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Comparing Recreational Amenities Of University Towns And Non-University Towns

Timothy Allen Bisantz

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Comparing recreational amenities of university towns and non-university towns

By

Timothy A. Bisantz

Thesis
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Master of Science
in Sports Administration
in the Department of Kinesiology

Mississippi State, Mississippi

August 2012

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By

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Comparing recreational amenities of university towns and non-university towns

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Recreational amenities present great value for the community. Their existence provides an improved quality of life, offers a connection with the natural surroundings, and facilitates a healthy lifestyle. While communities continue to create and operate recreational facilities/areas, the presence of such facilities may have indirect effects on the general population. Specifically, this thesis will compare the presence of recreational amenities in metropolitan statistical areas that contain universities which are a part of the Association of American Universities (AAU) and metropolitan statistical areas with similar populations and geographic characteristics that don't contain an AAU-member institution.

DEDICATION

This thesis is dedicated to those who pursue knowledge. The pursuit of knowledge is never ending. Thus, humankind must strive to learn from the education and the environment we have come to love through our lifetime.

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LIST OF TERMS

AAU – American Association of Universities

MSA – Metropolitan Statistical Area

CAFR – Comprehensive Annual Financial Report

CHAPTER I

INTRODUCTION

Leisure is essential in the existence of human life. Veblen (1899) a pioneer on the concept of leisure, highlighted the cultural nature of leisure. Throughout history, upper-class members of society would use leisure activities to demonstrate their cultural elitist status. As the modern era evolved, Veblen described how all levels of society must act upon their desires as humans to participate in leisure activity. Veblen's book, *The Theory of the Leisure Class* has led to the development of further studies within the field of leisure studies and its value within society.

Although there is some research within the field of leisure, there is little research of the effect leisure/recreational amenities have in correlation with economic development. Although these correlations have never been developed, it is known that leisure programs lead to a better quality of life, which plays an increasingly important role in the economic growth of communities (Deller, Tsung-Hsiu, Marcouiller, & English, 2001).

Importance of Recreational Amenities

Recreational amenities are an important asset for a community. Specifically, amenities can increase levels of attachment to the community while increasing the aesthetic appeal of the community. Investment in amenities through various means could potentially be seen as a community development tool. It's stated that the value of influence education has within a community is tremendous (Galbraith, 1958). Galbraith

believes that investment in public schools and education programs will allow society to thrive.

Galbraith's research on educational programs was a stepping stone for investment in social programs more broadly. Recreation researchers have used his foundation to build further arguments into physical education and recreation. Research in the field has often used health as a proven measurement for communities to invest in recreation. Masuier and Corbin (2006), for example, state that investment in physical education and recreation provides great benefit in a range of areas, such as improved self-efficacy, increased quality of life, increased motivation, decreased stress levels, and long term health benefits. Additionally, they stress the value recreational amenities in facilitation of a healthy lifestyle (Masuier & Corbin, 2006). As MSA's look to invest in the future, this research can be used as a foundation for community leaders to demonstrate the value of recreation programs to the community.

As social programs are seen as a valuable resource within the community, they are also seen as desirable by the citizens of the community. These programs are facilitated by the use of amenities. Given the demand for recreation, citizens will even migrate to amenities (Kruger, 2006). Haigood and Crompton (1998) also state that recreational amenities are capable of recruiting individuals to the community.

While citizens within communities view amenities as quality, they do so with the understanding that they provide both positive social and health implications. Additionally, their value is seen beyond these implications. Recreation is also viewed as a highly-valued function of government (Payne & Schaumleffel, 2008). Recreational amenities are seen as a stable commodity that can be utilized by all citizens while promoting good within the community.

Recreational Amenities and the Creative Class

Richard Florida's work has focused on a socioeconomic subgroup of population known as the "Creative Class". This term includes individuals who utilize their creative potential in their professions to discover problems, create solutions, innovate and evolve their workplace (Florida, 2006).

As members of the creative class look to build on their creativity, they require a community where they can grow, thrive, and sustain a lifestyle compatible to their needs. Three items that are seen as factors in the influence of creative individuals are universities, amenities, and tolerance (Melander & Florida, 2006). In Florida's work, he shows extensively the value of education and its connection to creative class principles.

As Florida has stated the value of the creative class principles, he notes that areas rich in talent tend to be concentrated in settings with high-level research institutions. As an organization, the Association of American Universities (AAU) has held a high standard for its members. Membership within this association is often correlated with high level research institutions. To obtain membership, the AAU has indicators that must be met. These include: doctoral education, a significant amount of resources dedicated to research funding, and high level faculty ratings (Membership Information). Thus, AAU level institutions are located in communities that have large amounts of creative individuals.

Universities and the communities they reside in have always been connected. From sharing resources, the community pride on game day, and the people who work/live in the area, they're inseparable. With their relationship, the university community is special. Florida (2006) states that a high percentage of individuals who are creative class

members are seen in communities with universities when compared to areas with similar population and geographic characteristics without universities.

With a higher concentration of creative individuals in university communities, the needs of these individuals must be met. For the community to thrive, they must adapt to the creative individual. Peck (2005) demonstrates that creative individuals require amenities. With this understanding, it's important to appreciate and study their desires.

To understand recreation amenities of value and the amount of these amenities, this study will look at universal amenities that can be measured. The four amenities measured in the current study are number of dog parks, number of golf courses, number of pools, and the walkability. Additionally, the goal of this study is to add knowledge to the field of recreation.

Given the benefits of recreational amenities and their important role in attracting members of the creative class, the purpose of this study is to compare the level of recreational amenities that exists in university towns and non-university towns. Their comparison will allow for an understanding of the amount of recreational amenities a community has, and if an area should invest in these to attract members of the creative class.

CHAPTER II

REVIEW OF LITERATURE

In this review of literature, I begin by discussing Florida's work on the creative class in order to highlight the value creative individuals have and their influence on the communities in which they reside. Second, I discuss the connections between universities and the presence of members of the creative class within a community. Finally, I highlight the value of recreational amenities and the benefits they provide for a community.

Richard Florida & the Creative Class

Florida suggests that the United States is currently in flux. The nation is currently transitioning from its 19th century roots as an industrial, blue-collar economy toward one that is based on information and technology (Florida, 2006). Guiding this change is a successful socioeconomic group called the 'Creative Class'. This socioeconomic group of the population consists of individuals who use their creative potential as a defining part of their profession. These creative individuals include lawyers, doctors, engineers, and those in science and technology fields.

Community officials must understand what is necessary to facilitate an environment which promotes economic growth. Florida (2006) states that there are "three T's" that provide the necessary desires of individuals who are members of the creative class -- technology, talent, and tolerance. Technology is the communities' ability to function in the information age. Talent is the measured human capital of an area.

Tolerance is the area's ability to provide a diverse environment. Florida suggests these three elements are the largest contributing factors that create an environment supporting the needs and desires of those who promote growth as members of the creative class.

Lee, Florida, and Acs (2004) state that creativity is important for the economic success of a community. This economic success is driven by strong levels of entrepreneurial activity (Lee et al., 2004) research and development (Florida, 1999), and acquiring resources for public use through various means (e.g., CAFR) for social programs (Kaczynski & Crompton, 2006). Additionally, communities thrive when catering to those in creative professions (e.g. high tech companies) (Florida, 1999). Companies do this by backing the livelihood of professional positions that use knowledge to draw conclusions from problems. These knowledge demanding positions provide individuals with competitive wages and the ability to set their own work schedule. From this, individuals within the creative sector can use their professional positions to support their lifestyle choice. This leads companies to set loose standards in their work environment. It also imposes the idea of companies spending time and energy on recruiting the client that can promote their company through social and professional ways. From this, Lee et al. (2004) proves creative positions support growth within the community and demand work environments that have attributes compliant with the 3 T's.

Research by Mellander and Florida (2006) indicates that creative class measures are able to provide measurements that can be used in a role to promote the distribution of human capital. These include: universities, amenities and tolerance. From this, those in the creative class show appreciation for each of these measurement characteristics. Therefore, attaining these measurement characteristics is important for both university and non-university communities to recruit members of the creative class into their area.

Florida, Mellander, and Stolarick (2010) show that within Canada, technology is significant to individuals who are represented within the creative class. In order to assess the level of technology present within a community, Florida et al. (2007) have developed a scale called the tech-pole index, which includes measurements of (1) high tech industrial output as a percentage of total US high tech industrial output; (2) the percentage of the region's total economic output from high tech industries in comparison of the national percentage; and (3) the percentage of skilled labor force. From this, it is seen that creative individuals in multiple countries need technology, talent and tolerance to develop a community's economic endeavors.

Universities & Creativity

Higher education plays a key role in training and attracting members of the creative class. Its unprecedented ability to develop individuals and train talent in an acquired field is paramount within society. In the 21st century, universities have become an engine for innovation, learning and understanding. From this, universities desire to develop talent promotes both the public and private industry (Florida, Gates, Knudsen, & Stolarick, 2006).

As universities push forward in research, their campus provides economic and social impact of the communities they reside in. Pink (2011) states universities are major providers of economic input into their MSA. Florida et al. (2006) have also shown that universities are key catalysts for driving economic development within a community. Because of this, many universities have transitioned from a traditional research and teaching model to revenue generating technology hubs. This switch has shown vast

growth in the value of educational institution, thus, proving educational institutions are a valuable economic commodity.

Industries have taken more involvement in sponsoring research within university settings. This is done to support further research of institutions and to license technology (Florida, 1999). With increased involvement by industries in university research, it requires a focus of both monetary resources and talent to spur economic growth. Florida utilizes examples like the Silicon Valley and the North Carolina Research Triangle which are stable, economically-prosperous regions. From these examples, universities within these regions have attracted talent. With universities, they're able to attract to their region the mobile, high-talented individuals who bring economic growth into the community (Florida, 1999).

Economic growth thrives in places where collections of talented people and places of high human capital are found. Through universities and their ability to produce human capital, they're able to generate and build upon this growth. Florida et al. (2006), states that talent is of the utmost importance in generating growth. Talent is the portion of the 3T's that is absorbed by the community which provides the prosperity for the region. Additionally, this talent is supported by the notion that the community itself supports a tolerant, open environment.

While individuals within university towns are often found with large amounts of talented individuals, it's important for the community to continue evolving utilizing the strengths of the communities themselves. In order to do this, a community should compare itself with one of equal stature. Comparisons should be held with the same census characteristics for population and within the same geographic region. These comparisons are vital for an understanding of university towns and their ability to keep

up with other university towns and those within the same population and geographic characteristics. From these comparisons, relevant data will be able to support local government as they progress towards a better quality of life for their community.

Recreational Amenities

Recreation serves an important role in communities. Those communities that have stressed the value of recreation have seen growth in various forms. This includes profitability and growth of local business, increased land values, and creation of jobs. Recreational opportunities can also diversify the economy (Reeder & Brown, 2005). This is done by adding businesses and creating jobs. Thus, recreational amenities can help provide a positive impact to a community.

Kruger (2006) studied the role of place and community to understand their attachment values with amenities. She concluded that the sociocultural orientation of a community, along with its activities, supports the foundation of an attractive environment for citizens to live. Payne and Schaumleffel (2008), meanwhile, studied the relationship between satisfaction of those in rural communities and the attitudes of their citizens. Their findings led to the belief that those who have higher levels of recreational amenities are more likely to have happier citizens. Johnson and Backman (2010) repeat these findings in various sized communities in South Carolina. They support the belief that recreational amenities lead to a better quality of life. These studies specifically demonstrate that recreational amenities increase the quality of life in various ways. These include providing economic, health, and social benefits to the community.

While those in the field look to prove the value of recreational amenities, many resist the creation of social programs. Kruger (2006) states that through place, geographic

communities are developed. This leads to an increase in the desire to provide amenities within the location. To counter this claim, Haigood and Crompton (1998) state that a community might resist change, especially in those communities with many socioeconomic groups. During their work they viewed the role of recreational amenities in retiree relocation decisions among many variables impacting relocation. The author measured this study sample and drew from individuals within counties of Texas that attracted large number of migrants over the age of 60 to the area. From this study, Haigood and Crompton (1998) concluded that recreational amenities act as a significant predictor of migration. Specifically, recreational amenities such as parks, concerts, festivals, and community led programs, were significantly related to retirees' relocation decisions.

These migration factors are seen through physical and social environment amenities. More people are migrating towards place where people are trying to live the 'good' life. Rudzitis's findings show that 81 percent of people who migrate to the west state amenities are a factor in their migration. (Rudzitis, 1999). The regions have preserved, sustained and strengthened its role in managing amenities in its development strategies while the economic value of the area increases.

The value seen from amenities strengthens the economic growth of the community. As individuals migrate towards amenities, it's seen as an economic growth tool. Through Rutzitis's findings, 59 percent of individuals see outdoor recreation as a primary reason to relocate to a community. From this, it's seen that open space, small town values and natural amenities place greater value on the quality of life. Through migration, attachments to the area are made through increased participation within the community. From this, individuals are attracted to areas with high levels of recreational

amenities (Rudzitis, 1999). This leads to individuals migrating towards areas with higher concentration of amenities. For those who are currently located within the community, these amenities increase their desire to stay within that location (Deller, Tsung-Hsiu, Marcouiller, & English, 2001)

As citizens reside within their community, they look for social interaction to improve their quality of life. Previous studies in this literature review have engaged in the topic promoting recreational amenities as an important factor in the quality of life of the community. Examples of these amenities are seen in a positive relationship between the community and the accessibility to walking trails and parks (Payne & Schaumleffel, 2008). Samplings in this study showed a correlation between the amount of education an individual has, their satisfaction within the community and a value of importance valued in the accessibility to walking trails and parks.

Bicycle and walking trails are seen as a great way for individuals to recreate. Specifically, Krizec (2007) notes that numerous positive outcomes result from the development of biking trails, including an increase in mobility, healthier citizens, and less congestion on major travel routes. All of these factors help develop and show better livability among the residents of communities which have bicycle lanes and facilities.

As Peck (2005) states, creative individuals must be nurtured with amenities that support the creative ecosystem. By investing in walkability, this could potentially service the needs of the creative individual. While walkability could serve the needs of the community, other amenities should be explored.

Deller, Tsung-Hsiu, Marcouiller, & English, (2001) state that various amenities can factor into the quality of life of the community. Development of amenities such as golf courses, swimming pools, tennis courts, and park land could affect the well-being of

the community and increase the value of the community. Additionally, these amenities could help among other issues, including desires to improve infrastructure in a community, the increased support of elected officials in local government, and continued economic growth in the community. Lastly, other recreation amenities should be measured along with their ability to provide an authentic feel. This may draw these individuals to the community; effectively cultivating and rewarding the creative individual.

Based on the evidence about the ways in which recreational amenities can improve citizens' quality of life, combined with the greater presence of members of the creative class in university communities, this research proceeds with the following hypotheses:

- Hypothesis 1: The walkability score within MSA's containing AAU member institutions will be higher than MSA's that do not contain an AAU institution.
- Hypothesis 2: MSAs containing AAU member institutions will have a greater number of golf courses than MSAs without an AAU institution.
- Hypothesis 3: MSAs containing AAU member institutions will have a greater number of swimming pools than MSAs without an AAU institution.
- Hypothesis 4: MSAs containing AAU member institutions will have a greater number of dog parks than MSAs without an AAU institution.

Significance of this Study

With current economic conditions, local governments are looking to raise revenue in support of the needs of the public. From this, the need of research to study ways of promoting economic development in a community is important. Therefore, with the

discovery of new ways to implement economic development opportunities, local government officials can initiate these tactics for their own community in recruitment of creative individuals who value high levels of amenities. While various theorists have presented information on the factors that influence economic growth, this study looks to provide a value of amenities and their influence of economic development patterns. Each amenity may show a positive, negative or no influence with this measurement.

While supporting these endeavors; university communities have an inherent advantage to develop amenities. Their ability to promote an environment with technology, talent, and tolerance is widely seen in Florida's work. In testing, when comparing university and non-university towns while keeping the demographic data constant, economic developers may see the correlation between the amount recreational amenities in an MSA. This would effectively allow communities without the advantage of having an AAU-level institution to recruit individuals of the creative class by investing in these amenities with their limited resources.

This study also contributes to the field of recreational studies and economic development in numerous ways. First, this study adds knowledge in the field regarding levels of recreational amenities that are rarely measured. Secondly, this study contributes to policy makers in charge of economic development for communities. Lastly, this study will contribute to further studies regarding analysis of recreational amenities and their value within their community.

CHAPTER III

METHODOLOGY AND DATA COLLECTION

This study compares the level of recreational amenities that exists in university and non-university towns by investigating four specific measures of recreational amenities: walkability scores, number of golf courses, number of swimming pools, and number of dog parks. I begin by discussing the sample of MSAs included in this study.

Sample

High-level research universities possess the capability of providing large amounts of talent and monetary value to a community. Florida (1999), presents an argument that universities contain large amounts of creativity, thus, increasing the probability of these MSA's being higher on the creativity index. In accordance with reviewing high-level research institutions, the Association of American Universities (AAU) is an organization that facilitates the dedication of universities to research and education. This association represents many high-level PhD granting universities in the United States and Canada. Due to its standards of membership, the current study uses AAU membership to categorize MSAs with and without a high-level university.

This study will present a sample of 20 AAU members representing MSA's between 50,000 and 1,000,000 in population. A second group will be measured representing an MSA with a similar regional geography. The second group members have the same regional and population characteristics and represent cities that are comparable to those included in the first group. No member in the second group is

located more than 270 miles from their equivalent and all but two are located within 101 miles. See Appendix A for full information.

General Model

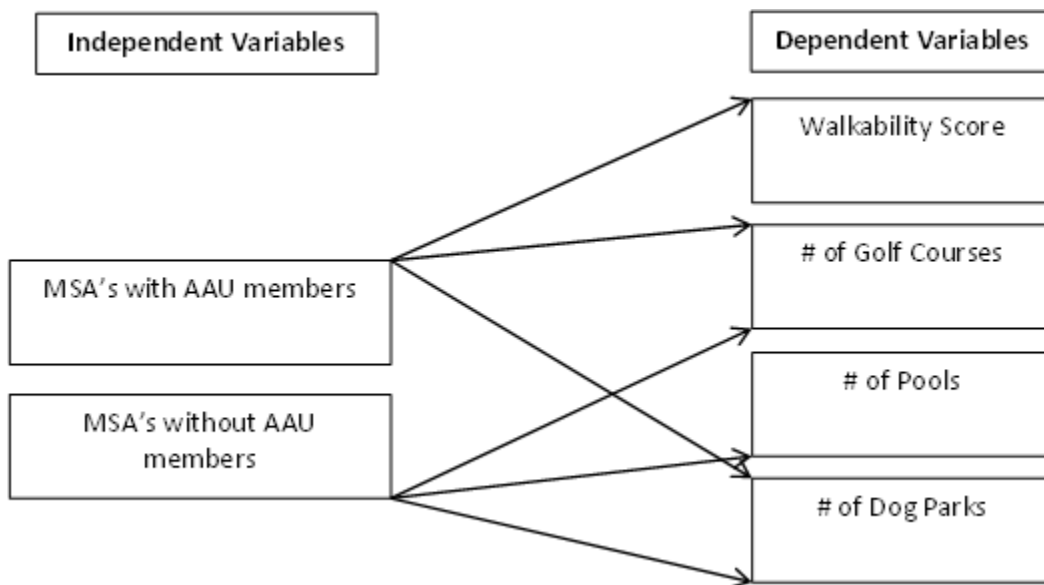


Figure 3.1 General Model

The model in Figure 3.1 outlines two groups of independent variables. Each variable is the collective group of 20 metropolitan statistical areas that have been assigned based upon the criteria of population and geography. These variables have never been measured together nor has it been measured in assessment of work completed by Richard Florida. Figure 3.2 highlights a projected model and the expected relationships presented. All are reflected with a + sign denoting the positive relationship between each dependent and independent variable.

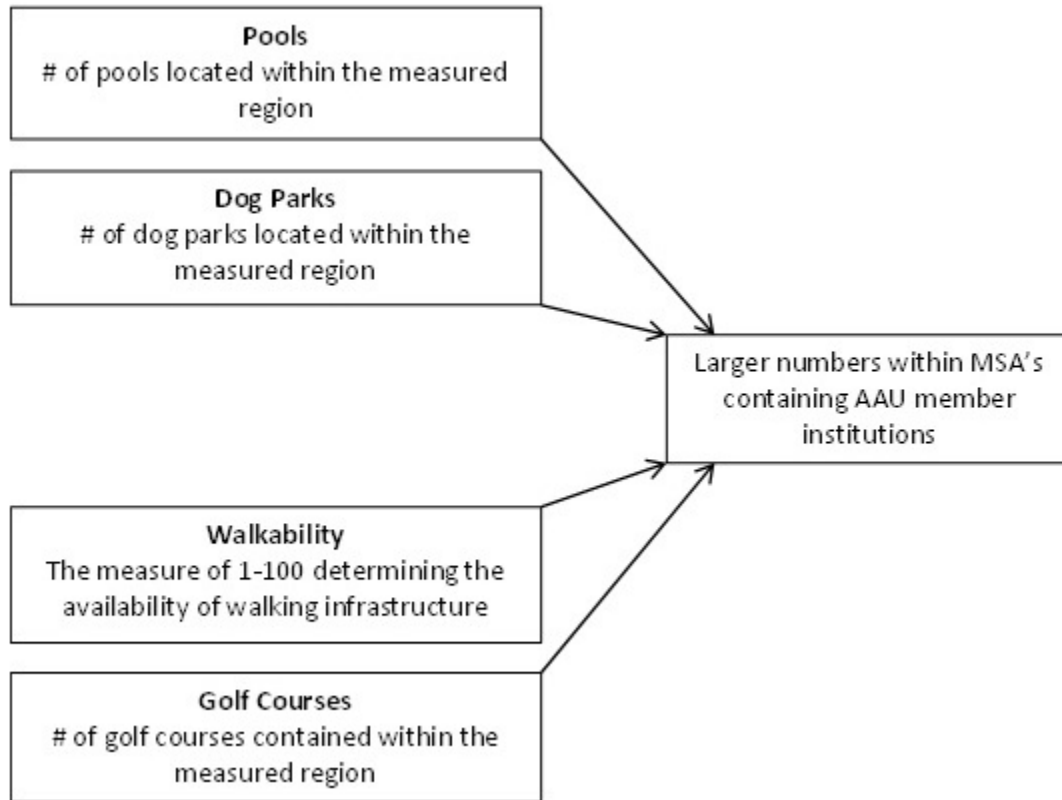


Figure 3.2 Model with Variable Descriptions

Dependent Variables

This study examines four dependent variables to compare the presence of recreational amenities in university and non-university MSAs. These are: the walkability score of the MSA, the number of golf courses located within the MSA, the number of pools located within the MSA, and the number of dog parks located within the MSA.

Walkability Score

The walkability score of an area is defined as the convenience of walking and how easily accessible and safe walking conditions are within the community. This data is calculated and scored on a 1-100 scale by WalkScore. The larger the walk score, the less

dependent the community is on auto transportation. These score can be found through at the website www.walkscore.com.

Number of Golf Courses

The number of golf courses in an MSA was determined by a data gathering application (Hometown Locator) on the website www.golflink.com. This data contained both public and private courses. Despite the private nature of some courses, all golf course data was calculated. As completed, most private courses are accessible for general patron use on certain days, by sponsorship, or by paying an additional fee. An 18 hole golf course was given a value of one, while a nine hole course was given a value of 0.5.

Number of Swimming Pools

Data regarding the number of swimming pools in an MSA was compiled by accessing information from local government websites and making phone calls to local government organizations when necessary. This study included only public swimming pools managed by a municipal entity. Only public pools were calculated because of the large number of small, private facilities that are localized on the property of homeowners.

Number of Dog Parks

Dog parks are designated as specific outdoor facilities dedicated to the purpose of off-leash activity under the supervision of their owner. In this test, any dog park overseen by a federal or state agency will be disqualified from measurement. These items were removed to concentrate on local government controlled amenities. This data was obtained from local government websites.

Independent Variable (MSA's)

This study examines two independent variables. The first includes MSA's between 50,000 and 1,000,000 people that contain AAU member institutions. The second includes MSA's with similar population and geographic characteristics that don't contain an AAU member institution. A full listing of MSAs included in group one and group two can be found, respectively, in Appendix A and Appendix B.

CHAPTER IV

RESULTS

This chapter presents the findings of the analysis. A response to the primary research question is examined and given in this section.

The results will provide insight on the amount of recreation amenities contained within a specified metropolitan region. The results will also provide information that will lead to an understanding of what recreation amenities are valued in areas with a higher concentration of creative individuals. This chapter begins with an assessment of statistics for each dependent and independent variable. Provided with each variable is a description and discussion of the findings (Pink, 2011).

Independent Variables & Descriptive Statistics

Table 4.1 provides a descriptive view of the study's two independent variables. A discussion of the statistics provides background and illustration between the two control groups. This section also provides a comparison of each measured MSA.

Table 4.1 Descriptive Statistics of Independent Variables

Dependent Variable Groups	Minimum Population (MSA)	Maximum Population (MSA)	N	Data Source
MSA's with AAU institutions	89,524 (Ames)	862,477 (New Haven-Milford)	20	Census Bureau
MSA's without AAU institutions	88,830 (Elmira)	692,942 (Springfield, MA)	20	Census Bureau

Variations are found between the measured sample regions. MSA's containing AAU institutions are listed on the organizations governing website (www.aau.edu). Inherent membership within the organization is pre-determined by the governing body through various criteria and curriculum set forth in the organization's laws and bylaws.

The descriptive statistics for MSA's with AAU institutions are shown in Table 4.1 and state the smallest MSA containing an AAU member is Ames, Iowa at a population of 89,524. The largest measured MSA containing a population below the 1,000,000 threshold is New Haven-Milford containing 862,477 individuals.

The descriptive statistics for MSA's without AAU institutions are shown in table 4.1 and state the smallest MSA measured without an AAU institution is Elmira, New York with a population of 88,830. The largest measured MSA without an AAU institution containing a population below the 1,000,000 threshold is Springfield, Massachusetts with a population of 692,942.

Figure 4.1 and 4.2 provides a visual overview of the measured MSA's. Each MSA in group one (labeled on the top of the pair) was paired with a MSA in group two of comparable geographic and population standards.

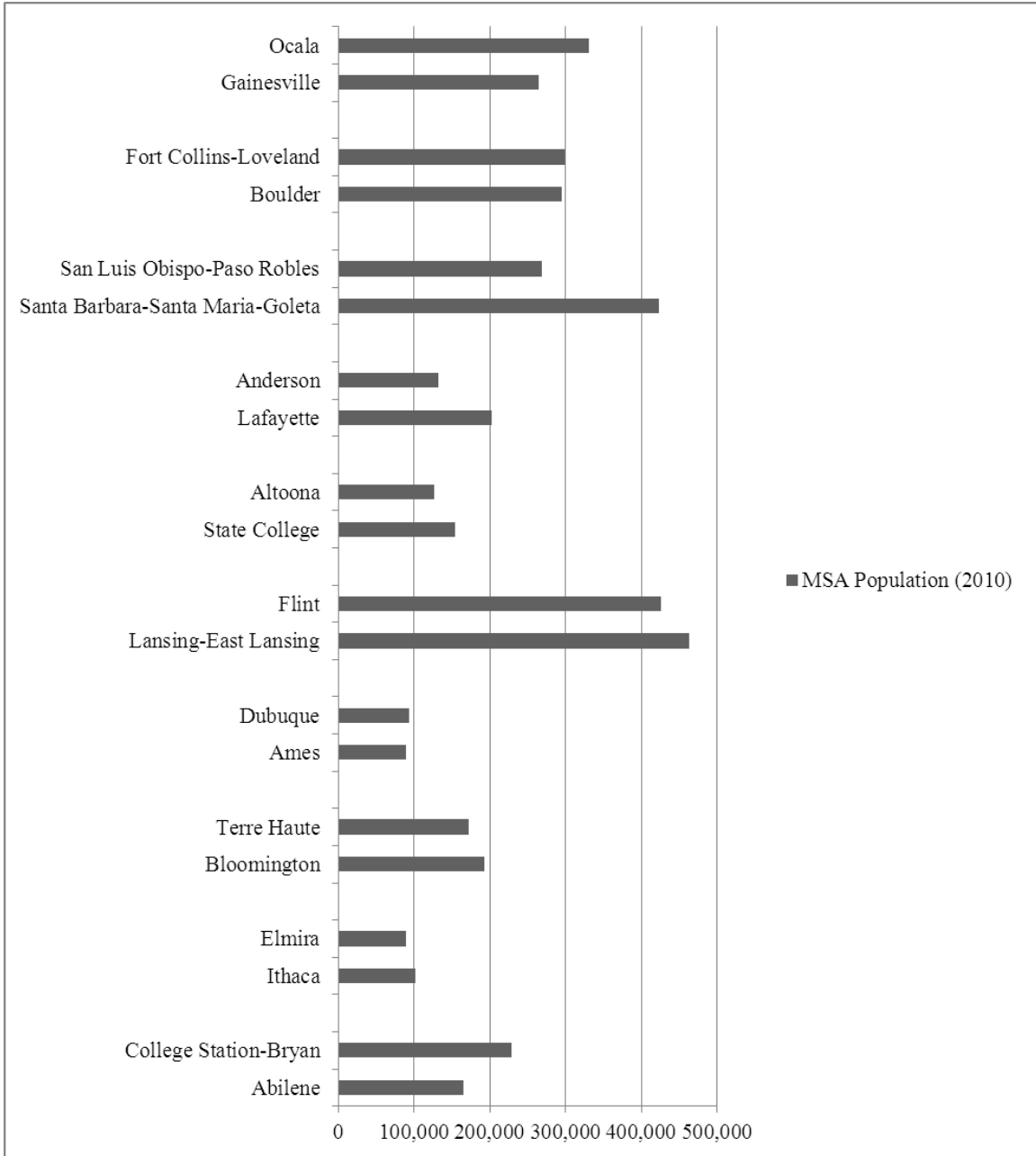


Figure 4.1 MSA Population Numbers

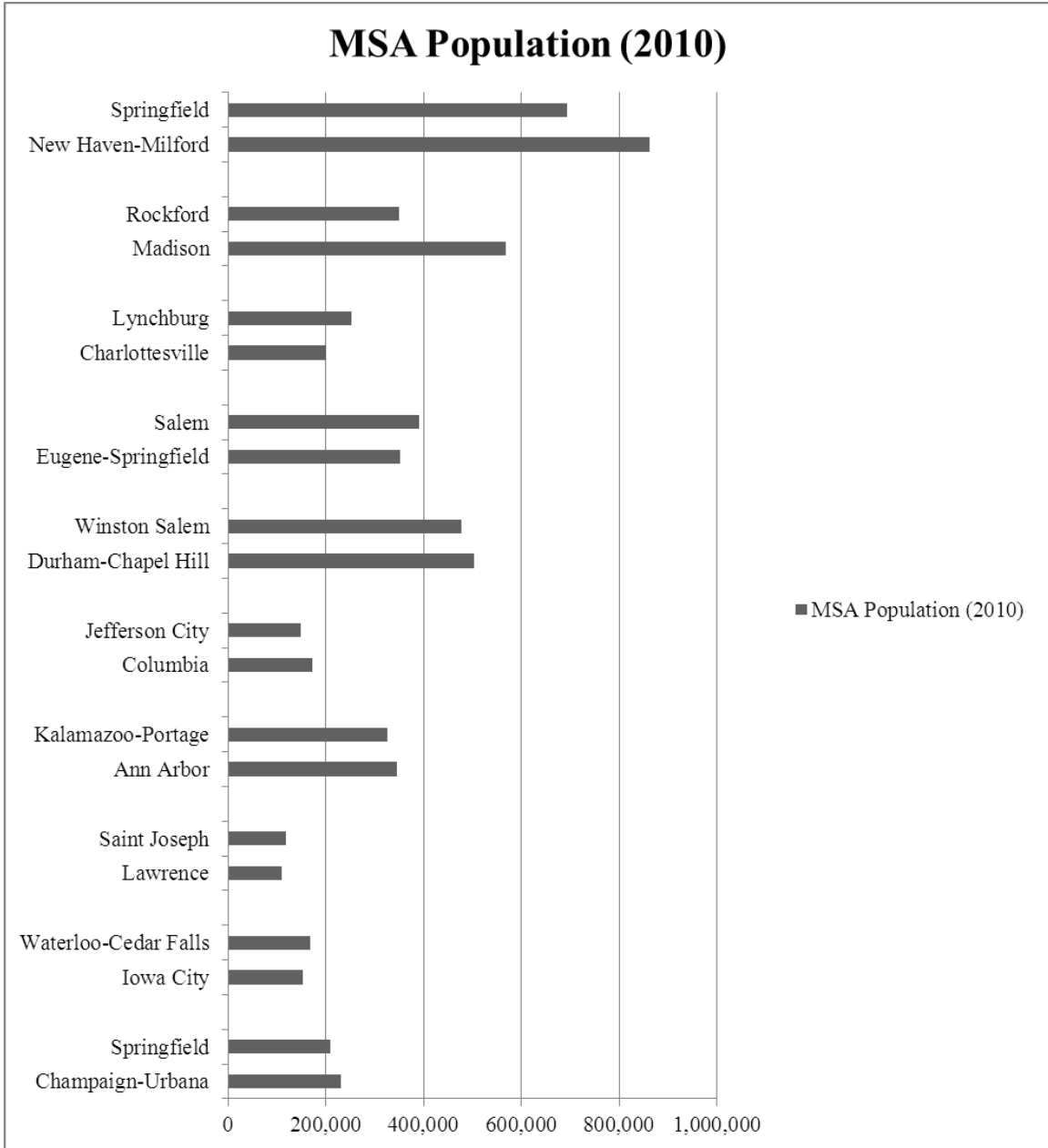


Figure 4.2 MSA Population Numbers (Continued)

Figures 4.1 and 4.2 show Census Bureau statistics from 2010 of the population for each MSA.

Dependent Variables Descriptive Statistics

Table 4.2 provides a descriptive view of the study's dependent variables.

Additionally, the section provides information on how the independent variables of group one compare with those measured in group two (Pink, 2011).

The walk score of the principal city/cities in the MSA defines the walkability variable. The descriptive statistics for the independent variable reveal that the lowest walk score for group one is 38 in Columbia, Missouri. The highest walk score for group one is 72 with Ithaca, New York. The lowest walk score for group two is 37 with Jefferson City, Missouri. The highest walk score for group two is 68. The mean walk score for group one is 55.53 and the mean walk score for group two is 46.7. The standard deviation from group one is 10.54 and the standard deviation from group two is 9.48.

The golf courses variable is defined by the number of golf courses (public or private) within the measured MSA. The descriptive statistics for the independent variable reveal that the lowest number of golf courses from a MSA in group one is five with College Station-Bryan, Texas. The highest number measured within group one is 27 with East Lansing-Lansing, Michigan. The lowest number measured within group two is 4.5 with Elmira, New York. The highest number measured within group two is 25 in Springfield, Massachusetts. The mean number of golf courses from group one is 11.43 and the mean number of golf courses from group two is 11.28. The standard deviation from group one is 5.54 and the standard deviation from group two is 6.62.

The pools variable is defined by the number of publically run pools measured within the principal cities of the MSA. The descriptive statistics for the independent variable reveal that the lowest number of pools from in group one is one with Madison, Wisconsin. The highest number measured within group one is seven with East Lansing-

Lansing, Michigan. The lowest number measured within group two is zero with Elmira, New York. The highest number measured within group two is eight in Winston-Salem, North Carolina. The mean number of pools from group one is 3.8 and the mean number of golf courses from group two is 2.2. The standard deviation from group one is 1.43 and the standard deviation from group two is 1.98.

The number of parks contained within the principal cities that have off-leash policies defines the dog parks variable. The descriptive statistics for the independent variable reveal that the lowest number of dog parks in group one is zero with Gainesville, Florida and Ithaca, New York. The highest number measured within group one is six with Madison, Wisconsin and Columbia, Missouri. The lowest number measured within group two is zero with Altoona, Pennsylvania, Anderson, Indiana, Elmira, New York, and Flint, Michigan. The highest number measured within group two is two with Rockford, Illinois, and Salem, Oregon. The mean number of dog parks from group one is 1.7 and the mean number of dog parks from group two is 1.1. The standard deviation from group one is 1.75 and the standard deviation from group two is .78.

Table 4.2 Descriptive Statistics for Independent Variables

Independent Variables	Minimum	Maximum	Mean	Standard Deviation	N
Walkability (Group One)	38	72	55.53	10.54	20
Walkability (Group Two)	37	68	46.7	9.48	20
# of Golf Courses (Group One)	5	27	11.43	5.54	20
# of Golf Courses (Group Two)	4.5	25	11.28	6.62	20
# of Pools (Group One)	1	7	3.8	1.43	20
# of Pools (Group Two)	0	8	2.2	1.98	20
# of Dog Parks (Group One)	0	6	1.7	1.75	20
# of Dog Parks (Group Two)	0	2	1.1	0.78	20

Analysis and Results

In this section, the results of the t-test analysis exhibit the findings of each recreational amenity and their significance. Table 4.3 provides an assessment of the variables and their impact on the established relationships between amenities in AAU MSA's and non-AAU MSA's.

Table 4.3 Results

	AAU MSA's		Non AAU MSA's	
	Mean	Standard Deviation	Mean	Standard Deviation
Walkability Score*	55.53	10.54	46.7	9.48
Golf Courses	11.43	5.54	11.28	6.62
Pools*	3.8	1.64	2.2	1.99
Dog Parks	1.7	1.75	1.1	0.78

*Significant at $p < .01$

T-Test results between MSA's with/without AAU member institutions

The results of a t-test revealed that MSAs with an AAU-member institution had significantly higher walkability scores and significantly more swimming pools than did MSAs without an AAU-member institution. Specifically, MSAs with an AAU-member institution had a mean walkability score of 55.53 and a mean of 3.8 swimming pools

compared to a walkability score of 46.7 and 2.2 swimming pools for MSAs without AAU-member institutions. With respect to golf courses and dog parks, statistically-significant differences were not detected. However, raw data indicates that MSAs with AAU-member institutions had a mean of 11.43 golf courses and 1.7 dog parks compared to 11.28 golf courses and 1.1 dog parks in MSAs without AAU-member institutions. A summary of these results is found in Table 4.3, while complete t-test results for each comparison are found in Tables 4.4-4.7. Complete raw data, meanwhile, is available in Appendix E and Appendix F.

Table 4.4 Number of Pools - t-Test results

t Test: Two Sample Assuming Equal Variances		
	<i>AAU MSA's</i>	<i>Non-AAU MSA's</i>
Mean	3.8	2.2
Variance	2.70	3.96
t Stat	2.77	
P(T<=t) two-tail	0.009	

Table 4.5 Number of Dog Parks - t-Test results

t Test: Two Sample Assuming Equal Variances		
	<i>AAU MSA's</i>	<i>Non-AAU MSA's</i>
Mean	1.7	1.1
Variance	3.06	0.62
t Stat	1.40	
P(T<=t) two-tail	0.17	

Table 4.6 Number of Golf Courses - t-Test results

t Test: Two Sample Assuming Equal Variances		
	<i>AAU MSA's</i>	<i>Non-AAU MSA's</i>
Mean	11.43	11.28
Variance	30.72	38.72
t Stat	0.08	
P(T<=t) two-tail	0.94	

Table 4.7 Walkability Score - t-Test results

t Test: Two Sample Assuming Equal Variances		
	<i>AAU MSA's</i>	<i>Non-AAU MSA's</i>
Mean	55.53	46.7
Variance	111.01	
t Stat	2.79	
P(T<=t) two-tail	0.008	

CHAPTER V

CONCLUSIONS

Discussion

The purpose of this study was to compare the level of recreational amenities present in municipalities with an AAU-level university and those without an AAU-member university. The results indicated that municipalities with AAU-member institutions had higher walkability scores and a greater number of public swimming pools than did communities without an AAU-member institution.

The findings concerning walkability are consistent with previous studies on factors affecting the number of creative individuals within a community (Florida, Gates, Knudsen, & Stolarick, 2006). As MSA's that contain universities are shown to have higher walkability scores than their counterparts, Florida's findings are confirmed. This is useful to justify further claims in urban planning to build dense, walkable communities.

Individuals that represent the creative class seek amenities in areas which are easily accessible (Peck, 2005). The walk score of the central MSA community measures the ease in which areas are accessible. In the traditional community setting, the public pool has been located in a central location within the region. This would justify the scores associated with the pool settings. This data can be used to influence developments of new projects within the community to further allocate resources toward this type of recreational amenity.

The findings concerning pools have not been shown in previous studies. As there is little data in the field of measurements of recreational amenities and their economic value, this topic should be explored further to justify these claims. Additionally, there may be other recreational amenities that may have a connection between university and non-university towns.

The findings concerning golf courses and dog parks have shown no statistically-significant differences between the two groups. As creative individuals look for places which are accessible to walking, golf courses take up significant space and are often contained around the perimeter of a community. They are often accessible only by personal transportation. Additionally, dog parks are a new concept. Their initial popularity started in the 1970's and has increased drastically since. While this dedicated space has been created, it's been completed after the automobile has been the center of urban planning concepts. Thus, these parks are built in new spaces that are often accessible primarily by personal transportation.

As these findings have discovered potential relationships between creative individuals and recreational amenities, the usefulness of this study impacts university and non-university communities. While university communities have an inherent advantage with technology, talent, tolerance, and vast resources, communities without universities may look to invest in recreational amenities to level the playing field. By spending their limited resources on amenities, they may be able to attract talented individuals who bring capabilities of increasing the availability of technological wealth along with promoting a tolerant community.

An increase in recreational amenities has great potential for positive economic impact in a community. As amenities are created, tourism within the area will increase.

Tourism dollars are seen as a valuable resource, pulling in wealth from other areas in support of the community. With an increase in tourist activity, businesses will develop and create jobs for the area.

Recreational amenities also provide a great impact in the quality of life for an area. Various factors influence the quality of life and all of which can help better society. These amenities potentially influence life by increasing the health of residents in the area, increasing the support of local government, and offering families the ability to participate in programs, while providing economic stability. From this influence, individuals from outside of the community take notice, potentially leading to migration.

Although not all amenities measured demonstrated statistically-significant differences, this study produces results concern the quantity of each amenity in a given community. From this data, a standard of measurement can be used against all communities of 100,000 to 1,000,000 in comparison of these amenities. This can help lead to future studies to help further research in this field.

Limitations and Recommendations for Future Research

Certain limitations of this study exist and should be considered while reviewing this research. The first limitation of this study was calculating data for the MSA. As many MSA's did not contain or did not have easily accessible data, the principle cities were used as the primary measurement. For example, data collected from the number of dog parks, walkability, and pools only used principle cities (over 50,000 people) in the town. Whereas, data collected from golf courses was calculated from the entire MSA.

The second limitation of this study was the classification of data. For example, while measuring the number of pools within the community, some areas had large

waterparks, while others had multiple small units distributed throughout the community. As size of each facility wasn't measured, some communities may have utilized different size values to meet the needs of their community members.

Despite this study's limitations, it produced research in a new area of the field. As connections have been made, this study can be used to further develop studies in the future about the potential of recreational amenities as an economic development tool of a community. Further studies may also help understand the influence level of amenities have in translation towards a healthier economy.

Conclusion

Overall, this study can be seen a useful resource for those looking to invest in recreational amenities. Communities can understand that there is a potential relationship between amenities and creative individuals who bring wealth and culture into a community. Amenities can increase the quality of life of the community through economic, health, and social benefits. Additionally, communities can compare their level of amenities with those of similar population characteristics to determine appropriate levels of investment. Lastly, this study may lead to future research building a greater wealth of knowledge regarding the impact of recreation on the community.

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APPENDIX A

OVERALL RANKINGS OF REGIONS ON THE CREATIVITY INDEX – AAU- MEMBER - GROUP ONE

AAU-Member	Metropolitan Statistical Area (MSA)	MSA Population (2010)	MSA Principle Cities
Cornell University	Ithaca	101,564	Ithaca
Indiana University	Bloomington	192,714	Bloomington
Iowa State University	Ames	89,524	Ames
Michigan State University	Lansing-East Lansing	464,036	Lansing, East Lansing
Pennsylvania State University	State College	153,990	State College
Purdue University	Lafayette	201,789	Lafayette
Texas A&M University	College Station-Bryan	228,680	College Station, Bryan
University of California at Santa Barbara	Santa Barbara-Santa Maria-Goleta	423,895	Santa Barbara, Santa Maria, Goleta
University of Colorado	Boulder	294,567	Boulder
University of Florida	Gainesville	264,275	Gainesville
University of Illinois	Champaign-Urbana	231,891	Champaign, Urbana
University of Iowa	Iowa City	152,586	Iowa City
University of Kansas	Lawrence	110,826	Lawrence
University of Michigan	Ann Arbor	344,791	Ann Arbor
University of Missouri	Columbia	172,786	Columbia
University of North Carolina	Durham-Chapel Hill	504,357	Durham Chapel Hill
University of Oregon	Eugene-Springfield	351,715	Eugene, Springfield
University of Virginia	Charlottesville	201,559	Charlottesville
University of Wisconsin	Madison	568,593	Madison
Yale University	New Haven-Milford	862,477	New Haven, Milford
	Total Population:	5,916,615	

APPENDIX B

OVERALL RANKINGS OF REGIONS ON THE CREATIVITY INDEX – NON AAU-
MEMBER - GROUP TWO

Non AAU-Member Community	Metropolitan Statistical Area (MSA)	MSA Population (2010)	MSA Principle Cities
Abilene, Texas	Abilene	165,252	Abilene
Altoona, Pennsylvania	Altoona	127,089	Altoona
Anderson, Indiana	Anderson	131,636	Anderson
Dubuque, Iowa	Dubuque	93,653	Dubuque
Elmira, New York	Elmira	88,830	Elmira
Flint, Michigan	Flint	425,790	Flint
Fort Collins, Colorado	Fort Collins-Loveland	299,630	Fort Collins, Loveland
Jefferson City, Missouri	Jefferson City	149,807	Jefferson City
Kalamazoo, Michigan	Kalamazoo-Portage	326,589	Kalamazoo, Portage
Lynchburg, Virginia	Lynchburg	252,634	Lynchburg
Ocala, Florida	Ocala	331,298	Ocala
Rockford, Illinois	Rockford	349,431	Rockford
Saint Joseph, Missouri	Saint Joseph	119,384	Saint Joseph
Salem, Oregon	Salem	390,738	Salem
San Luis Obispo, California	San Luis Obispo-Paso Robles	269,237	San Luis Obispo, Paso Robles
Springfield, Illinois	Springfield	210,170	Springfield
Springfield, Massachusetts	Springfield	692,942	Springfield
Terre Haute, Indiana	Terre Haute	172,425	Terre Haute
Waterloo, Iowa	Waterloo-Cedar Falls	167,189	Waterloo, Cedar Falls
Winston Salem, North Carolina	Winston Salem	477,717	Winston Salem

APPENDIX C

NUMBER OF GOLF COURSES CONTAINED WITHIN MSA – AAU MEMBER -
GROUP ONE

MSA/Region (AAU University)	# of Golf Courses	List of Golf Courses (Town located in MSA)
Santa Barbara-Santa Maria-Goleta (University of California at Santa Barbara)	14	Birnam Wood (Santa Barbara), Montecito County Club (Santa Barbara), Santa Barbara Municipal (Santa Barbara), La Cumbre (Santa Barbara), Hidden Oaks (Santa Barbara), Twin Lakes - Nine Hole (Santa Barbara), Ocean Meadows - Nine Hole (Santa Barbara), Sand Piper (Santa Barbara), Rancho San Marcos (Santa Barbara), River Course (Solvang), Alisal (Solvang), Zaca Creek (Buellton), La Purisima (Lompoc), Village Country Club (Lompoc), Marshllia Ranch (Lompoc),
Ames (Iowa State Univeristy)	6.5	Coldwater Golf Links (Ames), Veenker Memorial (Ames), Homewood - Nine Hole (Ames), Ames Country Club (Ames), Oaks - Nine Hole (Ames), Ballard Golf & Country Club - Nine Hole (Huxley), Indian Creek Country Club (Nevada), Bend River (Story City),
Ann Arbor (University of Michigan)	19	Georgetown Country Club - Nine Hole (Ann Arbor), Stonebridge Golf Club (Ann Arbor), University of Michigan (Ann Arbor), Travis Pointe (Ann Arbor), Ann Arbor Golf Club - Nine Hole (Ann Arbor), Lake Forest Golf Club (Ann Arbor), Huron Hills (Ann Arbor), Radrick Farms (Ann Arbor), Leslie Park (Ann Arbor), Polo Field Golf & Country Club (Ann Arbor), Barton Hill Country Club (Ann Arbor), Hickory Sticks (Ann Arbor), Ann Arbor Country Club (Ann Arbor), Brookside (Saline), Washtenaw Country Club (Ypsilanti), Eagle Crest Golf Club (Ypsilanti), Pine View - 36 Hole (Ypsilanti), Green Oaks (Ypsilanti), Hickory Creek (Ypsilanti), Hudson Mills Metropark (Dexter),
Bloomington (University of Indiana)	11.5	Indiana University - 27 Hole (Bloomington), The Eagle Point Golf Resort (Bloomington), Bloomington Country Club (Bloomington), Cascades - 36 Hole (Bloomington), Taylor's - Nine Hole (Bloomington), Hidden Hills (Springville), Stone Crest - 54 Hole (Bedford), Otis Park Golf Club - 27 Hole (Bedford)
Boulder (University of Colorado)	12	Flatirons (Boulder), Boulder Country Club - 27 Hole (Boulder), Lake Valley Golf Club (Longmont), Colorado National Golf Course (Erie), Indian Peaks (Lafayette), Fox Hill Country Club (Longmont), Saddleback Golf Club (Longmont), Coal Creek Golf Club (Louisville), Sunset - Nine Hole (Longmont), Ute Cree (Longmont), Haystack Mountain - Nine Hole

		(Longmont), Twin Peaks (Longmont),
Champaign-Urbana (University of Illinois)	10.5	Legends of Champaign (Champaign), Champaign Country Club (Champaign), Lincolnshire Field Country Club (Champaign), Urbana Country Club (Urbana), University of Illinois Golf Club - 36 Hole (Savoy), Stone Creek (Urbana), Lake of the Woods - 27 Hole (Mahomet), Willow Pond (Rantoul), Brookhill (Rantoul),
Charlottesville (University of Virginia)	9	Birdwood (Charlottesville), Meadowcreek (Charlottesville), McIntyre (Charlottesville), Farmington Country Club -36 Hole (Charlottesville), Glenmore Country Club (Keswick), Keswick Club (Keswick), Lake Monticello (Palmyra), Rivanna Resort (Palmyra),
College Station-Bryan (Texas A&M University)	5	Texas A&M University (College Station), Pebble Creek (College Station), Bryan Municipal (Bryan), Miramont Country Club (Bryan), Pecan Lakes (Navasota)
Columbia (University of Missouri)	9.5	The Club at Old Hawthorne (Columbia), Country Club of Missouri (Columbia), Gustin (Columbia), Columbia Country Club (Columbia), L.A. Nickell Municipal (Columbia), The Links at Columbia - Nine Hole (Columbia), Perche Creek (Columbia), Lake of the Woods (Columbia), Eagle Knoll (Hartsburg), Meadow Lake Acres (New Bloomfield)
Durham-Chapel Hill (University of North Carolina)	15.5	Lakeshore (Durham), The Crossings at Grove Park (Durham), Falls Village (Durham), Hope Valley (Durham), Old Chatham (Durham), Duke University (Durham), Hillandale (Durham), Croasdaile (Durham), Treyburn Country Club (Durham), Umstead Pines (Durham), Chapel Hill Country Club (Chapel Hill), UNC Finley (Chapel Hill), Governors Club - 27 Hole (Chapel Hill), Twin Lakes - Nine Hole (Chapel Hill), The Preserve at Jordan Lake (Chapel Hill), Occoneechee Golf Club (Hillsborough),
Eugene-Springfield (University of Oregon)	11	Laurelwood - Nine Hole (Eugene), Eugene Country Club (Eugene), Oakway (Eugene), RiverRidge - 36 Hole (Eugene), Eugene Eagles - Nine Hole (Eugene), Fiddler's Green Golf Club (Eugene), Emerald Valley (Creswell), Springfield Country Club (Springfield), Middlefield (Cottage Grove), McKenzie River (Springfield), Hidden Valley (Cottage Grove), Shadow Hills (Junction City)

Gainesville (University of Florida)	Gainesville Country Club (Gainesville), Haile Plantation (Gainesville), Mark Bostick at The University of Florida (Gainesville), Meadowbrook (Gainesville), Ironwood (Gainesville), West End (Newberry), Turkey Creek Country Club - 27 Hole (Alachua) 7.5
Iowa City (University of Iowa)	Finkbine (Iowa City), Elks Lodge 590 - Nine Hole (Iowa City), Pleasant Valley (Iowa City), Hi Point (Iowa City), Brown Deer Golf Club (Coralville), Quail Creek - Nine Hole (North Liberty), Fox Run Country Club (West Branch), Saddleback Ridge (Solon), Lake McBride - Nine Hole (Solon), Kalona (Kalona), 9
Ithaca (Cornell University)	Robert Trent Jones at Cornell (Ithaca), Newman Municipal (Ithaca), Country Club of Ithaca (Ithaca), Hillendale (Ithaca), Trumansburg Golf Club (Trumansburg), Dryden Lake Golf Club (Dryden), Stonehedges Country Club (Groton), 8
Lafayette (Purdue University)	Lafayette Country Club (Lafayette), Lafayette (Lafayette), Birck Boilermaker - 36 Hole (West Lafayette), Lafayette Elks Country Club (West Lafayette), The Ravinies (West Lafayette), Coyote Crossing (West Lafayette), Edwood Glen Country Club (West Lafayette), Battle Ground (Battle Ground), 9
Lansing-East Lansing (Michigan State University)	Chilsolm Hills (Lansing), Country Club of Lansing (Lansing), Forest Akers of Lansing - 36 Hole (Lansing), Waverly Hills - Nine Hole (Lansing), Red Cedar Municipal - Nine Hole (Lansing), Royal Scot - 27 Hole (Lansing), College Fields Golf Club (Okemos), Eldorado - 54 Hole (Mason), Walnut Hills (Eaton), Bonnie View (Eaton Rapids), Indian Hills (Okemos), Grande Ledge Country Club (Grande Ledge), Eagle Eye (East Lansing), Lake O The Hills (Haslett), Hawk Hollow - 36 Hole (Bath), Eagle View Golf Club (Mason), Meridian Sun Golf Club (Haslett), Prairie Creek (Dewitt), Chardell - Nine Hole (Bath), Ledge Meadows (Grand Ledge), Twin Brook (Charlotte), Wheatfield Valley (Williamston), Charlotte Country Club - Nine Hole (Charlotte), Brookshire Inn (Williamston), Highlands Hills (Dewitt), 27
Lawrence (University of Kansas)	Alvamar Orchards (Lawrence), Alvamar Country Club (Lawrence), Alvamar Public (Lawrence), Lawrence Country Club (Lawrence), Eagle Bend (Lawrence), Eudora Riverview (Eudora), Baldwin (Baldwin City), 7

Madison (University of Wisconsin)	21.5	Vitense Golfland - Nine Hole (Madison), Odana Hills (Madison), Nakoma (Madison), Nine Springs - Nine Hole (Madison), Glenway - Nine Hole (Madison), Blackhawk Country Club (Madison), Maple Bluff Country Club (Madison), Monona - Nine Hole (Madison), The Bridges (Madison), Cherokee Country Club (Madison), Yahara Hills - 36 Hole (Madison), Hawks Landing (Verona), University Ridge (Verona), Tumbledown Trails (Verona), Pleasant View - 63 Hole (Verona), Norsk - Nine Hole (Mount Horeb), Argue-ment - Nine Hole (New Glarus), The Legend and Bergamont (Oregon), Bishops Bay (Middletown), Foxboro (Oregon), Meadows of Six Mile Creek (Waunakee),
New Haven (Yale University)	8.5	The Course at Yale (New Haven), Alling Memorial (New Haven), Orange Hills Country Club (Orange), The Country Club at Woodbridge (Woodbridge), Grassy Hill Country Club (Orange), The Orchards - Nine Hole (Milford), Oak Lane Golf Club (Woodbridge), Great River Country Club (Milford), New Haven Country Club (Hamden),
State College (Pennsylvania State University)	7.5	Penn State - 36 Hole (State College), Toftrees Resort (State College), Centre Hills (State College), Tussey Mountain (State College), Freestone - Nine Hole (Port Matilda), State College Elks (Boalsburg), Nittany Country Club (Mingoville)
Total Courses:	228.5	
Mean:	11.43	

APPENDIX D

NUMBER OF GOLF COURSES CONTAINED WITHIN MSA – NON-AAU
MEMBER - GROUP TWO

MSA/Region (State)	# of Golf Courses	List of Golf Courses (Town located in MSA)
Abilene (Texas)		Fairway Course (Abilene), Abilene Country Club - 36 Hole (Abilene), Willow Creek (Abilene), Maxwell 6 (Abilene), Diamond Back (Abilene)
Altoona (Pennsylvania)		Sinking Valley Country Club (Altoona), Park Hills (Altoona), Burgi's - Nine Hole (Altoona), Sylvan Hills (Hollidaysburg), Scotch Valley (Hollidaysburg), Old Town Run - Nine Hole (Hollidaysburg), Summit 6 Country Club (Cresson),
Anderson (Indiana)		Meadowbrook (Anderson), Grandview (Anderson), Anderson Country Club (Anderson), Edgewood (Anderson), Fall Creek (Pendleton), Valley View (Middletown), Brockway (Lapel), Tri-County 9 (Middletown), Yule (Alexandria),
Dubuque (Iowa)		Dubuque Golf & Country Club (Dubuque), Bunker Hill (Dubuque), Derby Range - Nine Hole (Dubuque), The Meadows (Dubuque), Thunder 5.5 Hills (Pesota), Timberline (Pesota)
Elmira (New York)		Elmira Country Club (Elmira), Mark Twain (Elmira Heights), Willowcreek - 27 Hole (Big Flats), Soaring 4.5 Eagle (Horseheads),
Flint (Michigan)		River Forest - Nine Hole (Flint), Swartz Creek - 27 Hole (Flint), Mott Park - Nine Hole (Flint), Flint Golf Club (Flint), Loch Lomond - Nine Hole (Flint), Pierce Municipal (Flint), Kearsy Lake (Flint), Genesee Valley Meadows (Swartz Creek), Seifert (Grand Blanc), Holiday Meadows - Nine Hole (Durand), King Par - Nine Hole (Flushing), Fenton Farms (Fenton), Spring Meadow Country Club (Linden), Flushing Valley Golf Club (Flushing), Willow Brook (Byron), Jewel of Grand Blanc - 36 Hole (Grand Blanc), Genesee Hills (Grand Blanc), Warwick Hills (Grand Blanc), Captains Club (Grand Blanc), Coyote Preserve (Fenton), Flint Elks (Grand Blanc), Atlas 22 Valley (Grand Blanc), Tyrone Hills (Fenton)
Fort Collins (Colorado)		Collindale (Fort Collins), SouthRidge Golf Club (Fort Collins), Link N Greens (Fort Collins), City Park Nine - Nine Hole (Fort Collins), Fort Collins Country Club (Fort Collins), Ptargmain (Fort Collins), Mountain Vista Greens - Nine Hole (Fort Collins), Harmony Golf Club (Timnath), Highlands Meadows (Windsor), Cattail Creek (Loveland), The Olde Course (Loveland), Pelican Lakes - 27 Hole 11.5 (Windsor),

Jefferson City (Missouri)	6.5	Oak Hills Golf Center (Jefferson City), Jefferson City (Jefferson City), Turkey Creek - Nine Hole (Jefferson City), Railwood Golf Club (Holds Summit), Eagle Knoll (Hartsburg), Meadow Lake Acres Country Club (New Bloomfield), Red Field (Eugene)
Kalamazoo (Michigan)	16	Milham Park (Kalamazoo), Kalamazoo Country Club - 27 Hole (Kalamazoo), Red Arrow - Nine Hole (Kalamazoo), The Prairies (Kalamazoo), Grand Prairie (Kalamazoo), Eastern Hills - 36 Hole (Kalamazoo), Ridgeview (Kalamazoo), Thornapple Creek Golf Club (Kalamazoo), Crestview Golf Club (Kalamazoo), The Moors (Portage), Indian Run (Scotts), Angels Crossing Golf Club (Vicksburg), Olde Mill (Schoolcraft), Hickory Ridge - 36 Hole (Galesburg),
Lynchburg (Virginia)	5.5	Cedar Hills - Nine Hole (Lynchburg), Peaks - Nine Hole (Lynchburg), Oak Hill - Nine Hole (Lynchburg), Boonsboro (Lynchburg), London Downs (Forest), Poplar Forest (Forest), Colonial Hills (Forest)
Ocala (Florida)	21.5	Huntington Golf Club (Ocala), Marion Oaks Country Club (Ocala), SummerGlen Country Club (Ocala), Royal Oaks Golf Club (Ocala), Candler Hills Country Club (Ocala), Oak Run - Nine Hole (Ocala), On Top of the World - 36 Hole (Ocala), Stone Club - 27 Hole (Ocala), Country Club of Ocala (Ocala), Baseline (Ocala), Country Club at Silver Springs Shores (Ocala), Lake Diamond Country Club (Ocala), Pine Oaks - 45 Hole (Ocala), Golf Club of Ocala (Ocala), Ocala Palms Country Club (Ocala), Rolling Greens Executive Golf Community (Ocala), Golden Ocala Golf Club (Ocala), Golden Hills Golf Club (Ocala), Spruce Creek Golf Club (Dunnellon)

Rockford (Illinois)	17.5	Sandy Hollow (Rockford), Alpine Hills - Nine Hole (Rockford), Sinnissippi Park - Nine Hole (Rockford), Mauh-Nah-Tee-See (Rockford), Elliot (Rockford), Rockford Country Club (Rockford), Forest Hills (Rockford), Aldeen Golf Club (Rockford), Ingersoll (Rockford), Atwood Homestead (Rockford), Newburg Village - Nine Hole (Cherry Valley), Swan Hills (Belvidere), Timber Pointe (Poplar Grove), Bel-Mar Country Club (Belvidere), Westlake Village (Winnebago), Barwood (Rockton), Red Barn (Rockton), Macktown (Rockton), Ledges (Roscoe),
Saint Joseph (Missouri)	4	Moila Country Club (Saint Joseph), The Golf Club of St. Joseph (Saint Joseph), Fairview (Saint Joseph), Duncan Hills (Savannah)
Salem (Oregon)	8	Creekside (Salem), Salem Golf Club (Salem), Illahe Hills (Salem), Meadowlawn - Nine Hole (Salem), Auburn Center (Salem), Salemtowne (Salem), Oak Knoll (Independence), Santiam (Aumsville), Evergreen Golf Club - Nine Hole (Mount Angel)
San Luis Obispo (California)	10.5	San Luis Obispo Country Club (San Luis Obispo), Laguna Lake - Nine Hole (San Luis Obispo), Dairy Link (San Luis Obispo), Avila Beach (Avila Beach), Pismo State Beach - Nine Hole (Grover Beach), Cypress Ridge (Arroyo Grande), BlackLake Resort - 27 Hole (Nipomo), Monarch Dunes - 27 Hole (Nipomo), Sea Pines - Nine Hole (Nipomo), Morro Bay (Morro Bay), Chalk Mountain (Atascadero)
Springfield (Illinois)	10	Lincoln Greens (Springfield), Bunn (Springfield), Bergen - Nine Hole (Springfield), Illini Country Club (Springfield), Panther Creek Country Club (Springfield), The Oaks (Springfield), Piper Glen Golf Club (Springfield), Brookhills - Nine Hole (Springfield), Long Bridge (Springfield), The Rail (Springfield), Edgewood (Auburn)

Springfield (Massachusetts)	25	Franconia (Springfield), Veteran's Memorial (Springfield), Longmeadow (Longmeadow), Twin Hills (Longmeadow), Crestview Country Club (Agawam), Saint Anne Country Club (Feeding Hills), Pine Knoll (East Longmeadow), Elmcrest (East Longmeadow), Oak Ridge Golf Club (Feeding Hills), Springfield Country Club (West Springfield), Agawam Municipal (Feeding Hills), Hampden Country Club (Hampden), Country Club of Wilbraham (Wilbraham), Chicopee Country Club (Chicopee), Shaker Farms Country Club (Westfield), Ludlow Country Club (Ludlow), East Mountain Country Club (Westfield), Edgewood (Southwick), Southwick Country Club (Southwick), The Ranch Golf Club (Southwick), Southhampton Country Club (Southampton), Quaboag Country Club (Monson), The Orchards (South Hadley), Westover Municipal (Granby), Mill Valley (Belchertown),
Terre Haute (Indiana)	11	Rea Park (Terre Haute), Four Seasons Golf Complex (Terre Haute), Idle Creek (Terre Haute), Country Club of Terre Haute (Terre Haute), The Landing at Fort Harrison (Terre Haute), Hulman Links (Terre Haute), Marks (Terre Haute), Hoosier Hills (Cory), Forest Park (Brazil), Mathews Park (Clinton), Geneva Hills (Clinton),
Waterloo (Iowa)	12.5	South Hills (Waterloo), Sunnyside Country Club (Waterloo), Irv Warren Memorial (Waterloo), All Golf Center (Waterloo), Red Carpet Golf Club (Waterloo), Gates Park (Waterloo), La Porte City (La Porte), Washington Park (Cedar Falls), Pheasant Ridge - 27 Hole (Cedar Falls), Jesup (Jesup), Beaver Hills Country Club (Cedar Falls), Willow Run (Denver),
Winston Salem (North Carolina)	13	Wilshire Golf Club (Winston Salem), Forsyth Country Club (Winston Salem), Reynolds Park (Winston Salem), Meadowlands (Winston Salem), Old Town Club (Winston Salem), Winston Lake (Winston Salem), Olde Homeplace (Winston Salem), Pine Brook Country Club (Winston Salem), Tanglewood Golf Club - 36 Hole (Clemmons), Maple Leaf Golf Club (Clemmons), Maple Leaf (Kernersville), Salem Glen Country Club (Clemmons),
Total Courses:	225.5	
Mean:	11.28	

APPENDIX E

NUMBER OF POOLS & DOG PARKS CONTAINED WITHIN MSA – AAU

MEMBER - GROUP ONE

MSA Principle City/Cities Over 50,000 People	# of Pools Located within Principal Cities	# of dog parks located within principal cities
Ithaca	2	0
Bloomington	3	1
Ames	3	1
Lansing, East Lansing	7	2
State College	2	1
Lafayette	3	1
College Station, Bryan	6	1
Santa Barbara, Santa Maria, Goleta	6	0
Boulder	4	4
Gainesville	3	0
Champaign, Urbana	5	1
Iowa City	4	2
Lawrence	4	2
Ann Arbor	2	2
Columbia	4	6
Durham, Chapel Hill	6	2
Eugene, Springfield	5	1
Charlottesville	4	1
Madison	1	6
New Haven, Milford	2	0
Total	72	29
Mean:	3.8	1.7

APPENDIX F

NUMBER OF POOLS & DOG PARKS CONTAINED WITHIN MSA – NON-AAU
MEMBER - GROUP TWO

MSA Principle City/Cities Over 50,000 People	# of Pools Located within Principal Cities	# of dog parks located within principal cities
Abilene	1	1
Altoona	1	0
Anderson	1	0
Dubuque	1	1
Elmira	0	0
Flint	1	0
Fort Collins, Loveland	5	3
Jefferson City	2	1
Kalamazoo, Portage	2	2
Lynchburg	1	1
Ocala	1	1
Rockford	4	2
Saint Joseph	3	1
Salem	0	2
San Luis Obispo, Paso Robles	2	1
Springfield, IL	3	1
Springfield, MA	2	1
Terre Haute	1	1
Waterloo, Cedar Falls	5	2
Winston Salem	8	1
Total:	42	21
Mean:	2.2	1.1

APPENDIX G
WALKABILITY SCORES OF MSA

Metropolitan Statistical Area	AAU MSA Walk Score	Non AAU MSA Walk Score
Santa Barbara, CA	67	
San Luis Obispo, CA		61
Boulder, CO	64	
Fort Collins, CO		44
Gainesville, FL	43	
Ocala, FL		39
Champaign-Urbana, IL	57.5	
Springfield, IL		43
Bloomington, IN	49	
Terre Haute, IN		42
Iowa City, IA	53	
Waterloo, IA		41
Lawrence, KS	50	
St. Joseph's, MO		41
Ann Arbor, MI	59	
Kalamazoo, MI		51
Lansing-East Lansing, MI	52.5	
Flint, MI		49
Columbia, MO	38	
Jefferson City, MO		37
Trenton-Ewing-Piscataway, NJ	68	
Atlantic City, NJ		68
Durham-Chapel Hill, NC	43.5	
Winston-Salem, NC		32
Eugene, OR	55	
Salem, OR		49
State College, PA	70	
Altoona, PA		59
Lafayette, IN	43	
Anderson, IN		41
College Station-Bryan, TX	41	
Abilene, TX		38
Charlottesville, VA	63	
Lynchburg, VA		38
Madison, WI	55	
Rockford, IL		48
Ithaca, NY	72	
Elmira, NY		54
New Haven, CT	67	
Springfield, MA		59
Mean:	55.53	46.7