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# HUMAN CAPITAL, QUALITY OF LIFE, & DIVERSITY: WHAT ARE THE FACTORS AFFECTING POPULATION CHANGE IN CARBONDALE?

Gary J. Williams  
gjwilliams@siu.edu

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HUMAN CAPITAL, QUALITY OF LIFE, & DIVERSITY:  
WHAT ARE THE FACTORS AFFECTING POPULATION  
CHANGE IN CARBONDALE, ILLINOIS?

By

Gary Williams

B.A., Southern Illinois University Carbondale, 1995

A Research Paper  
Submitted in Partial Fulfillment of the Requirements for the  
Master of Public Administration

Department of Political Science  
In the Graduate School  
Southern Illinois University Carbondale  
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RESEARCH PAPER APPROVAL

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For the Degree of

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Approved by:

Stephanie Pink-Harper, Ph.D., Chair

LaShonda M. Stewart, Ph.D.

Randolph Burnside, Ph.D.

Graduate School

Southern Illinois University Carbondale

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## Introduction

Between 1990 and 2010 the population of Carbondale, Illinois declined 4.2% while at the same time the neighboring Williamson County communities of Marion and Carterville experienced population growth of 18.2% and 51.4% respectively (U.S. Census, 2010).

Carbondale is the home to Southern Illinois University (SIU), the region's largest employer, and is the most populous southern Illinois municipality (U.S. Census, 2010). The presence of a research university in a rural city like Carbondale would seem to offer prospective residents competitive and desirable quality of life amenities (McGranahan et al, 2011) that could help attract people to the community. According to Chi and Marcouiller (2013), quality of life (QOL) amenities can be defined as those aspects of life that shape human well-being beyond the command of economic resources. However, where people choose to live is subjective and based on multiple economic and environmental factors. According to Goe and Green (2005), these factors may include availability of jobs, community amenities, availability of quality housing, public safety, demographic diversity, and entertainment options. Until recently, most of the research that addressed residential mobility was based on economic factors; primarily jobs. However, that trend is shifting as more evidence is emerging that concludes that the availability of amenities, or QOL factors that a community can offer may play an equally important role in affecting where people choose to live.

Colleges and universities act as focal points for attracting talented people to a particular region (Florida, 2006). With their unusual densities of young people and comparatively cosmopolitan populations, college towns represent unique types of places (Gumprecht, 2003). College towns like Carbondale also possess high levels of human capital which is defined as the number of educated workers in the community (Florida, 2002a). Shapiro (2006) found that

human capital improves the QOL in a region for two reasons; concentrations of educated and skilled workers encourage the growth of consumer activities, such as restaurants and bars, which may make an area more attractive to migrants, and also because highly educated households may act, through the political system or privately, to improve the local QOL. As a result, research indicates that areas with higher percentages of human capital generally experience more rapid growth than areas absent of a highly educated workforce (Shapiro, 2006; Florida, 2002a, 2006; Winters, 2011; McGranahan et al., 2011). Winters' (2011) research was compelling when explaining the relationship between colleges and QOL. His research found that colleges and universities improve the QOL in surrounding areas and about 26% of this effect comes through increasing the local level of human capital with the rest coming from other consumption amenities that colleges and universities facilitate (Winters, 2011).

Another important aspect of having strong populations of human capital, as well as the presence of a research university, is its effect on local and regional economic growth. Richard Florida asserts (2002a) that human capital is the driving factor in regional economic development. In the context of this research it's important to distinguish between human capital and Florida's creative class (Florida, 2002b). The creative class recognizes specific creative careers such as computer programming, scientific research, and music (Florida, 2002b). This research is only concerned with the effect that human capital has on regional economies and generalizes human capital to only include that part of the population that has a bachelor's degree or above. As Florida (2002a) asserts, the key to regional growth lies in endowments of highly educated and productive people who eventually form clusters of human capital which is even more important to economic growth than the clustering of companies. Colleges and universities play a crucial role in increasing the local human capital stock. They ease access to higher

education for local residents and they attract students from outside the area seeking an education (Winters, 2011). In rural areas universities play a particularly important role in the local economy as there are usually fewer opportunities to draw in outside employers that can provide jobs (McGranahan et al., 2011). Universities also play an important role in regional economic development in their ability to educate and train workers. In this context universities expand a region's economic capacity by increasing the number of skilled workers. Shapiro (2006) found a causal relationship between increasing an area's concentration of college-educated residents and employment growth. In short, an area with a higher percentage of human capital usually results in job growth.

Florida's research (2002a; 2002b; 2006; 2008) on human capital and its effect on growth makes an important distinction regarding its application which is relevant to this research. Underpinning Florida's (2002b) theories is a reliance on what he refers to as the three T's of economic development; talent, technology, and tolerance. Particularly important to college towns is the importance of the third T; tolerance. Florida (2002b) defines tolerance as a community's willingness to be open to and accept new ideas, people, and lifestyles. Imbued in this definition is the role of diversity and the willingness of communities to be accepting and tolerant of "outsiders" and of racially, ethnically, and culturally different people (2002b). These distinctions are important in the context of college towns which although they generally are regarded as transient places (Gumprecht, 2003) also help increase the level of human capital who are typically attracted to places that are more diverse (Florida, 2002a; Winters, 2011; McGranahan et al., 2011; Shapiro, 2006).

Other demographic researchers have also investigated why people move from one place to another (Hsieh & Liu, 1983). One of the most popular theories that addresses regional



migration was developed by Charles Tiebout in 1956 and concludes that people “vote with their feet” (Whisler, Waldorf, Mulligan, & Plane, 2008). The Tiebout hypothesis states that people sort themselves into communities based on their willingness to pay for local public services (Dawkins, 2004). According to Tiebout (1956), the greater the number of local goods that a community can provide, the greater the likelihood that people will locate there. Following this course of thought, one could presume that the more amenities that are offered by a community could translate into households perceiving more value to locate there. In this context, residents may make distinctions between the volume and perceived value of specific amenities with some people preferring more amenities and others making location decisions based on the value they place on a single or few variables. This would align with Deller et al’s (2005), research that found that there are usually only a few QOL amenities that contribute to the decision-making process. Whatever the reasons are that affect residential mobility, analyzing specific variables can help ascertain what factors are most important to Carbondale residents when choosing where to live.

### **Statement of the Problem**

Colleges and universities provide cities with a powerful QOL amenity that helps attract educated people (human capital) to their communities (Florida, 2006). Research further indicates that areas with higher percentages of human capital generally experience more rapid growth than areas absent of a highly educated workforce (Shapiro, 2006; Florida, 2002a, 2006; Winters, 2011; McGranahan et al., 2011). Richard Florida’s (2002a) research asserts that human capital is the driving factor in regional economic development. This is often the result of increased consumer services, such as restaurants and bars, that make an area more attractive to potential migrants (Shapiro, 2006). In addition, educated households are more likely to support

public services like museums, parks, symphonies, and theaters which collectively help to enhance the QOL of a community (Glaeser, Kolko, and Saiz 2001).

As Florida et al. (2008) establishes, places that have more human capital thrive while those with less stagnate or decline. In light of this research, one would presume that Carbondale would have a distinct advantage within the southern Illinois region to capitalize on the assets that SIU provides. United States Census data (2010) indicates that 52.1% of Carbondale's population has at least a Bachelor's degree or above compared to 38.1% for Carterville and 23.1% for Marion. Situated in rural southern Illinois, SIU is the only research university in the region and would seemingly possess a distinct advantage over other communities in attracting young, highly skilled workers that seek out the amenities that college towns typically offer. In spite of this apparent advantage, Carbondale has experienced an ongoing loss in population. This contradiction implies that there may be other QOL factors affecting Carbondale's growth. Therefore, the question this research attempts to answer is "What QOL factors affect Carbondale's population change?"

This research is important because it fills a gap in the literature by expanding our understanding of why people choose to live where they live. Although there is an abundance of research that examines either diversity of traditional QOL variables, this research will combine the two to better understand their effect on population trends in rural university towns like Carbondale. In addition to diversity, this research will analyze property taxes, quality of public schools, homeownership rates, and crime. These variables were chosen because they are some of the most common QOL factors analyzed in research that seeks to define quality places to live (McCann, 2004). To better understand the current conditions that exist in Carbondale, Marion, and Carterville, descriptive statistics are first presented. Then to identify the factors that impact

decisions on where people choose to live, a QOL survey that was conducted by the Paul Simon Public Policy Institute to residents of Jackson and Williamson County, Illinois will be analyzed. Carbondale is located in Jackson County, and Marion and Carterville are located in Williamson County. Since these communities are the population centers for their respective counties, they are considered to be representative of the broader survey sample. Comparing the data among these communities will allow conclusions to be made in regards to which of the QOL variables being examined are having the most significant effect on why and where people are choosing to live in Jackson and Williamson counties.

## **Literature Review**

### **Tiebout**

Perhaps the most notable researcher that attempted to explain economic reasons that drive mobility decisions was conducted by Charles Tiebout. In 1956, Tiebout began to research how individuals expressed their community satisfaction. The resulting “Tiebout hypothesis” found that people “vote with their feet.” (Tiebout, 1956). The conventional perspective suggested by Tiebout (1956) implies that households have preferences toward public services, local taxes, and community amenities that influence their choice of housing location (Kiefer, 2012). This means that community satisfaction and migration function similarly to a market place; individuals have certain demands for services and instead of trying to change what is present, they find the community that best fits their preferences and simply sort themselves into the respective community (Garland, 2010). Wall (2001) and Douglas (1997) developed a similar theoretical model finding that every individual will consider moving to another location if the alternative

location offers greater utility. This implies that when individuals perceive greater value and can improve their QOL (utility), migration will occur (Lambiri, Biagi & Royuela, 2007).

Distinctions are made in the literature in regards to how this research is applied. Jackson and Williamson Counties are part of a metropolitan statistical area (MSA). The newly formed MSA includes several municipalities and county governments within Jackson and Williamson Counties. Noting this distinction is important because it has become widely accepted in the field of local public finance that the greater the number of local governments in a metropolitan area of a given size and/or population, the greater the potential benefits from households being able to sort themselves among the local governments (Dawkins, 2005). Households simply match their desired mixes and levels of local public goods with the variety of services that can be provided by many local governments.

There is a substantial amount of literature regarding economic factors, like property taxes, and their subsequent contributions to public goods. In particular, Grassmueck (2011) finds that the provision of public goods that are more desirable, education and public safety, can pull households to a jurisdiction, while other public goods like welfare services, school security, and public health, can induce a push effect on households since they not only force a rise in tax rates on local households but also possibly signal the presence of local activities that generate negative externalities. In his study of rural Pennsylvania communities, Grassmueck (2011) concluded that intra-county movers were not deterred by higher property taxes and that the higher the level of per capita government expenditures on visible local public services such as fire protection and law enforcement, the higher the attraction of intra-county movers.

In contrast to these findings, Cebula and Nair-Reichert (2012) report that in regards to economic factors, migrants appear to prefer lower local property tax burdens, and higher per

pupil outlays on primary and secondary public education. These findings are also consistent with the Tiebout model in that households prefer to maximize their investment by ideally reducing their economic burden while at the same time increasing their utility in terms of educational outputs. All of the outcomes mentioned are consistent with the Tiebout hypothesis since desired services are subjective to individual households. As Whisler et al. notes (2008), migration patterns from MSAs are shown to depend on both the household characteristics and how those households assess differences in QOL indicators. Again, it is up to each individual household to determine what services they are most willing to pay for. Ultimately, the variation in research findings is consistent with the central theme of Tiebout that asserts that households make location decisions based on individual preferences for a particular bundle of services that a community can provide and not on a single, overarching factor.

### **Homeownership**

College towns are transient places and their residents are less likely to own their own homes (Gumprecht, 2003). There is ample evidence in the literature to support the claim that homeowners are more likely than renters to be satisfied with their housing and neighborhoods; homeowners actively participate in the community, and live in their homes longer (Rohe, Van Zandt, & McCarthy, 2002). A study by Oh (2003) found that longer-term residents reported having higher satisfaction with their neighborhood. Spain (1988) also reported that residents who have lived in their home longer than one year are more satisfied than those who have recently moved. Each of these findings implies a greater likelihood of resident satisfaction commensurate with the percentage of homeowners in the community and the greater the longevity of residents in those homes.

Homeownership signifies greater community attachment and is an emotional investment in a locality that is strongly rooted in involvement in local social relationships (Dassapoulos & Monnat, 2011). There is substantial research on community homogeneity which occurs when the social, economic, and demographic characteristics of the residents of a community are similar (Crowe, 2010). It can play a huge role in an individual's satisfaction with their community since people tend to get along with and feel more comfortable around people that are similar to them (Garland, 2010). Homogeneity doesn't limit its definition to demographic similarities like ethnicity or age, but includes more general groups of people that can be segmented by the fact that they are homeowners, church goers, or are members of the same social groups, and generally represents a commonality among people (Crowe, 2010).

## **Crime**

The majority of the literature on crime discusses social disorganization theory which states that poverty, high residential mobility, and ethnic or racial heterogeneity lead to a decrease in informal social control that, in turn, increases the probability of crime (Warner & Rountree, 1997). At a minimum, these qualities can increase the perception of crime which may be as debilitating as actual crime itself (Garland, 2013).

Rural areas are often synonymous with higher levels of social cohesion and generally considered to be safer with less crime (Deller & Deller, 2010). It's important to note that this is only a perception, however perceptions sometime replace reality (Garland, 2013). Coinciding with earlier literature which found that there are typically higher levels of social integration in rural communities, criminologists argue that the level of social integration in nonmetropolitan communities creates a system of social control that holds behavior in check and keeps crime rates lower (Barnett & Mencken, 2002). As mentioned earlier, Carbondale is part of a newly

formed MSA. Cullen and Levitt's research (1999) found that residents that relocate due to crime related issues are much more likely to stay within their respective MSA than those who leave for other reasons. Cullen and Levitt also found (1999) that net migration in response to crime increases with the education level of the household. Finally, one of the most consistent findings from the body of literature on nonmetropolitan crime is that population change has a direct relationship with crime rates in nonmetropolitan communities (Cullen & Levitt, 1999).

### **Schools**

The quality of local schools is often a key determinant in where people choose to live. For many years, economists have sought to understand how much, and along what dimensions, parents value better schools (Black & Machin, 2010). Defining school quality, like most QOL variables, is subjective to individual households. There are many measures that school administrators, school boards, and the public use to assess and rate the quality of their schools. These may include individual test scores, expenditures per pupil, average teacher salary, and quality of curriculum among others. Also included are the mix of students in the school (an indicator of overall peer quality) parental time and resources, and the quality of the administration (Black, 1998). All of these variables, financial and nonfinancial, can be used as indicators of school quality (Black, 1998). Bayer et al. (2007) found that when these school quality indicators change, households re-sort across neighborhoods in response to those changes. This follows the Rosen (1974) model which describes the housing market as an equilibrium which matches consumer choice over a composite good, such as schools, with other commodities like housing.

An important question that challenges this course of thought is how households define school quality. There is an abundance of research (Black 1999; Black & Machin, 2010; Downes

& Zabel, 2002; Figlio & Lucas, 2004; and, Gibbons et al. , 2012) that suggests that a key determinant in how households define school quality is by standardized test scores. Parents often believe that test scores reflect both the quality of the education being offered and the characteristics of the incoming students (Kane, 2006; Katz, 1999). At a minimum, test scores provide a consistent measure among school districts that can provide a mechanism for households to compare school performance while also being easy to translate.

Another research strategy to measure school quality uses housing market data to calculate how much more parents are willing to pay to live in an area that has a higher performing school with the assumption being that the value of the piece of land reveals something about the demand for that particular location (Black & Machin, 2010). Results from Gibbons et al. research (2012) found that households pay higher house prices for schools that are likely to raise their child's educational achievements. Additional literature also consistently finds housing valuations to be significantly higher in places where measureable school quality is higher (Black & Machin, 2011). In this context, the measure is test scores because it is the information that is most readily available to parents and is the least difficult to synthesize. Expanding on this theme, Black and Machin (2011) found that parents are prepared to pay substantial amounts of money to get their children educated in better performing schools, while parents within a wide range of international contexts, often with very different institutional features, are prepared to pay sizable sums of money for access to better performing schools.

In quantifiable terms, Black (1999) found that after analyzing home valuations and test scores across diverse school districts, households were willing to pay an additional 2.5% in price for every 5% increase in test score. Gibbons and Machin (2008) also found that demand for school quality is at least partly revealed in housing prices and suggested an estimate of around 3-



4% house price premium for one standard deviation increase in school average test scores. Other research is even more dramatic. Kane's (2003) estimates suggested that a one student-level standard deviation difference in mean school test score is associated with an 18 to 25 percentage point difference in house value. Although this impact is far greater than Black's research (1998, 1999), Figlio and Lucas (2004) achieved very similar results in their study of Dallas-area school districts. Although the data is inconsistent, researchers do tend to agree that differences in school quality are often capitalized in housing prices with higher performing schools being located in areas with more expensive homes. As Black and Machin (2010) assert, almost all of this work shows a significant statistical association between housing valuations and school quality as revealed through test scores. Therefore, any change in the perceived quality of the local public school system is likely to have an important impact on housing demand and therefore housing prices in an area (Bogart & Cromwell, 2000).

### **Diversity**

Diversity refers to the collection of differences among groups that can include race, culture, religion, gender, sexual preference, as well as other demographic and socioeconomic characteristics (Wise & Tschirhart, 2000). Diversity is one of the most important challenges currently facing our society while at the same time offers some of the most significant opportunities (Putnam, 2007). The challenges arise from an increase in interaction between diverse groups of people resulting from an increase in minority and decrease in white non-Hispanic populations that continues to occur (U.S. Census, 2010). In fact, researchers suggest that traditional minority groups will become the majority of the United States population by 2050 (Iceland, 2004). However, as our society becomes more diverse, there are opportunities for growth due to the expansion of creativity that diverse communities often provide (Simonton

1999). The key to realizing this potential may lie in the ability of communities to organize themselves into diverse neighborhoods where residents recognize that their differences are mutually beneficial to improving their QOL (Alesina & Ferrara, 2004).

Diverse communities are the exception with most people questioning the practicality of maintaining ethnically diverse residential neighborhoods (Nyden, Maly, & Lukehart, 1997). This is due mainly because people prefer to interact with others like them because of shared interests, ease of socialization, and a perception that similar people share greater empathy towards each other (Costa & Khan, 2003). Diversity can cause people to isolate and withdraw from civic life (Putnam, 2007) and reduce civic engagement as a result of self-segregation (Costa & Khan, 2003). It can facilitate residential sorting and the creation of jurisdictions based on race (Alesina & Ferrara, 2004). This is evident in typical neighborhood stratification between whites and blacks. The typical white lives in a neighborhood that is 80.2 % white, 6.7% black, 7.9% Hispanic, and 3.9% Asian, while the typical black lives in a neighborhood that is 51.4 % black, 33.0 % white, 11.4% Hispanic, and 3.3% Asian (Logan, 2003). Iceland (2004) found that these preferences affect home buying decisions which often perpetuate further racial separation within neighborhoods and communities.

Diversity can also include political ideology. Research (Williamson, 2008) shows that conservative populations are more inclined to sort themselves into newer neighborhoods, while liberal populations are more inclined to be urban dwellers who feel more comfortable in established neighborhoods. Williamson (2008) also found that established neighborhoods are typically more diverse in political ideology while newer neighborhoods that are more synonymous with urban sprawl are generally conservative. McDonald (2011) found that political ideology helps predict how residents migrate and is as powerful a factor in stratifying

neighborhoods as either race or income. Noting these differences is important considering the largely conservative makeup of Jackson and Williamson Counties (PSPPI Survey, 2014). As the research suggests, a diversity of political ideologies may explain residential sorting patterns in both counties.

Diversity also brings positive attributes to communities by blending a variety of abilities, experiences, and cultures which often leads to increases in innovation and creativity (Alesina & Ferrara, 2004). Creativity is often enhanced (Simonton, 1999) which can lead to economic growth. This would align with much of Florida's work (2002a; 2002b; 2006; 2008) which asserts that human capital is attracted to areas that are more diverse. As a consequence, human capital aggregates and forms clusters of productive workers that consume more goods which increases economic activity leading to growth. Another recent study sheds light on the effect that diversity may have on where people choose to live. In 2008, the Knight Foundation set out to understand what attaches people to their community and what makes people love where they live (Knight Foundation, 2014). They partnered with Gallup to survey 43,000 residents in 26 cities and found that the three main factors that attract people to their communities are its openness to outsiders, its beauty, and its social offerings (Knight Foundation, 2014). Being open to outsiders implies a desire to accept diverse races and cultures that are different than your own. In this context, diversity can enhance the ability to draw people to a neighborhood or community which can further strengthen shared identities and increase interaction among different groups which may lead to opportunities for growth (Putnam, 2007).

### **Data and Methodology**

The purpose of this research is to determine what factors impact population change in Carbondale. Specifically, this research seeks to determine the role that property taxes, K-12

school quality, crime, homeownership, and diversity have on Carbondale's population. The following descriptive statistics data was provided by the most current statistics available from the U.S. Census, the Jackson County Illinois Government's property tax assessment website, the Federal Bureau of Investigation's Uniform Crime Reports, and the Illinois State Board of Education's state report cards. Due to the numerous reporting sources there are differences in the reporting years. In order to capture the broadest snapshot of how each of these variables is trending, the following charts were created by using the most comprehensive, available data from each of the respective data sources.

### Population

Since 1990, Carbondale's population has declined modestly while Carterville and Marion have grown. Table 1 outlines population changes over the past twenty years.

Table 1 – 1990-2010 Population Totals; Carbondale, Carterville, Marion

POPULATION			
YEAR	Carbondale	Carterville	Marion
1990	27033	3630	14545
2000	25597	4616	16035
2010	25902	5496	17193
% Change	-4.20%	51.40%	18.20%

(Source: U.S. Census Bureau)

When looking at the percentage of human capital that exists within these three communities we find that Carbondale and Carterville have seen an increase in the number of people with at least a Bachelor's degree while Marion has seen a decrease in spite of their increase in population. Table 2 summarizes the data.

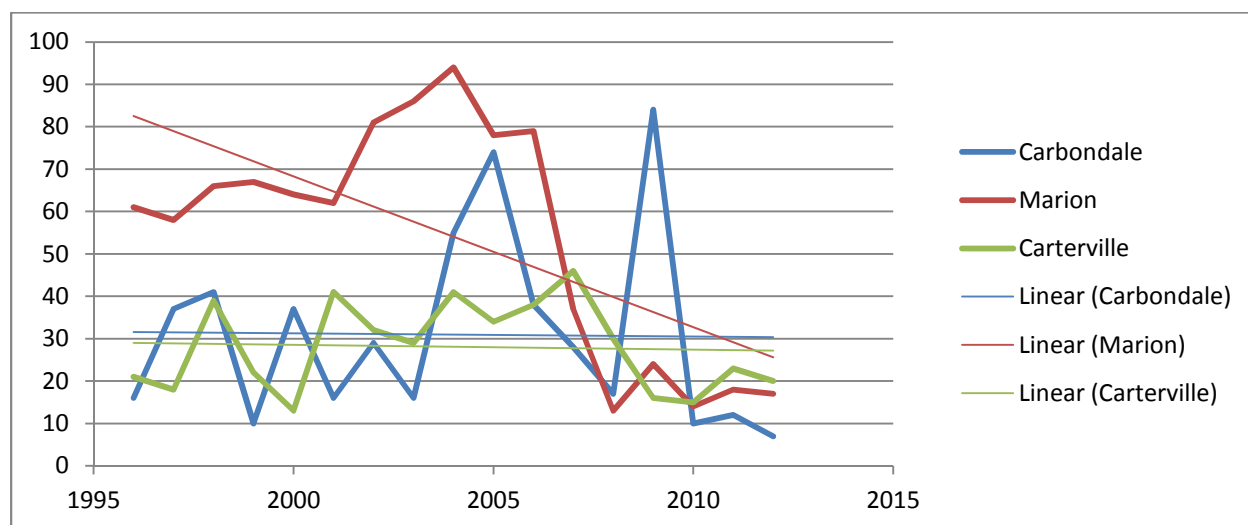
Table 2 – 2000-2012 Percentage of population with Bachelor’s degree; Carbondale, Carterville, Marion.

PERCENT OF POPULATION W/ BACHELOR'S			
	Carbondale	Carterville	Marion
2000	47.8%	31.6%	16.8%
2012	52.1%	38.1%	15.1%

(Source: U.S. Census Bureau)

Another important economic indicator for population and community growth is home starts. The following data indicates that Carbondale, while achieving fewer total annual starts (527) than Marion (919), achieved slightly more than Carterville (478) over the reporting period. Overall, Carbondale’s annual home starts were steady with only a few years with significant variations. Overall, Carbondale is trending downward as is the case with Carterville. Marion showed both the highest individual year totals but also the most volatility over the reporting period. Table 3 outlines the reporting period.

Table 3 – Housing Starts



(Source: U.S. Census Bureau)

Finally, the following chart summarizes homeownership rates of each community. Census data was only available for the years 2000 and 2010 which is outlined in Table 4.

Table 4 - Rates of Homeownership

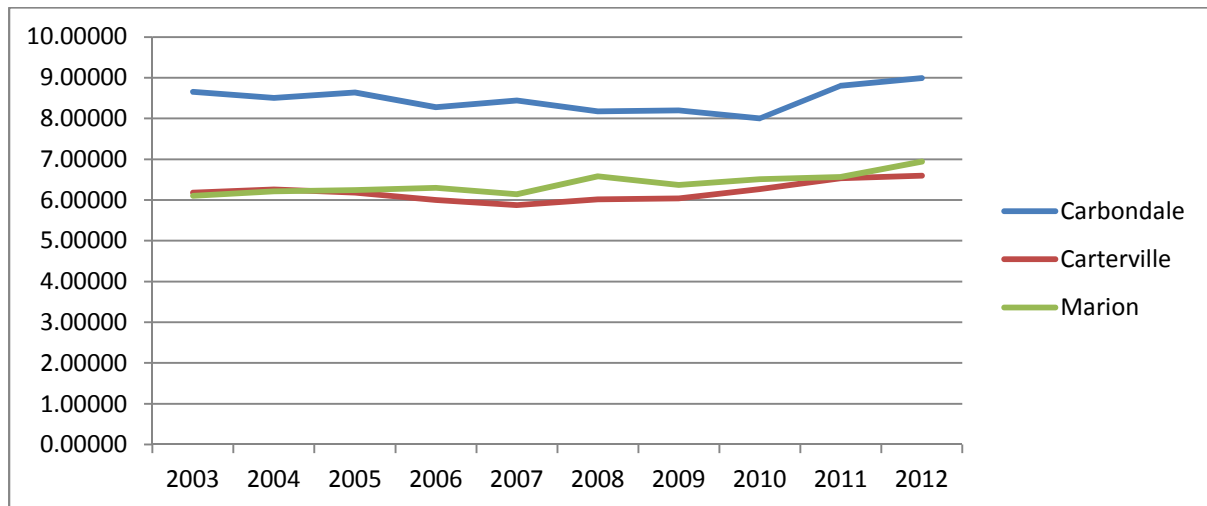
RATE OF HOMEOWNERSHIP			
	Carbondale	Carterville	Marion
2000	28.70%	69.30%	64.70%
2010	29.30%	66.90%	63.80%

(Source: U.S. Census Bureau)

### Property Taxes

Tax rates vary among municipalities according to the number of taxing bodies and the number of services being provided. A review of the tax rates of Carbondale, Carterville, and Marion show that Carbondale does in fact have the highest overall rate at 8.80528 per \$100 equalized assessed value (EAV) in 2012, however they also have the highest number of taxing bodies to levy individual rates (Jackson County Government Property Tax Information, 2014). Marion has the second highest at 6.945060 followed by Carterville at 6.598970 (Williamson County Government Property Tax Information, 2014). One commonality among the three rates is that they are all trending upward. Table 5 summarizes the competing rates.

Table 5 – Property Tax Rates

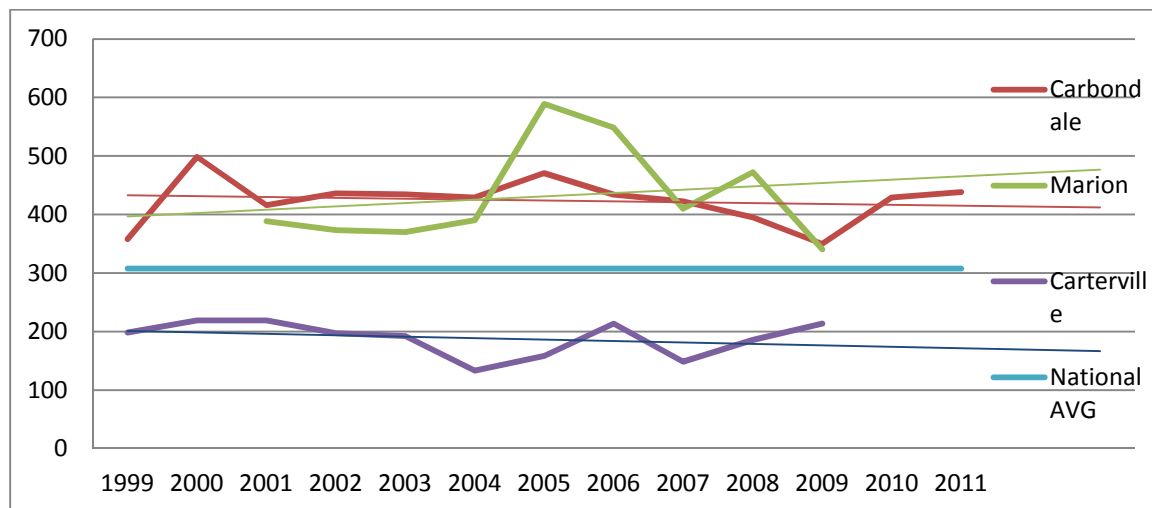


(Source: Jackson & Williamson County Government, 2014)

## Crime

Crime statistics were obtained from the Federal Bureau of Investigation and indicate a total overall crime index number. The index number is a measurement of the total annual crimes reported by the respective city. One limitation of the crime index is that the overall number is dependent on the agency reporting crimes. Depending on how detailed or inclusive a city is in reporting criminal activity, the overall crime number will be affected. However, because we are unaware of any inconsistencies that may exist among the three departments being analyzed, our assumption will be that crime is being reported consistently and the total crime number is valid measure of the community's safety. After review of the data we find that Carbondale has the highest overall crime index followed by Marion and Carterville. However, although Carbondale experiences the most crime, the total crime has been declining annually and is trending downward. The same is true for Carterville. Marion is trending in the opposite direction and crime is rising. Table 6 summarizes the data.

Table 6 – Crime Rates



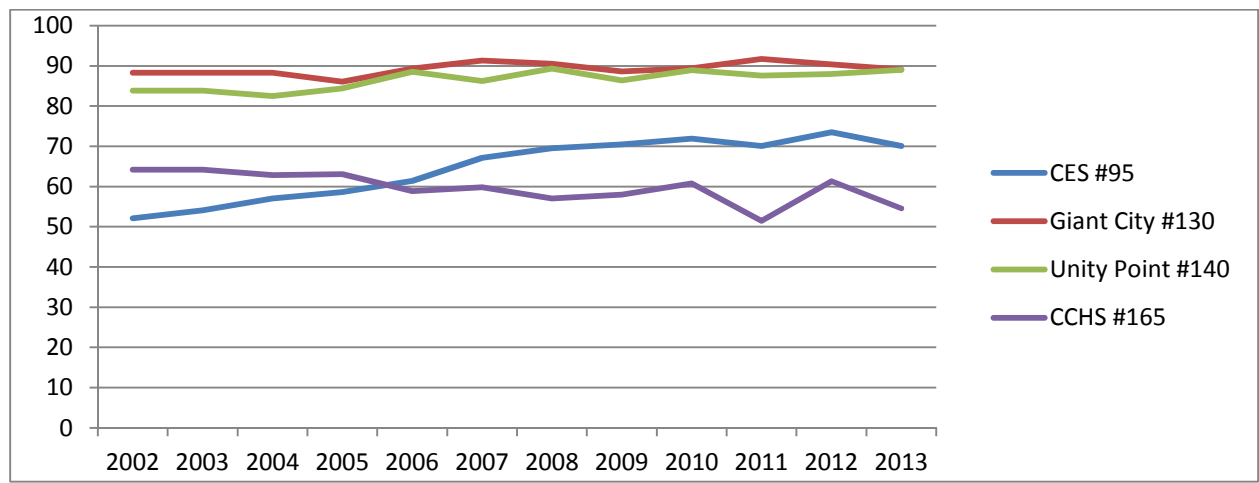
(Source: Federal Bureau of Investigation Uniform Crime Report)

## Schools

To develop a better understanding of the school districts in Carbondale, Cartersville, and Marion, an analysis of test scores and enrollments was conducted. In the case of Carbondale the analysis included the city elementary (CES) and middle school district #95, Giant City #130, and Unity Point #140. Giant City and Unity Point are located outside the south city limits of Carbondale. Carbondale Community High School #165 was also examined. The results showed that for district #95, enrollment was flat although test scores have increased over the reporting period. Giant City and Unity Point are the best performing schools although their scores have remained unchanged over the testing period. In terms of enrollment, Giant City's has remained unchanged while Unity Point's is declining. As for the high school (CCHS), both enrollment and test scores have declined over the test period. Tables 7 and 8 summarize the data.

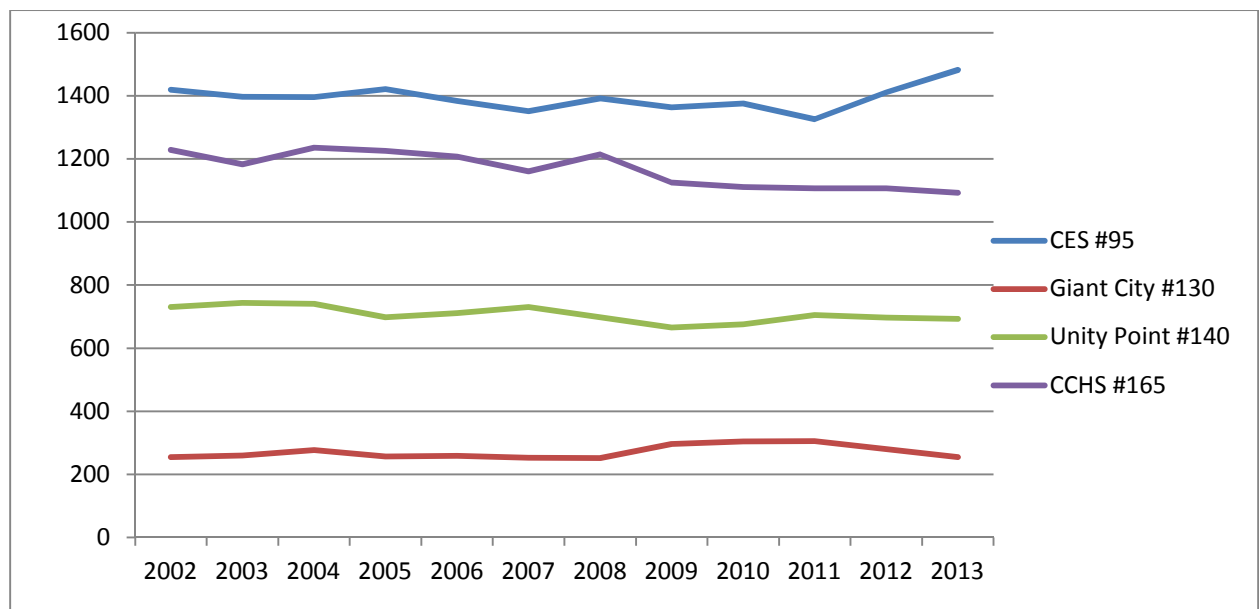


Table 7 – Carbondale Schools Test Scores



(Source: Illinois Department of Education)

Table 8 – Carbondale Schools Enrollment

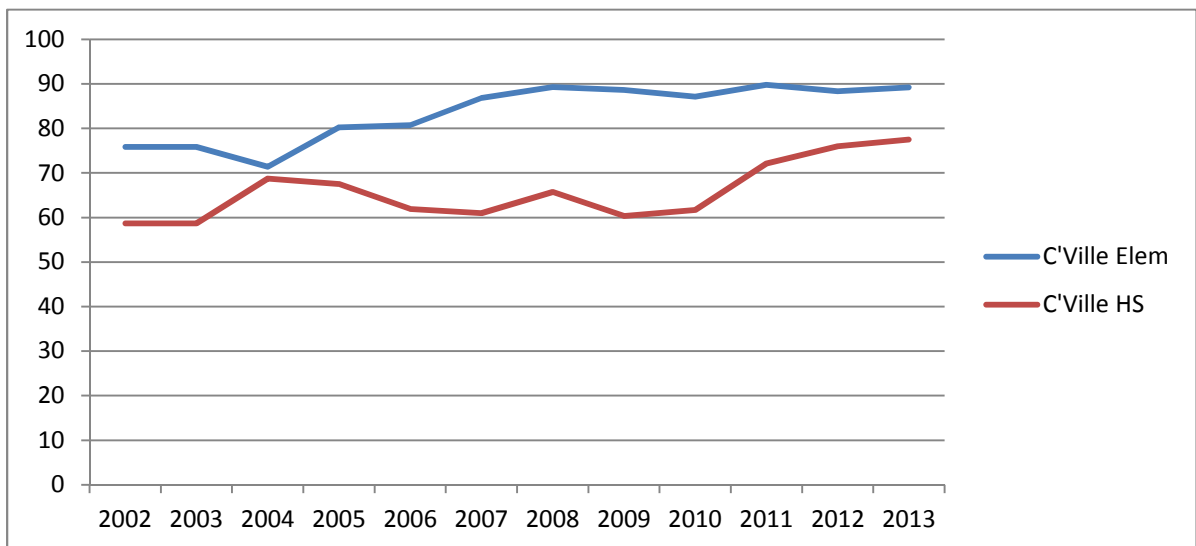


(Source: Illinois Department of Education)

Cartersville schools consist of one elementary and one high school. Both their enrollment and test scores have increased over the test period. Cartersville’s high school is the top-rated high school in the area (Illinois State Board of Education School Report Cards, 2014). Also worth

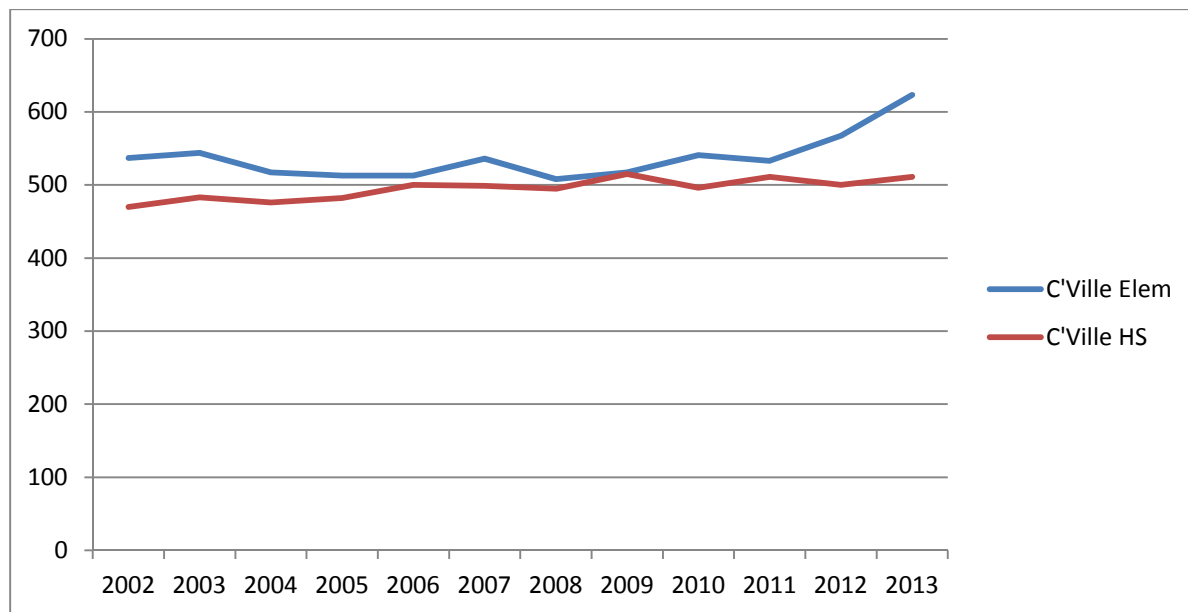
mentioning is Carterville’s average home price of \$125,300 which is higher than Carbondale (\$107,700) and Marion (97,200) (U.S. Census, 2010). This fact correlates with the extensive literature (Black & Machin, 2010, 2011; Gibbons et al. , 2012; Gibbons and Machin, 2008; Black, 1998, 1999; Figlio and Lucas, 2004; and, Kane, 2003) that indicates that school quality is capitalized in home prices since households are willing to pay more to live in communities with higher performing schools. Tables 9 and 10 summarize the data.

Table 9 – Carterville Schools Test Scores



(Source: Illinois Department of Education)

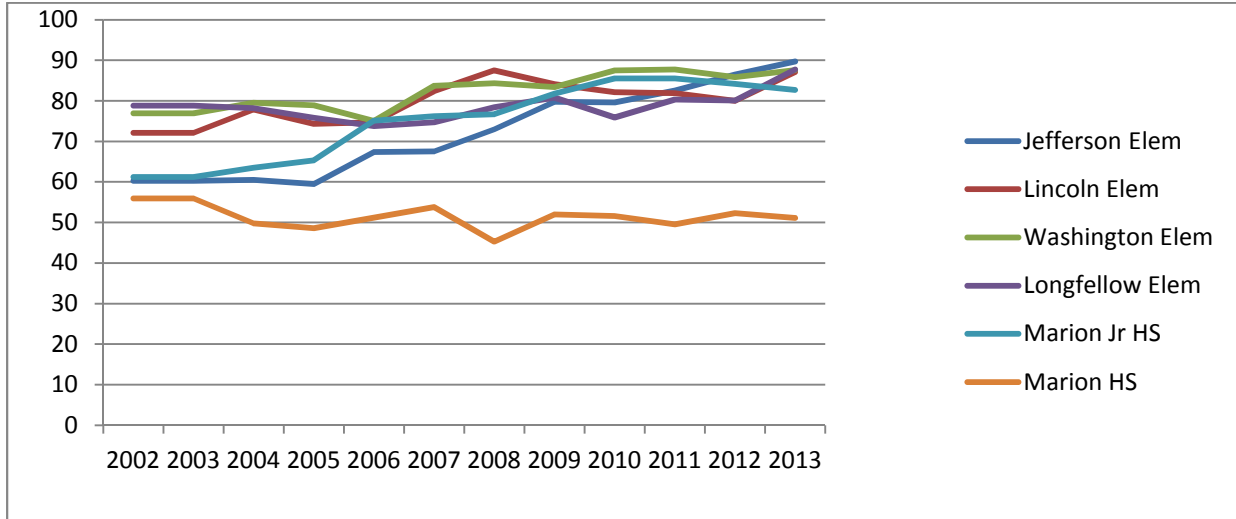
Table 10 – Carterville Schools Enrollment



(Source: Illinois Department of Education)

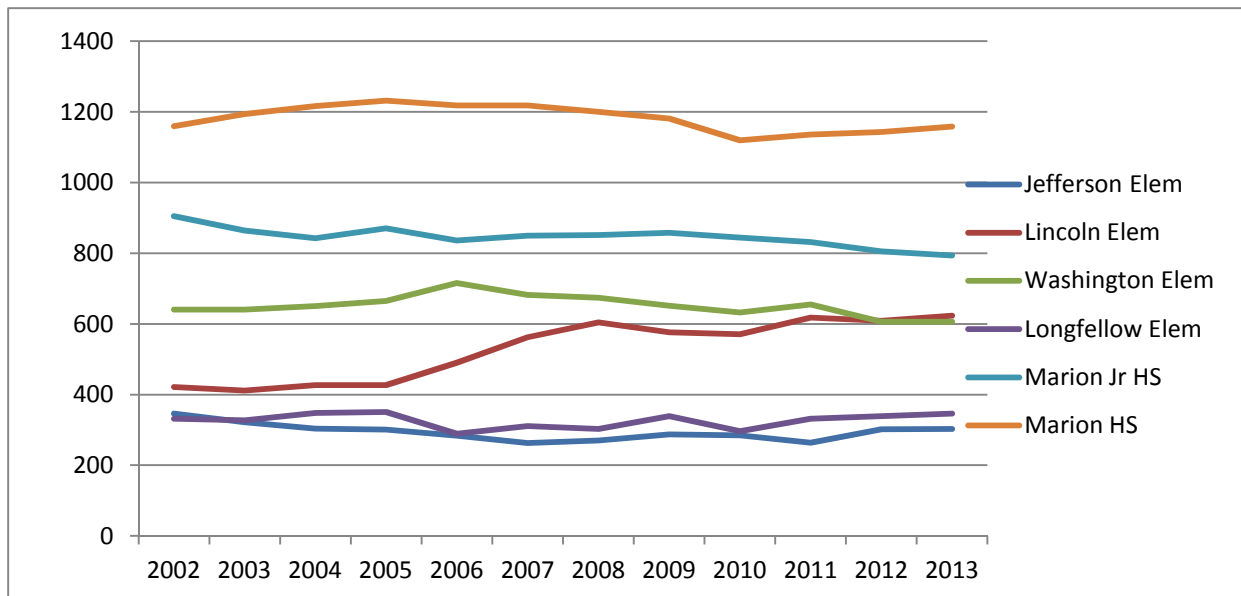
Finally, Marion schools were examined. Marion's elementary school system consists of four elementary schools, one junior high, and one high school. The data shows that all four of Marion's elementary schools have improved in test scores over the test period. Of those, two experienced enrollment declines while the other two increased enrollment. In the case of the Junior High, their test scores improved, however their enrollment declined. In the case of the high school, test scores have declined while enrollment was unchanged. Tables 11 and 12 summarize the data.

Table 11 – Marion Schools Test Scores



(Source: Illinois Department of Education)

Table 12 – Marion Schools Enrollment



(Source: Illinois Department of Education)

## **Jackson-Williamson County Survey**

In 2014, the Paul Simon Public Policy Institute (PSPPI) initiated the Jackson/Williamson County Survey (JWCS) to assess residents' satisfaction of the QOL in Jackson and Williamson County, Illinois. Jackson County includes the City of Carbondale and Williamson County includes the cities of Marion and Carterville. These two counties were chosen for the survey because they are the most populous in the region and the major cities within each county are remarkably different in terms of their demographics (U.S. Census, 2010). While Carbondale is predominantly a college town composed of a more ethnically and culturally diverse population, neighboring Carterville and Marion feature predominantly white populations that are more similar to the greater southern Illinois region (U.S. Census, 2010). In this context, Carbondale and Jackson County are unique within the greater region. Measuring the attitudinal differences via the PSPPI survey can provide precise data to determine exactly how residents' attitudes within these two counties differ. As mentioned earlier, since Carbondale, Marion, and Carterville are the population centers of Jackson and Williamson Counties, we can assume that the county-wide survey results are representative of these cities.

The questionnaire was developed by staff at the Survey Research Office, Center for State Policy and Leadership at the University of Illinois-Springfield, and staff and faculty at the PSPPI at SIU. The 2014 survey was conducted by trained interviewers and the data were weighted for probability sampling and to match 2012 population estimates from the US Census Bureau. In order to provide an objective survey, researchers interviewed 592 residents of Jackson and Williamson County and asked 100 questions across nine subject areas that included culture and recreation, social well-being, health, education, economy, infrastructure, government and civic participation, environment, and public safety. Randomly selected respondents were

contacted via landline and cell phone. The landline component of the survey included 347 responses with a 12.9% response rate and a 24.7% cooperation rate. The cell phone component included 245 responses with a 6.1% response rate and 9.3% cooperation rate. The margin of error for the survey is plus or minus 4.0%. The survey was conducted from February 20<sup>th</sup> to April 7<sup>th</sup>, 2014 (UIS-SRO, 2014).

To address the research question “what are the QOL factors that affect Carbondale’s population change?”, a question was included in the JWCS to measure specific QOL variables that may be affecting resident satisfaction. The following question was asked to survey respondents:

*“How important, if at all, are the following factors in deciding where to live?”*

Respondents were allowed to rate the importance of property taxes, quality of schools, crime, diversity, and homeownership in choosing where to live. Answering the question, respondents were given choices of answers that were presented in the form of a Likert scale that included “very important”, “somewhat important”, “neither important or unimportant”, “somewhat unimportant”, and “not important at all”.

The importance of this survey is to determine if causal relationships exist between the QOL variables being analyzed and where respondents choose to live. To achieve this, the results of the data were presented first in a descriptive format that indicated respondent preferences to each of the QOL variables being analyzed. However, since descriptive analysis inhibits our ability to draw scientific conclusions, a more robust method of providing statistical evidence is needed to determine if relationships exist between the variables (Berman & Wang, 2012). To achieve this, hypothesis testing was conducted in the form of chi-square analysis. The goal of chi-square testing is to establish statistical significance. To achieve this we can assume a

relationship exists at the .10 level of significance which means that we are willing to be wrong 1 in 10 times. Chi-square compares expected frequencies between the variables with what is observed. The greater the difference between observed and expected frequencies, the stronger the relationship between variables (Berman & Wang, 2012). In our tests, chi-square will be used to determine whether a relationship exists between two categorical variables (Berman & Wang, 2012). The categorical variables include respondents' county of residence and the QOL variables being analyzed. Since statistics is a cautious discipline, we must presume that any relationship that exists is purely by chance, therefore no relationship exists. This is also referred to as the null hypothesis (Berman & Wang, 2012).

In order to proceed with chi-square analysis, hypotheses were developed for each specific statistical test that was conducted. Since this research is concerned with human capital and the effect that it has on population change, the following hypotheses will be tested:

H1 – Property taxes are not a factor in where people that have a degree choose to live.

H2 – Quality of schools is not a factor in where people that have a degree choose to live.

H3 – Crime is not a factor in where people that have a degree choose to live.

H4 – Homeownership is not a factor in where people that have a degree choose to live.

H5 – Diversity is not a factor in where people that have a degree choose to live.

## **Results**

In the case of Carbondale, the descriptive statistics data in Table 6 revealed that crime is on a downward trend. Tables 7 and 8 showed that schools are performing at various academic levels with fluctuating enrollment trends. Marion's data revealed similar results and showed in Table 6 that crime is on the rise. Tables 11 and 12 showed that Marion's schools are also performing at various levels. Carterville offered the only data that seemed to corroborate with

the literature (Black, 2009; Black & Machin, 2010; Kane, 2003; Gibbons et al. research, 2012). Tables 9 and 10 show that Carterville schools are performing well, Table 6 shows that their crime is low, and their homes are the most valuable (US Census, 2010). Perhaps as a result, population is increasing. Finally, there is the issue of property taxes which may also help explain why growth has been more rapid in Carterville and Marion where taxes are lower.

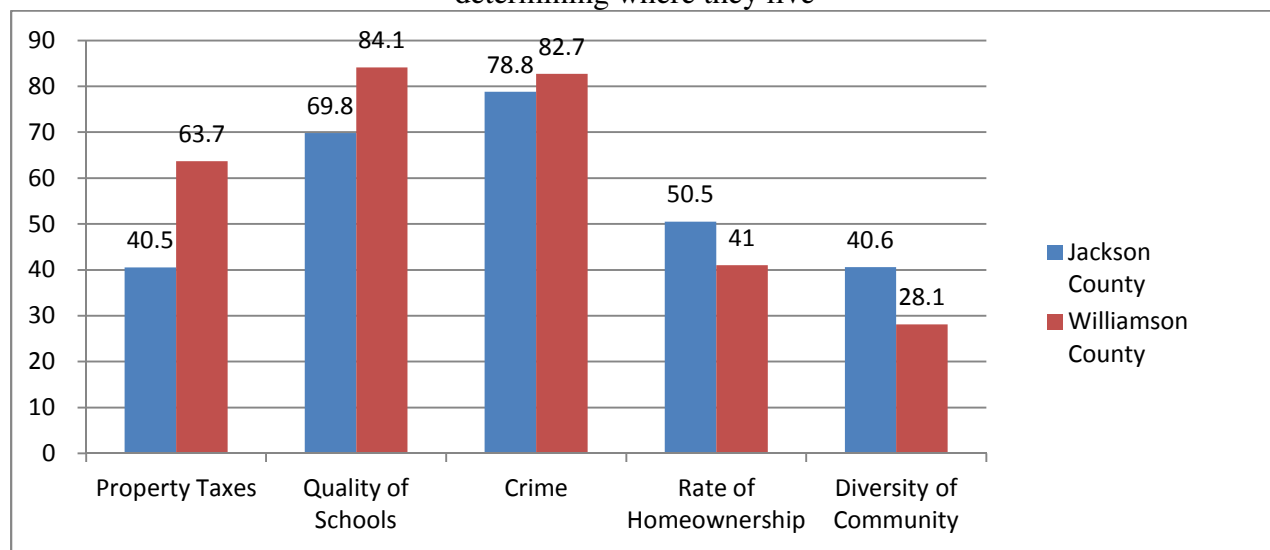
An interesting finding to the descriptive statistics data is the amount of human capital in each community. The data reveals that both Carbondale and Carterville have experienced an increase in the amount of human capital in their communities over the evaluation period while Marion's amount of human capital has declined. Since Carbondale's population has declined, an assumption could be made that they are losing human capital to Carterville. However, since Carbondale's level of human capital has increased in spite of its population declining, it's difficult to provide a valid explanation. One possible explanation could be SIU's decline in enrollment over the evaluation period. This could provide the answer considering SIU's employment has remain unchanged from 2004-2013. As for Marion, we can assume that since their population is increasing and they are losing human capital, they are likely losing residents to Carterville or other cities.

The PSPPI survey data indicated that Jackson County residents rated crime (78.8%) as the most important factor in determining where they live followed by quality of schools (69.8%), rate of homeownership (41.0%), diversity of community (40.6%), and property taxes (40.5%). Based on the percentages in responses, crime and quality of schools were viewed as the most important factors affecting where people choose to live. Williamson County residents also ranked crime and quality of schools as the most important QOL variables although their most important variable was quality of schools. There were two other noticeable differences in the



responses. First, Jackson County residents place less importance on property taxes (40.5%) than Williamson County residents (63.7%). Another difference is the importance that the respondents place on diversity. The results found that Jackson County residents placed more importance on diversity (40.6%) than Williamson County residents (28.1%). There were no significant differences in how either county rates the importance of homeownership. Table 13 summarizes the findings.

Table 13 - Percent of respondents who report that these factors are “very important” in determining where they live



(Source: PSPPI 2014 Jackson-Williamson County Survey)

Following the descriptive analysis of the survey, chi-square tests were conducted to ascertain if any significant relationships exist between the QOL variables and place of residence. The survey was segmented by introducing a control variable, level of educational attainment, to investigate differences between human capital and the rest of the population. In order to have less than 5 cells with an expected count of less than 5, answers were recoded to become “very important”, “somewhat important”, and “somewhat unimportant”. Those respondents that

answered “don’t know” or “refused” were entered as “system missing” to exclude them from the survey.

Hypothesis 1 states that property taxes are not a factor in where people with a degree choose to live. Table 14 shows that there were 106 Jackson County residents and 187 Williamson County residents with a degree. Of those people with a degree, 57.5% of Jackson County residents and 63.6% of Williamson County residents rated property taxes as a very important factor in where they choose to live. The chi-square test statistic is .391 with 2 degrees of freedom (df). Since this is greater than .10 we can accept the null hypothesis and conclude that no relationship exists between property taxes and where people with a degree choose to live.

Table 14 – Percent of residents that believe property taxes are a factor in where they choose to live

	Have Degree		No Degree	
	Jackson	Williamson	Jackson	Williamson
Very Important	57.5%	63.6%	38.5%	50.8%
Somewhat Important	40.6%	33.2%	50.8%	46.0%
Somewhat Unimportant	1.9%	3.2%	10.8%	3.2%
N	106	187	65	63

Chi Squared > .10

Note: Percentages total 100% down each column

Source: PSPPI 2014 Jackson-Williamson County Survey

Hypothesis 2 states that the quality of schools is not a factor in where people with a degree choose to live. Table 15 shows that there were 119 Jackson County residents and 186 Williamson County residents with a degree. Of those people with a degree, 85.7% of Jackson County residents and 76.3% of Williamson County residents rated quality of schools as a very important factor in where they choose to live. The chi-square test statistic is .258 with 2 degrees

of freedom (df). Since this is greater than .10 we can accept the null hypothesis and conclude that no relationship exists between quality of schools and where people with a degree choose to live.

Table 15 – Percent of residents that believe quality of schools are a factor in where they choose to live

	Have Degree		No Degree	
	Jackson	Williamson	Jackson	Williamson
Very Important	85.7%	76.3%	73.1%	76.3%
Somewhat Important	11.8%	21.5%	22.4%	23.7%
Somewhat Unimportant	2.5%	2.2%	2.4%	0.0%
N	119	186	67	59

Chi Squared > .10

Note: Percentages total 100% down each column

Source: PSPPI 2014 Jackson-Williamson County Survey

Hypothesis 3 states that crime is not a factor in where people with a degree choose to live. Table 16 shows that there were 137 Jackson County residents and 229 Williamson County residents with a degree. Of those people with a degree, 75.2% of Jackson County residents and 84.3% of Williamson County residents rated crime as a very important factor in where they choose to live. The chi-square test statistic is .317 with 2 degrees of freedom (df). Since this is greater than .10 we can accept the null hypothesis and conclude that no relationship exists between crime and where people with a degree choose to live.

Table 16 – Percent of residents that believe crime is a factor in where they choose to live

	Have Degree		No Degree	
	Jackson	Williamson	Jackson	Williamson
Very Important	75.2%	84.3%	86.3%	84.5%
Somewhat Important	21.9%	13.5%	11.3%	15.5%
Somewhat Unimportant	2.9%	2.2%	2.5%	0.0%
N	137	229	80	71

Chi Squared > .10

Note: Percentages total 100% down each column

Source: PSPPI 2014 Jackson-Williamson County Survey

Hypothesis 4 states that homeownership is not a factor in where people with a degree choose to live. Table 17 shows that there were 94 Jackson County residents and 181 Williamson County residents with a degree. Of those people with a degree, 60.6% of Jackson County residents and 61.9% of Williamson County residents rated quality of schools as a very important factor in where they choose to live. The chi-square test statistic is .086 with 2 degrees of freedom (df). Since this is less than .10 we can reject the null hypothesis and conclude that a relationship exists between homeownership and where people with a degree choose to live.

Table 17 – Percent of residents that homeownership is a factor in where they choose to live

	Have Degree		No Degree	
	Jackson	Williamson	Jackson	Williamson
Very Important	60.6%	61.9%	45.3%	58.3%
Somewhat Important	28.7%	34.8%	51.6%	33.3%
Somewhat Unimportant	10.6%	3.3%	3.1%	8.3%
N	94	181	64	60

Chi Squared < .10

Note: Percentages total 100% down each column

Source: PSPPI 2014 Jackson-Williamson County Survey

Hypothesis 5 states that diversity is not a factor in where people with a degree choose to live. Table 18 shows that there were 88 Jackson County residents and 161 Williamson County residents with a degree. Of those people with a degree, 59.1% of Jackson County residents and 41.0% of Williamson County residents rated property taxes as a very important factor in where they choose to live. The chi-square test statistic is .032 with 2 degrees of freedom (df). Since this is less than .10 we can reject the null hypothesis and conclude that a relationship exists between diversity and where people with a degree choose to live.

Table 18 – Percent of residents that believe diversity is a factor in where they choose to live

	Have Degree		No Degree	
	Jackson	Williamson	Jackson	Williamson
Very Important	59.1%	41.0%	56.3%	32.0%
Somewhat Important	27.3%	53.4%	39.1%	58.0%
Somewhat Unimportant	13.6%	5.6%	4.7%	10.0%
N	88	161	64	50

Chi Squared < .10

Note: Percentages total 100% down each column

Source: PSPPI 2014 Jackson-Williamson County Survey

Reviewing the chi-square data reveals several findings that are important to this research. First, when testing the QOL variables while controlling for educational attainment, the results show that only homeownership and diversity show any significant relationships. The homeownership variable showed significance at the .10 level of significance which suggests that there is a relationship between homeownership and where residents with a degree choose to live. This could be the result of local residents' concerns with the high percentage of rental housing that exists in Carbondale since it is primarily a college town. As for diversity, it also showed a significant relationship at the .10 level of significance and showed the most significance of all the variables tested. This finding would seem to align with much of the research (Florida, 2002a, 2002b, 2006, 2008; Winters, 2011; McGranahan et al., 2011; Shapiro, 2006) that suggests that college towns possess high levels of human capital who are generally more likely to live in diverse communities.

### **Conclusion and Policy Implications**

The purpose of this research was to discover what factors are affecting Carbondale's population change. To address this question a QOL survey was administered to residents of Jackson and Williamson counties to quantify the effect that certain QOL variables may have on where people choose to live. Descriptive statistics were also analyzed which revealed that Carbondale residents generally regard crime and quality of schools as the most important factors in choosing where to live. As for the remaining variables examined, consensus was mixed as to which variables were most important. The survey results suggest that property taxes are less important while diversity is a more important variable to Carbondale residents when factoring where to live. The homeownership variable revealed no remarkable differences among the respondents in terms of its effect on where people choose to live.

Following the descriptive statistical analysis of the survey, a more scientific analysis was conducted to reveal evidence of statistically significant relationships that may exist between the variables. An educational attainment control variable was introduced to segment the population into two groups; one with a degree and one without a degree. The subsequent chi-square testing found that the variables crime, quality of schools, and property taxes weren't significant in terms of their effect on someone's decision to live in Carbondale. These findings are consistent with much of the research (Goe & Green, 2005; Whisler et al., 2008; Tiebout, 1956; Deller et al., 2005; Wall, 2001; Douglas, 1997; and Lambiri et al., 2007) that asserts that where people choose to live is based on multiple social and economic factors. Individual households define QOL subjectively and sort themselves into the respective communities that provide them with the greatest perceived value. The results did suggest that homeownership is a factor in where people live at the .10 level of significance. This is likely the result of local residents who may live and work in Carbondale being concerned with the high percentage of rental housing that exists in Carbondale, and which is typical to a college town.

Perhaps the most interesting finding of this research is the role diversity may play in guiding decisions of where Carbondale residents choose to live. The chi-square tests found that diversity was statistically significant at the .10 level of significance and actually showed the most significance of all the variables tested. The limitation of this finding is in how the survey question gauges the importance of diversity. The question addresses diversity in a vague manner which allows for broad interpretation of the results. Although the analysis indicates a significant relationship, the findings would be more valid if the diversity subject was explored more rigorously. Therefore, in order to fully understand diversity's impact on where people choose to

live, a more comprehensive survey should be conducted in the future to explore the subject more rigorously.

Another limitation to the diversity findings is the role that political ideology may play. As mentioned in the literature (Williamson, 2008; McDonald, 2011) diversity isn't limited to racial and ethnic differences but can also include political ideology. This is an important fact when looking at the ideological makeup of Jackson and Williamson Counties. The PSPPI survey (2014) showed that the respondents were considerably more conservative (63.6%) than liberal (36.4%). When segmenting ideology by county we find that Jackson County is 54.6% liberal while Williamson County is 57.6% conservative. When looking at the population segment that is considered human capital, or having a degree, the data shows that in Jackson County 76.7% of those with a degree describe themselves as liberal while 61% of Williamson County residents with a degree describe themselves as conservative. Since we know from the literature (Williamson, 2008; McDonald, 2011) that ideological diversity can affect where people choose to live, future research regarding diversity should also focus on these differences and not be limited to diversity factors that focus solely on race and ethnicity.

Recognizing diversity as a key factor that affects residents' decisions on where to live has broad implications for college towns like Carbondale. The findings prove that with the exception of diversity, residents value each of the QOL variables that were examined differently. This finding certainly isn't unique. What is unique about this research is that a distinction can now be made as to a single variable that delineates residents of Carbondale from neighboring communities; diversity. The presence of SIU is the obvious catalyst that diversifies Carbondale and it's likely that universities like SIU serve a similar function in other rural areas in terms of their ability to diversify the local population. Understanding this distinction is important for



rural areas so policy makers can develop the necessary strategies to capitalize on the unique asset that a university provides; human capital. It's particularly important for Carbondale considering the high percentage of human capital that resides in the community; 52.1% (U.S. Census, 2010).

This research paper began by asserting that universities help attract human capital (Florida, 2006) and that human capital is the driving factor in regional economic development (Florida, 2002a). Fused with this focus on human capital, Florida (2002b) reminds us that in order to reap the economic benefits that universities provide, communities must devise strategies to become more tolerant. Tolerance entails remaining open to diversity and actively working to cultivate it (Florida, 2002b). It's an important first step in developing a deeper understanding of how different people can live and work together (Putnam, 2007). This research indicates that Carbondale residents appreciate diversity more than neighboring communities and that it's an important factor affecting where they choose to live. These findings have particular value to public administrators that are charged with developing strategies to plan for Carbondale's future. Understanding the factors that are important to the residents of Carbondale allows policy makers and administrators to craft specific strategies that appeal to them.

These findings may also be applied to similar university towns that are located in rural areas like Carbondale. Florida's (2002b) research relies, in part, on the assumption that human capital tends to reside in metropolitan areas. Therefore, rural areas like Carbondale may not necessarily benefit from strategies to attract human capital (McGranahan & Wojan, 2007). However, Florida (2002b) also asserts that the truly delineating factor affecting where human capital lives is the vitality of the community. Simply put, people have to want to live there. Underlying this simplicity, Florida (2002a; 2002b; 2008) identifies vitality with tolerance and diversity, which he acknowledges are the common elements of cities that are successful in

attracting human capital. Communities that have higher concentrations of human capital are generally more likely to attract diverse populations (Florida, 2002a; Winters, 2011; McGranahan et al., 2011; Shapiro, 2006). The results of the PSPPI survey align with these findings.

Therefore, since colleges and universities are magnets for human capital (Florida, 2006), and because there are few other opportunities for rural areas to draw in people from the outside (McGranahan et al., 2011), this research would suggest that rural areas craft economic development strategies that will enhance the ability of local colleges and universities to be more attractive to outsiders.

Perhaps the greatest challenge in applying this research is developing and implementing strategies that adhere to Florida's human capital model. Adopting such progressive strategies is an abandonment of conventional economic development models that rely on attracting companies to build clusters of industries to fuel regional growth (Florida, 2002b). Such a departure in policy will require broad policy changes that must be accompanied by buy-in from policy makers; each represents significant paradigm shifts in how the southern Illinois region approaches economic development.

Likewise, applying these findings to Carbondale isn't as simple as suggesting that the city become more diverse. The focus should be on becoming more tolerant. Becoming more tolerant will require the City, SIU, and local businesses to embrace diversity and integrate a confluence of diverse perspectives and ideas into everything they do. The subsequent reward could be great. Tolerance can help community residents feel more comfortable around each other which will likely increase their satisfaction with the community (Garland, 2010). It can improve the vitality of the community. It can promote greater social integration which often acts as a form of control that holds behavior in check and keeps crime rates lower (Barnett & Mencken, 2002). Finally,

tolerance can improve the value of diversity as an indicator of overall peer quality in schools, thus enhancing the perceived quality of local schools (Black, 1998). Perhaps most important though, tolerance will allow Carbondale to develop an effective “people climate” (Florida, 2002b) that will make the city more attractive to households that appreciate the benefits of living in a college town. Collectively, each of these improvements would advance the QOL of the community, help encourage prospective residents to relocate there, and make it a more desirable place to live. In order for Carbondale to exploit the benefits that a university like SIU can provide, it must employ strategies that will appeal to educated, productive workers which will heighten the level of human capital in the community. This will provide the impetus to produce knowledge spillovers (Florida, 2006) and subsequent economic growth (Shapiro, 2006) that are synonymous with rural, university-driven economies (McGranahan et al., 2011).

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**VITA**

Graduate School  
Southern Illinois University

Gary Williams

[gjwilliams@siu.edu](mailto:gjwilliams@siu.edu)

Southern Illinois University-Carbondale  
Bachelor of Arts in Political Science, May 1995

Special Honors & Awards:

2014 American Society for Public Administration Public Service Student Award for  
Southern Illinois Region

Research Paper Title:

Human Capital, Quality of Life, and Diversity: What are the Factors Affecting Population  
Change in Carbondale, Illinois?

Major Professor: Stephanie Pink-Harper, Ph.D.