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The Impact of Successful NCAA Division I Athletics Programs on the Social Capital of Urban Communities

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THE IMPACT OF SUCCESSFUL NCAA DIVISION I ATHLETICS PROGRAMS
ON THE SOCIAL CAPITAL OF URBAN COMMUNITIES

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of

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ABSTRACT

The Impact of Successful NCAA Division I Athletics Programs on the Social Capital of Urban Communities

by

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This study examined how urban communities might grow social capital from the passion and support offered by a college athletics program. Given the increasing emphasis on fiscal responsibility from local governments and public universities, recognizing how college athletics programs influence local community social capital, such as anchor attachments formed by alumni and fans, is an important perspective. Historically, the exhausted conversation has focused on economics, such as the economic impact of athletic venues and franchises. (Coates, 2007; Crompton, 2004). Through decades of research, social capital has been measured at various depths and viewed through social, economic, psychological, and even historical perspectives (Dluhy & Swartz, 2006; Goodsell, 1997; Prezza, Amici, Roberti, & Tedeshi, 2001; Atkinson & Fowler, 2012). The lack of research on the relationship between social capital and athletics programs drove this study.

Fifty urban universities in metropolitan statistical areas with a population greater than one million and with successful NCAA Division I football or basketball programs were examined for their impact on their local community's development of nonmonetary social capital. The success of a university athletic program was measured with an index built from winning percentage, postseason victories, and average attendance per home event. Measuring the social capital in a

community was less precise due to multiple data sets from different segments of time and with different units of measurement. Existing public policy literature focusing on social capital identified the variables of crime rates, voter turnout, and volunteer hours. I used additional variables in an existing model to determine trends and correlations on social capital index in the three years of available data and subsequent to significant years of athletic program achievements.

For 38 counties with universities matching the criteria for time periods between 1990 and 2005, the regression models indicated some positive correlations with football attendance, but the results were not statistically significant. However, the groundwork was created to meaningfully direct university officials and legislators toward a conversation on cooperation when considering funding of athletic facilities.

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CHAPTER 1: OVERVIEW

Situated in the foothills of the Appalachian Mountains, Athens, Ohio is a bubble of commerce and education in an otherwise depressed area. In my first residency in Athens in the early 2000s, Athens was a town with a scattering of fandom allegiances from colleges in other parts of the state. As a gathering place for college-aged students from the metropolitan areas of Cincinnati, Cleveland, and Columbus, Athens was clearly influenced by an assortment of professional and collegiate teams. As a traditional last place team, the doormat, of the Mid-American Conference for football and men's basketball competition, Ohio University during the 1980s and 1990s did not attract students because of its athletic prowess. For a casual fan of Ohio University athletics during the years without competitive success, the best part of attending a football game had been the marching band (Marching 110) that proclaimed itself the "Most Exciting Band in the Land."

In college athletics, there are 50 to 60 institutions and programs identified as *majors* and a larger majority of the programs referred to as *mid-majors* with smaller fiscal budgets. While football game attendance was poor even by mid-major standards, it became abysmal in the second half of every game when most of the crowd left after the Marching 110 halftime performance. After suffering through more than a quarter century of football and basketball competitive irrelevance, students and townspeople could not be faulted for placing their allegiance with sports teams from another school. Noticeably absent in Athens was the pride often associated with a team, town, and school that could draw attention for success on the athletic field.

Intercollegiate Athletic Success Influencing a Town and University

In the Fall of 2003, however, the pride of a student wearing an Ohio State University Buckeye logo – even in Athens, a college town more than 100 miles from Columbus – was unmistakable; “their” team had just topped the Miami Hurricanes for an NCAA Football National Championship. “Their” Buckeyes were the hottest team in the country. For example, although students were attending classes on campus at Ohio University on a daily basis, they were living and spending tuition checks in Athens, which was almost two hours from the Ohio State University, Ohio University students claimed ownership of the Buckeyes.

The student-athlete’s confidence has grown since 2003, and so, too, has the student body and townspeople’s confidence grown. Pride is associated with being able to claim ownership of a team that took the University of North Carolina Tarheels to the brink of defeat in the Sweet 16 in the culminating tournament of NCAA Basketball. At this point, I began to notice the power of athletic success and how it influenced a town and a university.

During a second residency in Athens from 2011 to 2013, I saw that the forward momentum and high spirit of everyone in town is significant. People were wearing the green and white colors of Ohio University in every store, restaurant, and classroom. Today, in 2016, the sights and sounds in Athens, Ohio, are very different from the sights and sounds in Athens during my first residency a decade ago. The athletic turnaround of Ohio University since 2003 is noteworthy. After averaging just over three wins per season for more than 25 years until 2005, the football team began averaging more than seven wins per season in the each of the eight years since 2005. Furthermore, Ohio University has made three trips to the NCAA Basketball Tournament in the eight years since 2005, which is the same number of trips they made to the tournament in the 25 years before 2005. Attending more Conference championships and gaining

national notoriety, the athletic programs have garnered attention for the university and for the town of Athens.

Ohio University is a rural university in a traditional college town, but the impact of the excitement of athletic success is not isolated to such environments. The success of professional teams, such as the recent arrival of the Oklahoma City Thunder, has had a similar influence on towns (Rosentraub, Swindell, & Tsvetkova, 2008). Sports psychologists have long purported that confidence can help an athlete perform at a level previously thought to be unachievable. I posit that the effect of confidence for an athlete at the individual level is a similar to effect of confidence for sports fans at the community level: an increased ability to succeed socially and economically. If having a common cause unites a community, reduces the differences among residents, and helps improve the quality of life for all, further study seems worthwhile. Seifried and Clopton (2013) stated that a community should consider factors beyond the economics of athletic venues. This study will examine the noneconomic and community factors related to athletic venues.

Social Anchors and Fan Nation

Students and alumni are emotionally attached to their university. Lifelong friends, life lessons, and careers are shaped in the short amount of time that individuals spend in university life. The *social anchor* formed in this time, and often strengthened in post collegial experiences, has been studied at length. Social anchor theory is driven by the idea of a *fan nation*. Seifried and Clopton (2013) defined fan nation as “comprised mostly of fans who are not citizens of cities and who come together through utilizing an imagined cohesiveness they share with others through the use of myths, symbols, tangible objects, and rituals” (p. 50). The role of the fan nation is

similar to other socially based associations. The alumni and fans feel significant attachments to their university and teams, and these attachments greatly influence the creation of *social capital*.

Just as Hollywood cannot be separated from its identity as the international capital of entertainment, Dallas, Texas, cannot be separated from its identity as the home of the NFL Cowboys. Social or place-based associations can also have negative connotations. It is difficult to find an individual who does not mention the unfortunate NCAA sanctions shutting down a football program often referred to as the “Death Penalty” when asked about Southern Methodist University football. As athletics have grown in importance for universities across the country, athletic departments have been referred to as the “front porch” of the university. The athletics department front porch may not be the most important part of the university house, but it is certainly the most visible part. This visibility of university athletics leads to a fan nation that serves as one of the most significant cogs in social anchor theory.

College Towns and College Sports

A town where a university’s presence “exerts a dominant influence over the character of the community” is classified as a *college town* (Gumprecht, 2003, p. 81). The college town is largely an American occurrence; across the rest of the world, universities exist, primarily, in national capitals and metropolitan areas. Prevailing theories state that college towns became commonplace in the United States because early founders believed rural areas were far better to cultivate academia (Gumprecht, 2003). In fact, as time progressed, many civic leaders envisioned their city becoming a bastion of academia or the “Athens of the West” and pushed churches and governments to found new institutions in their towns (Gumprecht, 2003, p. 57). Public issues are often amplified in college towns as the distractions of larger urban settings are absent. It is the absence of other options that leads to the great affinity these towns typically exhibit for college

sports. College sports has risen on the community priority list in college towns across the country. The stadiums and arenas on campuses “are often the most prominent buildings on the landscape. Tens of thousands of fans descend on towns for games. Such pilgrimages are economic boons and can leave a permanent imprint on the landscape and local way of life” (Gumprecht, 2003, p. 69).

Much like the lifeblood of business success in retail is dependent on the Christmas season, the lifeblood of success for many local businesses in college towns is dependent on the influx of fans during athletics seasons. Hundreds of colleges across the country help determine the identity of their town and its residents. College towns are altogether dissimilar from the cities and regions in which they are situated. The college town is an anomaly in many regions given its better educated workforce, lack of major industry, greater opportunities for cultural enlightenment, large percentage of youth, and relatively diverse population (Gumprecht, 2003). Gumprecht’s (2003) study excluded universities in state capitals or in major metropolitan areas “because the socioeconomic diversity of such places dilutes the influence of a collegiate culture” (p. 52). Given the lack of research, this study will consider universities in urban areas.

University Missions and Local Communities

Mission statements at colleges and universities are meant to provide direction and a framework for administration. Mission statements from a sample of universities reveal similar words and themes such as public research, global society, region, and local community. It is evident that college and university administrations are aware of their institutions’ important role not only in education and research, but also in their local and global community. For example, the University of California, Los Angeles mission statement states that a “primary purpose as a public research university is the creation, dissemination, preservation, and application of

knowledge for the betterment of our global society. To fulfill this mission, UCLA is committed to academic freedom in its fullest terms” (University of California at Los Angeles, 2013). The University of Nevada, Las Vegas more elaborately discussed the following:

Our commitment to our dynamic region and State centrally influences our research and educational programs, which improves our local communities. Our commitment to the national and international communities ensures that our research and educational programs engage both traditional and innovative areas of study and global concern. (UNLV, 2013)

Public perceptions of universities are often impacted by the most visible departments on campus, such as the athletic departments. To help support their mission statements, successful and forward thinking institutions have embraced this phenomenon.

Social Capital Resources Supporting Communities

Internal and external social capital supports the development of a quality-of-life foundation in a community. As university actors and community members strive to build this foundation, they “mobilize valuable resources through connections with others that would not be achievable by acting alone” (Shrestha, 2013, p. 155). The valuable resources are *social capital*; realization of the benefits of mobilizing social capital is an abstract concept that requires communities to harvest...internal resources but to also search for external knowledge (Shrestha, 2013).

Urban universities can help satisfy a large portion of the social capital process if leveraged properly. In recent memory, academics have utilized an institutional collective action framework to determine that the likelihood of collaboration from actors greatly increases when “they find that the benefits of collaboration exceed its costs” (Shrestha, 2013, p. 155). According to Shrestha (2013) and Price (2002), collaboration is unlikely to occur organically without a catalyst, and the most probable source is crisis. Crisis is simply one form of a catalyst, and this

study will hope to show that college athletic success may serve as a viable catalyst to community collaboration and creation of social capital.

The growth of communities around universities, which is referred to as “Urbanization in general, and urban sprawl in particular, changed the university-community landscape. Many universities were simply swallowed up by their local communities, becoming urban campuses not by design but by circumstance” (Martin, Phillips, & Smith, 2005, p. 2). Urban universities offer a distinctly different college environment from the traditional American college towns. Urban universities are often only one of several large employers and one of several attractions in a populous metropolitan area. As student populations exploded between 1870 and 1990, the percentage of 18 to 24 year olds enrolled in higher education rose from 1.3% to 51.1%. This shift led to a diversification of the students and universities. In addition, diversification led to universities acquiring more land in already land locked and tight urban areas. (Mayfield, 2001)

Many universities reacted to this environmental intrusion by pushing back politically, socially, and erecting barriers to help maintain the distance between town and gown. The efforts proved to be in vain as the problems – economic and social – found a way onto campus. Institutions came to the realization that separation was not a solution to the growing problem. If the new urban university was going to survive “their futures were intrinsically intertwined with those of their now surrounding communities. Thus, was born the concept of university-community partnerships” (Martin, Phillips, & Smith 2005, p. 2).

In the big picture, the urban university in America is a fairly young concept. The leadership role of these universities is still being written in many metropolitan settings across the country (Florida, 2003). The purpose of this exploratory study is to examine the relationship of urban university athletic program success and social capital variables identified in existing

literature. This study will develop a social capital index. For this study, social capital is defined as a set of resources available to help a community reach its mutual goals and will be measured with variables such as voter turnout, volunteering, and crime rates. Athletic success, in this study, will be defined through a set of available data such as winning percentage, attendance, and postseason appearances. This study will be of interest for public administrators and university officials as lack of funding options becomes a focal point. This research will establish how prior research has guided development of the conceptual framework. This presentation will also discuss research design, research questions, important definitions, and potential limitations of the study.

Conceptual Framework

Communities and universities invest untold amounts of resources to shape their brand. Departments and university personnel contribute to the building of the brand in different ways. As previously mentioned, college athletics is the symbolic front porch of the university and contributes heavily in the building of the brand. It is the examination of athletics as a social anchor and the impact on social capital that is of interest for this study. The term *community* is traditionally used in either a geographical or a social sense; the two uses are sometimes interchangeable. Modern thought, however, has increasingly developed communities “around interests and skills more than around locality” (McMillian & Chavis, 1986, p. 3).

Sociologists and psychologists continue to share an interest in this shift in community definitions and the sense of community it infers. While these ideas were originally of interest to psychologists alone, Long and Perkins (2007) noted that “it’s relation to such things as common land use, participation in community groups, social climate, and loneliness” that should raise the curiosity of public officials as well (p. 564). Long and Perkins also noted that the interest in

studying sense of community and social capital has been evident since the mid-1970s.

Communitarianism, on the other hand, is a term that has been used only with shifting meanings since the early 1990's. Hollenbach (1995) delved into the conceptual idea of communitarianism through the view of the *common good*; he believed in the importance of common good and called to action asking individuals in American culture today to transform and come together for solidaristic sensibilities. It is within these sensibilities that universities, religious communities, and other "bearers of cultural meaning and value" have the power to influence communities for the greater good (Hollenbach, p. 151).

Within any community, there are social contexts and, "Social anchor theory states ...there are social institutions that serve to anchor social networks, thereby contextualizing the community and its networks" (Clopton & Finch, 2011). Universities serve as the main anchor in college towns but are only one of many anchors in an urban environment. In the case of this study, there is significant interest in the impact on social capital and factors that may influence the indicators of community. With the attention swelling around college athletics and the continued stress from state and local governments for university personnel to justify the financial support required to operate these programs, there is a significant role the urban university should play in the community. By analyzing the data within a communitarian framework and social anchor theory, with an eye on quality of life and sense of community, this study will provide greater clarity to a confusing conversation.

Purpose Statement

The purpose of this exploratory study was to examine the relationship of urban university athletic program success and social capital variables identified in existing literature in order to develop a social capital index. For this study, *social capital* was defined as a set of resources available to help a community reach its mutual goals and was measured with variables such as

voter turnout, volunteering, and crime rates. *Athletic success*, in this study, was defined through a set of available data such as winning percentage, attendance, and postseason appearances. This study will be of interest for public administrators and university officials as lack of funding options becomes a focal point.

Research Design

Using social variable data provided from several sources, the model analyzed the impact of athletic success on an urban setting. The study relied on three different categories of independent variables. The first category was the measurable aspects of athletic success readily available from the institutions during the desired time period. A second category of variables was found by utilizing the United States Census data taken every 10 years. The third category of variables was taken from a less traditional resource and looked at social indicators within a community.

The utilization of this data allows for the creation of an index variable and the addition of further variables to an existing index which plays an important role in the evaluation of the research questions. The creation of the first index variable combined attendance, winning percentages, and postseason presence from football and men's basketball to determine a cursory definition of athletic success. The outcome index variable combined additional available social data to find a rolling definition of the social capital around the fifty universities studied. This existing social capital index variable served as the outcome variable for the study.

In an attempt to find positive correlations between urban university athletic success and quality of life in these communities, this study analyzed the addition of athletic success variables with the categories of variables discussed above against an accepted social capital index. In total, the process and number of regressions were determined as the process began. As the data were

further analyzed, some variables were redundant and some variables were assumed away if the impact was determined to be negligible.

The overarching research question that guided this study was: What is the role of urban university athletic department success on the social capital of a community? Within that question, two subquestions were considered:

1. What athletic success indicators correlate to a measurable difference in social capital of a community?
2. Is there a time lag in the effect of athletic success on the social capital of a community?

Definitions

In an effort to ensure that the conversation is correctly framed, definitions will be presented. Some of the terminology used in intercollegiate athletics is very specific to the industry, and some of the language used in describing social capital and community is also unique.

Social Anchors: A term with a wide utility which can be used to describe events, places, or structures. A social anchor must support maintenance and development of social capital and identity in a community. (Seifried & Clopton, 2013)

Communitarian: A term politicized by authors in the 1990s (Etzioni, 1995; Etzioni, 1996; Elstain, 1995) as a compromise position between individualism and socialism but originally presented as, “the value placed on one’s community and on working collectively to improve it” (Perkins & Long, 2002)

NCAA: The governing body of colleges and universities in the United States who choose to compete in athletic competition. Each institution is held to membership requirements and rules to keep institutions in a level playing field. Requirements include on-the-field and academic rules.

Division I Football Bowl Subdivision: The highest level of NCAA-sanctioned collegiate football currently played. There are 124 member institutions competing at this level in 2012. These programs are permitted to offer up to 85 full grant-in-aid (scholarships) to its players and are required to meet attendance minimums and sponsor at least 13 other competitive sports at the institution.

Division I Basketball: The highest level of NCAA sanctioned collegiate basketball currently played. There are 347 member institutions competing at this level in 2012. These programs are permitted to offer up to 13 full grant-in-aid (scholarships) to its players and are required to meet attendance minimums and sponsor at least 13 other competitive sports at the institution.

Metropolitan Statistical Area: The U.S. Office of Management and Budget and U.S. Census Bureau define geographical regions with a relatively high density population as a metropolitan statistical area. These areas are not bound by one city limit but are a grouping of multiple cities and towns. For the purpose of this study, the metropolitan statistical areas of significance will be those with greater than 1 million residents.

Limitations

There are two potential limitations to this study that need to be identified. The first limitation is the assumption that allowed the research to combine multiple data sets for the purpose of one study. Each of these data sets were taken from studies with individual limitations

and assumptions associated with the gathering of the data and it is with some risk that this study combines these sets of data into one useful data set.

A second limitation is the influence of outside factors on the community not considered for the study. As discussed previously, the identity of a community is a moving target and there are factors not included in the study that could have significant influence on the social capital. Some of these factors could be, but are not limited to, population growth, catastrophic events, professional sports, and national events just to name a few.

Significance of Study

The implications of this study will go beyond an academic analysis of the social capital. With little preexisting research examining the role of university athletics in an urban setting, public administrators are often left to their own resources when determining a course of action when presented with an athletic facility partnership opportunity from a university. Economists have long sought to provide an account of the positives and negatives an athletic program can play on the community, but utilizing the social impact is the path less frequently traveled.

In addition to assisting public administrators make a better informed decision, the study is also useful to university administrators. As higher education continues to lose funding from state and local sources, the emphasis to find unique revenue sources is vitally important. With the competition for state-of-the-art facilities growing at all NCAA institutions, the stress for additional funding does not appear to have an end in sight. Having the information readily available when analyzing a partnership for funding with city or state officials is invaluable and the appropriate resources should be devoted to the cause.

Summary

This chapter has established a basic presentation of the history of the topic and set forth the direction for the study. While studies previously conducted on the impact of athletic success is varying, there has not been a comprehensive look at the influence from the perspective of urban universities. The quantitative study presented here provides an analysis of that perspective.

Preconceptions and hypotheses are expected for researchers, but allowing these to influence the design is not permissible. In building a study based on existing data and literature, it is vitally important to be aware of preconceived beliefs and the potential implications. In the coming chapters, there will be an in-depth look at where the existing literature stands and the best practice for the ways to evaluate available data.

CHAPTER 2: LITERATURE REVIEW

As previously mentioned, the existing literature for this study includes research from sociologists, economists, and several other disciplines. The “engaged university” is a theory that gained popularity as it became evident that the town gown relationship needed to be nurtured, specifically in an urban setting. As the research and educational needs of a community were identified, the university “integrate[d] the teaching, research, and service functions...in an interdisciplinary manner; and promote[d] partnerships with public agencies and the community for broad public affairs and civic interests” (Mayfield, 2001, pp. 231-232). In many ways, when universities chose to embrace the community, they reaffirmed the original mission of early land grant colleges in the 19th century that were tasked with providing public agricultural services in return for federal aid (Mayfield, 2001).

The focus on civic engagement by universities has been steadily increasing since the 1980s. Ostrander (2004) concluded that “a movement is emerging” to include higher education professional organizations and major academic publications, and, as recently shown, attention to civic engagement continues to grow. The idea of the engaged university is not a new philosophy. John Dewey (1916) and Jane Adams (1938) organized “contemporary community service learning initiatives, and led by organizations like the National Society for Experiential Education and Campus Compact” (Ostrander, 2004, p. 75). The prevailing school of thought was that universities needed to address and have links to real world issues in the community in order to remain socially significant.

Social Anchor Theory and Social Capital

Social anchor theory is an intuitive theory based largely on common sense. Social anchors first entered the literature in the 1990s (Clopton & Finch, 2011). A social anchor in the

community is any institution “that acts as a support for the development and maintenance of social capital and social networks. Social anchors may range from schools, sports, corporations, or natural structures” (Clopton & Finch, 2011, p. 70). Despite this broad definition, surprisingly few institutions can be classified as social anchors. The institution must assist in social capital development through bridging and bonding of community members while reaching across gender, race, and other boundaries by providing a collective identity for community members (Clopton & Finch, 2011).

Social anchors are often relevant to the community size. It is difficult for a small institution to influence the social capital of an urban community with dense populations. Keeping in mind that most communities are identified by “a locality, a local society, collective actions, and mutual identity,” a social anchor must be able to influence each of these facets (Clopton & Finch, 2011, p. 71). It is a simple assumption that a university in a college town fits this definition but a more complex determination that a university in an urban setting fits this definition and has the appropriate influence in the community to serve as a social anchor.

Social capital is one of the foundations of social anchor theory, and “Putnam’s (2000) seminal work on social capital and civic groups based social capital upon the quality of relationships that individuals maintain” (Seifried & Clopton, 2013, p. 50). Two of the most important facets of social capital are trust and norms of reciprocity (Bridger & Alter, 2006). Sports facilities are visibly significant parts of social capital in a society “because they serve as important sites for the socialization of community members and represent the social image of a community” (Seifried & Clopton, 2013, p. 51).

Discussing sense of community and the role of the individual in building a community requires utilizing the concept of social capital. Over the past decade, social capital has been

exhaustively studied by political scientists, sociologists, and applied economists (citations). Social capital has been as important to these fields as sense of community has been to community psychologists (Perkins & Long, 2002). Perkins and Long (2002) noted that “social capital is the norms, networks, and mutual trust of ‘civil society’ facilitating cooperative action among citizens and institutions and has had considerable influence on political thinking...by contrast, sense of community has been conceived of and measured by most researchers as an individual-level construct” (p. 291).

Social capital is an important concept to consider for this study. Perkins and Long (2002) found a significant relationship between social capital and successfully revitalized inner-city housing. As further proof of the integration of the two ideas, sense of community registers as one of the four distinct components of Perkins and Long’s (2002) social capital figure demonstrated in Table 1. Sense of community, in this framework, is an “indicator of quality of community life and a catalyst for both behavior dimensions of social capital: organized participation and informal neighboring” (p. 294).

Table 1

Variable Constructs

	Cognition/Trust	Social Behavior
Informal	Sense of Community	Neighboring
Formally Organized	Collective Efficacy	Citizen Participation

Note. Source is Perkins and Long, 2002, p. 294.

History of Community

As universities shift focus toward better engaged communities, there is a need to understand the idea of community. Puddifoot studied community identity in the 1990's and early 2000's. Although Puddifoot based his 1995 article, "Dimensions of Community Identity," on studies conducted in the United Kingdom, he provided useful background and the history of defining community. In 1955, there were more than ninety "different definitions of community cited in the contemporary literature" (Puddifoot, 1995, p. 359). Social and political scientists have had an on-and-off relationship with the importance of community identity since the 1960's. In the 1980's, modern focus shifted from geographic definitions to "the direction of primary groups, friends, neighbors, and kin, i.e., a reevaluation of the tradition of community based on social relations" (Puddifoot, 1995, p. 358).

McMillan and Chavis (1986) clearly noted two definitions of community: the geographic definition is a historical term and the relational definition is "concerned with 'quality of character of human relationship, without reference to location'" (p. 3). The relational definition of community is the more relevant today. Delving further into the study of community, the concept of sense of a community was addressed by many psychologists, economists, and academics since first defined in the 1970's. The concept of sense of a community "has also been studied cross culturally in its relation to such things as common land use, participation in community groups, social climate, and loneliness" (Long & Perkins, 2007, p. 564).

To better understand sense of community, Long and Perkins (2007) defined terms such as citizen participation, neighboring behavior, block satisfaction, and block confidence. Neighboring behavior, which speaks to the concept of informally assisting other community members through social support and contact, may be a direct predictor of the likelihood that an

individual will join a block association (Long & Perkins, 2007). Block satisfaction and block confidence relate to individual perception of their place attachment and block future rather than any individual action (Long & Perkins, 2007). Citizen participation in organizations helps increase the social capital of a community (Long & Perkins, 2007) that is particularly impactful to this study as it discusses participation in organizations that help increase the social capital of a community.

Establishing and nurturing a strong sense of community increases sense of control and decreases sense of an external threat (McMillan & Chavis, 1986). However, measuring psychological sense of community is a complex process with more than 200 identifiable behaviors and 120 ideal characteristics (McMillan & Chavis, 1986). McMillan and Chavis (1986) proposed a four element definition for sense of community: “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that member’s needs will be met through their commitment to be together” (p. 4).

Individual Role and Community

Long and Perkins (2007) acknowledged the importance of community for individuals when they speculated that “sense of community may result from an interaction of individual and collective resources. Perceptions of group cohesion may thus derive, for example, from a combination of personal education and social capital resources” (p. 568). Puddifoot (1995) also posited that community identity was a key factor in an individual’s self-identity and that citizens of smaller communities often placed a greater emphasis on this identification. In addition to self-identity, citizens also cared about the public image of their community—they felt defensive about local traditions and their portrayal by mass media (Puddifoot, 1995; Puddifoot, 1996).

From the individual perspective, McMillan and Chavis (1986) indicated that a positive correlation between social capital and community competency was most strongly predicted by time as a community resident, community satisfaction, and number of neighbors the individual can identify. As previously discussed, social capital is vital to the success of a community. Individuals with “high self-reported levels of sense of community...distinguish[ed] those who participated in block associates from those who did not” (McMillan & Chavis, 1986, p. 2). Given the significant role of the individual in sense of community, this proposed research study will include analysis of crime rates and the potential for the negative effect that a fear of crime can have on community bondedness, residential roots, and social interaction (McMillan & Chavis, 1986; Perkins, Florin, Wandersman, & Chavis, 1990).

Each of McMillan and Chavis’ (1986) four elements of sense of community—membership in the community, personal investment to the community, integration and fulfillment of individual needs, and a shared emotional connection—have played a key role in the analyzing an urban university athletic program’s influence on a community. In addition, for a smoothly functioning integration between community and individual, the community must provide a common symbol system (McMillan & Chavis, 1986). A university athletic department can fulfill each of these elements as it presents individuals with a common symbol of unification that encourages membership (ticket redemption), personal investment (time), fulfillment of needs (entertainment option), and shared emotional connection (cheering for the home team).

Quality of Life

Many noneconomic factors should be examined when determining indicators of social capital. Quality of life has been studied for its influence on economics and community health. For example, “The Economist Intelligence Unit’s quality of life index” used the measurable

constructs of material wellbeing, health, political stability, family life, community life, climate, job security, political freedom, and gender equality (Pol & Ville, 2009). Although study researchers examined a long list of measurable factors, they decided to ignore education levels, the rate of real gross domestic product, and income inequality (Pol & Ville, 2009).

University Fund Raising and Roles

University administrators are being tasked to do more to support the community with less funding. Fund raising is a significant force on college campuses fighting to stay financially solvent. According to Clotfelter (2003), in the 1999-2000 academic year, \$4 billion dollars was raised to support 566 private institutions and accounted for 8.6% of educational and general expenditures. Individuals are the donation of university fund raising efforts. The five reasons for individual charitable donations to an organization included “because they care about the wellbeing of recipients; contributions are merely a payment for recognition and organized flattery; donors derive utility from the act of giving itself; donors give in response to social pressure; and giving is motivated by commitment, not utility maximization” (Clotfelter, 2003, p. 110). Of these five reasons, there are three similar reasons that typically apply to higher education: ties to reunion years, fraternity and family ties at a university, and subjective feelings toward a university (Clotfelter, 2003). Clotfelter (2003) also discovered three other factors that positively influenced charitable donations to a university: “attending a college that was the person’s first choice, having a mentor during college, and being very satisfied with life in general” (Clotfelter, 2003, p. 114). Two final suggestions were posited by Clotfelter: “Those who graduated from private liberal arts colleges donated more regularly than those who attended (public) universities. In addition, alumni who received need-based aid were less likely to donate sooner than those who had family as alumni” (Clotfelter, 2003, p. 120).

Leslie and Ramey (1988) investigated the increasing pressure on institutional budgets and the resources being used to fix the shortages. Institutions were focusing more on outside donors to supplement state budgets. The significant decline in available resources for institutions has added pressure to the institutions to reach out for voluntary fiscal support from alumni, non alumni individuals, foundations, businesses, religious groups, and other organizations (Leslie & Ramey, 1988). The largest supporting group for institutions has been individual donations (both alumni and non alumni individuals), while the overall financial support by non individual entities has been closely influenced by economic growth (Leslie & Ramey, 1988).

Leslie and Ramey (1988) stated, “Because characteristics and relationships are often controllable by the institution, an understanding of the gift-giving relationship between donors and individual institutions could be very useful in developing effective fundraising strategies” (p. 117). For example, research has demonstrated that tax incentives have decreased in importance as a motivating factor for donating to a higher education institution (Leslie & Ramsey, 1988). The more influential factors for donating to a higher education institution have been the market value of endowment, the number of alumni, the cost of attendance, and the percentage of the senior class attending graduate school.

Supiano (2008) acknowledged that fundraisers at small and large universities across the country were now being asked to raise more money for financial aid than ever before. Small schools were looking for funding to match the larger schools that are capable of recruiting the best students. Larger schools were looking for funding for financial aid because other funds were often earmarked for special projects not associated with financial aid. As of 2008, colleges were spending 20% or more of their operating budgets on student aid. Even the largest institutions

have had many restrictions on their endowments that prevented spending on financial aid (Supiano, 2008).

At a time when budgets are being cut and the economy is slowing, creatively locating increased funding is a difficult task. The good news is that asking for financial aid donations is sometimes the easiest donation ask because the donors feel a personal connection to the students more so than with other types of donations (Turner, Meserve, & Bowen, 2001). To help establish the personal connection, schools are using students in capital campaigns and bringing them to events across the country. Alleviating students' financial concerns has a secondary impact of making their college experience more enjoyable and, therefore, increasing the likelihood that they will donate later in life (Turner et al., 2001).

Baade and Sundberg (1996) appeared to cover a topic that is in line with the direction of this study. The article established a positive correlation between the success of alumni donations and athletics. The authors analyzed the effects of football and men's basketball team success, but also explored additional factors indirectly influencing alumni giving. They concluded that athletic team success did not directly influence alumni giving, but athletic team appearance in a postseason game did positively influence giving. Postseason alumni giving was most often associated with a successful season. The end result is that a postseason appearance legitimizes a successful season and gives further motivation to alumni to contribute (Baade & Sundberg, 1996a, p. 800). The authors also saw a difference between smaller liberal arts institutions and the larger state universities in giving and athletics success. The final point discussed by the authors was that the positive correlation was not large enough to use as the single driving force in capital campaign drives.

Further delving into the topic of alumni giving, Baade and Sundberg (1996b) asserted that two factors were more influential than others in determining donation amounts at universities: the wealth of student body and the quality of educational experiences. The researchers tested these two assumptions by studying three types of schools: public doctoral granting, private doctoral granting, and liberal arts schools. They found that although donations were affected by these two factors, donations were also directly influenced by the efforts of the development office at the university. The literature examined for Baade and Sundberg's (1996b) study of the student bodies at 125 institutions supported three claims. First, as the wealth of a student body increases donations were found to increase. Second, institutional quality matters to those choosing to donate to a university. Third, voluntary support at a university helps increase donations. The 125 institutions were selected based on "demographics, financial information, and student ability" (Baade & Sundberg, 1996b, p. 77). Baade and Sundberg concluded that if a university hoped to overcome budget problems with alumni donations, three factors would help the most: admissions policies (help increase quality of students), quality of experience (better experience in school equals better donations), and expenditures on development (more effort equals more donations).

Cheslock and Gianneschi (2008) analyzed the influences of state appropriations on higher education budgets and, in turn, the need for fund raising. They found that while state appropriations toward higher education fluctuated, the downward fluctuations were typically more than the increases. This continued decrease was a problem, but the amount of money received from state appropriations was still significant number in the overall budget. Universities that acquired a disproportionate percentage of a budget would continue to widen the gap because "advantage begets advantage" (Cheslock & Gianneschi, 2008, p. 209). Research has shown the

true problem: as appropriations fall, so, too, does the ability to raise revenues from other sources including development and fundraising. Donors choose to give to higher education for several complicated reasons, and some are affected by state appropriations more than other reasons. Higher influencing factors for alumni donating included interest in a specific educational activity that was not affected by state funding, a specific activity or research that was negatively affected by a lack of state funding, and funding that increased the quality of the program (Cheslock & Gianneschi, 2008).

On the contrary, Ferris, Hentschke, and Harmssen (2008) investigated charitable donations from foundations from the perspective of K-12 education. Although they did not address universities, their research did provide a sound foundation for how or why foundations chose to contribute. A serious drop in the quality of K-12 education has increased donor awareness and raised the importance of corporate funding. According to Ferris, Hentschke, and Harmssen (2008):

Foundation engagement in public policy is an important role for philanthropy. However, in general, engaging in public policy is risky for foundations. Policy making is a complex process and open-ended proposition. It is messy, unpredictable, and beyond the control of any individual or organization. (p. 707)

Foundations can help in fiscal ways and in non-fiscal ways, such as assisting with knowledge and networking.

Individual alumni have not been the only important resource of donations for a university. Corporations often use local universities as a resource and, in many cases, decide to contribute financially to these institutions. Since 1975, philanthropic activity from all sectors of the economy has increased by 1200%, which is a 400% increase when adjusted for inflation (Guthrie, Arum, Roksa, & Damaske, 2008). Furthermore, in 2000 alone, Fortune 100 corporations donated \$2 billion cash and close to \$11 billion in total gifts.

Corporate giving first arose during the Progressive era in 1917 when states began to award benefits to corporations who gave to charity. Since legislation was first passed, two major modifications have been made. The first modification was made in 1935 when government allowed businesses to write off five percent of profits to charity. The second modification was made in 1981 when the Economic Recovery Act permitted businesses to write off 10% of profits to charity. Some of the more popular and proven reasons for giving by corporations include corporate philanthropy as advertising, connection with constituencies, investment in community, response to economic forces, and conscious commitment to impacting the surrounding communities of a corporation (Guthrie et al., 2008). Among other factors the researchers identified, corporate structure had a significant role in philanthropic decisions. Corporations with a formal structure to guide philanthropy and programs articulating a priority of giving were proven to give to charitable organizations with more frequency. Further analysis of corporate giving showed that “Corporations do not appear to respond to the standard markers of ‘need’” (Guthrie et al., 2008, p. 869). However, the researchers also showed that the “higher the corporate tax rate the more likely corporate giving will be directed toward the funding of local institutions” (Guthrie et al., 2008, p. 869).

Tsao and Coll (2005) scrutinized alumni donations from a unique perspective. This study of alumni from a journalism and mass communication education program identified three major factors that contributed to alumni’s choice to contribute financially to a program. First, and relevant to my research, researchers analyzed *segmented giving* – a title that is often associated with fundraising activities in an athletic department. Second, researchers analyzed demographics associated with the alumni who chose to donate. The final determination of the study was that for “program plans to increase alumni giving, it is suggested that the program diligently attempts to

assure student and alumni satisfaction with the competence of faculty, quality of instruction and course offering...” and continues by discussing additional suggestions (Tsao & Coll, 2005, p. 390). Although this article did not discuss policy pressures or influences on giving, it did provide some foundation for this exploratory study set to examine the relationship of urban university athletic program success and social capital variables identified in existing literature.

Summary

As I set out to examine the relationship of urban university athletic program success and social capital of a community, I am reminded that this study is intended to develop a better understanding, for public administrators, of the potential positive impact of college athletics. This understanding builds on the works in this field that were previously discussed in this chapter. The next chapter will concisely present the methods of inquiry for this study as well as demonstrate how this work will build on previous research and bridge the existing gap between economic research and social capital literature.

CHAPTER 3: RESEARCH METHODS

Disputes regarding public investment on the seemingly unjustifiable athletics venues have become an increasingly important topic in intercollegiate athletics and public administration over the last decade. The hundreds of millions of dollars, both public and private, committed to major college athletic programs, appear to be growing exponentially. The purpose of this study was to (a) investigate the contribution of noneconomic measures of athletic programs on social capital in the communities nearby the 50 urban universities in the United States with NCAA Division I basketball and football teams and (b) determine which aspects of the Division I urban athletics programs should be taken into account in a public conversation about financing. This chapter discusses the research methods, variables, data types and sources, and analyses that will be used to examine the relationship between a community's social capital and a university athletic program's success.

Research Question and Benefit Correlation Analysis

With the aim to investigate the relation between development of social capital and an urban university's athletic success, this study regressed the variables discussed earlier, including socioeconomic and athletic success, with a previously accepted social capital index provided by the Northeast Regional Center for Rural Development. This set up was used to demonstrate the complexity in measuring the social capital of a community and to introduce a noneconomic reasoning for or against pursuing a public financing option for development of athletic facilities. Multiple regression analysis is a flexible method of data analysis and is therefore the best fit for examination of these factors. More specifically phrased, "What athletic success variables contribute to the accumulation of social capital of a community?" This question will be

examined with SPSS through a correlation analysis to measure whether there is a measurable connection between these factors indicating the social capital in a community.

Research Design

Using socioeconomic covariate data and athletic success data from various sources, the model was anticipated to help analyze the impact of athletic success on an urban setting. The study employed one set of independent variables and one set of covariates. The first set of athletic success measures was readily available from the institutions during the time period of the study. The second set of covariates was found utilizing the United States Census data taken every ten years and variables taken from a few less traditional resources that looked at social indicators within a community.

To investigate relations between urban university athletic success and quality of life in these communities, this study regressed the categories of variables discussed above. A further analysis of the research question led to the speculation, “Is there a sensitivity of the temporal lag in the effect of athletic success on the social capital of a community?” This question resulted in the formation of three additional models for each time period examined with SPSS through coordination with the social capital index to determine a correlation by selecting athletic measures in the year prior to the social capital measures, as well as a three years prior average, and a five years prior average.

Scale and Data Source of Study

Temporal Scale (Model 1 and Model 2)

Identifying the temporal scale is critical when choosing to compare multiple sets of existing data. The temporal scale for this study was three distinct time periods (1990, 1998, and 2005). The data pulled from these three time periods allowed for the formation of two models

between 1990 and 1998 and between 1998 and 2005. While regression Model 1 investigated the temporal change between 1990 and 1998, Model 2 investigated the temporal change between 1998 and 2005. Each model had three additional models (1, 2, 3, 4, 5, 6, 7, and 8) to examine a potential temporal lag of the athletic and socioeconomic measures of 1-year, 3-year, and 5-year average.

Spatial Scale (Counties, Institutions)

Similarly, having a well-defined spatial scale was vital in setting up a research model. The spatial scale in this study was at county level, determined by the 50 institutions that matched the preset conditions shown in Appendix A. The data was pulled at county level for each of the counties that contained these institutions listed in Appendix B.

Data in Study

As discussed in Chapter 2, the distinction between the quality of life in a community and the social capital were not always clear in previous studies. The following section examines some existing variables and conceptual areas of independent variables in an effort to investigate the impact of these variables on social capital accumulation in an urban setting. The complete starting list of the variables is available in Table 2.

Table 2

Variables and Data Sources

Types of Data and Sources			
Socioeconomic Community Data		Athletic Success Program Data	
Data Name	Source	Data Name	Source
Poverty rate (county)	US Census	Football attendance average	Institution
Volunteer rate (county)	Volunteering in America	Men's basketball attendance average	Institution
Business lawsuits filed (county annually)	Various county reporting methods	Football winning percentage	Institution
High school grad rate (percentage per county)	Various county reporting methods	Men's basketball winning percentage	Institution
Violent crime rates (county per capita)	US Census	Football postseason appearance	Institution
Building Permits Valuation (county per capita)	US Census	Men's Basketball postseason wins	Institution

Data for Covariates and Independent Variables**Economic Covariate #1: Poverty Rate (povrate90, povrate00, and povrate10)**

The poverty rate of a county is measured by the U.S. Department of Commerce, and more specifically, the U.S. Census Bureau (2008). Poverty is an important indicator in the health of a community, and “economists from the World Bank reported that social capital, which is characterized by trust and social bond, played an important role in poverty reduction” (Sun, Rehnberg & Meng, 2009, p. 2). The social capital variable was measured as a percentage of the county population below poverty level and expected potential to indicate the improvement of quality of life in a county. Unfortunately, the poverty rate is only measured in the census conducted every 10 years, leading the study to make some assumptions in using data from 1990, 2000, and 2010 to fit the time periods for these models (1990-1997 and 1997-2005).

Economic Covariate #2: Unemployment (unemployment90, unemployment97, unemployment05)

The health of an economy is often measured by the unemployment rate. These statistics are retrieved from the United States Census Bureau (“USA Counties,” 2008). This data is more readily available than the poverty rate and matched up for each year of the models.

Athletic Success Measures: Football Attendance Average (1), Men’s Basketball Attendance Average (2), Football Winning Percentage (3), Men’s Basketball Winning Percentage (4), Football Postseason Appearance (5), And Men’s Basketball Postseason Wins (6)

The statistics for athletic success measurables are obtained from the member institutions that fit the designated criteria. Football and Men’s Basketball attendance average will be measured as a percentage of total capacity. Football and Men’s Basketball winning percentage will be measured against winning 100% of the games.

Football postseason appearance will be treated as a dummy variable with a “1” indicated as a bowl appearance and “0” indicated for non bowl eligibility. Basketball postseason wins will be a range number from “0” to “6” indicating a National Championship. An appearance in the NCAA postseason tournament will be indicated “1” to “6” to distinguish the institution from a nonappearance season. Appearances and wins in other basketball postseason tournaments not considered the official NCAA postseason tournament will receive a maximum indication of “1.”

Analysis of the Data

This study examined the impacts of athletic success in addition to traditional socioeconomic factors on social capital accumulation that enhance community identity in urban settings near major university athletic programs. In the regression models, the set of socioeconomic variables were used as control variables to test the roles of college athletic program to improve social capital in communities.

Dependent Variable

The Northeast Regional Center for Rural Development (NRCRD, 2013) data set created a composite social capital index using principal components analysis (2013). Per the NRCRD,

the principal components analysis are total associations (assn90) per 10,000 people, number of not-for-profit organizations (nccn90) per 10,000 people, census mail response rate for 1990, and vote cast for president in 1988 divided by total population of age 18 and over in 1990.

This analysis assigns a ranging aggregate index per county that can be negative or positive.

Independent Variables

The independent variables, X , were taken from the twelve sets of raw data previously discussed in the text. There were six sets of data for athletic program success and six sets of data for socioeconomic measures. The variables were the difference in the three distinct time periods of the available data. As explained earlier in the text, these variables were FBAtt, MBBAtt, FBWinPct, FBPostApp, MBBPostW, Poverty, Volunteer, BizLawSuit, HSGrad, ViolentCrime, and BldgPerm.

Regression Models

The two regression models in this study covered two different time periods to investigate temporal changes. The temporal difference or change in each variable between 1990 and 1998 served as Model 1, and the change between 1998 and 2005 served as Model 2. The model utilized for this process follows:

$$Y_{rt} = \beta_0 + \beta_1 X_{rt}$$

In these models, the temporal change in the social capital index (Northeast Regional Center for Rural Development, 2013) was indicated by Y with a reference of r and t . Where r is the region or county for the institution chosen and t is the time period of reference (1990-98, or 1998-2005) for the data. On the other side of the equation, X is the change in each of the independent

variables for a specific region (r) and time periods (t). Within these specifications, there are two models with three variations of each for a total of eight models that will be discussed in further detail later in the text.

Each of the three variations was created in an effort to examine the potential of a temporal lag of the impact of the independent variables. The eight models will be explained utilizing the available raw data term tables in Appendices D, E, and F.

Model 1. Model 1 assumed no temporal lag and used the dependent variable found in the difference or change from the 1990 and 1998 Social Capital Index provided by the NRCRD. The independent variables were the change in raw data from ROW1 and ROW5 from Period A (Appendix C) and Period B (Appendix C). For example, the first independent variable was the change in FBAtt-90 (Cell 1-AA in Appendix C) and FBAtt-98 (Cell 1-BA in Appendix D). The final list of independent variables for Model 1a can be seen in Table 3 below.

Model 2. Model 2 assumed a one-year temporal lag for independent variables and used the dependent variable found in the difference or change from the 1990 and 1998 Social Capital Index provided by the NRCRD. The independent variables were the change in raw data from ROW2 and ROW6 from period a (Appendix C) and period b (Appendix C). For example, the first independent variable was the change in FBAtt-89 (Cell 2-AA in Appendix C) and FBAtt-97 (Cell 2-BA in Appendix D). The final list of independent variables for Model 2 can be seen in Table 3 below.

Model 3. Model 3 assumed a three-year average temporal lag for independent variables and used the dependent variable found in the difference or change from the 1990 and 1998 Social Capital Index provided by the NRCRD. The independent variables were the change in raw data from ROW3 and ROW7 from Period A (Appendix C) and Period B (Appendix C). For

example, the first independent variable was the change in FBAtt-87/89 (Cell 3-AA in Appendix C) and FBAtt-95/97 (Cell 3-BA in Appendix D). The final list of independent variables for Model 3 can be seen in Table 3 below.

Model 4. Model 4 assumed a five-year average temporal lag for independent variables and used the dependent variable found in the difference or change from the 1990 and 1998 Social Capital Index provided by the NRCRD. The independent variables were the change in raw data from ROW4 and ROW8 from Period A (Appendix C) and Period B (Appendix C). For example, the first independent variable was the change in FBAtt-85/89 (Cell 4-AA in Appendix C) and FBAtt-93/97 (Cell 4-BA in Appendix D). The final list of independent variables for Model 4 can be seen in Table 3 below.

Table 3

List of Models 1-4 Independent Variables

		COLUMNS					
		T1A	T1B	T1C	T1D	T1E	T1F
		Variables for Models 1 through 4 (1990-1998) = T1					
ROWS		Football Attendance	Basketball Attendance	Football Winning Percentage	Men's Basketball Winning Percentage	Football Bowl Game Appearance	Men's Basketball Postseason Wins
	1	FBAtt-90:98	MBBAtt-90:98	FBWinPct-90:98	MBBWinPct-90:98	FBPostApp-90:98	MBBPostW-90:98
	2	FBAtt-89:97	MBBAtt-89:97	FBWinPct-89:97	MBBWinPct-89:97	FBPostApp-89:97	MBBPostW-89:97
	3	FBAtt-87/89:95/97	MBBAtt-87/89:95/97	FBWinPct-87/89:95/97	MBBWinPct-87/89:95/97	FBPostApp-87/89:95/97	MBBPostW-87/89:95/97
	4	FBAtt-85/89:93/97	MBBAtt-85/89:93/97	FBWinPct-85/89:93/97	MBBWinPct-85/89:93/97	FBPostApp-85/89:93/97	MBBPostW-85/89:93/97
		Poverty Rate	Volunteer Rate	Business Law Suits Filed	High School Grad Rates	Violent Crime Rates	Building Permits
	5	Poverty-90:98	Volunteer-90:98	BizLawSuit-90:98	HSGrad-90:98	ViolentCrime-90:98	BldgPerm-90:98
	6	Poverty-89:97	Volunteer-89:97	BizLawSuit-89:97	HSGrad-89:97	ViolentCrime-89:97	BldgPerm-89:97
	7	Poverty-87/89:95/97	Volunteer-87/89:95/97	BizLawSuit-87/89:95/97	HSGrad-87/89:95/97	ViolentCrime-87/89:95/97	BldgPerm-87/89:95/97
	8	Poverty-85/89:93/97	Volunteer-85/89:93/97	BizLawSuit-85/89:93/97	HSGrad-85/89:93/97	ViolentCrime-85/89:93/97	BldgPerm-85/89:93/97
		T1A	T1B	T1C	T1D	T1E	T1F

Model 5. Model 5 assumed no temporal lag and used the dependent variable found in the difference or change from the 1998 and 2005 Social Capital Index provided by the NRCRD. The independent variables were the change in raw data from ROW1 and ROW5 from Period B (Appendix D) and Period C (Appendix E). For example, the first independent variable was the change in FBAtt-98 (Cell 1-BA in Appendix C) and FBAtt-05 (Cell 1-CA in Appendix D). The final list of independent variables for Model 5 can be seen in Table 4 below.

Model 6. Model 6 assumed a one-year temporal lag for independent variables and used the dependent variable found in the difference or change from the 1998 and 2005 Social Capital Index provided by the NRCRD. The independent variables were the change in raw data from

ROW2 and ROW6 from Period B (Appendix D) and Period C (Appendix E). For example, the first independent variable was the change in FBAtt-97 (Cell 2-BA in Appendix C) and FBAtt-04 (Cell 2-CA in Appendix D). The final list of independent variables for Model 6 can be seen in Table 4 below.

Model 7. Model 7 assumed a three-year average temporal lag for independent variables and used the dependent variable found in the difference or change from the 1998 and 2005 Social Capital Index provided by the NRCRD. The independent variables were the change in raw data from ROW3 and ROW7 from Period B (Appendix D) and Period C (Appendix E). For example, the first independent variable was the change in FBAtt-95/97 (Cell 3-BA in Appendix C) and FBAtt-02/04 (Cell 3-CA in Appendix D). The final list of independent variables for Model 7 can be seen in Table 4 below.

Model 8. Model 8 assumed a five-year average temporal lag for independent variables and used the dependent variable found in the difference or change from the 1998 and 2005 Social Capital Index provided by the NRCRD. The independent variables will be the change in raw data from ROW4 and ROW8 from Period B (Appendix D) and Period C (Appendix E). For example, the first independent variable was the change in FBAtt-93/97 (Cell 4-BA in Appendix C) and FBAtt-00/04 (Cell 4-CA in Appendix D). The final list of independent variables for Model 8 can be seen in Table 4 below.

Table 4

List of Models 5-8 Independent Variables

		COLUMNS						
		T2A	T2B	T2C	T2D	T2E	T2F	
		Variables for Models 5 through 8 (1998-2005) = T2						
		Football Attendance	Basketball Attendance	Football Winning Percentage	Men's Basketball Winning Percentage	Football Bowl Game Appearance	Men's Basketball Postseason Wins	
	1	FBAAtt-98:05	MBBAtt-98:05	FBWinPct-98:05	MBBWinPct-98:05	FBPostApp-98:05	MBBPostW-98:05	Model 5
	2	FBAAtt-97:04	MBBAtt-97:04	FBWinPct-97:04	MBBWinPct-97:04	FBPostApp-97:04	MBBPostW-97:04	Model 6
	3	FBAAtt-95/97:02/04	MBBAtt-95/97:02/04	FBWinPct-95/97:02/04	MBBWinPct-95/97:02/04	FBPostApp-95/97:02/04	MBBPostW-95/97:02/04	Model 7
	4	FBAAtt-93/97:00/04	MBBAtt-93/97:00/04	FBWinPct-93/97:00/04	MBBWinPct-93/97:00/04	FBPostApp-93/97:00/04	MBBPostW-93/97:00/04	Model 8
ROWS								
		Poverty Rate	Volunteer Rate	Business Law Suits Filed	High School Grad Rates	Violent Crime Rates	Building Permits	
	5	Poverty-98:05	Volunteer-98:05	BizLawSuit-98:05	HSGrad-98:05	ViolentCrime-98:05	BldgPerm-98:05	Model 5
	6	Poverty-97:04	Volunteer-97:04	BizLawSuit-97:04	HSGrad-97:04	ViolentCrime-97:04	BldgPerm-97:04	Model 6
	7	Poverty-95/97:02/04	Volunteer-95/97:02/04	BizLawSuit-95/97:02/04	HSGrad-95/97:02/04	ViolentCrime-95/97:02/04	BldgPerm-95/97:02/04	Model 7
	8	Poverty-93/97:00/04	Volunteer-93/97:00/04	BizLawSuit-93/97:00/04	HSGrad-93/97:00/04	ViolentCrime-93/97:00/04	BldgPerm-93/97:00/04	Model 8
		T2A	T2B	T2C	T2D	T2E	T2F	

CHAPTER 4: RESULTS

As stated in Chapter 1, the purpose of this exploratory study was to examine the relationship of successful NCAA Division I urban university athletic programs and the social capital of urban communities. An existing social capital index, economic data, and existing athletic success data were used. Athletic success was defined using a set of available data, such as winning percentage and attendance for football and men's basketball.

Social variable data from several sources was used in the model for analyzing the impact of athletic success on an urban setting. The study relied on three categories of variables. The first category measured aspects of athletic success available from the institutions during the desired time period. A second category of variables was United States Census data. The third category of variables was social indicators within a community, which was taken from a less traditional resource.

To find correlations between urban university athletic success and quality of life in these communities, the additional variable of athletic success, which included the categories of variables discussed above, was analyzed against an accepted social capital index. The final number of regression models was determined as the process progressed. As the regressions were analyzed, some counties were removed due to missing or inaccurate data. Also, a few data points needed assumptions to allow the data to be used in a model.

The analyses were guided by the overarching question, What is the role of urban university athletic department success on social capital of a community? Two subquestions were also considered:

1. What athletic success indicators correlate to a measurable difference in social capital of a community?

2. Is there a time lag in the effect of athletic success on the social capital of a community?

Demographics of *N*

The initial criteria for selecting urban universities were described in Chapter 3. The chosen universities were located in metropolitan statistical areas with greater than one million residents, and they were a Division I member of the NCAA for football and men's basketball. Forty-four institutions met the initial requirements and were subjected to additional examination.

Further Examination

In this group of 44 selected universities, six were located in a county that had two universities in the list. Only one dependent variable (social capital index) was used in the model per county; therefore, the decision was made to average the independent variables (athletic success) and covariates (economic) in an effort to standardize the effect in the county. Both the University of Southern California and the University of California at Los Angeles were located in Los Angeles County; therefore, the data for these two universities were averaged. The Houston, Texas, metropolitan area is located in Harris County, which is home to Rice University and the University of Houston. The third occurrence in the data was in Northern California: Stanford University and San Jose State University were both located in Santa Clara County. These six data points decreased the number of variable sets from 44 to 41.

The continued examination of available data for the 41 counties resulted in the removal of a small number from the available data set. Erie County, New York was home to the State University of New York at Buffalo; Jefferson County, Alabama Was home to the University of Alabama at Birmingham; and. Miami-Dade County was home to the University of Miami. The necessary data for athletic success determination were from 1985 through 2005. The State

University of New York at Buffalo (Buffalo) data were incomplete for the full time of this study and, therefore, removed. Prior to 1992, Buffalo was a Division III football program. From 1992 until 1998, Buffalo was a Division IAA football program. Division III football did not offer scholarships, and Division IAA offered a smaller number of scholarships than the highest level of competition at Division I. Buffalo did not play Division I football until the 1999 season. These are significant issues to consider when analyzing the impact of major college athletics on an urban environment as athletic scholarships play an important role in recruitment and on-field performance.

Similar to Buffalo, the University of Alabama at Birmingham (UAB) also had a relatively new Division I football program that did not provide the necessary data to be included in the athletic success independent variable of this study. The first year of Division I football at UAB was 1996. Prior to 1996, UAB football was founded as a Division III program in 1991 and stepped to Division IAA for a brief time between 1993 and 1996.

Unlike Buffalo and UAB, the University of Miami and Miami-Dade County were excluded from the study for incomplete social capital index data. As the dependent variable in the models, social capital data could not be incomplete. Despite multiple attempts to individually calculate the social capital index for the 2005 data in Miami-Dade County and attempts to reach the original research team, the data were unrecoverable and, therefore, removed. With the removal of the Miami-Dade County, Jefferson County (UAB), and Erie County (Buffalo), the total number of counties used in this study was 38.

Additional Assumptions

Small errors were discovered in the data set as analysis progressed. In an effort to best fit the model, small assumptions were made in a minor number of the institutional athletic data

points. The largest number of assumptions were related to basketball attendance. Basketball attendance data were measured as a percentage of total capacity for the facility which hosted the games each year. For multiple data points, the average basketball attendance for a year was - greater than one. A number larger than one produced problems in the models as this reflected attendance greater than capacity.

The Tulane University average basketball attendance data in 1996 was recorded as 1.086. This data point was used in the one-year lag (BBA_96), three-year average (BBA_9496), and five-year average (BBA_9296) data. These three data points were manually modified with the revised 1996 data point of 1.00.

Prior to 2002, the University of Pittsburgh men's basketball team played its home games in the Fitzgerald Field House. This facility was built to host 4,121 fans for a basketball game. In spite of the size of the facility, the official records of University of Pittsburgh basketball average attendance was greater than 4,121 for each year from 1985 until 2002 including a high water mark average of 9,464 fans in 1990. Additional research did not solve this issue and the data was modified to reflect a 1.00 for basketball average attendance from 1985 through 2002.

Ohio State University played basketball in St. John Arena in 1989 with a maximum capacity of 13,276. Official statistical records indicated the average attendance for the 1989 season higher than capacity at 14,887. The 1989 average attendance (BBA_89) was slightly adjusted down from the 1.1213 to 1.0 which in addition impacts the three-year average (BBA_8789) and the five-year average (BBA_8589) data points.

Freedom Hall hosted University of Louisville men's basketball games from 1956 through 2010 and had a capacity of 18,885 when configured for basketball. From 1986 until 2004, the average attendance at Louisville was listed at 19,032. In all but one year of this 19-year period,

the percentage of capacity of average attendance was greater than 100 percent. Similar to other institutions with records indicating a percentage greater than capacity, the data points in question were manually modified to 1.0 for the purpose of the model. This adjustment impacted 11 data points (BBA_04, BBA_0204, BBA_0004, BBA_97, BBA_96, BBA_9496, BBA_9296, BBA_90, BBA_89, BBA_8789, and BBA_8589).

Georgia Institute of Technology (Georgia Tech) is located in the downtown Atlanta and has had athletic success in both basketball and football. The basketball games at Georgia Tech during the time of the data were hosted in Alexander Memorial Coliseum with a maximum capacity of 8,600. The data in 1990, 1991, 1992, 1993, and 1996 indicated an average basketball attendance greater than the maximum capacity and was modified to reflect a 1.0. In addition to a basketball data adjustment for Georgia Tech, there was also an assumption in regards to football success in average attendance. Multiple attempts to attain the average attendance for the 1985 and 1986 seasons were unsuccessful. The assumption in the data was that the average attendance for the 1987 season would not be significantly inaccurate and was used for the models for the five-year average football attendance (FA_8589).

Due to several years of substantial and sustained rules violations, the Southern Methodist University football program was disbanded for the 1987 season and was forced to play at a lower level for the 1988 and 1989 seasons. Data were available before the penalty (1985, 1986) and after the penalty (1989 and forward). The assumption was made to average the attendance and winning percentages before and after the gap in data to allow the model to function in this occurrence. This assumption impacted average attendance and winning percentage data points for one year lag (FA89, FW89), three-year average (FA_8789, FW_8789), and five-year average (FA_8589, FW_8589) of time period one for Dallas County.

Ratios in Regression Analysis

In an effort to standardize the athletic success variables, the initial regression model utilized ratios between data sets one, two, and three to indicate a change for some athletic success data points in time period one (1997 and 1990) and time period two (2005 to 1997). If a ratio was greater than 1.0 for basketball average attendance in a time period, this indicated a positive change in the attendance for the time period. Conversely, if the ratio was less than 1.0 for the football winning percentage, this indicated a negative change in winning for the time period.

Further research and review on the use of ratios in a regression led to the Kronmal (1993) article on the topic of ratio fallacies. While ratios are a positive tool in a linear regression, five immediate issues were raised in multiple regressions. Kronmal stated, “the common practice of using ratios for either dependent or the independent variable in regression analyses can lead to misleading inferences and rarely results in any gain” (1993, p. 391). Of Kronmal’s five issues, the most relevant for this model was that the research attempted to form ratios and compare to an index. Division of only dependent variables by an independent variable “often causes investigators to reach incorrect interpretations about the effects of these variables on the dependent variables” (Kronmal, 1993, p. 380). Directly due to this issue, the athletic success variable ratios were modified and used in the raw data method with winning percentages and average attendance percentage to full capacity.

Bowl Games and Postseason Appearances

Previous research and the hypothesis of the study led to the inclusion of bowl game and postseason basketball appearance as variables in the data set for athletic success. These data were collected and coded as dummy variables (1 for positive, 0 for negative) for each institution or county. As the model design progressed in the analysis, interpreting dummy variables in regressions became difficult. Without an appropriate scale to use these variables and measure them across data set 1 and 2 and data set 2 and 3, a continuous variable had only three possible values (-1, 0, 1). Short of a solution for this scale issue, the bowl game (BG) and postseason (BP) data points were removed from the regression models.

Results

The eight regression models attempted to predict a change in social capital at the county level as a function of athletic success at an urban university measured with winning percentages and average attendance of basketball and football programs. The complete list of regression models are listed in Table 5. The data were analyzed in two periods, the first considered the social capital index change from 1990 to 1997 and the second period considered 1997 to 2005. These periods were studied with a one-year lag, a three-year average, and a five-year average in an attempt to better incorporate potential economic or outside factors that might influence the social capital index of a county.

The conclusion based on the data regression was that the changes in social capital in Period 1 were not linked to the athletic success variables (winning or attendance) at the universities. The overall conclusion in the second time period (1997 to 2005) may indicate football attendance had a positive link to an increase in the social capital index used in the model. This link is statistically significantly different from 0. Eight models were tested using the data

collected. Five of the eight models were incapable of producing statistically significant results. Reasoning for this lack of significant conclusion will be discussed later.

For each regression model, the results included tabular summaries of the model coefficients as well as plots illustrating the estimated relationship for each athletic success predictor for the model. In the table for each model, the standard error is presented and estimated by ordinary least squares or the robust “sandwich” standard errors. This occurred when the Breusch-Pagan test indicated that homogenous variance was unlikely, $p \leq 0.05$. The null hypothesis was rejected indicating the assumption of homogeneous error variance was not supported. Next, the analysis recalculated the robust standard errors, obtained by using the sandwich package in *R*. The robust standard errors were then used to conduct *t-tests* for the significance of the parameter estimations; in the same manner the standard errors provided by ordinary least squares were utilized.

In the graphic plots, the estimate of the regression relationship is displayed, including the confidence interval for the projected value. The hourglass shape of the plot is expected in all regression models for the confidence interval of the model. The prediction of an outcome is most certain in the middle of the range of the plot, with higher uncertainty toward the edges of the data. The probability is 0.95 that the average value of the change in social capital index is inside the boundaries of the depicted interval. Due in large part to the small data set numbers, the confidence intervals of the model plots were wide, and, therefore, the results revealed the uncertain accuracy of estimating the social capital index with these models.

Table 5

Eight Regression Models

Model	Variables
M1: Year to Year Model Time Period 1 Dependent Variable: Change in social capital from 90-97 (SKI90 – SKI97)	Independent Variables: (FA97 – FA90), (FW97 – FW90), (BBA97 – BBA90), (BBW97 – BBW90) Covariates: (unemp97 – unemp90), (povrate00 - povrate90)
M2: Year to Year Model Time Period 2 Dependent Variable: Change in social capital from 97-05 (SKI97 – SKI05)	Independent Variables: (FA05 – FA97), (FW05 – FW97), (BBA05 – BBA97), (BBW05 – BBW97) Covariates: (unemp05 – unemp97), (povrate10 - povrate00)
M3: One Year Lag Effect Model Time Period 1 Dependent Variable: Change in social capital from 90-97 (SKI90 – SKI97)	Independent Variables: (FA96 – FA89), (FW96 – FW89), (BBA96 – BBA89), (BBW96 – BBW89) Covariates: (unemp97 – unemp90), (povrate00 - povrate90)
M4: 1-Year Lag Effect Model Time Period 2 Dependent Variable: Change in social capital from 97-05 (SKI97 – SKI05)	Independent Variables: (FA04 – FA96), (FW04- FW96), (BBA04 – BBA96), (BBW04 – BBA96) Covariates: (unemp05 – unemp97), (povrate10 – povrate00)
M5: 3-Year Average Lag Effect Model Time Period 1 Dependent Variable: Change in social capital from 90-97 (SKI90 – SKI97)	Independent Variables: (FA9496 - FA8789), (FW9496 - FA8789), (BBA9496 - BBA8789), (BBW9496 – BBW8789) Covariates: (unemp97 – unemp90), (povrate00 – povrate90)
M6: 3-Year Average Lag Effect Model Time Period 2 Dependent Variable: Change in social capital from 97-05 (SKI97 – SKI05)	Independent Variables: (FA0204 - FA9496), (FW0204 - FA9496), (BBA0204 – BBA9496), (BBW0204 – BBA9496) Covariates: (unemp05 – unemp97), (povrate10 – povrate00)
M7: 5-Year Average Lag Effect Model Time Period 1 Dependent Variable: Change in social capital from 90-97 (SKI90 – SKI97)	Independent Variables: (FA9296 – FA8589), (FW9296 – FW8589), (BBA9296 – BBA8589), (BBW9296 – BBW8589) Covariates: (unemp97 – 90), (povrate00 - povrate90)
M8: 5-year Average Lag Effect Model Time Period 2 Dependent Variable: Change in social capital from 97-05 (SKI97 – SKI05)	Independent Variables: (FA0004 - FA9296), (FW0004 – FW9296), (BBA_0004 – BBA9296), (BBW0004 – BBW9296) Covariates: (unemp05 – umemp97), (povrate10- povrate00)

Results for Model 1: Year-To-Year Model (Change In Social Capital Index 1990 To 1997)

Table 6 displays the results of Model 1, the year-to-year model for time Period 1. Each of the independent variables was insignificant with robust standard error. The p value from Breusch-Pagan test was less than .01; therefore, the robust standard error was utilized. In conclusion, each of the year-to-year athletic success data points failed to predict the change in the social capital index from 1990 to 1997.

Table 6

Results for Model 1: Year To Year Model Period 1 (SKI90 - SKI97)

	Estimate (S.E.)	
(Intercept)	0.104	(0.099)
Change in football attendance (FA90 - FA97)	-0.107	(0.518)
Change in football winning (FW90 – FW97)	0.119	(0.249)
Change in basketball attendance (BBA90 – BBA97)	-0.305	(0.374)
Change basketball winning rate (BBW90 – BBW97)	0.275	(0.341)
Change in unemployment rate (unemployment90 - unemployment97)	-0.021	(0.091)
Change in poverty (povrate90 – povrate00)	1.000	(4.966)
<hr/>		
<i>N</i>	38	
<i>RMSE</i>	0.452	
<i>R</i> ²	0.040	
<i>adj R</i> ²	-0.145	

* $p \leq 0.05$ ** $p \leq 0.01$ *** $p \leq 0.001$

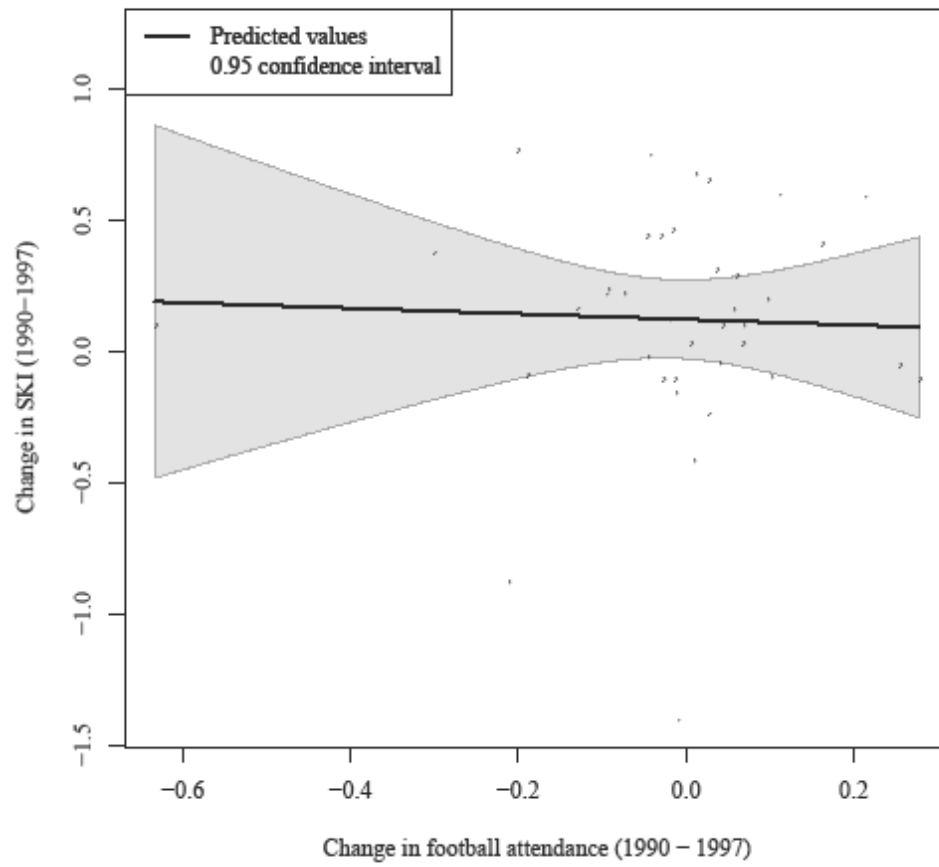


Figure 1. Change in football attendance (Model 1).

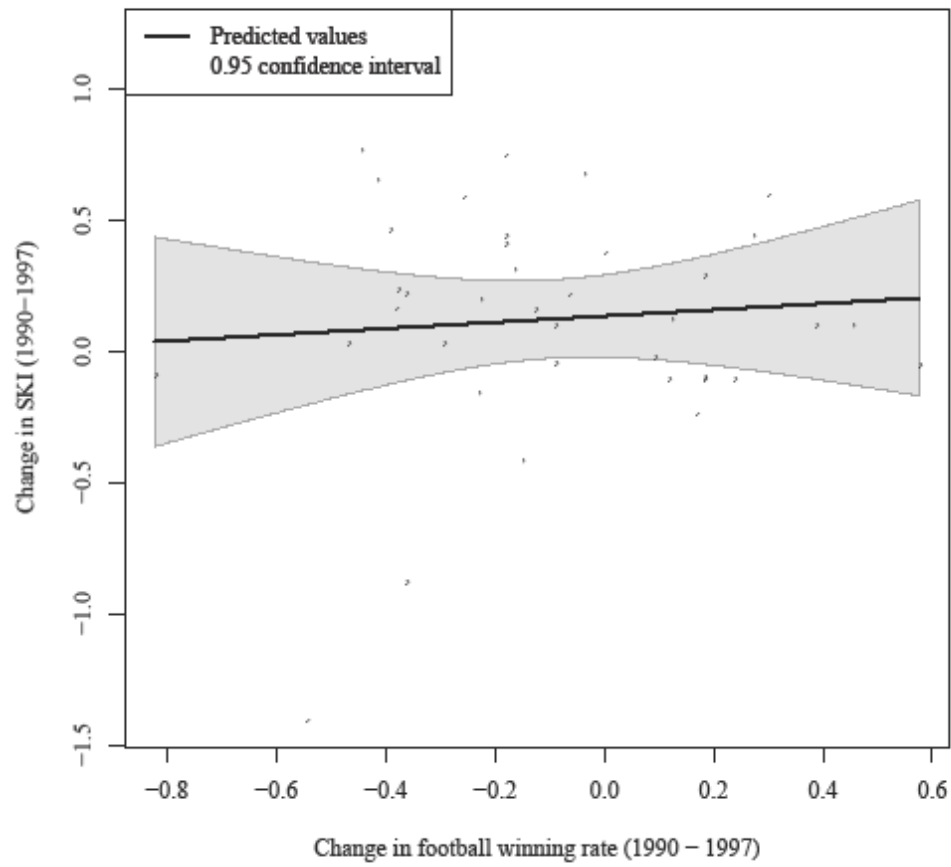


Figure 2. Change in football winning rate (Model 1).

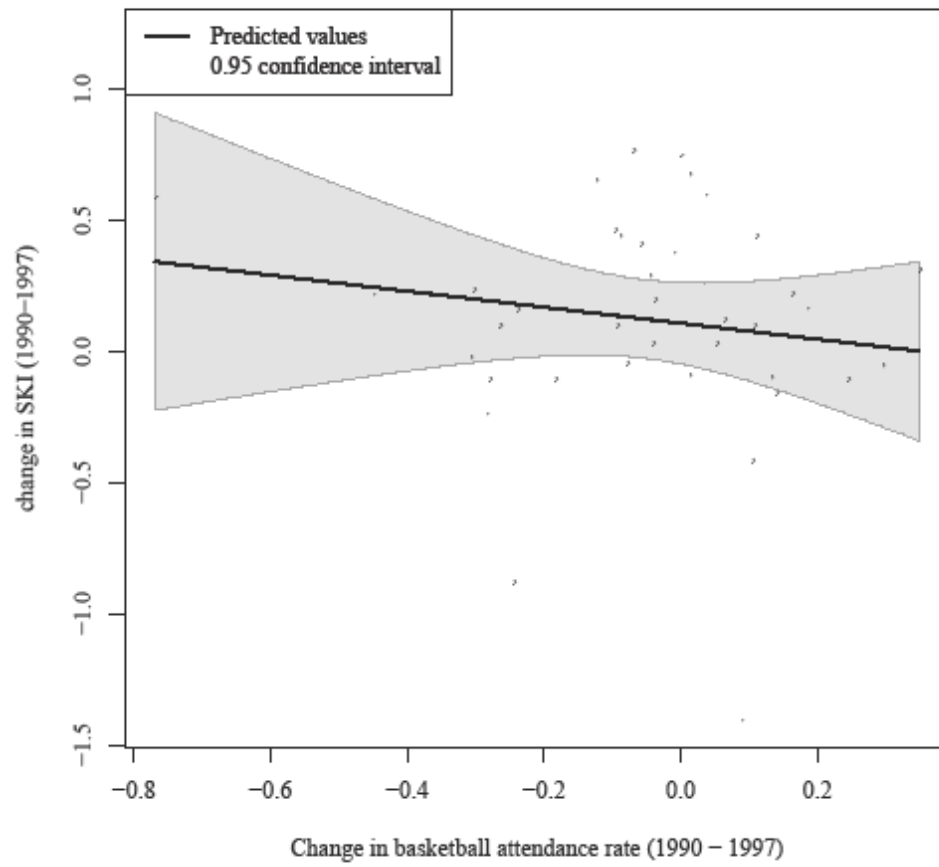


Figure 3. Change in basketball attendance (Model 1).

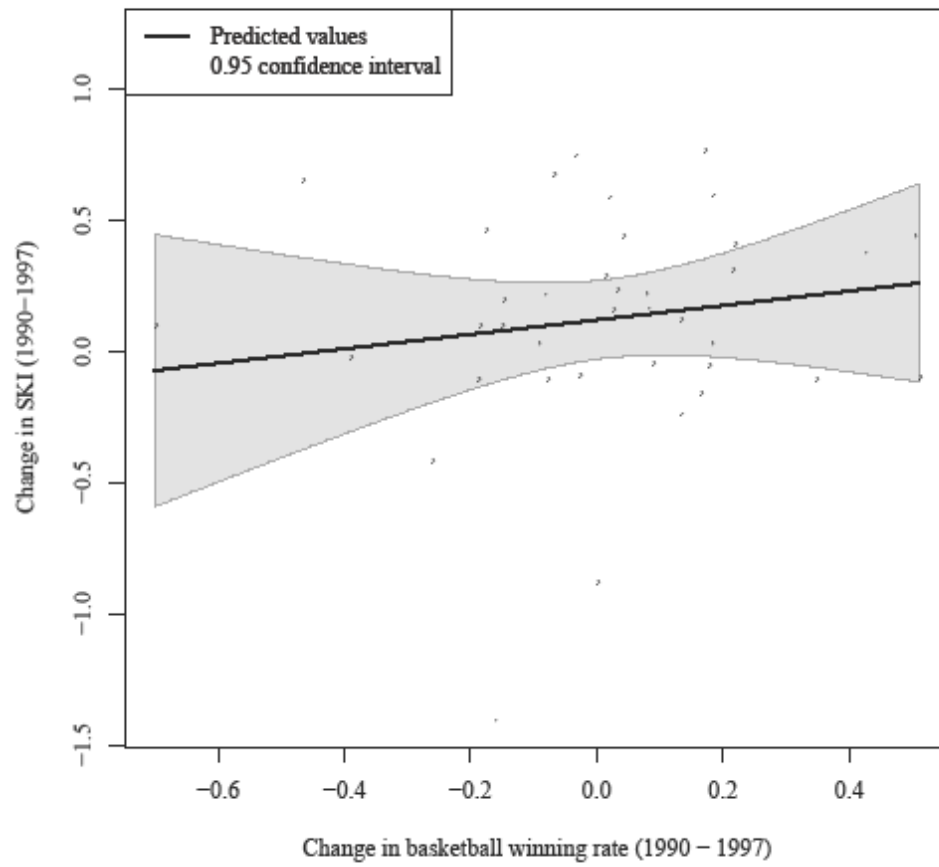


Figure 4. Change in basketball winning rate (Model 1).

Results for Model 2: Year to Year Model (Change In Social Capital Index 1997 to 2005)

Model 2 is the year to year model for time period two. Similar to the results from Model 1, the year to year predictors of Model 2 data points do not predict the change in the social capital for time period two. The results from Model 2 are listed below in Table 7.

Table 7

Results for Model 2: Year to Year Model Period 2 (SKI97 - SKI05)

	Estimate	(S.E.)
(Intercept)	-0.450***	(0.091)
Change in football attendance (FA97 – FA05)	0.709	(0.389)
Change in football winning rate (FW97 – FW05)	0.049	(0.210)
Change in basketball attendance (BBA97 – BBA05)	-0.149	(0.361)
Change in basketball wining rate (BBW97 - BBW05)	0.129	(0.268)
Change in unemployment rate (unemployment97 - unemployment05)	-0.156	(0.085)
Change in poverty (povrate00 - povrate10)	8.011	(4.453)
<hr/>		
<i>N</i>	38	
<i>RMSE</i>	0.345	
<i>R</i> ²	0.302	
<i>adj R</i> ²	0.167	

* $p \leq 0.05$ ** $p \leq 0.01$ *** $p \leq 0.001$

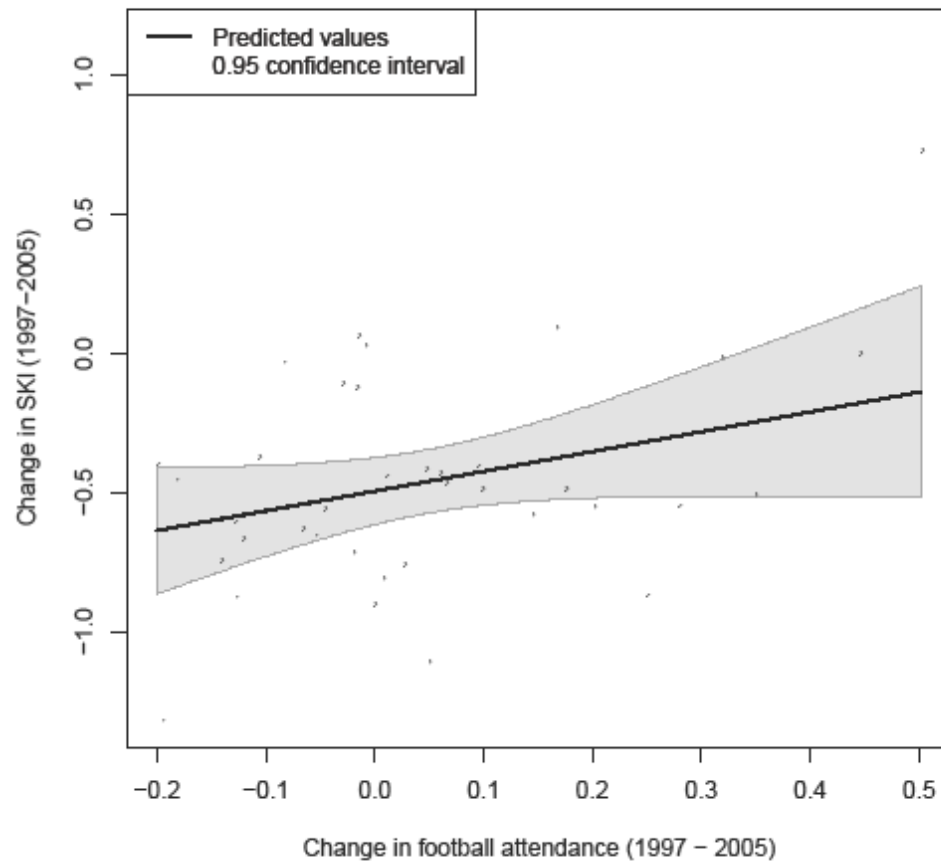


Figure 5. Change in football attendance (Model 2).

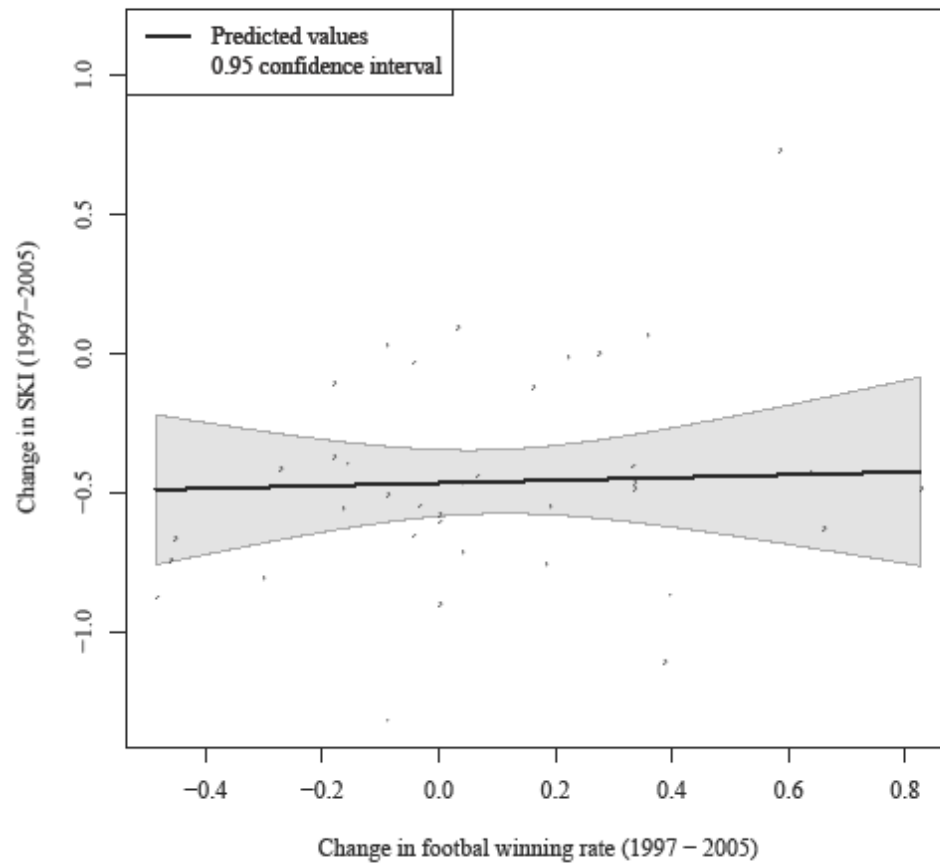


Figure 6. Change in football winning rate (Model 2).

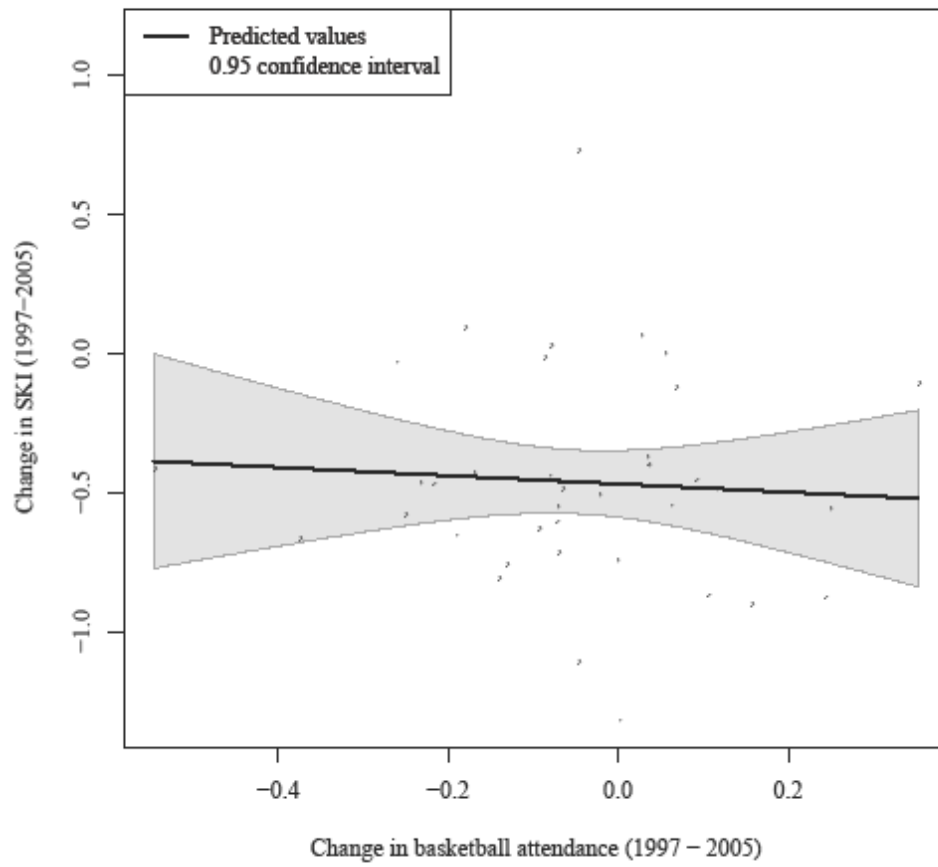


Figure 7: Change in basketball attendance (Model 2).

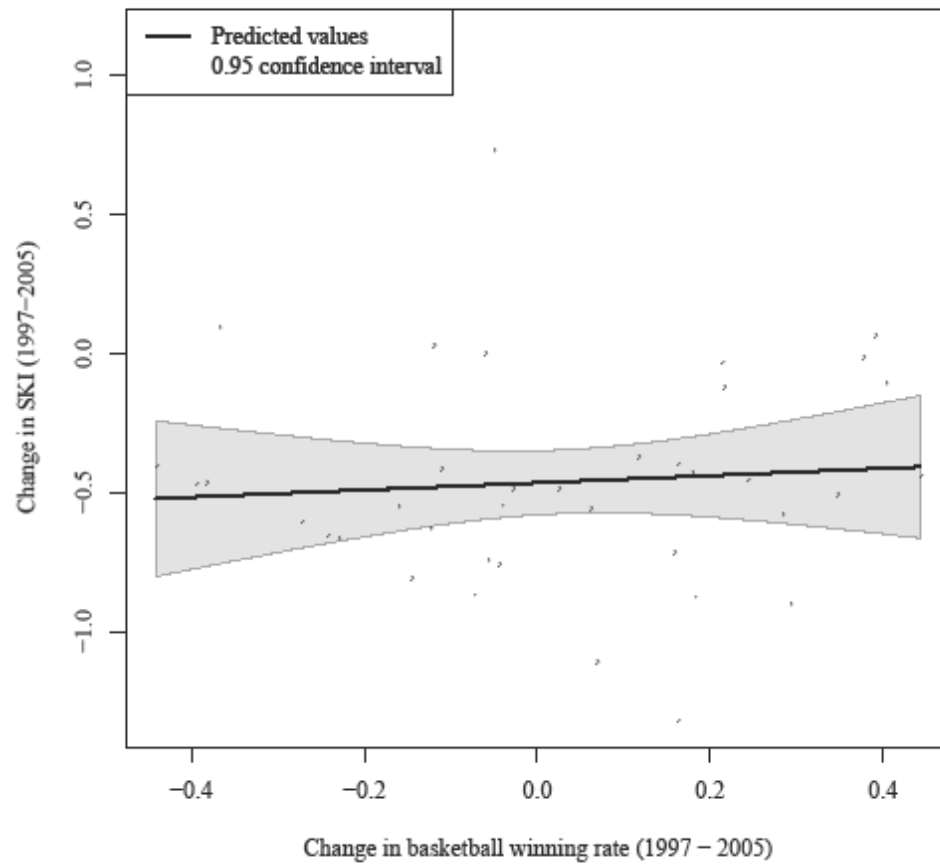


Figure 8. Change in basketball winning rate (Model 2).

Results for Model 3: 1-Year Lag Effect Model Period 1

The results of Model 3 are listed in Table 8. In brief, all the one lag year athletic success variables will not predict the change in social capital from 1990 to 1997.

Table 8

Results of Model 3: 1-Year Lag Effect Model Time Period 1

	Estimate (S.E.)	
(Intercept)	0.107	(0.092)
Change in football attendance (FA89 - FA96)	0.254	(0.399)
Change in football winning rate (FW89 - FW96)	0.198	(0.249)
Change in basketball attendance (BBA89 - BBA96)	-0.032	(0.262)
Change in basketball winning rate (BBW89 - BBW96)	-0.543	(0.397)
Change in unemployment rate (unemployment90 - unemployment97)	-0.011	(0.095)
Change in poverty (povrate90 – povrate00)	1.574	(5.315)
<hr/>		
<i>N</i>	38	
<i>RMSE</i>	0.442	
<i>R</i> ²	0.084	
<i>adj R</i> ²	-0.093	

* $p \leq 0.05$ ** $p \leq 0.01$ *** $p \leq 0.001$

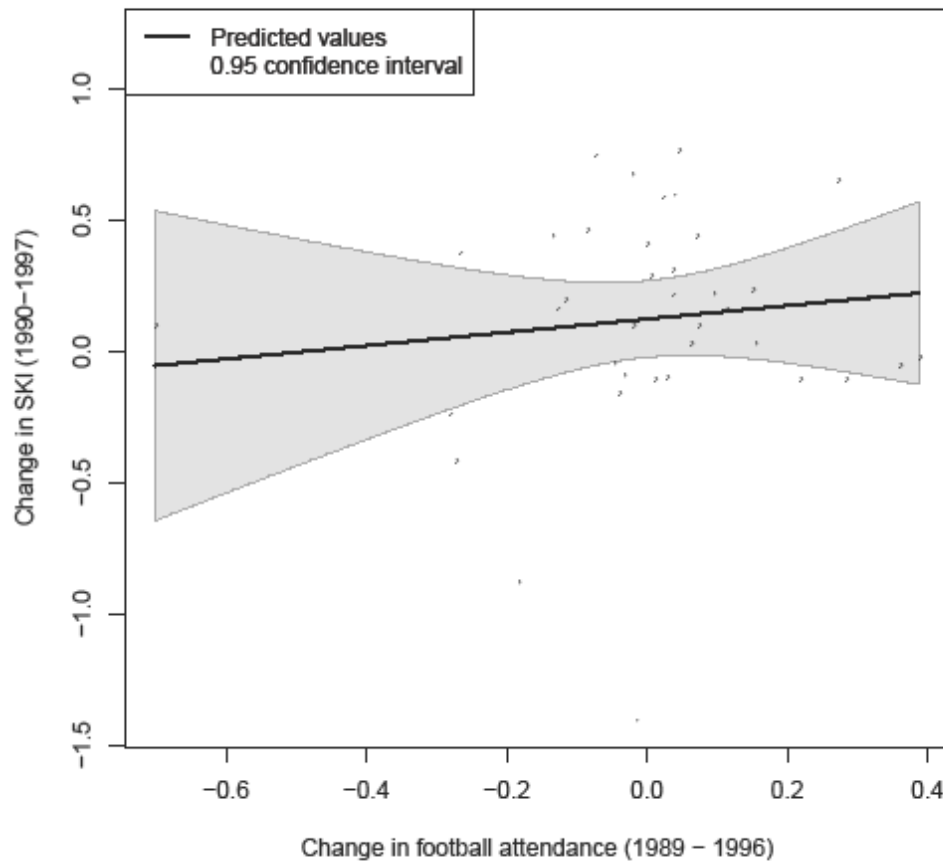


Figure 9. Change in football attendance (Model 3).

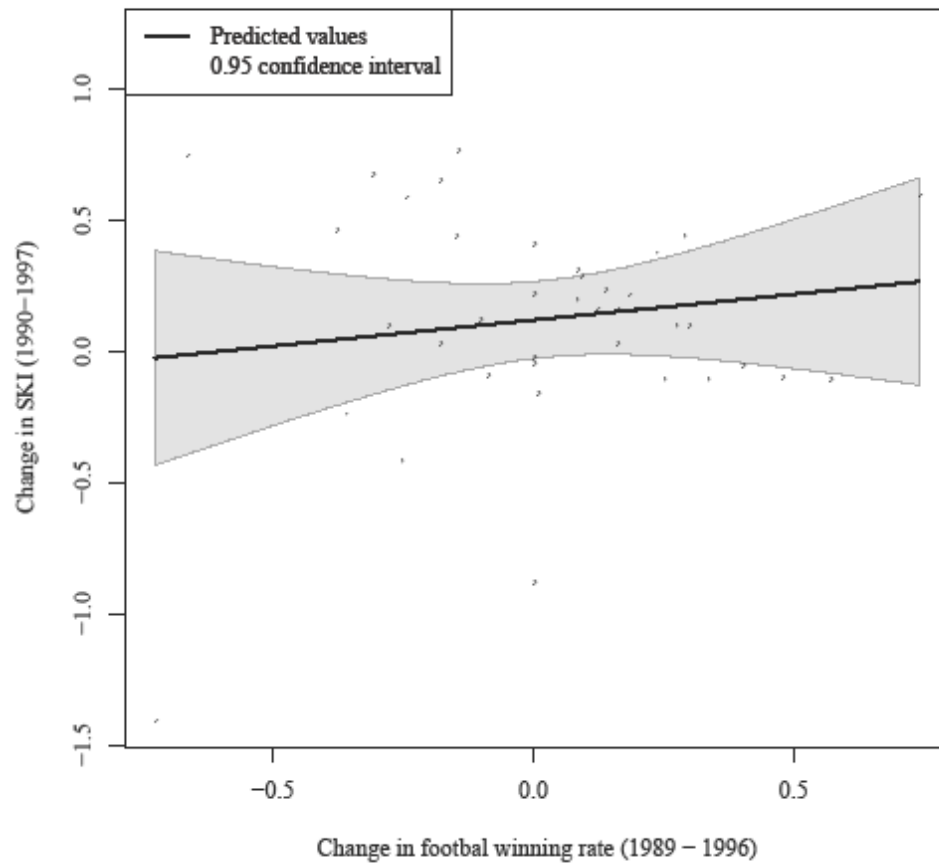


Figure 10. Change in football winning rate (Model 3).

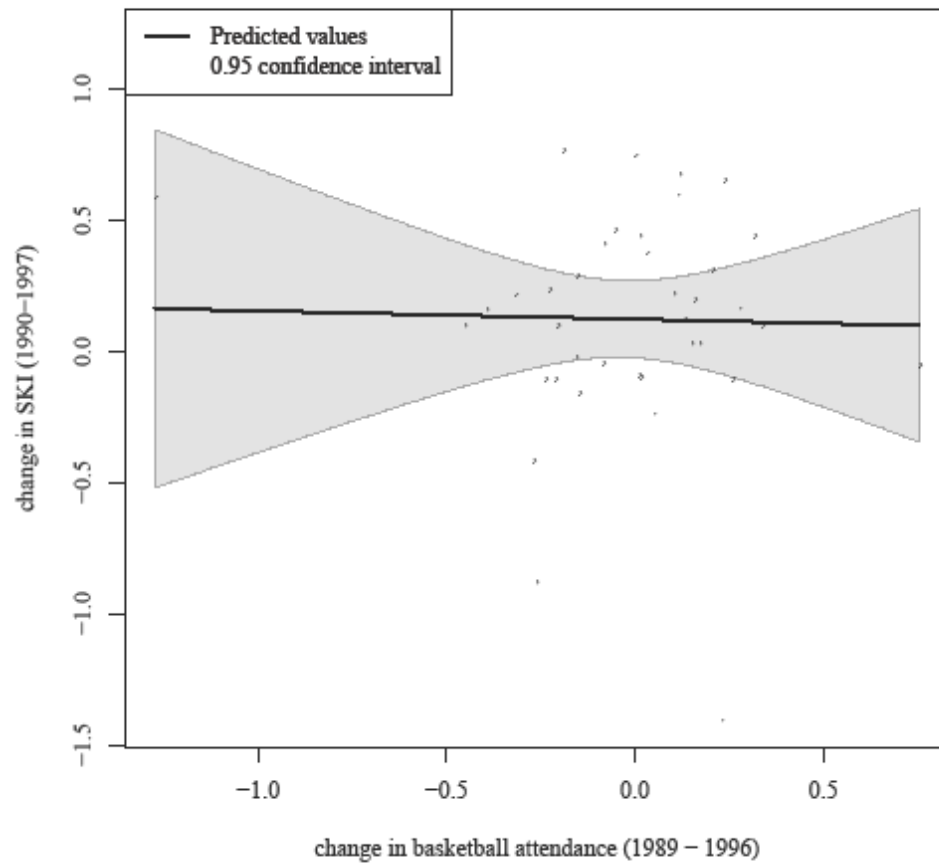


Figure 11. Change in basketball attendance (Model 3).

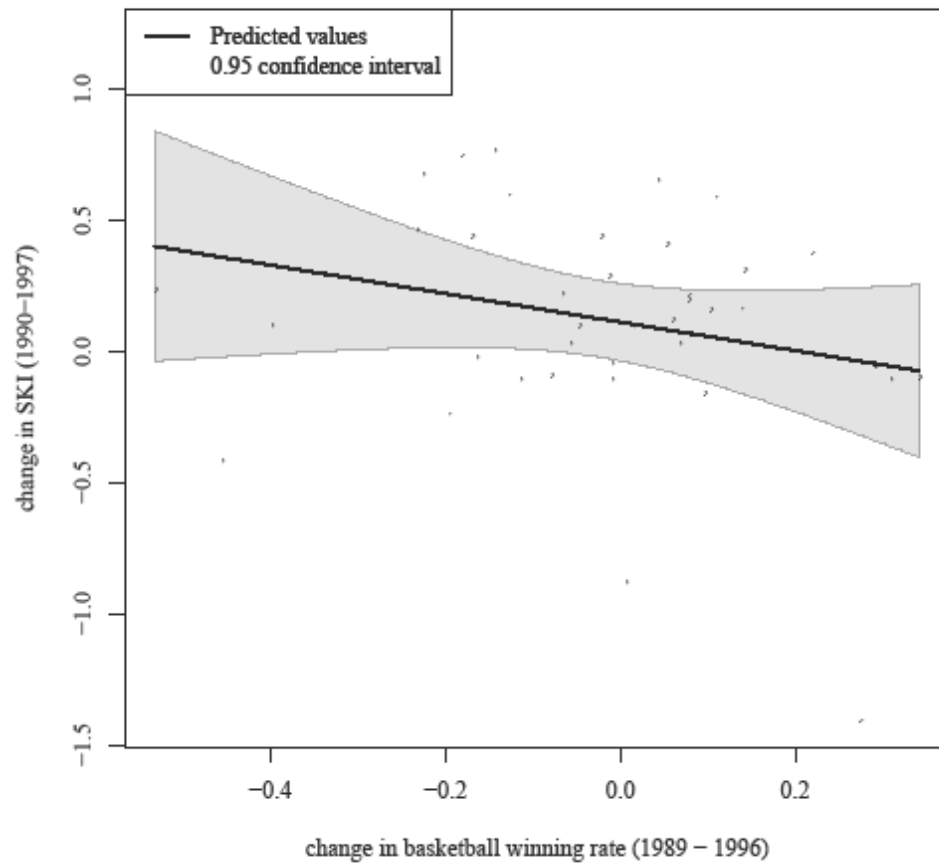


Figure 12. Change in basketball winning rate (Model 3).

Results of Model 4: 1-Year Lag Effect Model Period 2

The results of the time Period 2, one-year lag effect model are posted in Table 9. The social capital index seems to be impacted by the change in average football attendance for this period. Not surprising, it is also apparent the unemployment and poverty rates have an effect on the social capital index. It is important to note the signs of the impacts for the covariates (unemployment and povrate) are difficult to validate. It is intuitive that as unemployment increases, the social capital index for a county decreases. However, it is counterintuitive that as poverty (povrate) increases in the period, the social capital index is positively influenced. Other factors not recognized in this study impacted this variable relationship and should be further studied.

In summary, a rise of one in average football attendance contributed to a 0.826 unit increase in social capital index for the county. This model delivered the beginning of a potential statement about football attendance and the impact on social capital, but the model would be more useful with further analysis of the estimates for poverty and unemployment.

Table 9

Results of Model 4: 1-Year Lag Effect Model Time Period 2

	Estimate	(S.E.)
(Intercept)	-0.439***	(0.079)
Change in football attendance (FA96 – FA04)	0.826**	(0.292)
Change in football winning rate (FW96 – FW04)	0.188	(0.173)
Change in basketball attendance (BBA96 – BBA04)	0.278	(0.321)
Change in basketball winning rate (BBW96 – BBW04)	-0.110	(0.271)
Change in unemployment rate (umemployment97 - unemployment05)	-0.165*	(0.075)
Change in poverty (povrate00 - povrate10)	8.824*	(4.016)
<i>N</i>	38	
<i>RMSE</i>	0.311	
<i>R</i> ²	0.435	
adj <i>R</i> ²	0.326	

* p ≤ 0.05 ** p ≤ 0.01 *** p ≤ 0.001

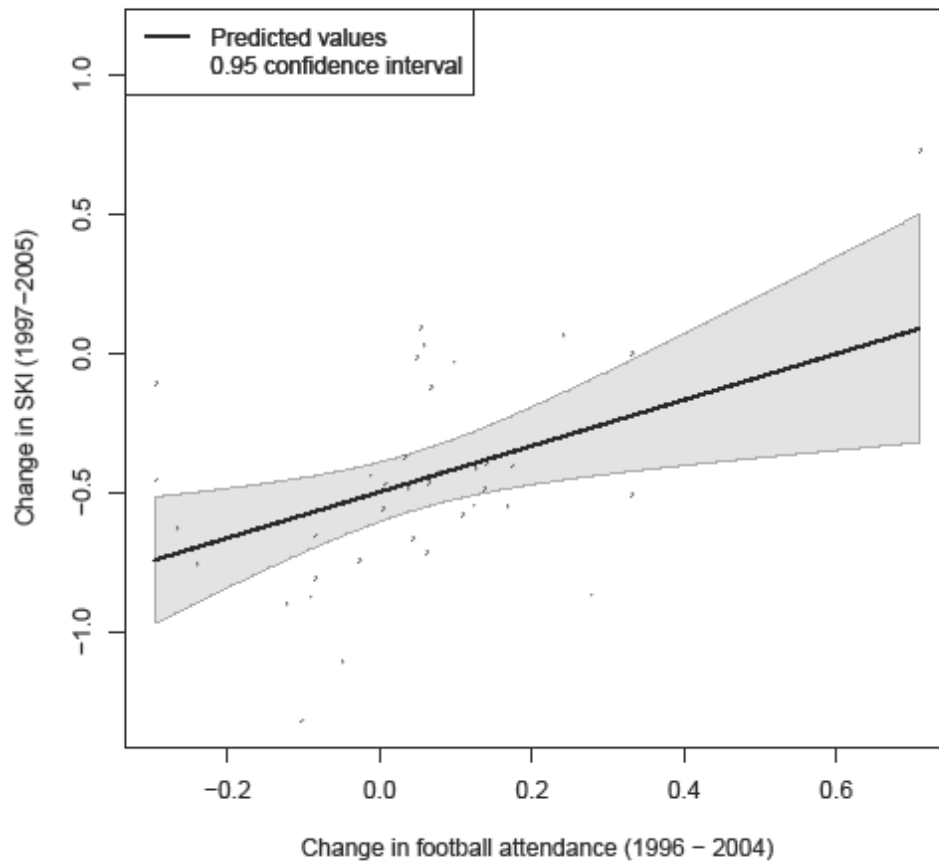


Figure 13. Change in football attendance (Model 4).

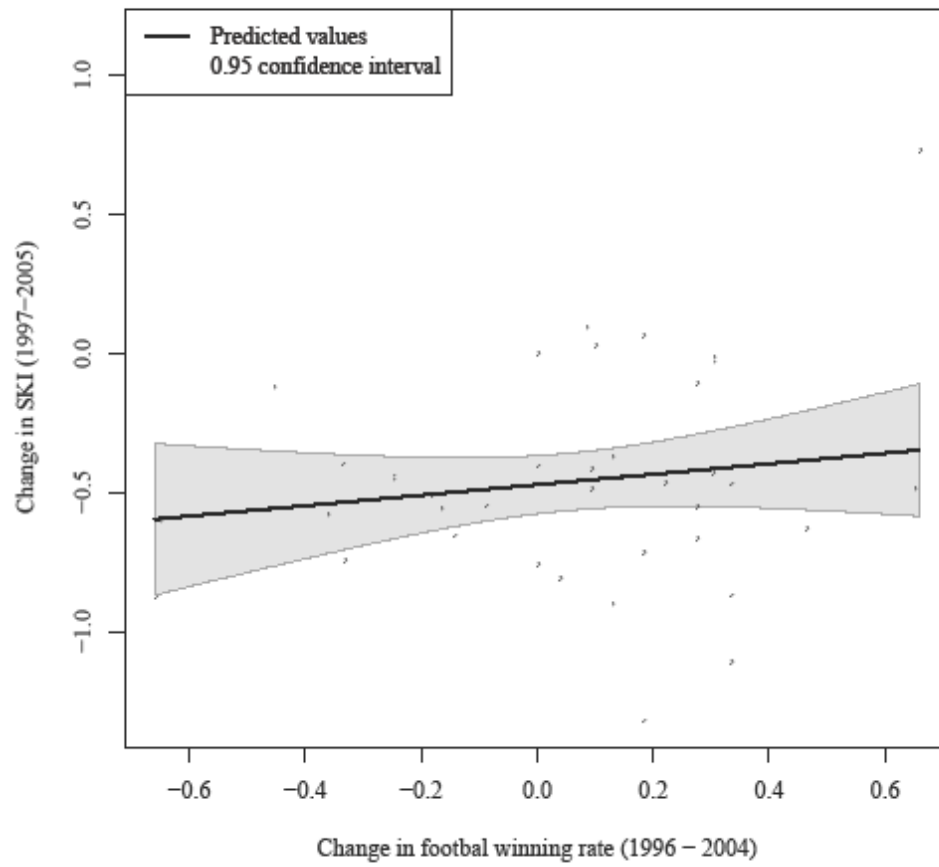


Figure 14. Change in football winning rate (Model 4).

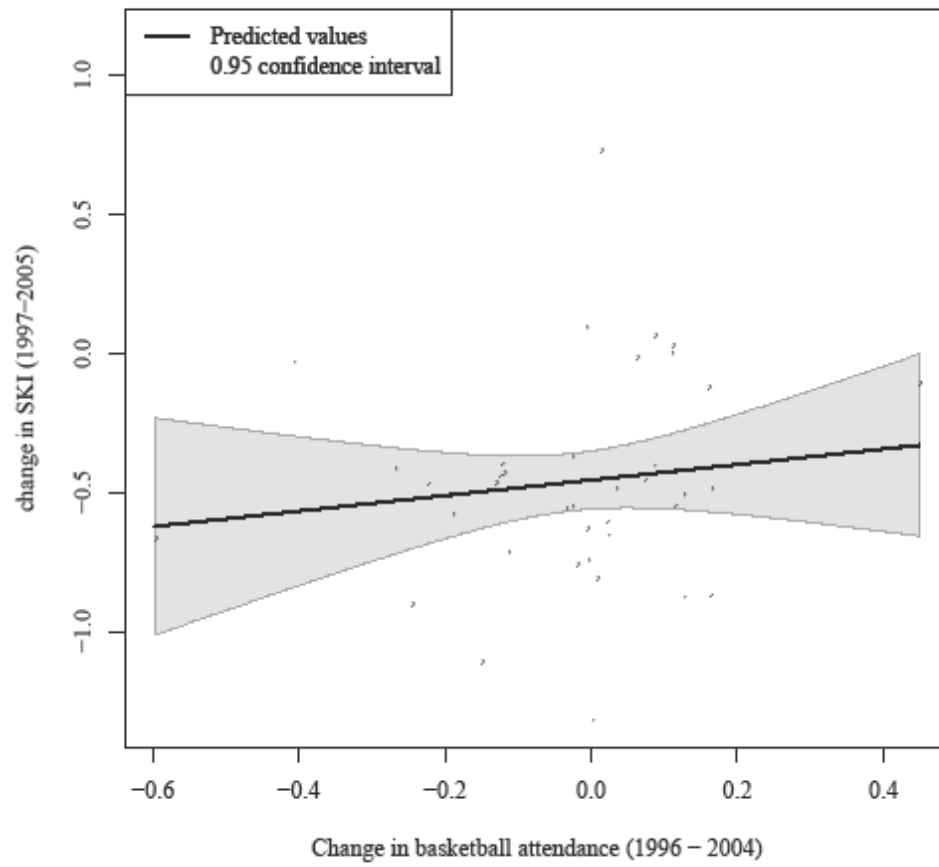


Figure 15. Change in basketball attendance (Model 4).

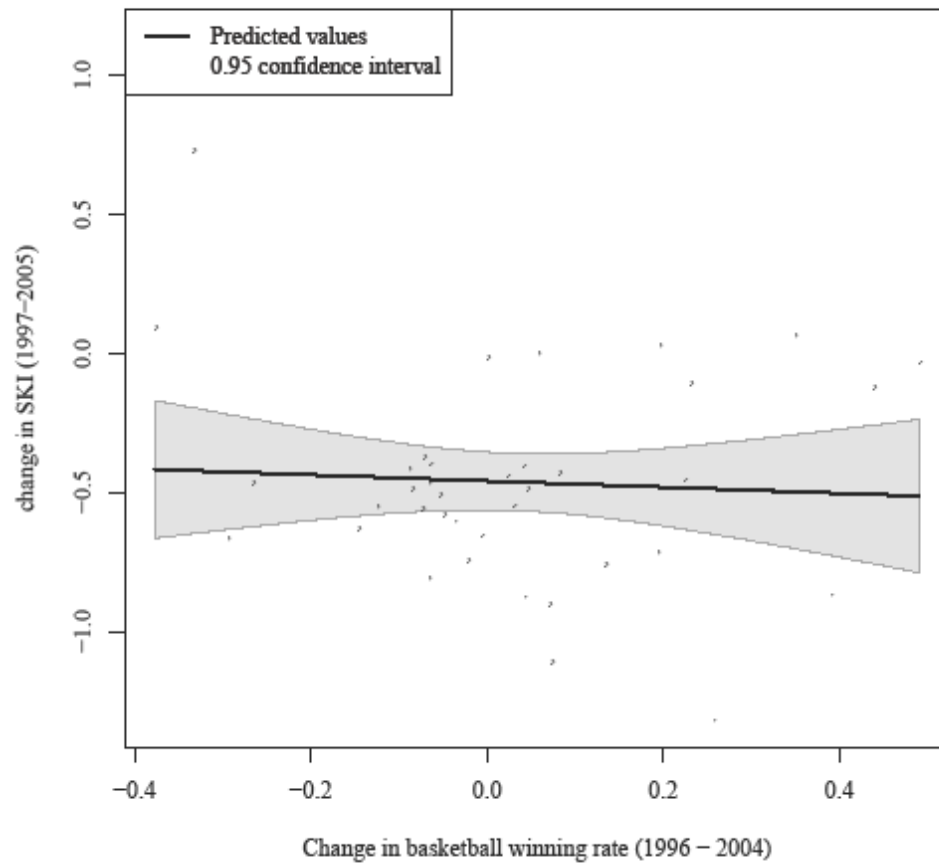


Figure 16. Change in basketball winning rate (Model 4).

Results of Model 5: 3-Year Average Lag Effect Model Time Period 1

The three-year average lag model for time Period 1 and variables do not significantly predict a change in social capital. The results are listed below in Table 10.

Table 10

Results of Model 5: 3-Year Average Lag Effect Model Time Period 1

	Estimate (S.E.)	
(Intercept)	0.124	(0.093)
Change in three-year average football attendance (FA8789 - FA9496)	0.493	(0.697)
Change in three-year average football winning rate (FW8789 - FW94/96)	0.300	(0.398)
Change in three-year average basketball attendance (BBA8789 - BBA9496)	-0.091	(0.360)
Change in three-year average basketball wining rate (BBW8789 - BBW9496)	-0.531	(0.496)
Change in unemployment rate (unemployment90 - unemployment97)	-0.001	(0.091)
Change in poverty (povrate90 – povrate00)	0.710	(5.094)
<hr/>		
N	38	
RMSE	0.442	
R ²	0.082	
adj R ²	-0.096	

* $p \leq 0.05$ ** $p \leq 0.01$ *** $p \leq 0.001$

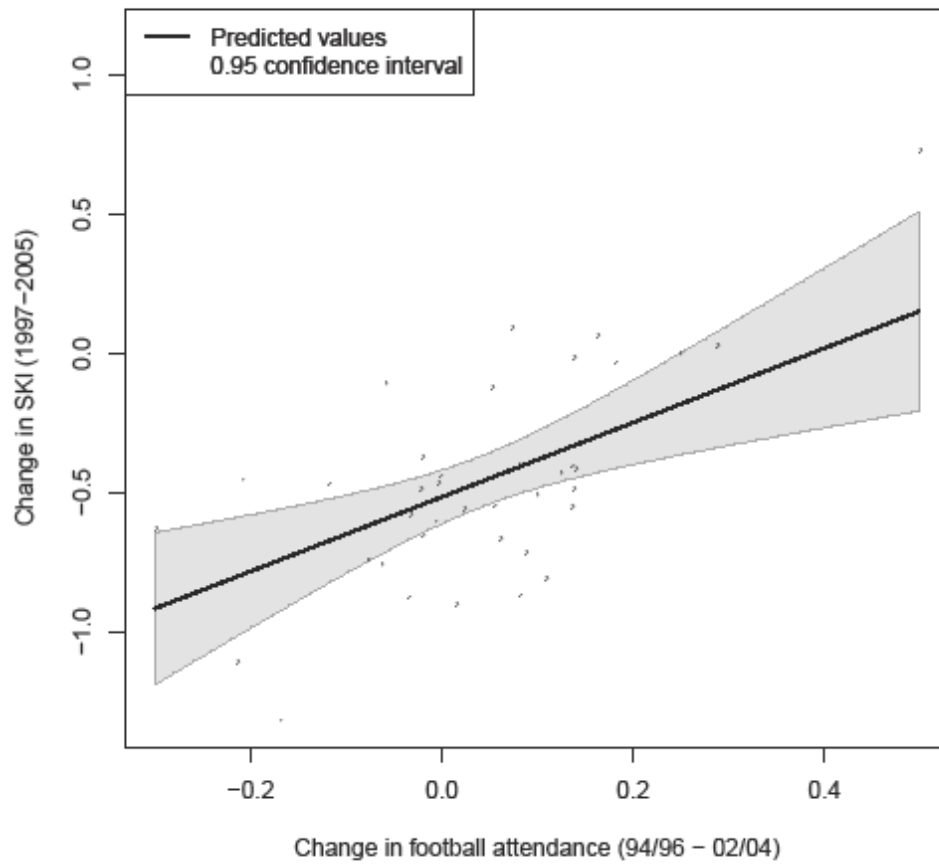


Figure 17. Change in football attendance (Model 5).

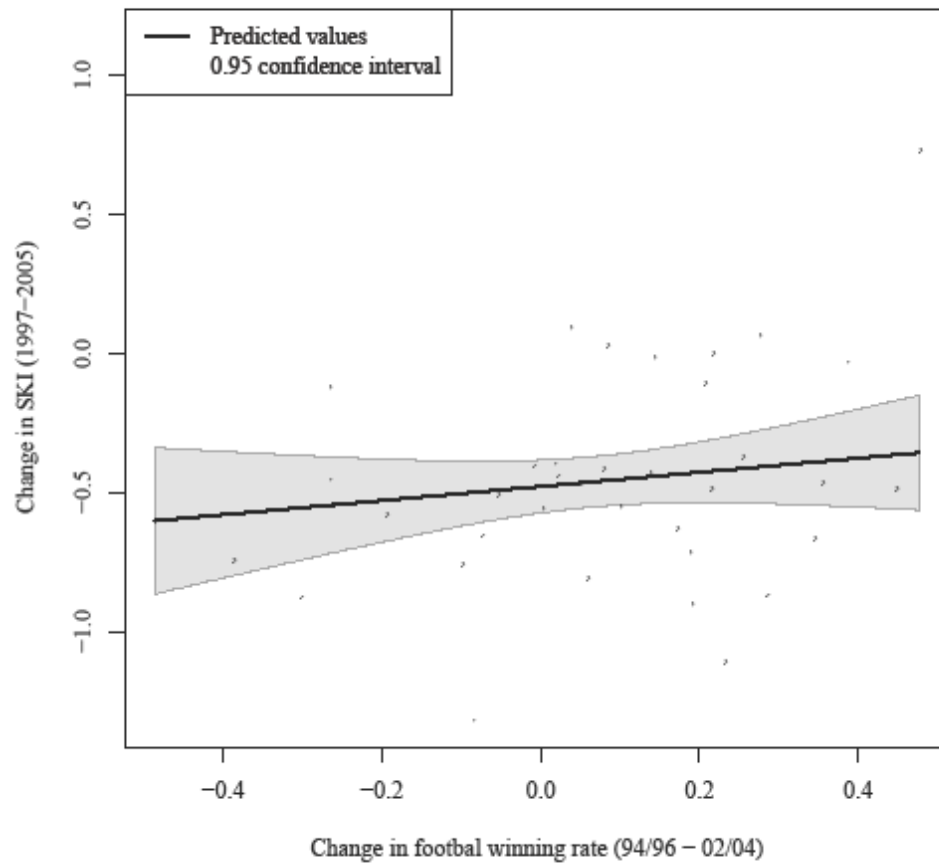


Figure 18. Change in football winning rate (Model 5).

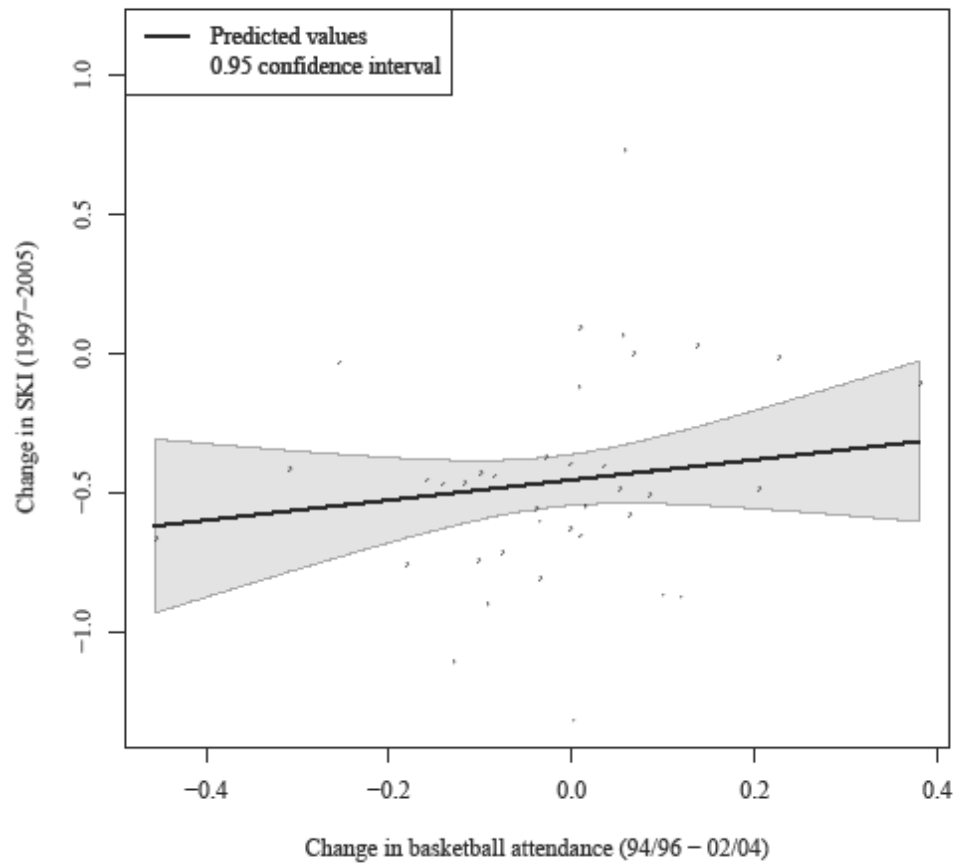


Figure 19. Change in basketball attendance (Model 5).

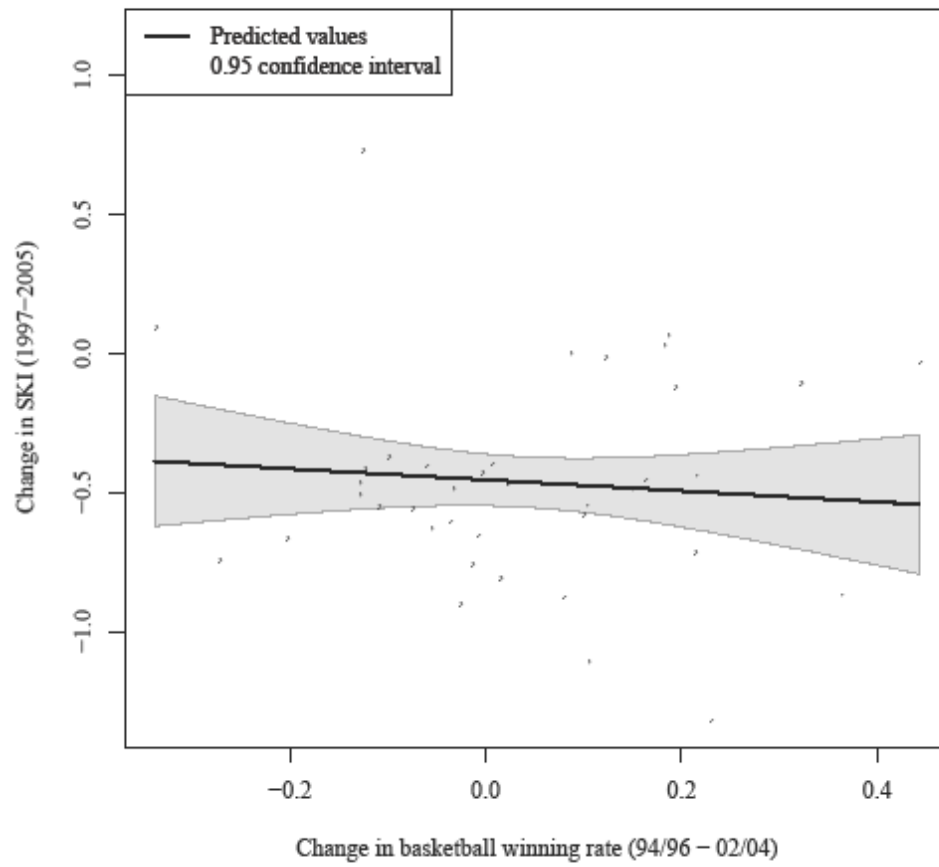


Figure 20. Change in basketball winning rate (Model 5).

Results of Model 6: 3-Year Average Lag Effect Model Time Period 2

Table 11 shows the results from Model 6, the three-year average lag effect model for time Period 2. A change in average football attendance during time Period 2 (FA9496 to FA0204) influences the social capital index in this study. A change of one unit in average football attendance during the time period contributes to a 1.335 unit increase in social capital index. Similar to Model 4, in addition to football attendance, the poverty rate change (povrate00 to povrate10) appeared to affect the social capital index with a counterintuitive sign.

Table 11

Results of Model 6: 3-Year Average Lag Effect Model Time Period 2

	Estimate	(S.E.)
(Intercept)	-0.485***	(0.072)
Change in three-year average football attendance (FA9496 - FA0204)	1.335**	(0.370)
Change in three-year average football winning rate (FW9496 - FW0204)	0.253	(0.220)
Change in three-year average basketball attendance(BBA9496 - BBA0204)	0.362	(0.335)
Change in three-year average basketball wining rate (BBW9496 - BBW0204)	-0.198	(0.281)
Change in unemployment rate (unemployment97 - unemployment05)	-0.121	(0.069)
Change in poverty (povrate00 - povrate10)	7.484*	(3.475)
N	38	
RMSE	0.273	
R ²	0.563	
adj R ²	0.478	

* p ≤0.05** p ≤0.01*** p ≤0.001

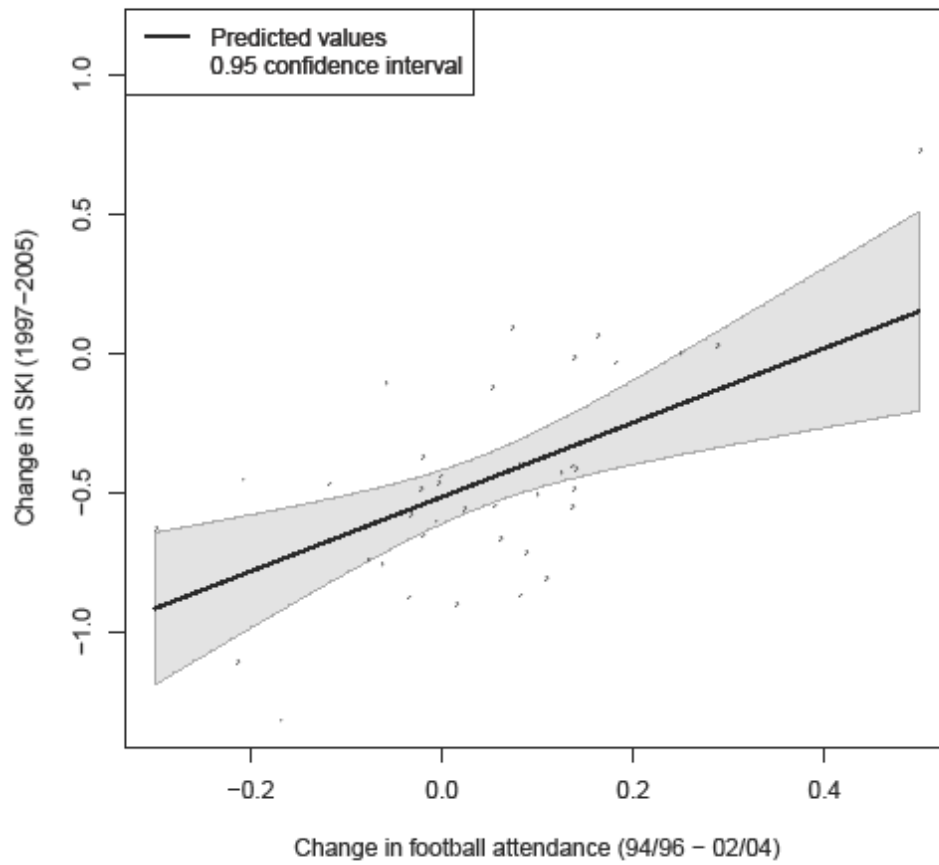


Figure 21. Change in football attendance (Model 6).

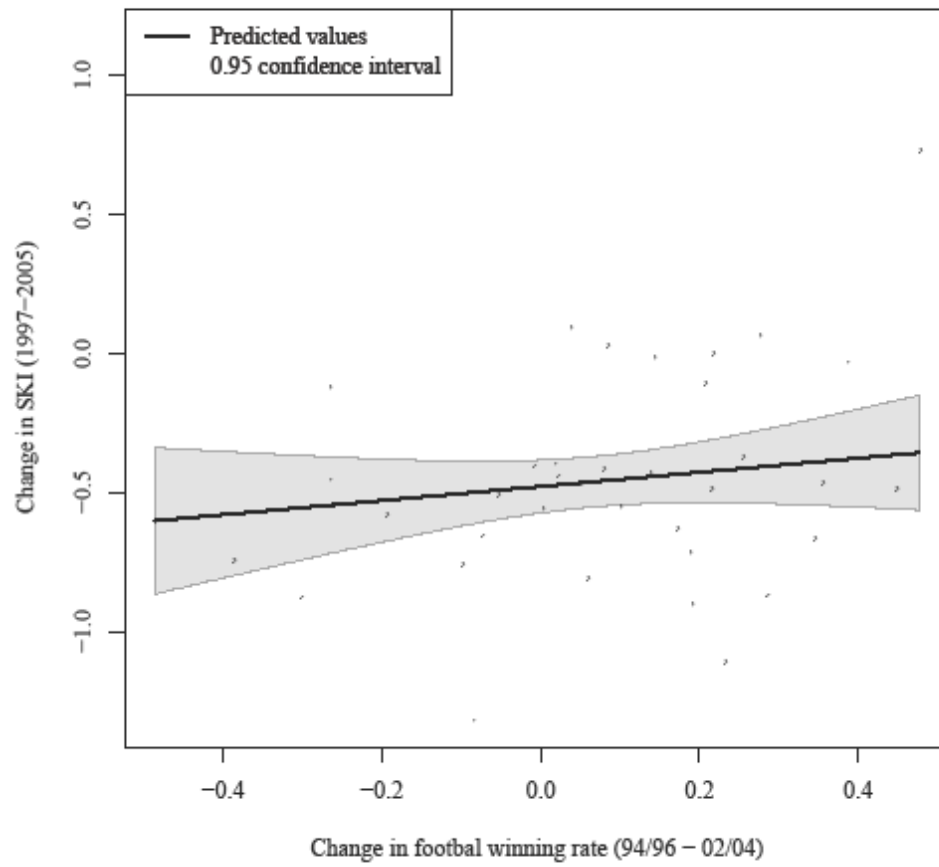


Figure 22. Change in football winning rate (Model 6).

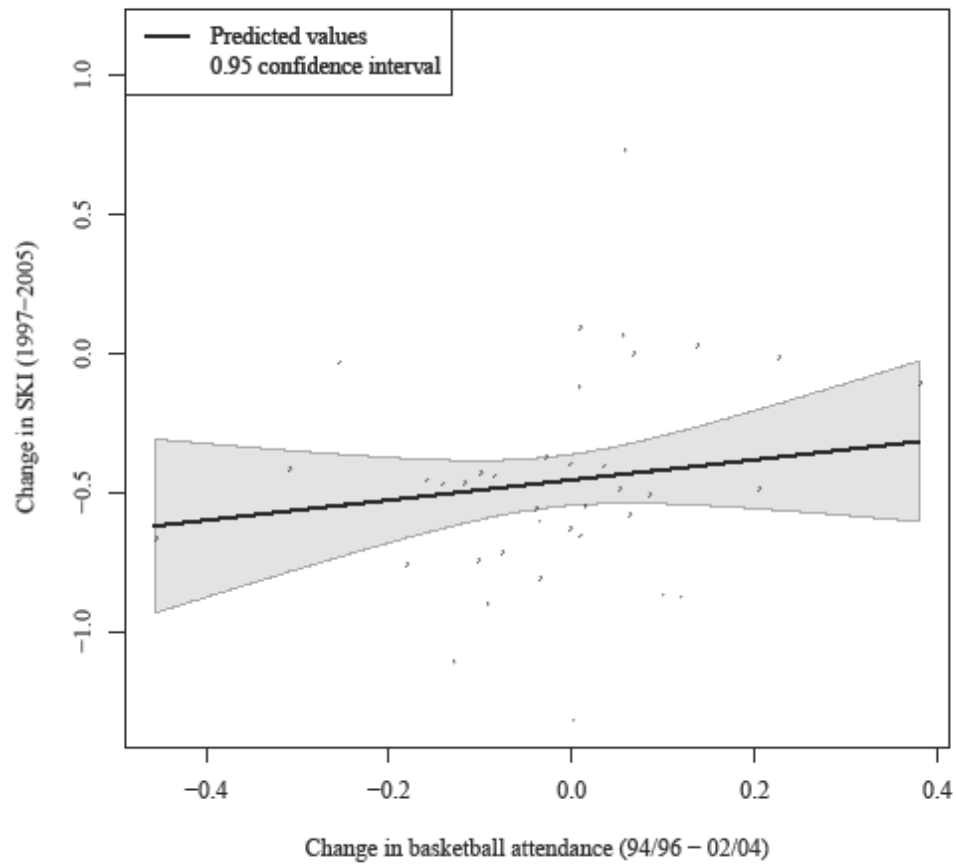


Figure 23. Change in basketball attendance (Model 6).

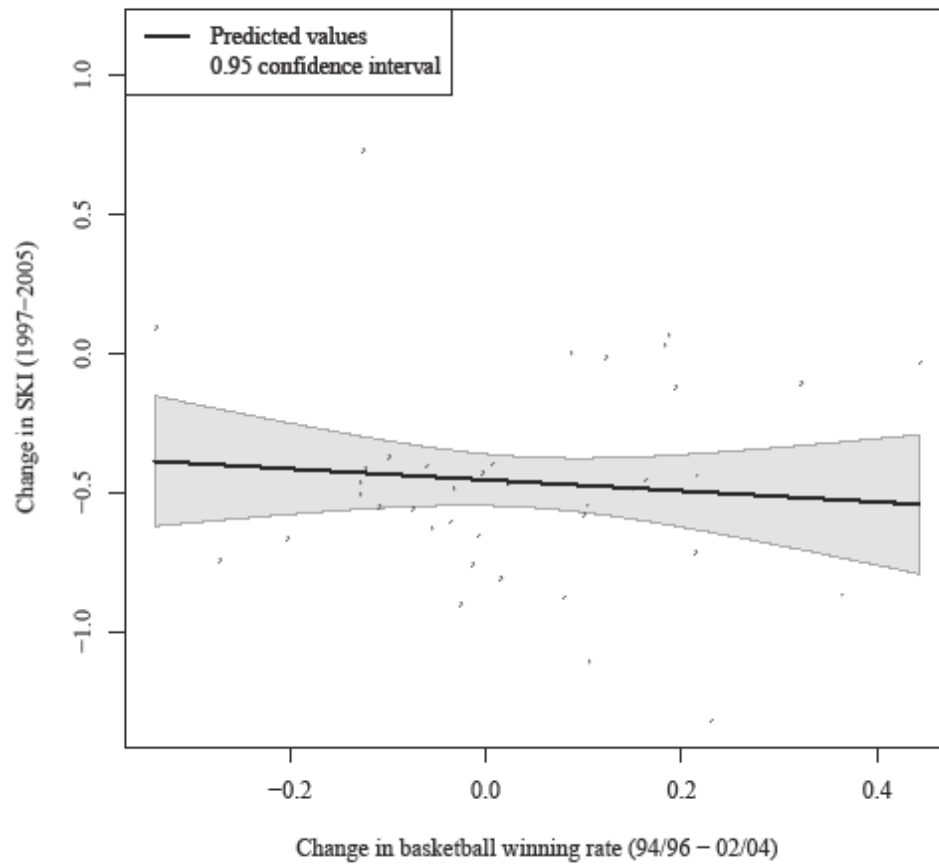


Figure 24. Change in basketball winning rate (Model 6).

Results of Model 7: 5-Year Average Lag Effect Model Time Period 1

The five-year average lag variables for time Period 1 model does not predict the change in social capital index from 1990 to 1997. The results for Model 7 are listed below in Table 12.

Table 12
Results of Model 7: 5-Year Average Lag Effect Model Time Period 1

	Estimate (S.E.)	
(Intercept)	0.155	(0.099)
Change in five-year average football attendance (FA8589 - FA9296)	0.932	(0.787)
Change in five-year average football winning rate (FW8589 - FW9296)	0.034	(0.540)
Change in five-year average basketball attendance (BBA8589 - BBA9296)	-0.070	(0.428)
Change in five-year average basketball winning rate (BBW8589 - BBW9296)	-0.263	(0.585)
Change in unemployment rate (unemployment90 - unemployment97)	0.009	(0.093)
Change in poverty (povrate90 – povrate00)	0.930	(5.242)
N	38	
RMSE	0.444	
R ²	0.074	
adj R ²	-0.105	
* p ≤0.05** p ≤0.01*** p ≤0.001		

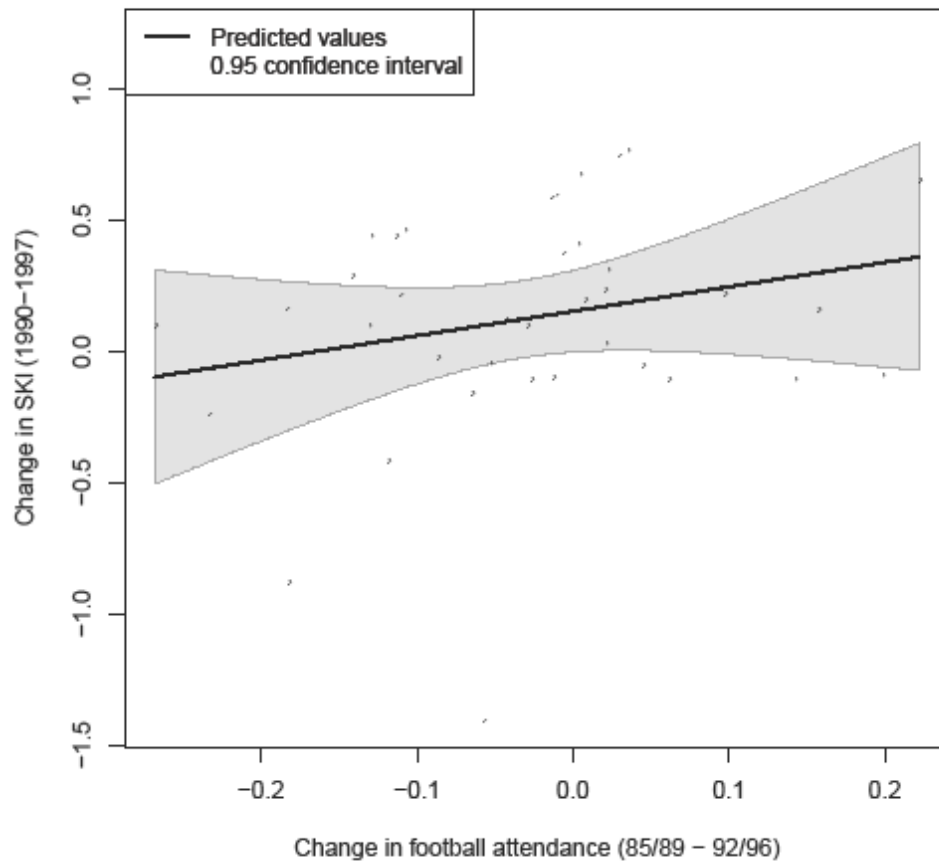


Figure 25. Change in football attendance (Model 7).

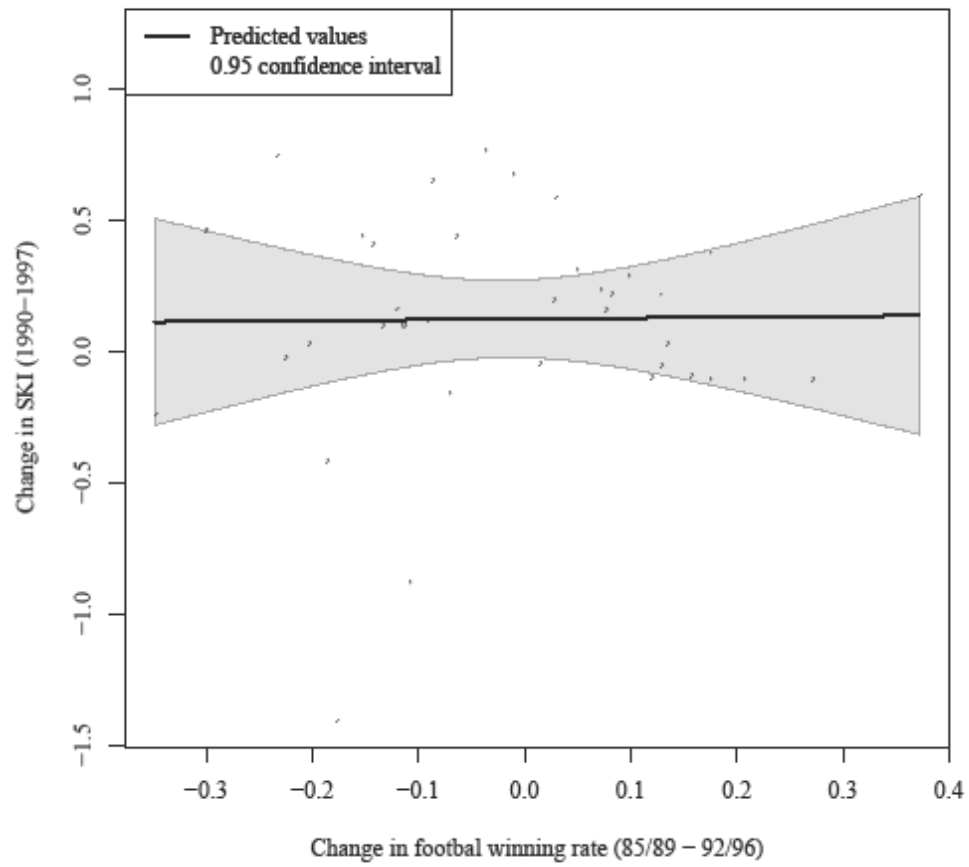


Figure 26. Change in football winning rate (Model 7).

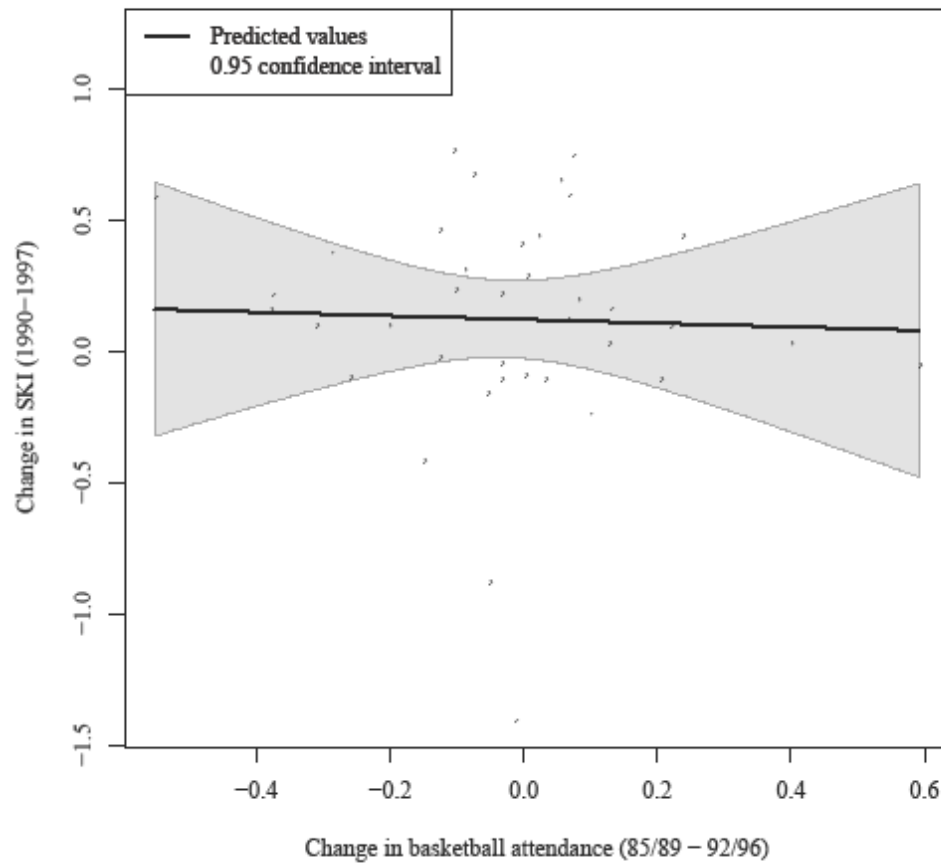


Figure 27. Change in basketball attendance (Model 7).

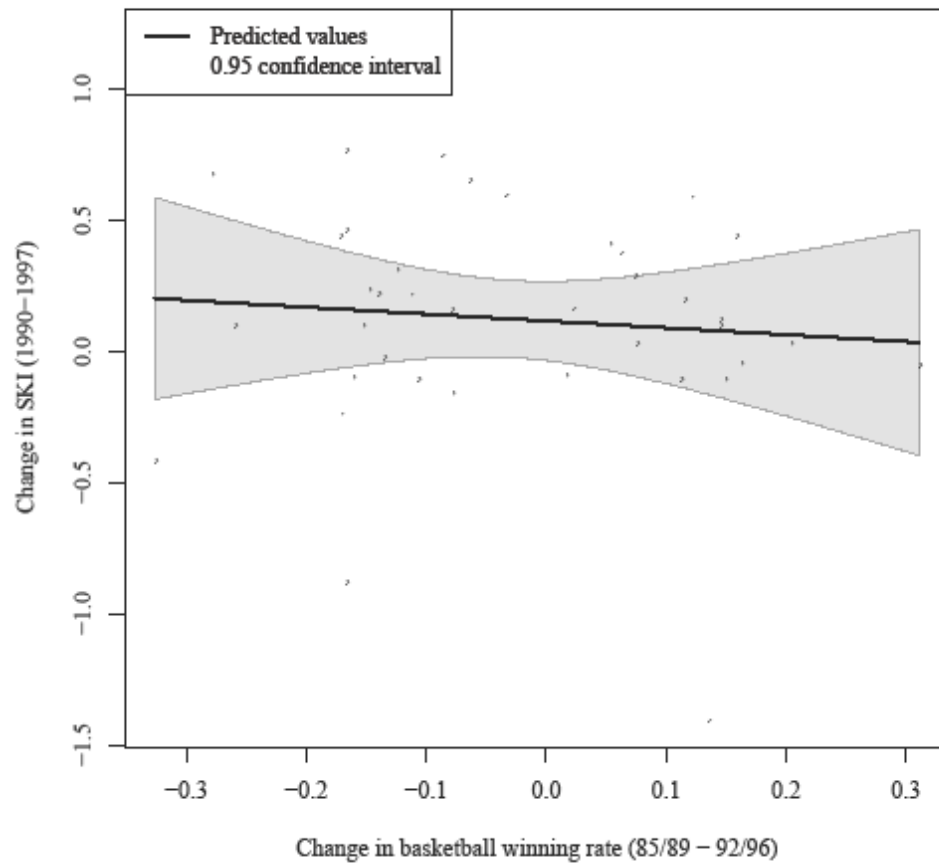


Figure 28. Change in basketball winning rate (Model 7).

Results of Model 8: 5-Year Average Lag Effect Model Time Period 2

The results of Model 8 are listed in Table 13. Among all the five-year average lag predictors in the model, the change in football attendance from 92/96 to 02/04 can significantly predict the change in social capital from 1997 to 2005. A change of one unit in football attendance contributes to a 1.518 unit increase in social capital index.

Table 13

Results of Model 8: 5-Year Average Lag Effect Model Time Period 2

	Estimate (S.E.)
(Intercept)	-0.495*** (0.074)
Change in five year avg football attendance (92/96-00/04)	1.518*** (0.414)
Change in five year avg football winning rate (92/96-00/04)	0.369 (0.270)
Change in five year avg basketball attendance (92/96-00/04)	0.234 (0.366)
Change in five year avg basketball winning rate (92/96-00/04)	-0.114 (0.365)
Change in unemployment rate (1990-1997)	-0.123 (0.069)
Change in poverty (2000-2010)	7.748* (3.481)
<hr/>	
N	38
RMSE	0.281
R ²	0.538
adj R ²	0.449

* p ≤ 0.05 ** p ≤ 0.01 *** p ≤ 0.001

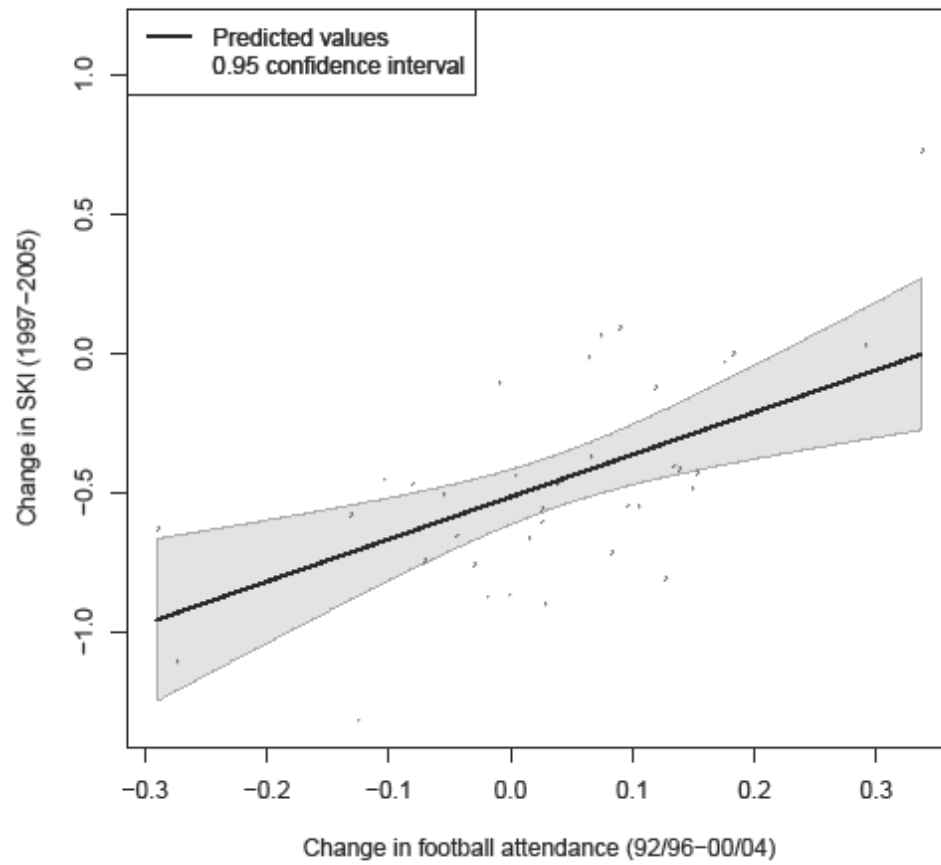


Figure 29. Change in football attendance (Model 8).

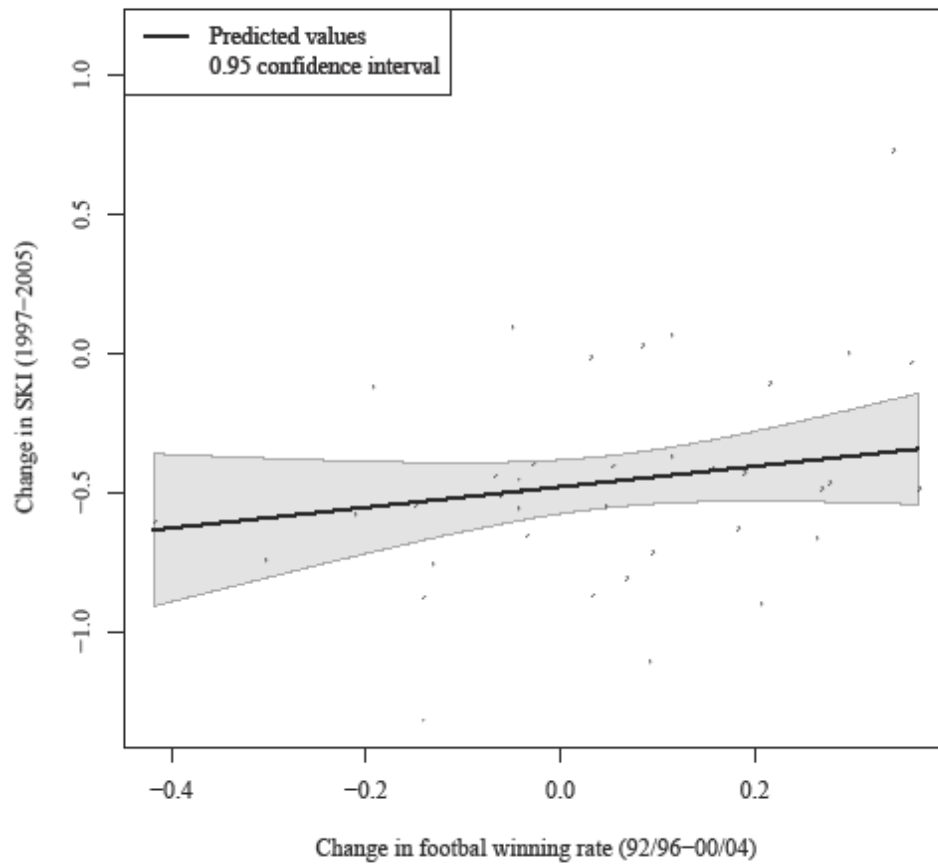


Figure 30. Change in football winning rate (Model 8).

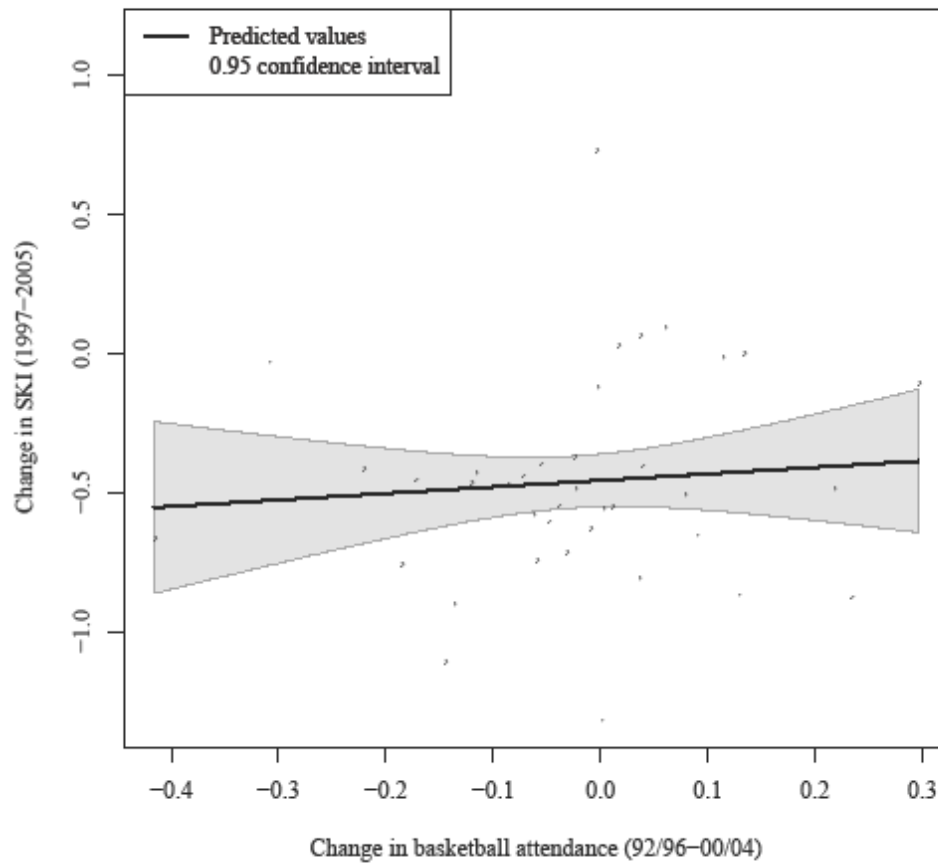


Figure 31. Change in basketball attendance (Model 8).

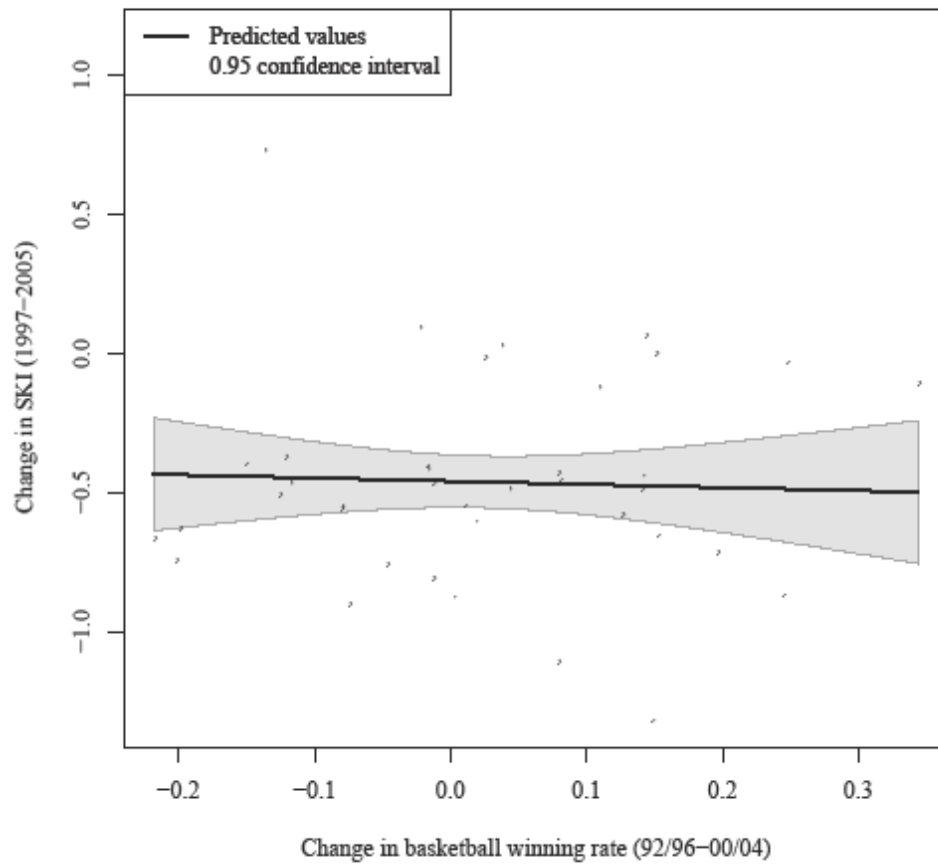


Figure 32. Change in basketball winning rate (Model 8).

CHAPTER 5: DISCUSSION AND RECOMMENDATIONS

The financial resources invested in sports facilities are escalating at a pace far exceeding the growth of the economy. For example, in January 2016, a professional football team worth \$1.45 billion announced it was relocating after negotiations with the former city officials disintegrated over funding for a new stadium. Brazil budgeted \$18 billion for hosting the 2016 Olympics despite running a shortfall of more than \$10 billion after spending \$13.3 billion for the 2014 FIFA World Cup (Zimbalist, 2011). Although the NFL teams and the Olympics have more impact than universities on their communities, the comparison is important to note. The pressure on local legislators in Las Vegas to support public facing projects such as sport facilities continues to grow.

Although the completion of the study has taken four years, researchers are still not targeting social capital as an alternative to determining the impact of athletic facilities. To fill this void, this study began in an effort to determine the role of urban university athletic department success on social capital of a community. Within this determination, two further issues were studied:

1. Given that many factors impact the social capital of a community, do athletic success indicators make a measurable difference?

2. Given a greater understanding of athletic success, do these indicators influence social capital with a time lag?

This study provides university administrators and officials with evidence of community influence and a foundation for further analysis. The drive for educational institutions and communities to continue to grow in cooperation with one another will continue for the

foreseeable future. Analyzing mutually beneficial influences, both financial and political, taps into the passionate demographics that support college athletics.

After extensively reviewing existing public policy literature, economic findings, and a career path through multiple Division I universities, the anticipation was that athletic success variables would have positive impact on the social capital index. The regression models indicated some positive correlations, but the results lacked the statistical significance needed to influence public policy. However, the groundwork has been created to meaningfully direct university officials and legislators toward a conversation on cooperation when considering funding of athletic facilities.

Method and Variables

In an effort to answer the research questions presented, the method utilized for this study was a linear regression with some corrected standard errors for parameter estimates in eight models. The procedure for determining the models best fit began with a list of independent variables and covariates that differed from the final product. The independent variables employed for the regression models were slightly modified as the analysis progressed.

Athletic success measures: Football attendance average (1), Men's Basketball attendance average (2), Football winning percentage (3), Men's Basketball winning percentage (4), Football postseason appearance (5), and Men's Basketball postseason wins (6).

The statistics for athletic success measurables were obtained from the member institutions that fit the designated criteria. Football and men's basketball attendance average was measured as a percentage of total capacity. Football and men's basketball winning percentage was measured against winning 100% of the games.

Football postseason appearance was treated as a dummy variable with a “1” indicated as a bowl appearance and “0” indicated for non-bowl eligibility. Basketball postseason appearances were also treated as a dummy variable with a “1” indicating an appearance and a “0” indicating no appearance. As explained in Chapter 4, without a scale to use these variables and measure across the three data sets, the outcome only had three possible values (-1, 0, 1). However, short of a solution for this scale issue, the bowl game (BG) and postseason (BP) data points were removed from the regression models.

To control for outside economic factors, there was an attempt to use seven covariates targeted at economics. Five of these seven were eventually eliminated because the data were inconsistent and unavailable for all counties. The five removed covariates will be briefly discussed to help guide future studies.

Economic Covariate #1: Poverty Rate (povrate90, povrate00, and povrate10)

The poverty rate of a county is measured by the U.S. Department of Commerce, and more specifically, the United States Census Bureau (“USA Counties,” 2008). Poverty is an important indicator in the health of a community and, “Economists from the World Bank reported that social capital, which is characterized by trust and social bond, played an important role in poverty reduction” (Sun, Rehnberg & Meng, 2009, p. 2). This variable is measured in the study as a percentage of the county population below poverty level and expected potential to indicate the improvement of quality of life in a county. Unfortunately, the poverty rate is only measured in the census conducted every 10 years leading the study to make some assumptions in using data from 1990, 2000, and 2010 to fit the time periods for these models (1990-1997 and 1997-2005).

Economic Covariate #2: Unemployment (unemployment90, unemployment97, unemployment05).

The health of an economy is often measured by the unemployment rate. These statistics are retrieved from the United States Census Bureau (“USA Counties,” 2008). This data is more readily available than the poverty rate and matched up for each year of the models.

Economic Covariate #3: Volunteer Rate (removed).

The volunteer rate of a county is taken from the Corporation for National and Community Service data set (Corporation for National and Community Service, 2013). Campaigns from leadership in the United States, United Kingdom, and other developed countries has put an emphasis on volunteering as a way to increase social trust. (Yang 2013) Studies have shown, “...an increase in the number of compulsory volunteer hours for the young cohort increases their total volunteer hours, the social capital level, and hence public good provision” (Yang, 2013, p. 33). Due to lack of data prior to 2000 and inconsistent methods for reporting (percent of population, total hours, hours per capita, etc.), this covariate was eliminated from consideration for the models. The positive implication of volunteering should direct future studies to use this as a measured indicator as per capita hours of volunteering and potential to indicate the improved quality of life in a county

Economic Covariate #4: Business Lawsuits Filed (removed).

The number of lawsuits filed between businesses is a measure taken from each county on an annual basis. Trust and civic cooperation are large factors in social capital and, “trust and norms of civic cooperation are stronger in counties that are less polarized” (Knack & Keefer, 1997, p. 1252). Due to several counties having zero records of this type of litigation, this covariate was removed from the models. A larger number of lawsuits filed between business

entities would negatively affect the trust and social capital of a community and would be a fit to include in future analysis.

Economic Covariate #5: High School Graduation Rates (removed).

The high school graduation rates per county are available through various state and local education associations. A county with a growing social capital should reduce, “the negative effects of financial and human capital on dropping out of high school. Conversely, smaller amounts of social capital should reduce the positive effects of financial and human capital on leaving school” (Teachman et al., 1997, p. 1345). States have varying divisions for school districts that can be as small as a township and as large as an entire metropolitan area. These differences negatively impacted reporting and the ability to readily access this data for every county; therefore, this covariate was removed. Future studies would benefit from analyzing the correlation between graduation rates and social capital.

Economic Covariate #6: Crime Rates (removed).

The violent crime rate of a county is measured by the U.S. Department of Commerce, and more specifically, the United States Census Bureau (“USA Counties,” 2008). The relationship between crime and social capital is complex and can have a positive or negative correlation. (Lederman, Loayza, & Menendez, 2002; Perkins et al, 1990) Lederman, Loayaz, and Mendez (2002) showed that in spite of the complexity, “the prevalence of trust on community members seems to have a significant and robust effect of reducing the incidence of violent crimes” (p. 511). The definition of a violent crime by county and management of records are inconsistent. In addition to reporting inconsistencies, the willingness of counties to provide the information for academic purposes prevented any further analysis of this data for the models.

Economic Covariate #7: Building Permits (removed).

The valuation of new building permits granted in a county per capita is measured by the U.S. Department of Commerce, and more specifically, the United States Census Bureau (“USA Counties,” 2008). As previously mentioned, “in high social capital communities people may trust each other more...since financial contracts are the ultimate trust intensive contracts, social capital should have major effects on the development of financial markets” (Guiso et al., 2004, p. 526-527). This data was exceedingly difficult to uncover in earlier years and was eliminated early in the process. Tracking the number of new building permits will indicate economic and financial health and are assumed to have positive influence on social capital. Future use will benefit by standardizing building permit data which will ensure the data will not be influenced by population growth.

Models

The models used here were selected through a process of elimination and analysis. The two proposed regression models in this study cover two different time periods to investigate temporal changes. The temporal difference or change in each variable between 1990 and 1998 served as Model “1” and the change between 1998 and 2005 served as Model “2.” The base model utilized for this study was:

$$Y_{rt} = \beta_0 + \beta_1 X_{rt}$$

Utilizing this model for the two time periods and the varying degrees of time lag per time period resulted in eight models. This reflected an attempt to accurately determine the impression of athletic success on social capital of a community in two time periods without knowing precisely how immediately the impact of athletic success would influence the social capital index. A brief list of the eight models follows:

- Model 1: Year To Year Model (Change In Social Capital Index 1990 To 1997)
- Model 2: Year To Year Model (Change In Social Capital Index 1997 To 2005)
- Model 3: 1 Year Lag Effect Model Period 1
- Model 4: 1 Year Lag Effect Model Period 2
- Model 5: 3-Year Average Lag Effect Model Time Period 1
- Model 6: 3-Year Average Lag Effect Model Time Period 2
- Model 7: 5-Year Average Lag Effect Model Time Period 1
- Model 8: 5-Year Average Lag Effect Model Time Period 2

Findings

The models that analyzed the relationship of urban university athletic program success and social capital variables were developed from several sources of data. Although the eight models were helpful, they unfortunately were not, statistically significantly. Three of the eight models (Model 4, Model 6, and Model 8) had an aspect that was statistically significant and served as an indication for where further research can focus. The hypothesis and results will be analyzed here in two sets, those models with statistically significant conclusions and those without.

Model 4, Model 6, and Model 8 each used data from time Period 2 with a different attempt to measure the lag effect of the athletic success. Unemployment and poverty rates also had an effect on the social capital index. The difficulty in validating the signs of the covariates (unemployment and povrate) should be noted. As unemployment increased, the social capital index for a county decreased. However, counterintuitive, as poverty (povrate) increased in the period, the social capital index was positively influenced. It is the belief of the author other

factors were not identified but they impacted this variable relationship and should be further studied.

The results of Model 4 indicated that social capital index seems to be influenced by the change in average football attendance. In summary, a rise of 1 in average football attendance contributed to a 0.826 unit increase in social capital index for the county. This model delivered the beginning of a potential statement about football attendance and social capital index results, but would be more useful with further analysis of the estimates for poverty and unemployment.

Model 6 considered time Period 2 using a three-year lag average. A change in average football attendance during time Period 2 (FA9496 to FA0204) influenced the social capital index in this study. A change of one unit in average football attendance during the time period contributed to a 1.335 unit increase in social capital index.

The change in football attendance from 92/96 to 00/04 in Model 8 showed it can significantly predict the change in social capital index from 1997 to 2005. A change of one unit in football attendance contributed to a 1.518 unit increase in social capital index. It is important to note that the factor of impact on the social capital index increased from the one year lag (0.826), to the three-year average lag (1.335), to the highest in the five year lag model (1.518).

Model 1, Model 2, Model 3, Model 5, and Model 7 did not produce statistically significant results. Each of the independent variables in Model 1 were insignificant with robust standard error. The p value from Breusch-Pagan test was less than .01, and, therefore, the robust standard error was utilized. Model 2 was the year-to-year model for time Period 2 and was similar to the results from Model 1; the data points did not predict the change in the social capital index for time Period 2. In conclusion, none of the year-to-year athletic success data points predicted the change in the social capital index from 1990 to 1997 or 1997 to 2005. This lack of

immediate impact in same year models was correctly anticipated earlier and proves that the study was correct in utilizing time lag models for analysis.

In brief, Model 3 demonstrated that all the one lag year athletic success variables will not predict the change in social capital from 1990 to 1997. The three-year average lag for time Period 1 (Model 5) and variables did not significantly predict a change in social capital. Similarly, Model 7, the five-year average lag variables for time Period 1 model did not predict the change in social capital index from 1990 to 1997.

Discussion and Limitations

Social anchor theory is an intuitive theory based largely on common sense. Social anchors first entered the literature in the 1990s (Clopton & Finch, 2011; Seifried & Clopton, 2013). A social anchor in the community is any institution “that acts as a support for the development and maintenance of social capital and social networks. Social anchors may range from schools, sports, corporations, or natural structures” (Clopton & Finch, 2011, p. 70). Despite this broad definition, surprisingly few institutions can be classified as social anchors. Higher education professional organizations and major academic publications, as described by Ostrander (2004), are part of a larger movement to include civic engagement in long term planning. The institution must assist in social capital development through bridging and bonding with community members while reaching across gender, race, and other boundaries by providing a collective identity for community members (Clopton & Finch, 2011).

One of the most public facing methods of bridging a gap with the community is through a university athletic department. Baade and Sundberg (1996), in line with the purpose of this study, established a positive correlation between the success of alumni donations and athletics. The authors analyzed the effects of football and men’s basketball team success, but also explored

additional factors indirectly influencing alumni giving. They concluded that athletic team success did not directly influence alumni giving, but athletic team appearance in a postseason game did positively influence giving. Postseason alumni giving was most often associated with a successful season. The end result was that a postseason appearance legitimized a successful season and gave further motivation to alumni to contribute (Baade & Sundberg, 1996a, p. 800).

The main research question measured the role of urban university athletic department success on the social capital index of a community. To attempt to answer the question eight regression models were designed with the addition of athletic success variables, additional covariates, and an accepted social capital index. It was the hypothesis that with an increase of the athletic success variables, there will be a positive impression on social capital index of the community. Finding an answer, to the affirmative or negative, will guide future spending on projects that do not on the surface meet the mission statements of cities or universities.

The first subquestion studied was to determine which athletic success indicators correlated to a measurable difference in the social capital index of a community. The second subquestion studied was to determine whether a specific time lag impacted the immediacy of the effect of athletic success on the social capital of a community.

Future research on community social capital and athletic program success should address the main limitations of this study. The first limitation was the total number of data points studied: with only 38 counties, the regression models were overly influenced by outliers. Manipulating the parameters and decreasing the threshold for metropolitan statistical area populations added more counties. With 129 Division I football programs, approximately 91 additional athletic success data sets might be available for the study. In addition, some universities that now participate in Division I football were located in metropolitan areas that did not qualify for the

start of this study, which included UNC-Charlotte, Old Dominion, South Florida, Florida International, Florida Atlantic, and Georgia State.

A second limitation of this study was the inconsistent and inaccurate record keeping of the athletic success data. Several sets of this information appeared rounded or inaccurate. Without firsthand knowledge of the record keeping methodology at each university there is no way to directly cross check the data. While these inconsistencies appeared less in the more recent data, there is not a simple solution to avoid these issues from impacting the study in the older available data.

An inability to control for outside economic factors in a two period study is a final limiting factor. Significant economic events on a national or regional level would indirectly have a bearing on social capital index of a community. Incidents may register in the social capital index or the covariates chosen for the models, but if not properly controlled for, the incidents will skew results in an undetermined and unmeasured manner.

Conclusions and Future Research

While the regression models did not produce the as statistically significant results as anticipated, the outcomes strongly signaled that the research question should be further analyzed. In conclusion, there are three major items to highlight. The first item identifies the athletic success variables changing degree of impact on the social index based on the lag utilized in the model. The data and social capital index from the one-year, three-year, and five-year averages reflected in the regression models in Period 2 leads the discussion on this question. The results of the models indicated that the most successful indicator of social capital index in a community is the average football attendance over a five-year period and increased as the time lag increased. Specifically, the data for football attendance average in the one year lag model in Period 2 demonstrated a .826 unit impact on the social capital index. Meanwhile, the football attendance three year and five year average lag for Period 2 revealed 1.335 and 1.518 unit impact on the social capital index.

The second element of note in the conclusion is that time period 2 held statistical significance while time period 1 did not produce significant results. Most notably, the role of athletics in society has changed greatly since 1990. In 2016, “Sports” is considered an industry or a sector of business and has gained enough importance that more than 300 universities offer masters-level degree programs in sports management. As the importance of sports has increased, it would be instinctual that the role of athletic success on social capital would also increase. This may, in part, answer why football attendance demonstrated a statistically significant impact on the social capital index in period 2 but did not in period 1. This could also imply that the role of athletic success would be even greater in future research that targeted a later time period (2005-2015). In addition to the increased impact of football attendance, there was a significant

difference in the output adjusted R squared components in Period 2 from Period 1. The adjusted R-squared outputs in Period 2 models were all higher than in Period 1, indicating a better predictability for the models and a signal of the increasing importance of athletic success.

The third overarching idea is to focus on the impact of football attendance and the lack of impact from winning percentages and basketball attendance. This conclusion could be misleading as attendance is often impacted by winning percentages, but it is important to consider moving forward. One hypothesis concerning why football attendance would be relevant as opposed to other variables is the larger number of attendees for football versus basketball. This might be difficult to prove, but should be considered for additional studies. Another hypothesis is that the collective nature of sporting events is far more important to the community than is the actual on field performance. A potential method for studying the lack of the impact of winning percentages would be to analyze National Football League team average attendances in a model with social capital. The discovery of a similar impact on social capital will create a more robust model reaching beyond the university athletic programs currently employed in the study.

One of the biggest shortfalls of the study was the resources to gather information. The addition of covariates could have helped control the outside factors better and give a clearer picture of the role of athletic success – but with limited time and resources to standardize the data from 38 (or more) counties – it was an insurmountable task. Future research must focus on including controlling covariates to minimize the economic and social factors that are not directly related to the influence of athletic venues. The addition of more counties and universities will also help fill the gaps created by having an N of only 38. For example, since 2010, more schools are playing Division 1 football – UNC Charlotte, Old Dominion, FIU, FAU, Georgia State just to name a few. Lowering the threshold on the metropolitan statistical area from 1 million to

500,000 would open up additional universities – such as my current employer, the US Air Force Academy. This is an important idea to work towards and is a great concept on paper, but very difficult in practice to control for everything outside of the study.

An additional contributing factor in future studies is the potential multicollinearity of the poverty rate in unemployment. While it is undetermined at this time, this might have led to the counter intuitive nature of the impact of the two factors in the currently employed model. With continued analysis of the model, further clarity might be obtained by switching the left and right sides of the equation to see if the social capital index has impacts on the athletic success variables.

Four years have passed since the research question was presented for this study and the exploration of the data began. The debate of economic support from the University of Nevada at Las Vegas for an athletic venue has only increased in volume. Las Vegas provides a cross section of the conversations between city legislators and university officials in across the country. Researchers need to press for a seat at the table and a voice in these conversations. Academic resources provide for unique perspectives that can be used more efficiently than current conditions allow. By analyzing an economic debate in a nontraditional avenue – such as via social capital – research can better present the long term lift or drag of investing the finite resources of a university or municipality. If the goal of a university is to embrace the role of social anchor in a community, researchers must insert themselves into the discussion and help stakeholders see through a different lens this old conversation in Las Vegas.

APPENDIX A

DATA: URBAN UNIVERSITIES

The 50 urban universities with NCAA Division I basketball and football teams follow:

Akron University	University of North Texas
Arizona State University	University of Oklahoma
Boston College	University of Pittsburgh
Duke University	University of South Florida
Florida International University	University of Southern California
Georgia Institute of Technology	University of Texas, Austin
Georgia State University	University of Texas, San Antonio
Kent State University	University of Utah
Middle Tennessee State University	University of Washington, Seattle
North Carolina State University	Vanderbilt University
Northern Illinois University	
Northwestern University	
Ohio State University	
Old Dominion University	
Rice University	
San Diego State University	
San Jose State University	
Southern Methodist University	
Stanford University	
Temple University	
Texas Christian University	
Texas State University	
Tulane University	
United States Military Academy	
United States Naval Academy	
University at Buffalo	
University of Alabama at Birmingham	
University of California, Berkeley	
University of California, Los Angeles	
University of Central Florida	
University of Cincinnati	
University of Houston	
University of Louisville	
University of Maryland, College Park	
University of Memphis	
University of Miami, Coral Gables	
University of Minnesota, Twin Cities	
University of Nevada, Las Vegas	
University of North Carolina at Chapel Hill	
University of North Carolina at Charlotte	

APPENDIX B

Data: Urban Communities Influenced by NCAA Division I Schools

State	County	City	School		State	County	City	School
Alabama	Jefferson	Birmingham	UAB		North Carolina	Durham	Durham	Duke
Arizona	Maricopa	Tempe	Arizona State		North Carolina	Mecklenburg	Charlotte	Charlotte
California	Alameda	Berkeley	California		North Carolina	Orange	Chapel Hill	North Carolina
California	Los Angeles	Los Angeles	UCLA		North Carolina	Wake	Raleigh	NC State
California	Los Angeles	Los Angeles	USC		Ohio	Franklin	Columbus	Ohio State
California	San Diego	San Diego	San Diego State		Ohio	Fulton	Akron	Akron
California	Santa Clara	San Jose	San Jose State		Ohio	Hamilton	Cincinnati	Cincinnati
California	Santa Clara	Stanford	Stanford		Ohio	Portage	Kent	Kent State
Florida	Hillsborough	Tampa	South Florida		Oklahoma	Cleveland	Norman	Oklahoma
Florida	Miami-Dade	Coral Gables[3]	Miami		Pennsylvania	Allegheny	Pittsburgh	Pittsburgh
Florida	Miami-Dade	Miami	FIU		Pennsylvania	Philadelphia	Philadelphia	Temple
Florida	Orange	Orlando	UCF		Tennessee	Davidson	Nashville	Vanderbilt
Georgia	Fulton	Atlanta	Georgia State		Tennessee	Rutherford	Murfreesboro	Middle Tennessee
Georgia	Fulton	Atlanta	Georgia Tech		Tennessee	Shelby	Memphis	Memphis
Illinois	Cook	Evanston	Northwestern		Texas	Bexar	San Antonio	UTSA
Illinois	DeKalb	DeKalb	Northern Illinois		Texas	Dallas	University Park	SMU
Kentucky	Jefferson	Louisville	Louisville		Texas	Denton	Denton	North Texas
Louisiana	Orleans	New Orleans	Tulane		Texas	Harris	Houston	Houston
Maryland	Anne Arundel	Annapolis	Navy		Texas	Harris	Houston	Rice
Maryland	Prince George	College Park	Maryland		Texas	Hays	San Marcos	Texas State
Massachusetts	Middlesex	Chestnut Hill	Boston College		Texas	Tarrant	Fort Worth	TCU
Minnesota	Washington	Minneapolis-Saint Paul	Minnesota		Texas	Travis	Austin	Texas
Nevada	Clark	Las Vegas	UNLV		Utah	Salt Lake	Salt Lake City	Utah
New York	Erie	Buffalo	Buffalo		Virginia	Albemarle	Norfolk	Old Dominion
New York	Orange	West Point	Army		Washington	King	Seattle	Washington

APPENDIX C

Raw Data Labels for 1990 - Initial

		COLUMNS							
		AA	AB	AC	AD	AE	AF		
		Time Period "a" Raw Data (1990)							
ROWS		Football Attendance	Basketball Attendance	Football Winning Percentage	Men's Basketball Winning Percentage	Football Bowl Game Appearance	Men's Basketball Postseason Wins		
	1	FBAAtt-90	MBBAtt-90	FBWinPct-90	MBBWinPct-90	FBPostApp-90	MBBPostW-90	1	
	2	FBAAtt-89	MBBAtt-89	FBWinPct-89	MBBWinPct-89	FBPostApp-89	MBBPostW-89	2	
	3	FBAAtt-87/89	MBBAtt-87/89	FBWinPct-87/89	MBBWinPct-87/89	FBPostApp-87/89	MBBPostW-85/89	3	
	4	FBAAtt-85/89	MBBAtt-85/89	FBWinPct-85/89	MBBWinPct-85/89	FBPostApp-85/89	MBBPostW-85/89	4	
		Poverty Rate	Volunteer Rate	Business Law Suits Filed	High School Grad Rates	Violent Crime Rates	Building Permits		
	5	Poverty-90	Volunteer-90	BizLawSuit-90	HSGrad-90	ViolentCrime-90	BldgPerm-90	5	
	6	Poverty-89	Volunteer-89	BizLawSuit-89	HSGrad-89	ViolentCrime-89	BldgPerm-89	6	
	7	Poverty-87/89	Volunteer-87/89	BizLawSuit-87/89	HSGrad-87/89	ViolentCrime-87/89	BldgPerm-87/89	7	
	8	Poverty-85/89	Volunteer-85/89	BizLawSuit-85/89	HSGrad-85/89	ViolentCrime-85/89	BldgPerm-85/89	8	
		AA	AB	AC	AD	AE	AF		

APPENDIX D

Raw Data Labels for 1998 - Initial

		COLUMNS							
		BA	BB	BC	BD	BE	BF		
ROWS		Time Period "b" Raw Data (1998)							
		Football Attendance	Basketball Attendance	Football Winning Percentage	Men's Basketball Winning Percentage	Football Bowl Game Appearance	Men's Basketball Postseason Wins		
	1	FBAtt-98	MBBAtt-98	FBWinPct-98	MBBWinPct-98	FBPostApp-98	MBBPostW-98	1	
	2	FBAtt-97	MBBAtt-97	FBWinPct-97	MBBWinPct-97	FBPostApp-97	MBBPostW-97	2	
	3	FBAtt-95/97	MBBAtt-95/97	FBWinPct-95/97	MBBWinPct-95/97	FBPostApp-95/97	MBBPostW-95/97	3	
	4	FBAtt-93/97	MBBAtt-93/97	FBWinPct-93/97	MBBWinPct-93/97	FBPostApp-93/97	MBBPostW-93/97	4	
		Poverty Rate	Volunteer Rate	Business Law Suits Filed	High School Grad Rates	Violent Crime Rates	Building Permits		
	5	Poverty-98	Volunteer-98	BizLawSuit-98	HSGrad-98	ViolentCrime-98	BldgPerm-98	5	
	6	Poverty-97	Volunteer-97	BizLawSuit-97	HSGrad-97	ViolentCrime-97	BldgPerm-97	6	
	7	Poverty-95/97	Volunteer-95/97	BizLawSuit-95/97	HSGrad-95/97	ViolentCrime-95/97	BldgPerm-95/97	7	
	8	Poverty-93/97	Volunteer-93/97	BizLawSuit-93/97	HSGrad-93/97	ViolentCrime-93/97	BldgPerm-93/97	8	
		BA	BB	BC	BD	BE	BF		

APPENDIX E

Raw Data Labels for 2005 - Initial

		COLUMNS							
		CA	CB	CC	CD	CE	CF		
ROWS		Time Period "c" Raw Data (2005)							ROWS
		Football Attendance	Basketball Attendance	Football Winning Percentage	Men's Basketball Winning Percentage	Football Bowl Game Appearance	Men's Basketball Postseason Wins		
	1	AthVar1-05	MBBAtt-05	FBWinPct-05	MBBWinPct-05	FBPostApp-05	MBBPostW-05		1
	2	AthVar1-04	MBBAtt-04	FBWinPct-04	MBBWinPct-04	FBPostApp-04	MBBPostW-04		2
	3	AthVar1-02/04	MBBAtt-02/04	FBWinPct-02/04	MBBWinPct-02/04	FBPostApp-02/04	MBBPostW-02/04		3
	4	AthVar1-00/04	MBBAtt-00/04	FBWinPct-00/04	MBBWinPct-00/04	FBPostApp-00/04	MBBPostW-00/04		4
		Poverty Rate	Volunteer Rate	Business Law Suits Filed	High School Grad Rates	Violent Crime Rates	Building Permits		
	5	Poverty-05	Volunteer-05	BizLawSuit-05	HSGrad-05	ViolentCrime-05	BldgPerm-05		5
	6	Poverty-04	Volunteer-04	BizLawSuit-04	HSGrad-04	ViolentCrime-04	BldgPerm-04		6
	7	Poverty-02/04	Volunteer-02/04	BizLawSuit-02/04	HSGrad-02/04	ViolentCrime-02/04	BldgPerm-02/04		7
	8	Poverty-00/04	Volunteer-00/04	BizLawSuit-00/04	HSGrad-00/04	ViolentCrime-00/04	BldgPerm-00/04		8
		CA	CB	CC	CD	CE	CF		

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Education

University of Nevada, Las Vegas – Ph.D. Public Affairs, 2016

Ohio University – Master of Sports Administration, 2005

Ohio University – Master of Business Administration, 2004

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Experience

IMG COLLEGE – UNITED STATES AIR FORCE ACADEMY – General Manager (February 2013 to Present)

- Manage relationships for national sales base with multiple clients in Washington DC, St Louis, Texas, Colorado, and California with a goal of presenting their message to the cadets, military leadership, and fan base of the Air Force Academy.
- Sell to and manage more than 100 corporate clients accounting for more than \$2.2 million in property revenue. Sales and number of clients has increased more than 50% since arrival on campus.
- Successfully manage sales staff of two account executives and one property services consultant.

IMG COLLEGE – OHIO UNIVERSITY – General Manager (May 2011 to February 2013)

- Sold to and managed more than 150 corporate clients accounting for more than \$1.3 million in property revenue. Sales and number of clients increased more than 15% after arrival on campus.
- Successfully managed sales staff of two account executives and three graduate student employees.

IMG COLLEGE – UNLV – Assistant. General Manager (January 2010 to May 2011)

- Sold to and managed more than 45 corporate clients accounting for more than \$700,000.
- Sold to and managed clients who chose to utilize the IMG rights at UNLV to access the more than 1,000,000 special event fans. These fans attended events such as National Finals Rodeo, PBR, concerts, NBA Summer League, UFC, WWE, Sesame Street, and several others.

- Started and managed an intern program at UNLV. Prior to 2010, the property had not successfully managed and utilized student and graduate student help.

**LAS VEGAS MOTOR SPEEDWAY (LVMS) – Manager, Business Development
(September 2005 to January 2010)**

- Sold and managed annual suite leases for multiple clients at two facilities. The 165,000-seat Superspeedway hosted two National NASCAR event weekends per year. The 25,000-seat Drag Strip hosted two National NHRA event weekends per year and up to 30 additional regional and local events per year.
- Sold and managed up to \$1.5 million in annual corporate ticket and hospitality sales.
- Sold and managed up to \$800,000 in advertising for clients at several levels including Race Series sponsorships, permanent signage, event displays and sampling, souvenir programs, and numerous other options. Advertising options were available for single events or as annual presence packages.
- Sold and managed special hospitality events hosted at the 13 facilities at LVMS. Events included corporate hospitality or retreats, product launches, conventions, meetings, racing series, and a wide array of other events.

**TEXAS CHRISTIAN UNIVERSITY ATHLETICS – Assistant Director Sports Marketing
(April 2005 to August 2005)**

- Supervised, coordinated, implemented, and sold sponsorships for TCU Volleyball, Soccer, Women's Basketball, and Baseball.
- Oversaw and planned 2005 TCU Western Heritage Day. The event, in its third year, catered to over 30,000 fans attending a TCU Football game. Also signed and provided over 50 vendors the opportunity to showcase their products to the Fort Worth community.
- Assumed responsibility for game management for over 60 events per year including football, volleyball, soccer, men's basketball, women's basketball, and baseball. Duties included selecting promotions participants, running promotions, facilitating autograph sessions, distributing giveaways, and game scripting.
- Coordinated all actions between the public address announcer, video board operator, ESPN video-truck operating crew, and on-field marketing staff at every home football game.

**APPALACHIAN REGIONAL ENTREPRENEURSHIP INITIATIVE – Business Consultant
(July 2003 to April 2005)**

- AREI consultant. Helped underdeveloped or start-up companies in Southeast Ohio build business plans, review their financials, and develop marketing and commercializing strategies.
- Worked with wide range of companies including BC Publishing (software), VinylKraft (window manufacturer), New World Furniture (handmade furniture), Whisper Vent (bathroom accessories), Sarah's Beverage (convenience store and pizza shop), Lifelong Learning (extension of Ohio University), and Gheen Industrials (heavy machine rentals).