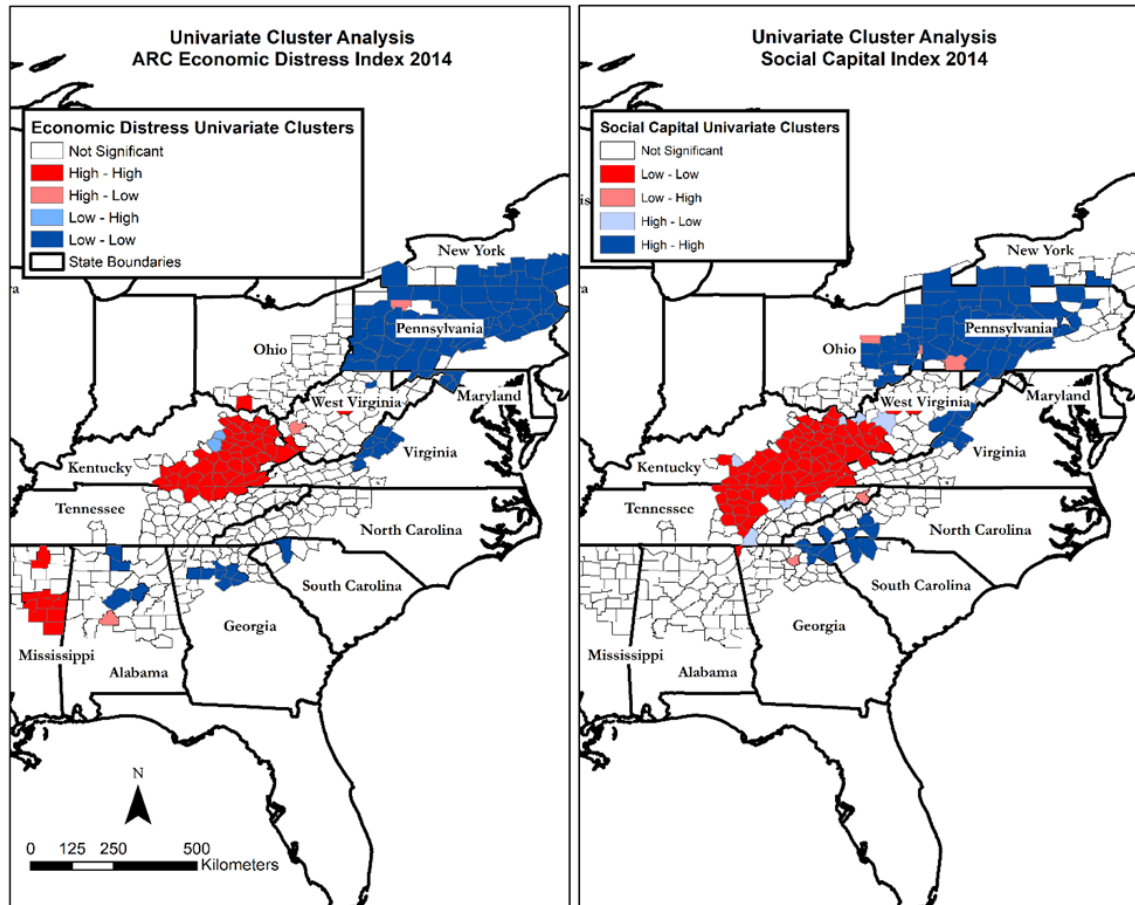
Figure 3.3. Univariate Cluster Detection: Economic Distress (left) and Social Capital (right)

statistically significant (p<0.001). Like both the global Moran's I and the Pearson's correlation coefficient, the bivariate Moran measure of spatial cross-correlation ranges from -1.0 to +1.0. Absolute values close to 1 correspond to high spatial cross-correlation, while values near 0 suggest the two variables exhibit little spatial dependence. In our case, the negative value of the bivariate Moran's I, and the Figure 3.4 Scatterplot of Spatial

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Cross-correlation downward slope of the regression line in Figure 3.4, supports
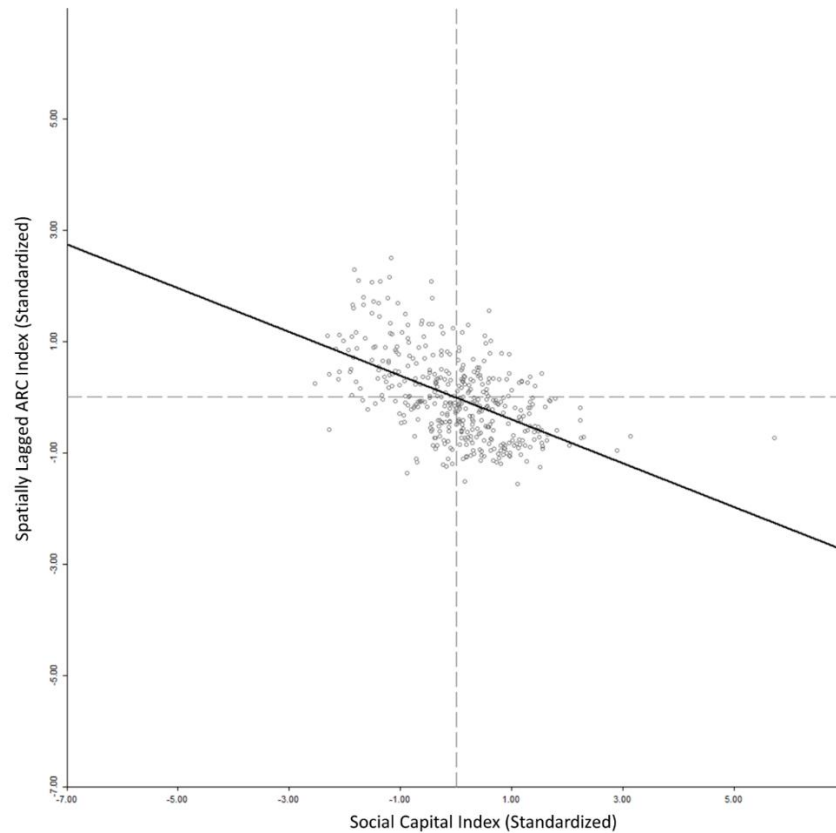
Figure 3.4. Scatterplot of Spatial Cross-correlation

expectations: high values of the ARC index, which measures economic *distress*, coincide with low values of the social capital index. This inverse relationship suggests that social capital is low in areas that are characterized by poor economic conditions (e.g., Putnam 1993).

Figure 3.5 maps the output of the bivariate local Moran's I analysis. The clusters and outliers presented are significant at a 99 percent level of confidence or better. As expected, and in line with the scatterplot from above, there are evident spatial associations in the geographic distributions of social capital and economic distress in Appalachia. Supporting the visual results from Figures 3.2 and 3.3, a large cluster was detected in

eastern Kentucky where county-level economic distress is high and social capital is low. Eastern Kentucky is largely rural. In fact, according to the United States Department of Agriculture Economic Research Service, which classifies U.S. counties as either "metropolitan" (i.e., relatively urban) or "non-metropolitan" (i.e., relatively rural), 50 of the 54 Kentucky counties within the ARC region (93%) are relatively rural. This fraction is higher than for any other state in the ARC region. The next most "rural" ARC state is Mississippi, with 92% of its 24 ARC counties classified as non-metropolitan. Not surprisingly, Mississippi also features higher than average levels of economic distress—though in some places the state also exhibits relatively high values of social capital (see below). By contrast, the percentage of "non-metropolitan" counties in the remaining ARC states ranges from only 33% (Maryland and South Carolina) to 69% (Ohio). Notably, the four least "rural" states—by percentage of ARC counties classified as metropolitan—of Maryland, South Carolina, Georgia, and Alabama, respectively, all contain clusters of high social capital and low economic distress. The northernmost states of Pennsylvania (58% of ARC counties are rural) and New York (64% of ARC counties are rural) exhibit the largest clusters of high social capital and low distress.

These patterns are plausibly indicative of two non-mutually-exclusive phenomena. First, based on the comparatively high degrees of economic distress therein, the most rural areas of Appalachia (e.g., eastern Kentucky and Mississippi) have potentially benefited the least from decades of conventional economic development (e.g., Lowery 2014; *The Economist* 2015). Second, these spaces seem to lack *formal* (primarily bonding) organizations that can facilitate the accumulation of social capital. Indeed, consider that the region-wide bivariate (aspatial) Pearson correlation coefficient between the two indices

Relationship between Social Capital Index and ARC Index of Economic Distress 2014

ARC Counties

Clusters

- Not Significant
- Low Social Capital / High Economic Distress
- High Social Capital / High Economic Distress
- Low Social Capital / Low Economic Distress
- High Social Capital / Low Economic Distress
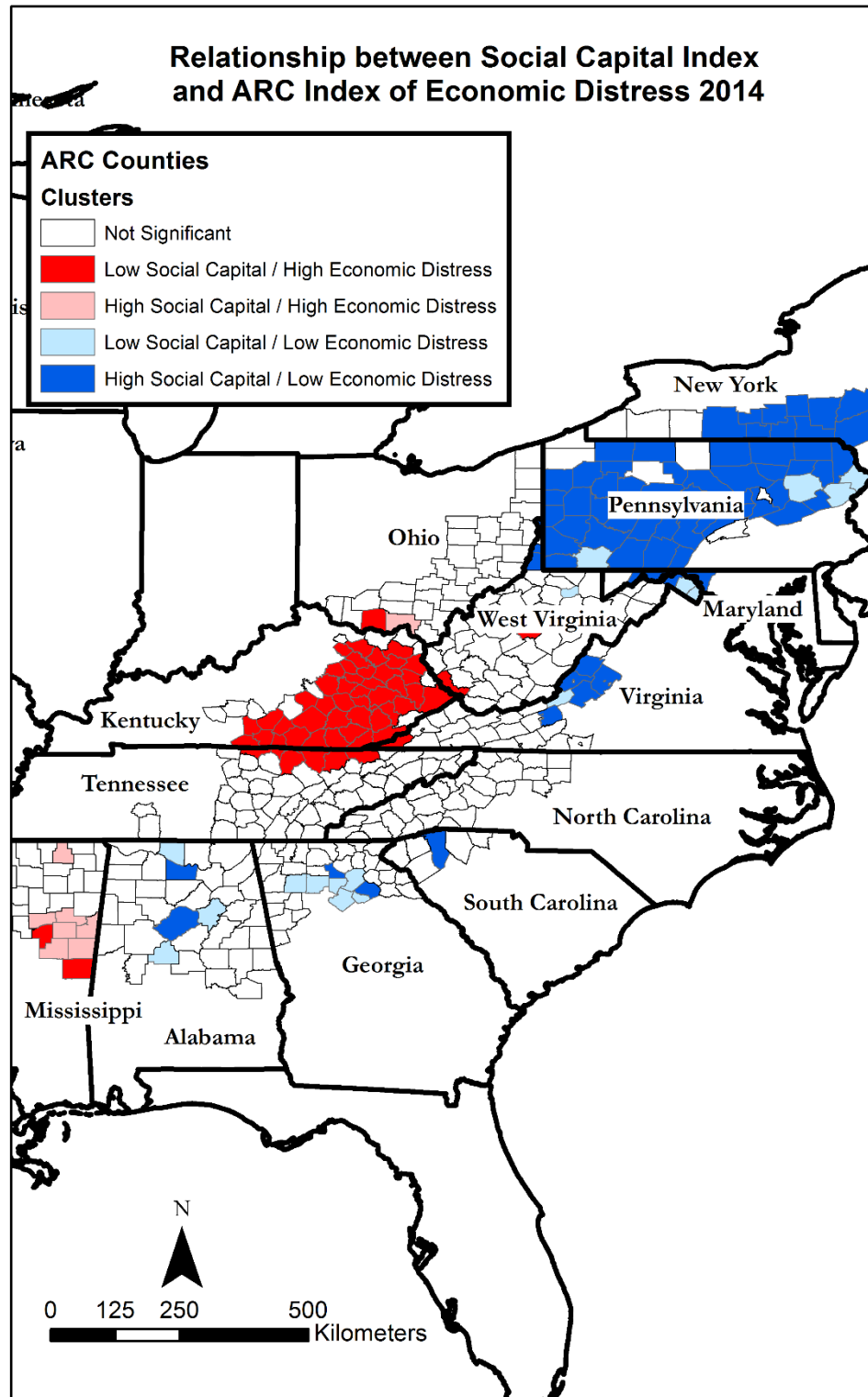
Figure 3.5. Bivariate Cluster Results

is strongly negative (-0.54) and highly statistically significant (p<0.001). In other words, when the social capital index is high in Appalachia, economic distress tends to be low, and vice versa. However, note well that our adopted measure of social capital—the index created by Rupasingha and colleagues (2006), which privileges formal organizations in its measurement of social-capital-as-organizational-density—inevitably misses *informal* bonding organizations networks that often exist within rural communities (see Keefe 2009). For that reason, while we can say that Appalachian counties with high levels of economic distress presently *appear* to have low social capital via formal organizations, the data do not allow us to assess the degree of social capital that might be embedded in or created by other types of networks and relations.

Nevertheless, our (imperfect) county-level findings comport well with recent qualitative, community-level evidence that suggests social capital is linked to efficacious collective action and community well-being in some distressed Appalachian environments (e.g., Fisher and Smith 2012). Still, while our findings offer insights into broader patterns of intra-regional social capital and economic performance (e.g., Moore 2005; also see Westlund and Adam [2010:904]), finer-resolution investigations—and, especially, qualitative or mixed methods investigations—are still necessary for crystallizing the nature and directionality of the observed relationship. More detailed analysis is also necessary explore the apparent differences in social capital and economic conditions between urban and rural counties (see Appendix I).

Prior to moving forward, we note again that there is a strong (inverse) association between social capital and economic distress in the northernmost reaches of the ARC region (most of Pennsylvania and southern New York), which is arguably the most

economically stable portion of the region (e.g., Moore 2005). Here, social capital exists in atypically high concentrations within areas characterized by atypically low economic distress. Taken together with the cluster centered on eastern Kentucky, the main thrust of the bivariate cluster results therefore suggests higher social capital is found in relatively economically stable areas, while lower social capital is found in distressed areas. Although these findings describe broad geographic patterns of association—not causation—when combined with the limited success of conventional development practices in the region (Keefe 2009), they offer at least some justification for policymakers and regional stakeholders to focus on internal social capital, rather than external financial capital, as a potential vehicle for driving transformative change in Appalachia.

To round out the discussion, somewhat anomalous results were found in the form of two relatively large contiguous clusters (and a handful isolated counties) where social capital and economic distress exist in a positive relationship—that is, when conditions of economic distress are high (low) in a local area, a county's social capital is also high (low). One cluster where these conditions hold occurs in Eastern Mississippi, where high social capital is embedded in an area of high economic distress. This finding might seem counterintuitive at first; however, the literature has found that low income communities often have very high levels of social interaction, as well as ample community organizations, yet may not be experiencing economic growth (Nettle 2015). In addition, organizations in lower income areas may be marginalized, such that even high participation and social capital may not allow them to influence local economic outcomes (DeFilippis 2001). An additional issue may be the limited availability of bridging social capital, wherein organizations and individuals can benefit from relationships with other groups that may

contribute needed resources and ideas. As discussed above, the lack of attention to bridging social capital is one of several limitations of the Rupasingha et al. (2006) index on which we draw.

The second cluster of note is in northern Georgia, where counties were found to have low social capital within areas of low economic distress. Notably, these are primarily suburban counties of the Atlanta metropolitan region, where rapid growth has been occurring for decades. As such, this may be a situation where "some highly developed economies have low and arguably declining social capital, as measured, for example, through rising crime rates, declining family and kinship cohesion, falling trust in government, and participation in the political process" (Grootaert 2009:18). Targeted mixed methods research in these two areas would allow for more informed interpretation of our coarse-grained findings, and a deeper understanding of the relationship between social capital and economic conditions in these spaces.

Conclusions and Further Research

The link between social capital and economic performance is of keen interest to researchers and practitioners from numerous fields (e.g. Flora and Flora 2003; Briggs 2004; Gress 2004; Hutchinson 2004; Rohe 2004; Keefe 2009; Green and Haines 2016). While the nature of this relationship is and will continue to be uncertain because of the difficulties in defining and measuring social capital, this article conducted a spatial analysis of established secondary data indicators to show that, at least in the American Appalachian region, there is reason to be optimistic about development and planning efforts that are grounded in the assumption that social capital correlates positively with economic

47

performance. We again caution that our findings are not evidence of a causal relationship between social capital and economic distress; however, there are evident statistical and spatial associations between these phenomena as they were operationally defined hereinbefore. The results offer, at minimum, encouragement for the ARC and numerous other local stakeholders (e.g. Fisher and Smith 2012) that are actively working to build and exercise social capital in Appalachia. At least for the ARC and other large, multijurisdictional agencies, this new direction is a recent and marked turn from prior decades of conventional economic development (Keefe 2009). As with any change in strategy, value is found in conducting empirical analyses that test key assumptions (such as a systematic link between two key variables). The unambiguous, inverse link between social capital and economic distress that we detected throughout the region intimates that the social capital or participatory "turn" in Appalachian development policy and practices is promising (e.g. Keefe 2009).

On that note, the foregoing results open the door to numerous research opportunities that can help clarify our understanding of the relationship between social capital and economic outcomes. One is to dive deeper into the areas where the results did not meet expectations, such as the cluster of high social capital and high distress in Mississippi, and the low social capital, low distress cluster in Georgia. Further analyses in these areas may identify specific contextual factors that modify the overall inverse relationship that we detected between the two phenomena. An opportunity also exists to provide further insight into the rural versus urban characteristics of social capital (see Appendix I). Within the Appalachian region, economic performance appears to be strongest in more urbanized and metropolitan-adjacent areas of the region (Bingham 1983; Moore 2005; Eller 2008).

48

Further exploring the urban/rural divide might help to identify more context sensitive strategies and interventions for different types of spaces.

In addition, there is an opportunity to engage with temporal information in the selected datasets, to analyze the relationship between changes in the social capital index and ARC index over time. The Rupasingha et al. (2006) social capital index is available for multiple time frames (1997, 2005, 2009, 2014) while the ARC index is updated annually. Temporal analysis may offer at least partial information on causation, which remains an ever-present challenge in social capital studies (Westlund and Adam 2010). At the very least, panel regression models can help clarify the extent to which changes in social capital vary with changes in economic distress, after controlling for relevant covariates. Research has identified a number of covariates that could be accounted for in such studies, including (but not limited to): crime rates (Rosenfeld et al. 2001; Buonanno et al. 2009; Nettle 2015); public health (Kawachi et al.1997; Veenstra 2002); population change and in-migration (Glaeser and Redlick 2009; Nettle 2015); education (Nettle 2015); home ownership (DiPasquale and Glaeser 1999); and business growth. Finally, studies that explore this relationship at different geographic scales, and/or for different study regions, are needed to understand whether county-level patterns in Appalachia manifest in (for example) Appalachian towns and communities, or elsewhere in the U.S. and beyond.

Since the concept of social capital first came to the forefront of national and international policy agendas in the 1990s, interest in it has grown exponentially. Researchers from sociology, economics, planning and development, and related fields have embraced the concept, publishing thousands of articles exploring the relationship between social capital and a variety of outcomes from economic growth to public health (Akcomak

49

2009). This article contributes to this literature by using spatial clustering methods to shed light on the geographical relationship between social capital and economic conditions in Appalachia. Our research mapped and quantified the spatial patterns and empirical associations between established secondary measures of social capital and regional economic distress in a large, multijurisdictional, chronically distressed region of the United States. The results suggest that the geographies of social capital (as operationally defined) are systematically related the geographies of economic distress. Overwhelmingly, when one of these phenomena is present in high concentrations, the other exists in low concentrations. As such, our findings should be of interest not only to the constellation of social capital researchers, but also to the practitioners and applied researchers who are advocating for abandoning "conventional economic development" strategies in Appalachia (e.g. Keefe 2009).

IV. PLACING SOCIAL CAPITAL: PLACE IDENTITY AND SOCIAL CAPITAL IN APPALACHIA[3]

The past several decades have seen increased application of more participatory planning and development practices, wherein citizen-driven change processes, grounded in local knowledge and shared identity, are replacing conventional top-down, externally driven methods. (e.g., Mohan 2007; Keefe 2009; Hollander and Nemeth 2011; Sager 2011). Alongside these tendencies toward more participatory/collaborative forms of planning and development has been a burgeoning interest among planning practitioners and scholars in the concept of *social capital* (e.g., Putnam 2004; Easterling 2008; Lovell 2009)—perhaps because the two ideas share at least some ground in common (e.g., Keefe 2009; Green and Haines 2016). Namely, for researchers who adopt a collective approach to social capital, whereby it is viewed as a resource that facilitates cooperation among unrelated individuals for mutual benefit (e.g., Putnam 2000, 2004), social capital is often considered an essential ingredient for meaningful citizen participation in public affairs. Indeed, social capital has been found to: (1) "make it easier (for people) to reach and implement collective decisions"; (2) "support involvement in the democratic process"; (3) "achieve development objectives"; and (4) "resolve disputes" (Brunie 2009:256).

Although there is ongoing debate regarding the nature, components, and consequences of collective social capital (Portes 1998; Woolcock 1998; Portes and Landolt 2000; DeFilippis 2001; Durlauf 2002, Weaver and Knight 2017), it is important to that the concept remains quite influential in policy and planning practice (Flora and Flora 2003;

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[3] In press as Holtkamp, C. and R. Weaver. 2018. Placing social capital: Place identity and economic conditions in Appalachia. *Southeastern Geographer.*

51

Briggs 2004; Gress 2004; Hutchinson 2004; Rohe 2004; Green and Haines 2016).

Consider, for instance, that even a multijurisdictional federal economic development agency in the United States—the Appalachian Regional Commission (ARC)—recently embraced an "asset-based development" approach that has begun to deemphasize more conventional investment strategies (Keefe 2009) in favor of programs that enhance community social capital (e.g., Markley et al. 2008; Ezzell et al. 2012; Pender et al. 2011). This transition almost certainly stems from the "shortcomings of market economics and public policy" with respect to addressing chronic economic challenges in the region, which has made room for more interest in social capital (Couto and Guthrie 1999:9). Thus, notwithstanding the unresolved state of the academic debate over the concept (see, for example, Portes 1998; Woolcock 1998; Durlauf 2002), collective social capital is riding the swelling wave of interest in *participatory development* straight into public decision-making arenas (Keefe 2009). For at least that reason, it is worthwhile to investigate whether indicators of social capital are indeed associated with "better" development outcomes, as the literature on collective social capital tends to suggest (e.g. Brunie 2009). Appalachia represents a fascinating study area for this investigation given the recent attention paid to Appalachian social capital both by the ARC (e.g., Pender et al. 2012) and by scholars interested in better understanding and mobilizing social capital in the region (e.g., Couto and Guthrie 1999; Keefe 2009).

The remainder of this article engages with this research task using the administrative American Appalachian region as the study area (see Weaver and Holtkamp (2016) for a recent discussion on spatial definitions of Appalachia; and Weaver (2016) for a critical treatment of these boundaries). Crucially, we approach the investigation from an

explicitly geographic perspective. Whereas the existing quantitative social capital literature provides instructive means for operationalizing certain elements of social capital with secondary data—such as networks and institutions (e.g., Temkin and Rohe 1998; Rupasingha et al. 2006)—these means tend to be relatively ageographical, apart from the fact that they are measured for locations in space. Yet, many views on collective social capital point to its intimate association with and dependence on a geographic place (e.g., Flora et al. 2015). Within this line of inquiry, one phenomenon that might facilitate the growth and development of social capital (see Putnam et al. 1993; Putnam 2005) is shared *place identity* (e.g., Forrest and Kearns 2001).

Identity is "produced and exchanged through social interaction" and serves to "regulate and organize our conduct and practices by helping to set rules, *norms*, and conventions" (Graham 2002:1005; emphasis added). Shared identity is deeply rooted in *place*, as culture is influenced by, and in turns changes, the environment where it is found (Wheeler 2014). "[S]hared spaces can be a location in which different groups come together through shared experience; collective identities are forged and traditions invented" (Bevan 2016:24). This observation rings particularly true in the American Appalachian region, where "communities are certainly defined by geography" (Keefe 2009:15). That is, physical characteristics, combined with social and historical development of the region, have contributed to a unique Appalachian identity and heritage rooted in individualism, resiliency, and strong bonds—an identity that is now being embraced by many contemporary Appalachians, and one that is challenging the perception that "Appalachian" is synonymous with backwardness and isolation (Ulack and Raitz 1982; Eller 2008; Cooper and Knotts 2010; 2013; Cooper et al. 2011).

On that backdrop, this article attempts to examine the empirical relationship between indicators of social capital and economic well-being in the large, multijurisdictional administrative Appalachian region. The intended contributions of the research are to: (1) establish that Appalachian place identity is likely to be an indicator of social capital; (2) propose a quantitative indicator of Appalachian place identity; and (3) attempt to detect a systematic relationship between Appalachian place identity (as social capital) and economic conditions. Along those lines, two fundamental research questions structure the investigation:

1) Where can evidence of Appalachian identity be observed?
2) Do patterns of Appalachian identity have a systematic relationship with patterns of economic outcomes, controlling for relevant covariates?

<div align="center">Background</div>

Why an(other) Empirical Study on Social Capital?

The concept of social capital continues to gain followers among rural and urban planners and developers (e.g., Rohe 2004; Vidal 2004), allied community practitioners (e.g., Flora et al. 2015; Green and Haines 2016), and grant making institutions that focus on community and economic development (e.g. Easterling 2008). Although ongoing debate continues around the nature of social capital, a widely-cited definition refers to "features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated action" (Putnam et al. 1993:167). Such features can allow places to engage in locally driven community and economic development activities with less reliance on external resources and interventions (Barbier 1987; Brunie 2009; Keefe 2009). If this notion is true, then variation in social capital purportedly explains some of the variation in community-level developmental outcomes

<div align="center">54</div>

and quality of life across space and time (e.g., Putnam 2000; Flora and Flora 2003; Turchin 2003; Brown and Schafft 2011). This makes social capital an appealing practical lens through which to examine heterogeneity in development and change within and across geographic communities (e.g., Putnam 2004; Light 2004; Briggs 2004; Rohe 2004; Hutchinson 2004; Gress 2004; Lovell 2009; Weaver et al. 2016).

Research indicates that conventional economic development activities, such as prison construction, infrastructure development, and business recruitment, have not brought about meaningful economic improvement in Appalachia and similar regions (e.g., Keefe 2009; Perdue and Sanchagrin 2016). Responding to this observation, there have been numerous attempts to supplant these conventional practices with comparatively participatory approaches that aim to build, reinforce, and leverage *social capital* in distressed Appalachian communities (e.g., Markley, et al. 2008; Keefe 2009; Ezzel et al. 2012). Given this growing attention on social capital in Appalachian planning and policymaking, it is important to continuously update the body of empirical evidence on the nature of the relationship, if any, between (proxies for) social capital and measurable social and economic conditions. Additional evidence on this relationship is necessary to arm decision-makers with information on whether the positive expectations of social capital from theory (e.g. Turchin 2003; Grootaert 2009; Ezzel et al. 2012; Rahe 2013) have expected results on economic conditions.

That being said, one of the primary challenges for quantitative research on the relationship between social capital and socioeconomic outcomes is measurement. Because social capital relies on ephemeral concepts like networks, trust, and reciprocity, it is a difficult thing to translate into a data point (Putnam et al. 1993; DeFillipis 2001;

Rupasingha et al. 2006; Rahe 2013; Nettle 2015). A related challenge is to determine an appropriate scale at which to measure social capital. Scholars have attempted to measure social capital for numerous levels of analysis, from the individual to the nation (Durlauf 2002). When grappling with these challenges, researchers employ a variety of tools and methods for measurement, including secondary data (Rupasingha et al. 2006), surveys (Harpham 2008), observation (Nettle 2015), and economic experiments (Glaeser et al. 2000). Each of these methods has strengths and weaknesses, and it is up to analysts to determine which technique is suited to their investigations. For a large, multijurisdictional study area such as the administrative Appalachian region—which consists of 420 counties across 13 states—it is often necessary to rely on secondary data, both for efficiency and to achieve consistency in measurement across numerous political boundaries (e.g., Rupasingha et al. 2006).

Measuring Network Density: An Index of Social Capital

Recognizing that networks are a key ingredient of most definitions of collective social capital (e.g., Putnam et al. 1993), Rupasingha and colleagues (2006) developed and released a composite network-/association-based social capital index for U.S. counties. Drawing heavily on Putnam's conceptualization of social capital (1993, 2000), the researchers used principal components analysis to create an overall index from fourteen input variables. Nearly all of the input variables come from secondary datasets that report the number of various types of formal organizations, associations, and institutions present in a given county—such as religious organizations, civic associations, non-profit institutions, bowling leagues (see especially Putnam 2000) and other organizations that

invite social interaction. The remaining indicators are voter turnout and census response rates (Rupasingha et al. 2006). Because the metric is grounded in popular strands of social capital theory (e.g., Putnam et al. 1993; Putnam 2000), it has an established place in empirical social capital studies (e.g. Dinda 2008; Sherrieb et al. 2010, Malecki 2012). For all of its many upsides, though, absent from the index are considerations of place and, by extension, shared place identity. Nevertheless, as argued above and expanded on below, shared place identity is an important domain of social capital (Forrest and Kearns 2001).

Place Identity and Social Capital

The literature on place identity (e.g. Breakwell 1986; Twigger-Ross and Uzzell 1996; Cooper and Knotts 2013; Weaver and Holtkamp 2016), suggests that "place identification [expresses] membership of a group of people who are defined by location" (Twigger-Ross and Uzzell 1996: 206). Attachment to and identification with a particular place produce "a sense of *social insideness* stemming from integration with the social fabric of the community" (Rowles 1983: 302) that contributes to a community's capacity to act collectively. In other words, social capital might grow out of the relationships between individuals *in* a community, and between individuals *and* their community (e.g., Forrest and Kearns 2001).

Perhaps for that reason, place "identity has also been seen as an important tool – laden with social and productive magic – in regional planning and development" (Paasi 2003:477). Because researchers and practitioners are increasingly aware of conventional economic development's (e.g., infrastructure development and business recruitment) limitations, there is growing sentiment within the literature that locally driven, bottom-up,

asset-based approaches to development are more likely to contribute to long term social and economic progress in a community (e.g. Briggs 2004; Gress 2004; Hutchinson 2004; Rohe 2004; Keefe 2009; Ezzel et al. 2012; Pender et al. 2012; Flora et al. 2015; Green and Haines 2016). Networks and relationships (i.e., the stuff of social capital [Putnam et al. 1993]) become the foundations upon which action can be taken and transformative changes made. Because many networks are rooted in shared identity and connection to place (e.g., Bednarz 1994; Mohan and Mohan 2002; Grannis 2009; Flora et al. 2015), the presence of place identity in a given study area may serve as a valuable proxy for, or indicator of, social capital in that area.

Place Identity, and Symbolic Naming

Ample research suggests that *naming* is potentially both a means for increasing place identity (e.g., Forrest and Kearns 2001) and an indicator that place identity is present in a given location (e.g., Jordan 1970; Reed 1976; Ambinakudige 2009; Cooper et al. 2011; Weaver and Holtkamp 2016). For instance, business owners—who are likely to understand their consumer bases and know whether or not place identity is strong in their market areas (e.g., Cooper et al. 2011)—may choose to name their businesses after a given place, both to reflect their own identity with that place and to signal to others that place identity is valued by (and valuable to) those businesses (e.g., Liesch et al. 2015).

On the other side of the equation, consumers are beginning to consume more politically—turning away from mass market products and toward goods that are unique and connected to the places they live in and/or visit (Shortridge 1996; Flack 1997; Schnell 2013). As such, there is perhaps reason to believe that symbolically named businesses

might simply be capitalizing on consumer tendencies to express their identities through consumption (e.g., Goss 1993). Importantly, however, evidence suggests that many of these businesses are actively engaged in their communities through contributions to local charities, volunteerism, and local sponsorships (Tilley et al. 2003). For a large-extent study area like Appalachia, most such actions cannot be readily observed for empirical study. The one action that we can capture quite well in secondary datasets is the initial act of choosing a symbolic business name. Therefore, and in the tradition of related empirical analyses of place identity (e.g., Cooper et al. 2011; Liesch et al. 2015; Weaver and Holtkamp 2016), we take the presence of symbolically named businesses to be a serviceable proxy for place identity in quantitative studies that rely on secondary data. However, we acknowledge the need for additional research into the potential interplay between regionally named businesses, authentic place identity, and the performance of identity (e.g., to attract consumers and tourists).

A Quick Note on Appalachian Identity and Social Capital

Historically, Appalachia was a relatively unnoticed region, home to small farmers and loggers until the late 18th Century when it became the object of interest of local-color writers, who romanticized what they defined as the "otherness" of Appalachia and its inhabitants relative to the civilized society of the rest of America (Batteau 1980). In addition, churches began to invest in the region, seeking to educate what they perceived to be backwards and primitive people through church indoctrination. These and other activities fueled a perception of "Appalachia as a strange land inhabited by a peculiar people" (Shapiro 1978:xvii). This form of *imposed* Appalachian identity was therefore

defined not by people of the region, but by the stereotypes of outsiders. Even today, Appalachians struggle to overcome this negative, imposed identity (Eller 2008). One means for rising above it, of course, is to foster a new, more positive identity rooted in the unique character and heritage of the region (Ulack and Raitz 1982; Eller 2008).

An awakening of Appalachian culture and identity has been occurring since at least the 1960s (Williams 2002; Eller 2008; Keefe 2009). Residents are increasingly embracing and celebrating being Appalachian. Music, food, handicrafts, and language are being recognized as unique and valuable contributions to a distinctly American subculture (Eller 2008). Moreover, and of central importance to this project, shared Appalachian identity is tied up with participatory development and social capital—in short, people who identify strongly with a place tend to see the value of that place and, accordingly, they wish to become active agents in protecting and improving it (Keefe 2009). Whether it is challenging the route of a major transmission line, or fighting to stop illegal dumping and unsafe truck traffic, threats to community and place have routinely activated Appalachians to organize and resist (Couto and Guthrie 1999).

Once again, then, place identity is plausibly an indicator of, or proxy variable for, social capital. From the preceding section, one way that place identity in the administrative Appalachian region might be detectable is through the presence of businesses with symbolic names—more specifically, incorporated entities that use the words 'Appalachia' or 'Appalachian' in their official names (Weaver and Holtkamp 2016). For our purposes, the presence of these entities in a given unit of analysis ought to have value for empirically investigating the relationship between social capital and economic conditions in Appalachia.

<u>Study Area, Data, and Methods</u>

Study Area

The study area for this research is the Appalachian region as it is defined by the federal Appalachian Regional Commission (ARC). Although this spatial footprint does not coincide with many cultural geographic definitions of Appalachia (Weaver 2016), it is quite meaningful for our study. Recall from above that the ARC is moving toward programs and strategies that aim to build capacity and social capital within Appalachian communities (Pender et al. 2012). Because only those jurisdictions within the ARC borders are eligible to participate in the agency's programs and funding opportunities related to social capital building, the ARC political boundary is a reasonable cutoff for our study. To be sure, efforts to add to extant understandings of patterns of social capital and socioeconomic outcomes in the ARC administrative region "have the potential to substantively influence public policy in the near term—given that an established regional development institution (i.e., the ARC) is already available to marshal its resources toward quality-of-life enhancing ends" (Weaver 2017:214).

On a related note, many of the ARC's designations and programs are applied at the county level of analysis (ARC n.d.). For that reason, counties are highly meaningful units within the ARC-defined study area. Furthermore, given our interest in exploring a relationship within a large geographic extent, adopting the county as a level of analysis has advantages with respect to efficiency over smaller spatial units. At any rate, the findings produced from our initial county-level analysis can, at minimum, provide direction for future, more detailed analysis at the micro-level of self-identified communities and neighborhoods.

Data

The data for the study come from five sources: (1) the Appalachian Regional Commission (ARC); (2) the U.S. Census American Community Survey (ACS) 5-Year Estimates; (3) County Health Rankings (www.countyhealthrankings.org); (4) Rupasingha and colleagues (2006); and (5) Esri Business Analyst. Both the version of Esri Business Analyst available to the researchers and the latest release of the Rupasingha et al. (2006) social capital index dataset give data for the year 2014. Accordingly, the data we obtained from the ARC and County Health Rankings were also for the year 2014 for compatibility. Because the ARC region contains many rural counties with low populations (e.g., Cooper et al. 2011), we were not able to rely on 1-year U.S. Census ACS estimates, which are only reported for geographical units that meet threshold levels of population. For that reason, we drew on the ACS 5-year estimates for the period 2010-2014, so that the end year of the period coincided with the same year as the rest of our data.

Table 4.1 describes the data collected from the five above-named sources in somewhat greater detail. Because we are interested primarily in how variation in social capital (indicators) is associated with variation in economic conditions, we required data to proxy for both concepts. For economic conditions—which will be the outcome variable in our analysis—we chose to rely on the ARC's composite index of economic distress. The index is a continuous variable, made up of three indicators, that the ARC uses to grade the economic conditions of the 420 counties in its jurisdiction (ARC, n.d.). The three indicators used to compute the composite index are:

1) Three-year average unemployment rate from the US Department of Labor, relative to the national average;

2) [Reverse coded] Per capita market income—which is personal income, less transfer payments, divided by total population—relative to the national average; and

3) Poverty rate from the US Census Bureau, relative to the national average.

The three indicators are summed and averaged by the ARC to create an overall index score that describes an Appalachian county's level of economic distress compared to the nation as a whole. Higher index values correspond to higher levels of distress (ARC n.d.).

To measure social capital, we draw on both the county-level index created by Rupasingha and colleagues (2006; see above), as well as the presence of incorporated entities in a county that feature the character string 'Appalachia' somewhere in their names (Weaver and Holtkamp 2016). The latter variable was extracted from Esri Business Analyst 2014, which enumerates and gives the point locations of all incorporated entities in the United States. Mimicking techniques used by Cutter and Ji (1997:328), we computed the rate of occurrence of Appalachian-named businesses per incorporated entity per square kilometer, in order to standardize county variability in both geographic area total number of businesses present.

Beyond economic conditions and social capital, we obtained data on several control variables. These covariates were drawn from the literature, where they have been shown to correlate with economic conditions either in general, in Appalachia, or both. Specifically, we gathered data on: (1) race and ethnicity (e.g., Weaver 2016); (2) education (e.g., Cooper et al. 2011); (3) housing tenure (e.g., Glaeser et al. 2000); (4) single parent households (e.g., Sampson et al. 1997); (5) (natural log-transformed) population density (e.g., Cooper et al. 2011; Weaver and Holtkamp 2016); and (6) income inequality (e.g., Forrest and Kearns 2001). Descriptive statistics for these variables, as well as their hypothesized

63

relationship to the dependent economic distress variable, are given in Table 4.2.

Table 4.1: SOCIAL CAPITAL AND ECONOMIC CONDITION INDICATORS AND CONTROL VARIABLES

Variable	Description	Source
ARC index of economic distress	The Appalachian Regional Commission's (ARC's) composite index of economic distress for 2014; higher values indicate more distress	ARC
Social capital index	An associational- (network-) density based index of social capital	Rupasingha et al. (2006)
Appalachian identity	The number of incorporated entities that feature the character string 'Appalachia' in their official names, standardized by the number of businesses per square kilometer	Esri Business Analyst 2014
Percent non-white	The fraction of persons from racial/ethnic groups other than "white, not Hispanic or Latino", multiplied by 100	U.S. Census ACS 2010-14
Percent with no high school diploma	The fraction of persons 25 years or older that do not hold a high school diploma or equivalency degree, multiplied by 100	U.S. Census ACS 2010-14
Percent owner-occupied	The fraction of occupied housing units that are owner-occupied, multiplied by 100	U.S. Census ACS 2010-14
Percent single parent households	The fraction of households headed by a single parent, multiplied by 100	County Health Rankings
Population density	The number of persons per square kilometer (natural log-transformed)	Computed in GIS
Gini index of income inequality	The continuous Gini coefficient of income inequality, multiplied by 100; higher values indicate more inequality	U.S. Census ACS 2010-14

Table 4:2. RELATIONSHIP OF VARIABLES TO ECONOMIC DISTRESS

Variable	Mean (std. dev.)	Range (min, max)	Relationship to DV (example source)
ARC index of economic distress	137.95 (30.68)	(69.6, 252.9)	--
Social capital index	-0.67 (0.79)	(-2.67, 3.83)	Negative (Putnam 2000)
Appalachian identity	1.59 (2.53)	(0.00, 16.28)	Negative (Keefe 2009)
Percent non-white	10.71 (12.04)	(0.00, 85.03)	Positive (Sampson et al. 1997)
Percent with no high school diploma	21.61 (7.31)	(7.40, 43.70)	Positive (Sampson et al. 1997)
Percent owner-occupied	75.13 (5.01)	(50.94, 87.20)	Negative (Glaeser et al. 2000)
Percent single parent households	31.40 (7.30)	(7.29, 64.32)	Positive (Sampson et al. 1997)
Population density[†]	3.41 (0.87)	(0.80, 6.53)	Negative (Moore 2005)
Gini coefficient of income inequality	44.06 (3.08)	(32.60, 54.80)	Positive (Forrest and Kearns 2001)

DV = dependent variable
[†]Natural log-transformed

Methods

To answer the first research question from above—where can evidence of Appalachian identity be observed?—we generated a box map of the rate of Appalachian-named businesses per business per square kilometer. That exercise produces a particular geography of place identity, and, by extension, social capital in Appalachia. That geography can be juxtaposed with a box map of the distribution of our other measure of social capital (Rupasingha et al. 2006) for the study area.

For our second research question—do patterns of Appalachian identity have a systematic relationship with patterns of economic outcomes, controlling for relevant

covariates?—we rely on regression analysis. The outcome variable of the analysis is the continuous ARC index of economic distress, and the predictors are our two measures of social capital and our set of controls (Table 4.1). A preliminary ordinary least squares (OLS) model will be estimated to evaluate the performance of our independent variables, and to compute diagnostics for spatial dependence. Examining the output of the OLS model and diagnostics for spatial dependence will inform the final model specification.

Results

The geography of Appalachian identity (and social capital) for our study area, which was created via the box map function in GeoDa software using the variable *Appalachian-named business per business per square kilometer*, is presented in the left panel of Figure 4.1[4].The right panel of Figure 4.1 shows a box map for the network-(organization-) based social capital index developed by Rupasingha and colleagues (2006). As the figure makes clear, the two patterns of social capital are rather dissimilar—a finding which could imply that a place identity domain of social capital (e.g., Forrest and Kearns 2001) might be absent from comparably ageographical measures of the concept. Notably, areas in northern Tennessee, eastern Kentucky, western Virginia, and southern West Virginia are associated with low values of the Rupasingha et al. (2006) social capital index; but are characterized by relatively high place identity. At the same time, the ARC portions of Pennsylvania and New York state are characterized by high values of the social capital

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[4] The spatial weights matrix used to produce the results described here was a queen contiguity matrix, which is rather common for studies using polygon data. Still, for robustness, a second order contiguity spatial weights matrix and an inverse distance weights matrix were also considered. Because the patterns of results were similar in all cases, we retained the queen contiguity matrix in the final analysis.

index (Rupasingha et al. 2006), but almost no observable Appalachian place identity (Fig. 4.1). None of this is to say that one or the other indicator is a "better" measure of social capital—it is merely an acknowledgment that social capital is a complex construct that plausibly has multiple domains (e.g., Forrest and Kearns 2001). In this case, the place identity domain and formal associational density domain exhibit somewhat opposite geographic tendencies. Such divergent patterns need not be expected to occur in all study areas.
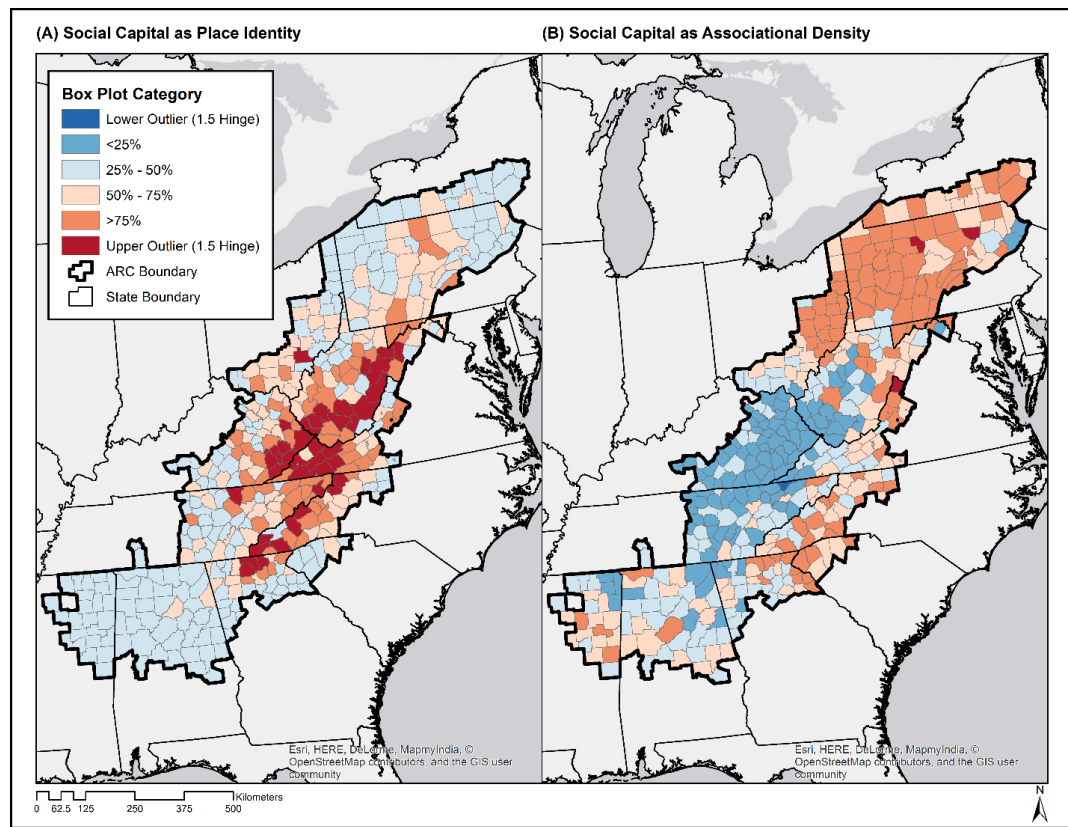
Figure 4.1 Place Identity and Social Capital in Appalachia[5]

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[5] The box map in the left panel of Figure 4.1 suggest that there are no observations in the first quartile (<25%) category. This is because the first quartile of the mapped variable is equal to zero. Because GeoDa moves tie values (in this case, all of the zeros) to the next category (here, 25% - 50%), the first and second quartile categories are effectively combined. In essence, then, the "25% - 50%" category in the map shows all counties with a value of Appalachian-named businesses per business per square kilometer between 0 and the median (0.476).

An initial ordinary least squares (OLS) regression model of the ARC's economic distress index on our social capital and control variables produced evidence of significant spatial dependence (Table 3, column 2).[2] More precisely, Robust Lagrange Multiplier test statistics (Anselin et al. 1996) revealed spatial dependence in the model's error term. Accordingly, in the final analysis we used a spatial error model (SEM) specification, which decomposes the error term into a spatially correlated component (λ is the spatial correlation coefficient estimated to model spatial dependence that not explained by the measured variables) and a component characterized by traditional linear regression assumptions. One predictor—*percent non-white* (Table 4.1)—was removed from the final analysis due to its negligible contribution to the regression sum of squares. With that in mind, the final SEM regression results are presented in the final column of Table 4.3.

Table 4.3. OLS AND SEM RESULTS

Variable	OLS		SEM	
	Coef.	S.E.	Coef.	S.E.
Social capital index	-8.36	1.34***	-8.60	1.35***
Appalachian identity	-0.66	0.33*	-0.72	0.36*
Percent with no high school diploma	1.69	0.17***	1.76	0.18***
Percent single parent households	0.62	0.12***	0.69	0.11***
Percent owner occupied	-0.44	0.21*	-0.59	0.19**
Population density[†]	-11.71	01.19***	-12.41	1.37***
Gini coefficient of income inequality	1.99	0.33***	1.21	0.31***
Intercept	62.59	26.67	106.64	25.47
Λ	--	--	0.55	0.05***
N	420		420	
R^2	0.718		0.786[††]	
Robust LM (Lag)	0.30 (p=0.587)		--	
Robust LM (Error)	61.80 (p<0.001***)		--	

OLS = ordinary least squares; SEM = spatial error model; LM = Lagrange Multiplier
[†]Natural log-transformed
[††]Spatial pseudo-R^2
*p<0.050 **p<0.010 ***p<0.001

Control Variable Relationships to Economic Distress

Note from Table 4.3 that all of the control variables are statistically significant and take on their hypothesized signs (see Table 4.2). A one point increase in the percentage of occupied housing units that are owner occupied decreases the ARC distress index by roughly -0.59 units. The same magnitude increases in (i) adults 25 years or older without a high school diploma, and (ii) the percentage of households headed by single parents, are associated with increases in the ARC distress index of approximately 1.69 points and 0.62 points, respectively. Supporting the idea that metropolitan or urban areas might fare better in Appalachia than comparably rural areas (e.g., Moore 2005), a one percent increase in population density (recall that the variable is log-transformed in the model) is associated with a decrease in the economic distress index of roughly 11.71 points. In other words, higher population density is linked to lower distress. Not surprisingly, economic inequality is strongly and positively related to economic distress (e.g., Forrest and Kearns 2001). The measure of inequality that we used in the analysis is the Gini index (Tables 4.1-4.2), which ranges from 0 (perfect equality) to 100 (perfect inequality). Observe that a one unit increase in the Gini index is associated with a 1.99 unit increase in the ARC's economic distress index—more inequality is correlated with poorer economic conditions.

Social Capital Variable Relationships to Economic Distress

Table 4.3 suggests that calls for participatory development and social capital building in Appalachia (e.g., Keefe 2009; Pender et al. 2012), as well as claims about the consequences of social capital from streams of collective social capital literature (e.g., Putnam et al. 1993; also see Brunie 2009), may be well-founded. In the first place, the

associational/network index of social capital developed by Rupasingha et al. (2006) is a highly significant, *negative* correlate of economic distress. A one unit increase in the index (which ranges roughly from negative to positive three) is associated with a -8.36 decrease in the ARC's economic distress index. Secondly, and more important to the thesis of this research, our measure of social capital as Appalachian place identity is also significantly and negatively associated with economic distress. Namely, each additional symbolically named ("Appalachian") business in a county (per business per square kilometer) is associated with a -0.66 drop in the ARC economic distress index. Variance inflation factors (VIF) suggest there are no multicollinearity issues in the model. And, more pointedly, the social capital index (Rupasingha et al. 2006) and our Appalachian business names variable are not correlated (r=-0.09, p=0.08), which may suggest that the two variables capture different dimensions or domains of social capital (see, for instance, Forrest and Kearns [2001:2140]; Fig. 4.1).

Discussion

As more planners and related practitioners embrace the "participatory turn" in their fields (Mohan 2007), in which conventional, top-down, and externally-driven development interventions are being replaced by bottom-up efforts that leverage local capacity and assets (Keefe 2009), the concept of social capital continues to push its way into policy and decision-making arenas (Putnam 2004). For that reason, empirical research on the links between social capital and measurable socioeconomic conditions is of heightened importance. In addition to contributing to the mixed body of evidence that characterizes scholarly literature on the phenomenon (e.g. Durlauf 2002), new empirical results can

inform the policy and planning discourses in which social capital has become a key part of participatory development (Keefe 2009).

On that foundation, empirical social capital studies such as the one conducted above are useful for documenting and quantifying an association between indicators of social capital and economic well-being. However, such studies can also contribute to social capital theory and measurement. For instance, by engaging with literature on place and place identity, we adopted an explicitly geographic perspective in our attempt to measure and explore social capital in Appalachia. Whereas we acknowledge the value of and employ an established associational-/network-based measure of social capital from the literature (Rupasingha et al. 2006), we also drew on streams of literature from cultural geography to supplement that measure with one that has been shown to capture at least some degree of place identity (Cooper et al. 2011; Weaver and Holtkamp 2016). The purpose of introducing such a measure into our study was to recognize that *place identity* tends to be an important domain of social capital (Forrest and Kearns 2001). That is, an affective and emotional attachment to place can give rise to a sense of social insideness that contributes to the capacity of individuals to act collectively for the betterment of their shared geographic location (e.g., Rowles 1983; Paasi 2003).

To see if a systematic relationship between social capital (as both place identity and associational/network density) and economic conditions exists in the administrative Appalachian region—where social capital has become a focal point of federal and local development practices (Keefe 2009; Pender et al. 2012)—we estimated a spatial regression model using data from secondary datasets. The results support claims from social capital theory (e.g., Putnam 2000; Brunie 2009) that the geographies of social capital and of

economic conditions appear to vary together. Importantly, the two indicators of social capital described above both have significant *negative* relationships with economic distress, as expected (Table 4.2)—but the measures themselves are pairwise uncorrelated. The upshot is that relatively ageographic measures of network/associational density and explicitly spatial measures of place identity may capture different domains of social capital (e.g., Forrest and Kearns 2001). Hence, both merit inclusion in empirical social capital research.

Organizational Density and Social Capital

Associational or network density was measured here by the social capital index created by Rupasingha and colleagues (2006), which considers the number of formal organizations of various types within a county. Formal organizations represent capacity within a community because they are places where relationships can be built and networks created (Nahapiet and Ghosal 1998). Accordingly, higher network density is assumed to be inversely related to economic distress, which is precisely what our regression model estimated (Tables 4.2-4.3). In general, formal organizations—including, for example, Little League, adult softball leagues, labor unions, political organizations, etc.—bring together a diverse cross-section of a community, providing common ground for people who may not otherwise engage with one another (Skinner et al. 2008). In addition, "[c]ommunity identity and community belonging are a non-tangible benefit of participation in [formal] organizations" (Skinner et al. 2008: 255). In other words, there might be a feedback relationship between the two domains of social capital under investigation in this study: associational-/network-density and place identity. Although our measures for these

72

two domains are not correlated (see above), future research on how place identity and local networks coevolve will be a valuable addition to the literature.

Place Identity and Social Capital

Social capital is regularly studied by sociologists and economists; but geographers are not without a stake in the game. As Mohan and Mohan (2002, p 191) observe, social capital offers geographers a framework that "seeks to explain different spatial patterns". Indeed, as argued above, the diverse geographies of economic conditions appear to be systematically linked to the geographies of social capital. Still, one way of adding a more explicitly spatial perspective to social capital studies is to consider the domain of place identity (e.g., Forrest and Kearns 2001). Identification with place contributes to group sentiment and shared values, which are arguably staples of social capital (Kramer 2009).

That being said, like other domains of social capital (e.g., trust and reciprocity), place identity is rather elusive in secondary datasets. However, instructive cultural geography literature suggests that symbolic naming practices tend to be serviceable indicators of place identity (e.g., Jordan 1970; Reed 1976; Ambinakudige 2009; Cooper et al. 2011; Weaver and Holtkamp 2016). As such, we proposed and adopted indicator of Appalachian identity based on the number of incorporated entities in a given county that feature the words 'Appalachia' or 'Appalachian' in their name. As expected, and similar to our other measure of social capital, the variable was a significant, negative correlate of economic distress: greater place identity is linked to better economic conditions.

Place identity is grounded in attachment to, and affection for, a place (Stedman 2003). The opportunity for intervention lies in developing connections between people *in*

a place, and between people *and* that place. In Appalachia, observers have noted a strong attachment to place and shared identity that are rooted in both the physical Appalachian mountains and the social condition of *being Appalachian* (e.g. Eller 2008; Keefe 2009; Weaver and Holtkamp 2016). Interestingly, though, many of these bonds arise out of more informal networks (Gaventa 1980; Eller 2008; Keefe 2009) than from the types of formal organizations considered by the social capital index (Rupasingha et al. 2006). This observation may explain some of the lack of correlation between the two selected measures of social capital in our analysis. Thus, an exclusive focus on organizational density as a measure of social capital can overlook the very real and meaningful relationships that exist in some places, particularly in lower income communities (Rahe 2013). Accordingly, we submit that supplementing the former measures with indicators of place identity is a valuable contribution to empirical social capital research.

Still, it is important to note a limitation to using the ARC boundary for the study area. The administrative boundary was defined through a political process (Williams 2002) and encompasses a much broader area than what is typically considered the cultural boundary of Appalachia (e.g. Cooper et al. 2001; Weaver and Holtkamp 2016). Northeastern Mississippi and southern New York may have similar economic challenges to the core of Appalachia; however, residents there are not likely to identify as Appalachian. As indicated by Figure 1, there are few, if any, Appalachian identified businesses in these areas. Despite this issue, the ARC boundary remains a useful, albeit imperfect, definition of Appalachia for this study given that the ARC has recently shifted to an asset-based development strategy in the counties that are within its jurisdiction

(Pender et al. 2012). Thus, our results have the potential to offer actionable intelligence to an existing federal regulatory institution (e.g., Weaver 2017).

Other Observations

To be confident in reaching a conclusion that indicators of social capital vary systematically with indicators of economic conditions, it was necessary to control for variables that prior literature has found to matter to economic outcomes (see Table 2). The associations between control variables that were selected for inclusion in our final model and economic distress should be of little surprise to social scientists. Homeownership is inversely related to economic distress (e.g., Temkin and Rohe 1998). Lower educational attainment is positively related to economic distress (Sampson et al. 1997). In Appalachia as elsewhere, economic well-being tends to be higher in areas with relatively well-educated and skilled workforces (Hanushek and Woessmann 2010). Similarly, single parent households tend to face more economic hardships relative to alternative household types (Sampson et al. 1997). Income inequality represents another significant barrier to economic well-being. Inequality is a fundamental challenge for communities across the United States and within Appalachia, with the top 0.1 percent of earners controlling 22 percent of income in 2012 (Saez and Zucman 2016). High income inequality is linked to low social capital, high mortality, high crime, and, more generally, lower quality of life and fewer economic opportunities (Kawachi et al. 1997; Kennedy et al. 1998). Finally, the estimated relationship between economic distress and population density suggests that urban or metropolitan portions of Appalachia might enjoy higher economic well-being compared to rural, potentially more isolated counties (e.g., Moore 2005). Together, these observations

open several doors for additional research into geographic differences both within Appalachia, and between Appalachia and the rest of the country.

Conclusions, Limitations, and Future Research

This study used two different proxies to measure social capital in Appalachia—the first a relatively aspatial measure of organizational density, and the second a geographic measure grounded in place identity. A spatial regression model that estimated economic distress as a function of these two social capital measures and a number of controls supported claims that there is a systematic association between social capital and economic outcomes (e.g., Putnam 2000). More precisely, both proxy variables were found to have significant, negative relationships with the Appalachian Regional Commission's (ARC's) index of economic distress. These novel results contribute to the ever-expanding base of empirical research on the connections between social capital and real world social and economic conditions (e.g., Brunie 2009). For practitioners, the findings should also be encouraging to the ARC and other entities that have reoriented development tactics away from conventional approaches that rely on external investments (Keefe 2009), and toward locally driven strategies that build community capacity and social capital as means for addressing place-based challenges (e.g., Pender et al. 2012). Still, although our results are promising, additional research is needed to better understand the phenomena and relationships under investigation.

One opportunity is to further develop and interrogate the nature of place identity for empirical research. In this instance, we followed prior studies in using the presence of a regional identifier ('Appalachia') in business names as a proxy for place identity (e.g.,

76

Cooper et al. 2011; Weaver and Holtkamp 2016). However, researchers often argue that social capital tends to be strongest at the very local level of neighborhoods and communities (e.g., Nettle 2015). Thus, if researchers wish to continue to adopt naming as a proxy for identity in empirical analyses, then using local terms (e.g., city or county names) may provide more meaningful measures of place identity. Of course, at a regional scale like the one adopted in our study, selecting appropriate local terms and obtaining data for them would be time and resource intensive; however, future studies could focus on specific sub-areas for more detailed research.

Next, a widely recognized challenge in social capital research is to disentangle cause from effect (e.g. Portes 1998; DeFilippis 2001; Durlauf 2002). Statistical studies are typically unable to answer the question of whether economic conditions are favorable because social capital is high, or if social capital is high because of good economic conditions (or some combination). An opportunity exists to collect time series data on economic conditions and social capital measures to better understand how change in one time series relates to change in the other.

Finally, observe that regions like Appalachia are opportune locations in which to conduct this type of research. Places characterized by unique heritages and identities, histories of economic challenges, and various mixes of external and locally driven interventions provide a wealth of data and indicators that can further our understanding of social capital and economic outcomes (e.g., Keefe 2009; Cooper et al. 2011; Holtkamp and Weaver 2016). Although our results supplement the growing body of empirical research on social capital and development the region, there remains much to contribute to the idea

that social capital (and place identity) might be a meaningful lever to pull in efforts to overcome persistent economic stagnation in Appalachia and similar regions.

V. PLACE IDENTITY AND SOCIAL CAPITAL IN AN APPALACHIAN TOWN[6]

Social capital is gaining recognition among community developers and other practitioners who see it as a means for affecting positive community change (e.g. Flora and Flora 2003; Briggs 2004; Gress 2004; Hutchinson 2004; Rohe 2004; Green and Haines 2016). Developers and researchers who engage with the Appalachian region are participants in this discourse, with social capital taking on various roles in Appalachian Studies: e.g., a theoretical framework for understanding and explaining challenges in Appalachia (Couto and Guthrie 1999); an under-tapped asset around which development practices can be reorganized (Keefe 2009); a stock variable to be increased by policy and program interventions (e.g., Hatcher 2016); and an empirical correlate of economic outcomes (Holtkamp and Weaver 2018); among others (also see Scott et al. 2016). Despite agreement of the potential for social capital to improve quality of life, it is *precisely that* there are fundamental disagreements over what social capital is (Woolcock 2004), how we know it is present in communities, and how to measure it (Portes 1998; Woolcock 1998; DeFilippis 2001; Durlauf 2002) and, perhaps most importantly for practitioners in distressed areas, how we build it (Briggs 2004).

Although no single research effort will resolve these debates, new and novel additions to the discourse stand to contribute to the creation of "a more comprehensive and coherent conceptual framework to inform a policy strategy" (Woolcock 2004:185). With that in mind, this article describes an interdisciplinary research effort to explore behavioral determinants of social capital in an Appalachian town. We adopt a "lean and mean"

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[6] This article has been submitted for publication consideration as Holtkamp, C. and R. Weaver 2018. Place identity and social capital in an Appalachian town. *Journal of Appalachian Studies.*

definition of social capital (Woolcock 2004:185), as a place-based asset predicated on relationships between community members and expressed through norms of behavior including trust, reciprocity, and willingness to contribute to the public good (Putnam 1993, 2007; Flora et al. 2015). Grounded in this definition, we stitch together a working conceptual framework that describes linkages between individual-level behaviors and group- (or community-) level social capital. We draw on influential economics literature (e.g., Durlauf 2002) to suggest that measuring specific behaviors plausibly provides insight into the presence and quantity of social capital that exists within a group of people. For that reason, we open the toolbox of behavioral/experimental economics (e.g., Durlauf 2002; Glaeser et al. 2000) to attempt to answer five interrelated research questions:

1) To what extent do participant residents trust one another in anonymous economic transactions?
2) To what extent do participant residents behave altruistically toward anonymous others in economic transactions?
3) To what extent are participant residents willing to incur personal costs to punish unfair behavior in economic transactions?
4) To what extent are participant residents willing to incur personal costs to create benefits for a larger group?
5) Do levels of trust, altruism, fairness, and cooperation among participant residents i vary systematically with regional, state, and/or local place-identity?

Rather than relying on proxies and secondary indicators, behavioral economics utilizes games which directly measure otherwise hidden concepts like altruism, trust, and reciprocity through the interactions of experiment participants using real money (Camerer and Fehr 2004; Guala 2005). Games provide measurement reliability "because they determine real financial gains or losses rather than merely expressing intent" (Baumert et al. 2014:178). Additionally, games provide more accurate measurement of social capital than is available through alternative methods, including surveys (discussed below) because "games impose a clear structure on concepts that are often vague or fuzzy" (Camerer and

Fehr 2004:85). The results from these experiments can complement additional measurements of participants' characteristics and integrated with surveys and other methods to provide a more thorough assessment of social capital than is available through any single assessment (Glaeser et al. 2000).

Economic games also allow for the introduction of variations to determine their influence on participants' behaviors (Glaeser et al. 2000). Details such as race and ethnicity, organizational membership, and social status have all been shown to influence interactions between game participants (Glaeser et al. 2000). Recognizing the influence of these variations on game results allows for more robust data to be collected from the experiments. For this research, we introduce a place component into the games to evaluate the role it may have on participants' behaviors. The relationships and networks required for social capital are often rooted in place and shared identity (Bednarz 1994; Grannis 2009). Given preliminary evidence on the relationship between place identity as a proxy for social capital and economic outcomes (e.g. Forrest and Kearns 2001), it is appropriate to introduce place and place identity that is lacking in much of the behavioral economics literature (e.g. Glaeser et al. 2000; Camerer and Fehr 2004; Ensminger and Cook 2014).

Measuring Social Capital

One of the primary challenges for researchers studying social capital and its effect on communities is measurement. Because social capital relies on ephemeral concepts like trust and reciprocity, it is difficult to create an assessment tool that provides a precise measurement of the concept. The question of an appropriate scale at which to measure social capital is another issue (Rahe 2013; Knack and Keefer 2015). Researchers have

claimed that social capital operates at the individual level up to national scale (Hausofer and Fehr 2013; Nettle 2015; Weaver 2016), making finding the appropriate scale to focus on challenging for the researcher. To address these challenges, researchers employ a variety of methods for measurement, including secondary data, surveys, observation, and economic games.

Surveys are one of the most common tools used in social capital research because they offer a relatively efficient and cost-effective means of collecting data. They also can be utilized at a variety of scales, from international down to specific neighborhoods, allowing researchers to access data at an appropriate level for their work (Rahe 2013; Knack and Keefer 2015; Nettle 2015). For the United States, a common survey is the National Opinion Research Council's General Social Survey (www.norc.org), that includes questions measuring trust and social norms (Rupasingha et al. 2006). Researchers working at finer scales have developed their own surveys (e.g. Nettle 2015, Flora et al. 2015) to capture proxy data to measure social capital. These surveys provide insight at a much finer scale and can be useful in identifying causal relationships of social capital rather than just vague measurements of trust (Nettle 2015).

Secondary data allows for the measurement of social capital at a large scale using selected indicators, often from public sources like the US Census. Researchers have used indicators as diverse as "crime rates, voter turnout, volunteering, car-pooling, and charitable-giving as measures of social capital" (Rupasingha et al. 2006:88). Although secondary data allows for quantification and comparison between places, these measures are only proxies for social capital, which can create issues for researchers and practitioners.

Observation can be effective; however, it is time consuming and limited to fairly small areas. Findings cannot always be generalized to a larger setting. Proxies used to indicate social capital via observations can include things like number of people on the streets (especially children and seniors), interactions between people, doors left open (a sign of trust in one's neighbors), presence of litter and individuals littering, and building condition (Nettle 2015). These are indicators of factors of trust between neighbors, openness to interaction, and accepted behavioral norms that reflect the social capital of the neighborhood. For this research, we utilize observation, a survey, and economic games to explore social capital at the individual level of residents.

Behavioral Indicators of Social Capital – A Working Conceptual Framework

Social capital is an ephemeral concept; however, it may be expressed in accepted norms of behaviors that include altruism, trust, and reciprocity (Glaeser et al. 2000; Camerer and Fehr 2004; Guala 2005). These behaviors are rooted in the relationships established by membership in community organizations and the networks of relationships among members of the community (Putnam et al 1993). Additionally, there is evidence that connection to place and shared identity contribute to a group culture that defines and reinforces accepted behaviors among members of the community (Graham 2002). Even if people do not share membership in the same organizations or clubs, simply being part of the same geographic community may create a shared identity and connection that fosters

more positive behaviors. It is these behavioral indicators of social capital, along with the influence of place identity, that this research is attempting to measure.
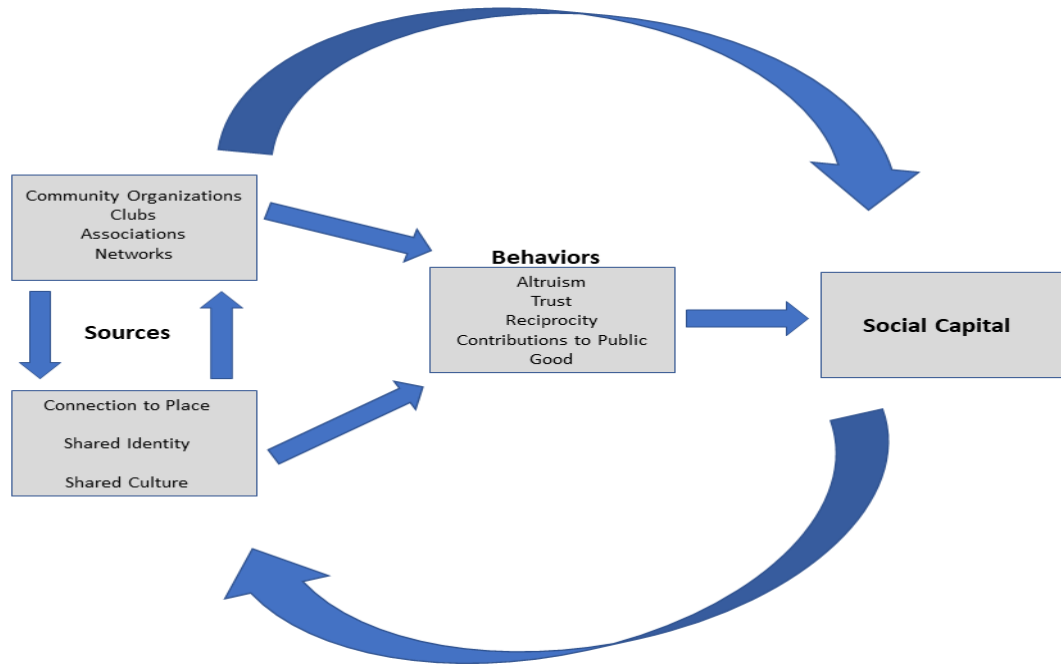
Figure 5.1: Working Framework of Social Capital

Behavioral Economic Theory and Economic Games

Behavioral game theory and economic game experiments represent an innovative method for directly measuring the behavioral indicators of social capital discussed above (Camerer 2003; Guala 2005). Like observation, these experiments can be time consuming and expensive since they typically use real money in the game transactions. However, this methodology has been shown to be very effective in measuring the foundational elements of social capital directly, unlike the other methods discussed above (Glaeser et al. 2000).

"A game is a set of strategies for each of several players, with precise rules for the order in which players choose strategies, the information they have when they choose, and

how they rate the desirability ('utility') of resulting outcomes" (Camerer and Fehr 2004:57). Typically, the games are played between players, who remain anonymous to each other, for real money. Using money is the motivator for participants to behave more honestly than they would using an abstract reward (Camerer and Fehr 2004).

Most game theory experiments have been conducted using college students as participants (Camerer and Fehr 2004; Glaeser et al. 2000) because they can be easily recruited and monetary rewards for participation can be low. This reliance on college students may lead to skewed results, as pro-sociality tends to increase with age (Ensminger and Cook 2014). Relying on young people as the experimental population can result in lower social capital being evidenced through these experiments than might be found using a more diverse testing sample (Ensminger and Cook 2014). In addition, college students may not have the same level of connection to place and community as do full-time residents.

Ensminger and Cook (2014) provide one study that utilizes game theory beyond the college campus. They conducted a series of games in Hamilton, Missouri, a small town (~1,800 population) in rural northwest Missouri. Ethnographic study of the community found that residents who contributed time and money "without calling attention to themselves or appearing to have self-interested motives are considered upstanding and trustworthy" (Ensminger and Cook 2014:447). The researchers wanted to explore how this individual behavior was expressed across the community, and if altruism was indeed a widely accepted norm of behavior. In order to conduct the experiments, the authors utilized their connections along with active engagement of community leaders to recruit participants. This effort led to the successful recruiting of approximately 20 percent of the

community population to participate. A series of game experiments was conducted, with results indicating a high degree of pro-sociality and social capital reinforcing the evidence found in the ethnographic study. Finally, the results from these experiments supported the authors' assertion that game theory experiments conducted with college students may consistently underestimate social capital compared to what exists in the larger community population (Ensminger and Cook 2014).

Place Identity and Social Capital

The majority of social capital research has been conducted by sociologists, political scientists, and economists. However, community-level social capital is fundamentally a geographic concept (e.g., Mohan and Mohan 2002). Community social capital is, by definition, rooted in *place* (Flora et al. 2015); and place is a fundamental spatial concept:

Place is identified in terms of the relationships between physical environmental characteristics, such as climate, topography, and vegetation, and, such human characteristics as economic activity, settlement, and land use. Together, these characteristics make each particular place meaningful and special to people (Bednarz 1994:33).

Historical, cultural, social, and political structures are place-based and influence how communities develop and are perceived (Brown and Schafft 2011). This in turn influences the social capital of communities because their identification with place contributes to group sentiment and shared values (Kramer 2009).

The connection of place and shared identity is especially true in Appalachia, where the unique character of the region has been forged by the physical environment

and historical development (Williams 2012). Appalachians are rejecting the negative stereotypes assigned to them by outsiders and embracing their heritage and culture as assets (Eller 2008; Keefe 2009). This embrace of Appalachian identity presents an opportunity to explore how place can be utilized as a proxy for social capital, contributing to a further understanding of this concept.

Study Area

The study area for this research is Morehead, Kentucky (Figure 5.2). Institutional Review Board (IRB) approval was obtained to conduct economic experiments and collect questionnaire data from residents of Morehead (IRB Approval Number 2017557). Morehead was incorporated in 1869 as the County seat of Rowan County. Morehead experienced steady population growth until the 1990's, during which it lost nearly 1/3 of its population (from 8,357 in 1990 to 5,914 in 2000). It has since begun to recover and its 2014 population was 6,978. The city has many assets to attract primary employment, including a large industrial park, airport with 5,500 foot runway, and a regional medical center. Morehead State University has an enrollment of nearly 11,000 students. The area also has significant tourism assets, including the Daniel Boone National Forest and Cave Run Reservoir. Despite these attributes, the city has struggled with population decline and low median income ($26,710 Morehead vs. $41,724 Kentucky) despite a slightly lower unemployment rate than the state (7.1 percent Morehead vs. 7.4 percent Kentucky).

Morehead was selected because of its location in the core of Appalachia (e.g. Raitz and Ulack 1981; Cooper et al. 2011). This area has many of the poorest counties found in the United States as well as high levels of social distress (Lowery 2014; *The Economist*

87

2015). Rowan County, where Morehead is located, is identified by the ARC as economically distressed (ARC n.d.). Despite these challenges, evidence indicates that Morehead has a high level of social capital than may be indicated by the secondary data available. This evidence is grounded in interaction with Morehead residents prior to the economic games being conducted and the initial fieldwork of the lost letter experiment discussed below. These indicators provided an opportunity to utilize the economic game experiments to directly measure social capital at the local level of Morehead to understand how it may differ from county and regional indicators measured with secondary indicators.
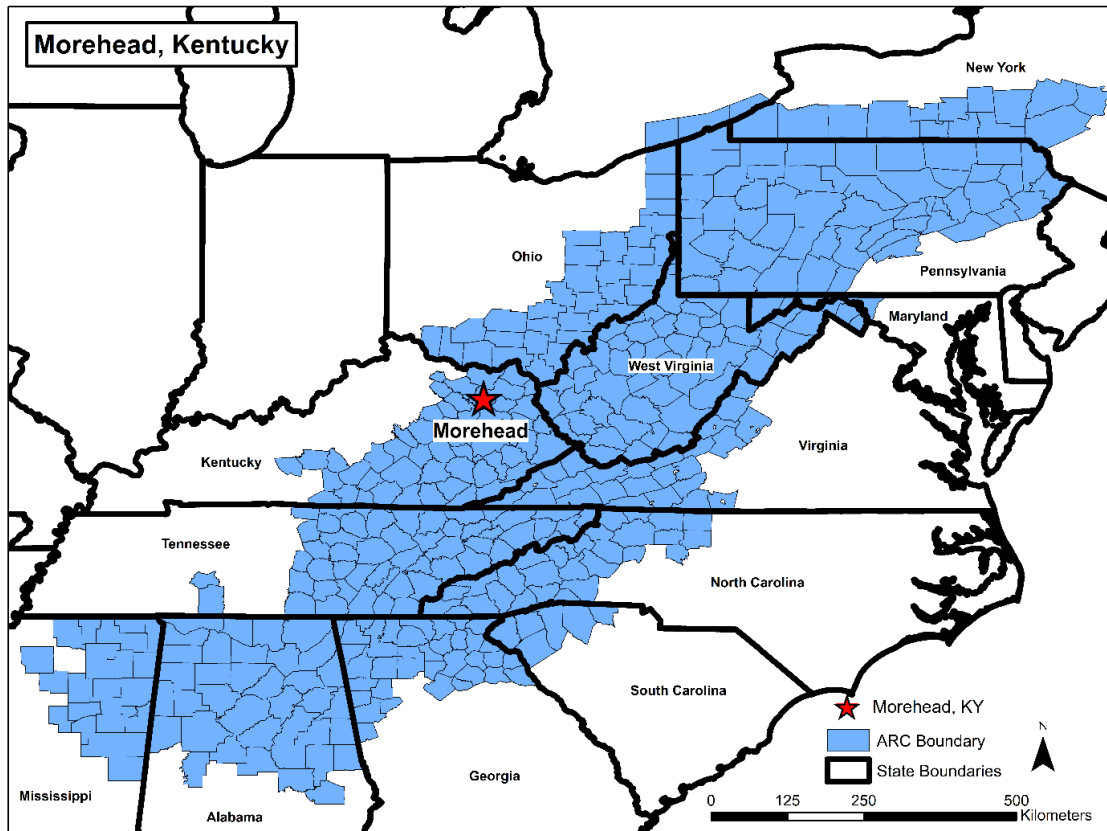

Figure 5.2: Morehead, Kentucky

<center>Data and Methods</center>

Two experimental methodologies were utilized to measure determinants or indicators of social capital among Morehead community members. The first was a lost letter experiment, conducted in August, 2016 and the second was a suite of economic games conducted in October, 2017. These two different techniques provided insight into residents' levels of different behavioral indicators of social capital discussed above.

Lost letter experiments measure altruism and pro-social behavior by quantifying the fraction of stamped, addressed envelopes that an experimenter strategically 'loses' within a study area. The literature advises that this fraction proxies for altruism in that it is a direct measure of anonymous persons' willingness to pick up and put envelopes in the mail on behalf of an unknown other (Glaeser et al. 2000; Wilson and O'Brien 2009). During this first round of fieldwork, stamped, addressed envelopes were left around Morehead, some in proximity to mailboxes, others scattered in various locations. The precise geographic coordinates of each letter were marked using GPS, and the letters were coded to identify which letters from which locations were successfully returned.

A second avenue for measuring these characteristics that is more personal and more sophisticated than field experiments are behavioral games and economic experiments which represent an innovative method for directly measuring elements of social capital such as trust and willingness to contribute to public good (Camerer 2003; Guala 2005). This methodology has been shown to be very effective in measuring the foundational elements of social capital directly, unlike other methods (Glaeser et al. 2000). Both the lost letter experiment and the economic games provide a measure of actual behaviors of

<center>89</center>

individuals that can provide insight into levels of social capital as exhibited through acts of altruism, trust, and reciprocity.

The games selected for this research include the Dictator, Ultimatum, Trust, and Public Goods games. Using money is the motivator for participants to behave more honestly than they would using an abstract reward (Camerer and Fehr 2004). As discussed, these behaviors are indicative of social capital because they rely on relationships between members of a community. These relationships may not be explicit (e.g. members of the same clubs or organizations) but rather simply based on shared identity as members of the local community.

In the Dictator game, half of the participants receive money, while the other half receive no money. Those who receive money have the option to donate any amount they choose to an anonymous recipient. The amount given is an indication of altruism (Camerer 2003). Economic theory would suggest participants would choose to keep all of the money given rather than share with another player. However, players do tend to take other players' "interests into account" and offer at least some money in this game (Baumert et al. 2014:179). The Ultimatum game begins the same as the Dictator game. In this game, donors have the option to give any amount they choose; however, recipients have the option to refuse the money if they feel the amount is unfair. If the offer is refused, neither player receives any money. Economic theory would indicate that players would accept any amount offered because even a small offer benefits the recipient. However, there is evidence that participants may be willing to forgo a benefit to punish what they perceive as an unfair offer (Baumert et al. 2014).

The Trust game measures trust and reciprocity between players. The donor starts with money (e.g. $20) and the option to give any amount to the anonymous recipient. The amount donated is tripled by the game moderator and given to the recipient. The recipient has the option to return any or all of the money given. In a high trust, high reciprocity scenario, the donor would give the full $20, which would be tripled to $60. The recipient would then reciprocate by returning $30 to the donor, thereby allowing both parties to profit equally (Glaeser et al. 2000).

Finally, the Public Goods game is an indication of participants' willingness to contribute to the public good, even if that means non-contributors may benefit (Camerer 2003). In this game, every participant is given money and asked to contribute any amount to the community pot. The total amount donated is then doubled by the moderator and that money is evenly distributed to all participants. This study establishes the interest in the common good that participants have and is particularly useful in a community setting to measure the potential for residents to participate in projects for the common good that may not directly benefit them and with the potential to benefit non-contributors (Ensminger and Cook 2014).

Because of our interest in place and identity, these concepts were introduced into the games to understand how (if at all) they influenced participants' behavior in the games. Participants filled out a brief survey identifying the general location of their residence and measuring their attachment to place and the value they place on that place identity at the local level of Morehead, Rowan County, state, regional level of Appalachia, and national levels using a Likert scale. The survey responses allow an evaluation of social capital, as

measured by the games, as a function of connection to place and shared identity as indicated by the survey. The survey is included in Appendix II.

Results

Results show that despite local economic challenges, there is a reservoir of social capital in Morehead. One example is the results of the lost letter experiment conducted. Of the fifty envelopes dropped, forty were returned (eighty percent), which is a very high rate of return for this type of activity (Figure 5.3). In similar studies, response rates of forty to fifty percent are considered significant and an indicator of high social capital (Nettle 2015). This indicates that Morehead residents have a high degree of social capital, expressed through the altruistic behavior of picking up envelopes and putting them in the mail, despite economic indicators otherwise. The economic games provide an additional, and more precise measurement of the pro-social behavior evidenced by the results of the lost letter experiment and support the idea that a well-spring of social capital exists at the individual level of Morehead residents.
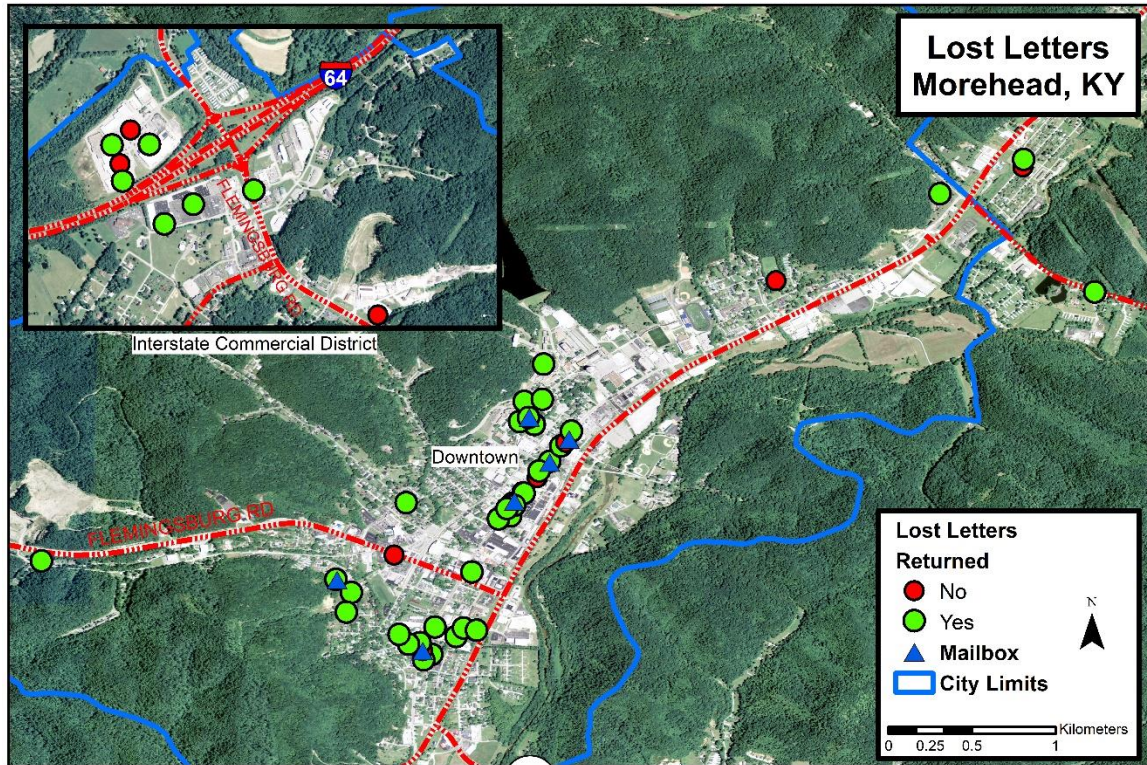
Figure 5.3: Lost Letters in Morehead, KY

Standard economic theory supports the idea that rational individuals will act in the most selfish way, attempting to maximize their return from the games and not sharing what they received (Camerer 2003). However, research has shown that a substantial sense of fair play and willingness to share will cause players to behave in what appears to be non-rational ways (Ensminger and Cook 2014). This makes economic games an important tool in social capital research because it allows a measurement of how people actually interact with one another using real money to encourage more honest behavior.

Economic games were conducted in Morehead, Kentucky on Saturday, October 7th hosted by a local coffee shop. Participants were recruited through a combination of social media on local Morehead Facebook pages, requests via local organizations, and fliers and outreach conducted by the host bookstore. This outreach brought fifteen participants to the activity. Admittedly, this sample size is much lower than we desired and for which we

budgeted; however, given that this is one of few U.S. studies to work with residents via a community institution as opposed to college students (e.g. Ensminger and Cook 2014), it is difficult to be dissatisfied with level of participation. Because of the small number of respondents, we make no attempt to extrapolate the results to the city of Morehead overall or the larger Appalachian region; however, the participants' behavior in the game experiments mirrored the altruism displayed by the many community members who mailed the lost letters back.

Participants were given a survey (Appendix II) and a $5 'show up' fee when they joined the event. They were asked to complete the survey and a brief introduction to the process was provided. Results from the survey are included in Table 5.1 below. To limit the potential to influence behavior, minimal information about the economic games was provided, instead the discussion focused on instructions for how the games were to be played. To facilitate the process, instead of exchanging money during the games, participants were given slips of paper that indicated their role in each game and the amount of money involved. Amounts exchanged during each game were tracked by the moderators and players were paid at the end of the games. Two rounds of each of the four games (Dictator, Ultimatum, Trust, and Public Goods) were played with roles changing between donors and recipients. One person who participated in the first round left before the second round, and two new participants joined the second round. Table 5.2 has a summary of the averages and ranges for each of the games.

Table 5.1: PARTICIPANT CHARACTERISTICS

Sex	
Male	7
Female	8
Age	
18-25	9
26-35	2
36-45	3
56-65	1
Income	
<$24,999	7
$25,000-$34,999	4
$35,000-$44,999	0
$45,000-$54,999	2
$55,000-$64,999	1
>$65,000	1
Education	
< High School Diploma	1
High School Diploma / GED	2
Some College	2
Associates / Professional Degree	2
Bachelors Degree	3
Graduate Degree	5

For the Dictator Game, half of the participants started the game with $20. Offers in round one ranged from $5 to $20, with the average being $10.83. This amount (approximately fifty percent) is similar to what participants in the Ensminger and Cook (2014) study offered and is an indication of high pro-sociality among participants. Every participant who received money offered at least $5 to the recipient player. In the second round, offers ranged from $0 to $10, with the average being $6.43. This decline in generosity may reflect players 'learning' the game and choosing to maximize their own benefit at the expense of the anonymous second player (Camerer 2003). However, only one player kept all of the money in this game, indicating that consideration of others and altruism is an attribute of these participants overcoming a willingness to maximize individual benefit.

In the Ultimatum Game, offers ranged from $0 to $15 with the average being $9.17. All of the offers were accepted except for the $0 offer. In the second round, the offers ranged from $5 to $15 with the average being $10. Participants made relatively high offers, which may represent a desire to not have their offer rejected (and thus receive no money for the game) but may also be an indication of a sense of fairness. These offers were again in line with the findings from the Ensminger and Cook study.

In round one of the Trust Game, the offers ranged from $5 - $20, with the average being $13.33. The amounts returned ranged from $5 to $15, with an average of $11.67. This is an indication of a fairly high level of trust and reciprocity between players. In round two, the amount given ranged from $5 to $20, with an average of $12.86. Amounts returned ranged from $0 - $30 with an average of $15.71. In this round, there were two examples of participants cooperating to maximize the benefit for both players. In this case, player one

donated $20, which was tripled to $60, and the second player returned $30. This meant both players received equal benefit rather than one or the other working to maximize their individual gain. There was also one example of a player keeping all of the money offered to them. This is an indication of a player choosing to maximize their personal benefit at the expense of the second player. Again, these results are in line with findings from Ensminger and Cook (2014), indicating high levels of social capital among participants.

In round one of the Public Goods Game, participants gave from $5 - $20, with an average of $16.67. The total amount collected was $200, which was doubled to $400 and each player was given $34.00 (amount was rounded up to even dollar amount) from the common pot to keep along with whatever amount they may have not donated. In round two, offers ranged from $0 to $20 with an average of $15.36. The total amount collected was $430, and the amount returned to each player was $31.00. In the second round, there was evidence some players were minimizing their donation in order to maximize their return. Still, the results were in line with those of the Ensminger and Cook (2014) study.

Table 5.2: GAME RESULTS

	Round 1	**Round 2**
Dictator Game		
Average Offered	$10.83	$6.43
Ultimatum Game		
Average Offered	$9.17	$10.00
Trust Game		
Average Offered	$13.33	$12.86
Amount Returned	$11.67	$15.71
Public Goods Game		
Amount Offered	$16.76	$15.36
Amount Returned	$34.00	$31.00

Place Identity and Influence on Results

As discussed, one of the goals of this research was to understand what, if any, effect place identity had on participants' actions during the game. Specifically, was there a pattern of behavior in the games connected to how strongly people identified with place, ranging from Morehead to the United States. Given the small sample size of only fifteen participants it is difficult to draw significant conclusions; however, overall shared identity was very high at multiple scales, which may contribute to the high levels of social capital measured by the games. Table 3 provides a summary of the identity questions from the participant survey. Seven participants identified as from Morehead, five from other Kentucky towns, and three from outside of Kentucky. Surprisingly, despite over half of the

98

participants not being from Morehead, Morehead identity was rated as Important or Very Important by thirteen participants, with only two identifying it as Somewhat Not Important. Additionally, Morehead identity was rated as Positive or Very Positive by all but one participant, who rated it neutral. These are indicators that participants have a significant connection to place and a shared positive identity as Morehead residents. This contributes evidence supporting a relationship between social capital and place identity.

Table 5.3 – PLACE IDENTITY

	From	**Importance of Identity***	**Identity is Positive***
Morehead	7	4.07	4.29
Rowan County	7	3.64	3.93
Kentucky	12	4.50	4.14
Appalachia	12	4.21	4.07
United States	14 (1 no answer)	4.46	3.92

*Identity was ranked on a Likert Scale from Very Important to Very Unimportant, for averaging Very Important is valued at 5 with Very Unimportant as 1. Positivity was ranked from Very Positive to Very Negative with the same numeric valuation.

Morehead identity had the highest positivity, with only one participant ranking as less than Positive or Very Positive. This is an indication that participants not from Morehead have developed a strong connection to place, which contributes to shared identity and social capital. Rowan County had the weakest importance of identity, with three participants ranking it Unimportant and three as Neutral. It also had the second lowest Positivity score, although no participants identified it as Negative or Very Negative. Overall, Kentucky had the strongest identity and high positivity, which makes sense given

thirteen of the participants were from the state and "continuity with his/her personal past was related to a general identification measure" (Twigger-Ross and Uzzell 1996:207). Indicative of other studies (e.g. Eller 2008; Keefe 2009; Fisher and Smith 2012) Appalachian identity ranked as high among the participants, with only one choosing Unimportant. It was also seen as Positive or Very Positive for eleven participatns, with the remaining four labeling it as Neutral. United States identity was the second highest but had the lowest positivity (although still positive overall), with three participants giving it a negative or very negative ranking and one not answering.

Because of the small sample size, developing a statistical analysis to explore differences in responses to the identity survey with behavior in the game would not provide very robust results; however, the overall pattern of strong place identity and pro-social behaviors in the games indicates a relationship exists. Within the survey results a few interesting patterns emerge, which merit further exploration. One is the relatively low positivity of American identity. Although the survey did not capture political views, research has shown that those on who identify as more liberal tend to have lower American identification (Cooper and Knotts 2013). Additionally, education may influence identity, holding other factors constant Cooper and Knotts (2013:10) found "a highly educated person has a .32 probability of strongly identifying with Appalachia as opposed to a .17 probability for a person with relatively little education." Five of our participants had graduate degrees and four of them indicated Very Important for Appalachian identity and two of the three with bachelor's degrees did likewise.

Our findings indicate that identity matters to participants and that identity is nested across scale. This is an indication that people feel a connection to different communities,

although that they "do make distinctions between identities – holding some more strongly than others" (Cooper and Knotts 2013:10). In this study, older participants, and those from Morehead, placed the highest importance on identity across scales, which indicates "rootedness in the community, as measured by time in the region, is the best predictor of all forms of regional identity" (Cooper and Knotts 2013:11). For this research, the high value placed on Morehead identity represents an asset that may be available to leverage to address community challenges in the future because people have a strong connection to place.

Discussion and Future Research

This research was an opportunity to explore social capital in one Appalachian town and also to introduce geographic concepts into this vein of research. Behavioral economics has largely been studied by economists and sociologists, yet there is significant opportunity for geographers to participate. Introducing concepts of place identity provide new perspective on issues of social capital and potential for intervention that contribute to fostering connection to place as a means of building social capital in communities.

The game results are an indication that a high degree of social capital exists among the game participants. Offers from the Dictator Game displayed altruism as players were willing to share the money they received even without threat of punishment. Offers for the Ultimatum Game showed players were willing to make generous offers, which is certainly in the interest of not having the offer rejected, but also an indication of fairness. In the Trust Game, players were generous in their offers and in the amounts returned, showing high levels of trust and reciprocity. Finally, players were generally willing to contribute to the

Public Goods Game, even knowing that others would benefit even without contributing. This reflects other studies of the Appalachian region (e.g. Eller 2008; Keefe 2009; Fisher and Smith 2012), which indicate that high social capital may exist even in areas where economic conditions and other secondary indicators may indicate otherwise.

Additionally, the participants indicated a strong connection to Morehead and the region, and had largely a positive perception of that identity. This shared identity may contribute to the generosity exhibited in the economic games and represents an asset that may be able to be leveraged to address community challenges. This identity and positivity of Morehead identity was reinforced through observations made throughout Morehead. The day the games were conducted was Pride Day in Morehead, with a festival in downtown. Additionally, throughout town were yard signs that read in English, Arabic, and Spanish that read "No matter where you are from, we are glad you are our neighbor" (Figure 5.4). These are further indications that Morehead has a fairly high level of social capital despite the economic challenges facing the community.

It is important to note that this study is not intended to be representative of Morehead as a whole. Given the small number of participants, it is only possible to discuss the results from the game experiments as indicative of the participants, not the larger community. However, the high levels of social capital mirror the findings from the

Figure 5.4: Signs of Social Capital in Morehead (Photo by Author)

community-wide lost letter experiment, which indicates that high social capital is not just an individual attribute in Morehead. What our research provides is an example of a successful application of techniques blending behavioral economics, sociology, and geography. A meaningful opportunity for future research exists in pursuing these techniques with a larger participant pool to begin to establish results that may be meaningful at the community level.

An additional opportunity may be to utilize place identity as a variable in the actual games themselves. This might be allowing participants to see the survey results (without other identifying information) from the person they are interacting with to determine if it changes behavior. For example, would a person who identifies strongly as an Appalachian and sees that as very positive be less generous in the Dictator game if the person they were giving money to saw Appalachian identity as a negative? This would provide interesting insight into the perceptions and importance people place on identity.

Conclusion

Social capital is emerging as a resource that can be leveraged by communities to affect change. Given that social capital is a local asset, developing an understanding for how it relates to place identity and other concepts is valuable. This research is an effort to further our understanding of social capital by utilizing an interdisciplinary approach that recognizes the role that connection to place and shared identity have in social capital. Despite a small sample size, the conceptual framework and approach of this article arguably add to the discourse on social capital and represent a test case of using relatively novel methods in conjunction with local residents to foster a more robust understanding of how place identity and social capital can be assets to affect positive change in Appalachian communities.

VI. CONCLUSION

My research is intended to explore the relationship between social capital and economic outcomes in the Appalachian region from an explicitly geographic perspective. This approach contributes to the literature on this topic by placing a spatial lens on an area of research that has largely been the realm of economists and sociologists. By exploring the geographic characteristics, my research provides new insight into how social capital and economic outcomes interact and how community and economic development practitioners can engage with these concepts in a meaningful way, as discussed below.

Chapter III explored the spatial relationship between social capital and economic outcomes in Appalachia using an existing measure of social capital that is grounded in the concept and widely accepted in the literature. The Social Capital Index (Rupasingha et al. 2006) considers social capital through the lens of organizational density, as championed by Robert Putnam (1993). This is compared to the index of economic distress calculated by the ARC for every county in the Appalachian region. As expected, a strong relationship was found where areas of high social capital corresponded to low economic distress and the opposite also being true. Two areas had anomalous results (high social capital and high economic distress and low social capital and low economic distress) which represents an opportunity for future research to understand the specific characteristics that contribute to these unexpected results.

Chapter IV approaches the relationship between social capital and economic outcomes by leveraging a different aspect of social capital, that of place identity. Identity, grounded in place, contributes to shared values and norms of behavior that are the foundation of social capital (Graham 2002). Using business names that include the word

Appalachia as the metric of shared identity found a meaningful relationship between place identity as a measure of social capital and better economic outcomes. It is important to note that this may not mean a thriving economy in areas of strong identification, just that these areas performed better than other areas when controlling for relevant covariates.

Finally, Chapter V changed scale from the Appalachian region, to individuals living in Appalachia to further develop the understanding of how place and shared identity influences social capital. Using economic games to directly measure behavioral indicators of social capital (trust, reciprocity, and altruism) combined with a survey capturing connection to place at the local, state, regional, and national levels provided insight into this relationship. The findings showed that shared identity is a significant influence on social capital, as people with a positive connection to place tend to behave in a more pro-social manner.

Results from my dissertation bolster the existing literature regarding the positive relationship between social capital and economic vitality, and the role of shared identity and connection to place in that relationship. Given growing attention to social capital as a leverage point in addressing economic distress, particularly in rural areas like Appalachia, being able to point to quantifiable evidence can be important for practitioners investing in this approach.

<div align="center">Limitations and Future Research Opportunities</div>

One of the challenges facing social capital researchers is disentangling the cause and effect relationship. Although the relationship between high social capital and economic vitality has been established, the causality is less well understood (e.g. Portes 1998;

DeFilippis 2001; Durlauf 2002). My research acknowledges this limitation and does not attempt to answer the question of causality. Instead, I focus on providing additional evidence that this relationship exists, with the potential to build upon the methods utilized here to begin to address causality in future research. Currently, practitioners are working to foster social capital with the expectation that it will contribute to improved economic conditions. Future research into causality would benefit practitioners as they implement strategies to foster social capital in the expectation that it will contribute to economic growth.

A second limitation to this study is the use of a regional identifier (in this case Appalachia) in Chapter IV as the metric of shared identity. Given that social capital tends to be strongest at the neighborhood level (Nettle 2015), utilizing more local identifiers may provide more meaningful results. However, given the growing awareness and embracing of Appalachian identity (Ulack and Raitz 1982; Eller 2008) utilizing a regional identifier provides valuable insight into the activities of the ARC and other entities working to improve economic conditions across Appalachia.

Social capital can also be a leverage point to respond to environmental challenges. These often serve as a catalyst to activate communities when facing an environmental threat. Particularly in Appalachia, environmental challenges have often led to community engagement and the recognition of local capacity to respond to issues (e.g. Keefe 2009; Fisher and Smith 2012). An opportunity exists to explore these relationships to understand how the asset of social capital is activated in response to environmental threats and potentially how to foster social capital to mitigate issues before they become threats.

Finally, this dissertation focuses on the Appalachian region, which has its own unique challenges and opportunities (see Chapter II). The techniques used to evaluate this region can be applied to other regions to further develop the relationships explored in this research and to understand if the patterns seen in Appalachia are consistent across other regions. An example would be the Mississippi Delta region, which, like Appalachia, has a history of entrenched poverty and a unique heritage and identity. Additionally, studying more urban areas may also present additional insight that can inform economic interventions in those areas. My research contributes to our understanding of social capital and economic outcomes and provides an explicitly geographic approach for studying these concepts. Future research can build on this foundation and provide deeper insight for geographers, planners, and others working in this field.

<div align="center">

Policy Implications

</div>

Planning practitioners have embraced the concept of *placemaking* as a strategy to build economically sustainable places (Hou and Rios 2003). This approach focuses on improving the quality of a place through targeted infrastructure investment, aesthetic improvements, cultivation of local businesses, and arts and cultural activities that serve to create a connection between residents and that place (Haughton and Allmendinger 2008). When people feel connected to a specific place, it '…provides an important mobilizing discourse and identity for collective action, one that can obviate diverse facets of social identity in order to define a neighborhood-based polity' (Martin 2003:730). This connection to place then represents a foundational element of social capital that can create networks of people based on their relationship to their shared space.

Despite the questions regarding causality of the relationship between social capital and economic outcomes, pursuing a policy of fostering social capital as a means to building grassroots, sustainable economic change is becoming a common tactic among practitioners. This may be partly because of the fact that policies that contribute to social capital, such as placemaking discussed above, result in communities that are more desirable for people and businesses to choose to locate. Growing evidence indicates that 'amenities and other quality of life values also act as powerful influences to (1) attract non-local businesses to a region and (2) encourage existing firms to remain at their present location' (Johnson and Rasker 1995:405). By pursuing policies that improve quality of place, community development practitioners can achieve multiple goals of attracting and retaining businesses while also creating a reason for residents to connect to a place. This connection in turn fosters social capital that contributes to on-going engagement and more sustainable development with more widespread benefits than conventional economic development practices can achieve.

Social capital should not be considered a panacea for overcoming entrenched poverty and economic challenges. However, there is compelling evidence that communities with higher social capital do have better economic outcomes. Additionally, policies that foster social capital will have additional benefits to improving quality of life and sense of place, factors that also tend to promote economic activity. Considering all of this together, pursuing social capital as an avenue to creating meaningful, grassroots, sustainable change is a policy that can benefit rural communities and should be considered as part of any economic development strategy.

APPENDIX SECTION

Appendix I

During our aspatial Pearson correlation analysis, we observed that a county's United States Department of Agriculture (USDA) Economic Research Service (ERS) classification as "metropolitan" (i.e., relatively urban) or "non-metropolitan" (i.e., relatively urban) influenced the strength of the linear association between social capital and economic distress. Specifically, while the bivariate correlation between the variables is -0.542 ($p\ll0.001$), the partial correlation controlling for metropolitan classification is slightly stronger: -0.590 ($p\ll0.001$). Based on this observation, we computed Pearson correlations between our two key variables in (1) metropolitan and (2) non-metropolitan counties, separately. The results of the exercise appear in Table A1 below. As noted in the table, the linear association between social capital and economic distress is significantly and meaningfully stronger in relatively rural (non-metropolitan) counties compared to relatively urban (metropolitan) counties. Even though digging into this relationship goes beyond the scope of our project, which is aimed at three broad research questions, we wished to flag it here as an opportunity for further research. Indeed, the authors are in the process of interrogating and unpacking this relationship in a current research project.

Table A1. LINEAR ASSOCIATION (ASPATIAL) BETWEEN SOCIAL CAPITAL AND EOCNOMIC DISTRESS IN METROPOLITAN AND NON-METROPOLITAN COUNTIES, WITH 95% CONFIDENCE INTERVALS

USDA ERS Classification	Lower Bound	Pearson Correlation	Upper Bound	n
Metropolitan	-0.547	**-0.425**	-0.285	152
Non-metropolitan	-0.705	**-0.639**	-0.562	268

APPENDIX II: Participant Survey

Please identify the nearest major intersection to your home (for example E. Main St. and Elizabeth Ave.)

_____

How long have you lived in Morehead?

____<5 years ____6 – 10 years ____10 – 20 years ____>20 years

What do you consider your hometown?_____

Do you consider yourself as being from Morehead? ____Yes ____No

How important is the City of Morehead to your personal identity?

Very Important	Somewhat Important	Neutral	Somewhat Unimportant	Very Unimportant

Do you consider Morehead identity to be a positive thing?

Very Positive	Somewhat Positive	Neutral	Somewhat Negative	Very Negative

Do you consider yourself as being from Rowan County? ____Yes ____No

How important is Rowan County to your personal identity?

Very Important	Somewhat Important	Neutral	Somewhat Unimportant	Very Unimportant

Do you consider Rowan County identity to be a positive thing?

Very Positive	Somewhat Positive	Neutral	Somewhat Negative	Very Negative

Do you consider yourself a Kentuckian? ____Yes ____No

How important is the state of Kentucky to your personal identity?

Very Important	Somewhat Important	Neutral	Somewhat Unimportant	Very Unimportant

Do you consider Kentucky identity to be a positive thing?

Very Positive	Somewhat Positive	Neutral	Somewhat Negative	Very Negative

Do you consider yourself an Appalachian? ____Yes   ____No

How important is Appalachia to your personal identity?

Very Important	Somewhat Important	Neutral	Somewhat Unimportant	Very Unimportant

Do you consider Appalachian identity to be a positive thing?

Very Positive	Somewhat Positive	Neutral	Somewhat Negative	Very Negative

Do you consider yourself an American? ____Yes   ____No

How important is the United States of America to your personal identity?

Very Important	Somewhat Important	Neutral	Somewhat Unimportant	Very Unimportant

Do you consider American identity to be a positive thing?

Very Positive	Somewhat Positive	Neutral	Somewhat Negative	Very Negative

What is your age?

____18 – 25 ____26 – 35 ____36 - 45 ____46 – 55 ____56 – 65 ____65+

What is your household income?

____<$24,999 ____$25,000 - $34,999 ____$35,000 - $44,999 ____$45,000 - $54,999

____$55,000 – $64,999 ____>$65,000

What is your gender?_____

What is your educational attainment?

____Less than High School diploma ____High School Diploma / GED ___Some College ____Associates / Professional Degree ____Bachelors Degree ____Graduate Degree

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