

VIEWING COLLEGE-TOWN REAL ESTATE
AS AN INVESTABLE ASSET CLASS
WITH OUTPERFORMANCE DURING
BEAR MARKETS IN HOUSING

By

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Abstract: College-town real estate is predicted to fare better in recessionary environments due to a constant demand for education as well as the economic stability provided by steady employment. Based on its distinctive demographics, the college-town real estate market is unique, specifically in comparison to alternate locales. In this paper, I investigate the performance of college-town residential real estate during recessionary periods in the economic cycle. I also test residential demographics and collegiate characteristics for significance to determine when college-town real estate will exhibit the most strength during economic downturns. I make the case that college-town real estate can be considered a separate, investable asset class.

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CHAPTER 1

INTRODUCTION

What comes to mind when you think of a *college town*? Presumably, images of a vibrant, lively setting combined with a young, fun atmosphere. For many individuals, some of the most memorable years of their lives were spent coming of age in a setting just like this. But the uniqueness of a college town does not stop at its beautiful scenery and unforgettable ambiance. This study's objective is to investigate and systematically analyze whether college towns offer another very interesting and important quality: home price stability during real estate downturns. Most importantly, this study will look to explain if, when, and subsequently why college-town real estate outperforms noncollege-town residential real estate.

Statement of Purpose

Results of this research will have broad implications for homeowners, investors, lenders, insurers, and real estate professionals alike. Everyone must live somewhere, and homeownership can be seen as an indirect investment of necessity. For prospective owner occupants as well as real estate investors, purchasing a house in a college town could lead to better long-term gains if college-town real estate does in fact outperform noncollege-

town real estate and the homeowner needs to liquidate the property during a recession. Lenders, insurers, and realtors may take comfort in knowing that college-town real estate has a lesser chance of losing its value, thus potentially limiting foreclosures while increasing marketability.

Research Question

Scholarly studies are beginning to examine the economics of college-town real estate (Vandegrift, Lockshiss, & Lahr, 2012; Kashian & Rockwell, 2013; Mapes, Kaplan, Turner, & Willer, 2017); however, college-town research is currently underrepresented in both economic and real estate literature. Gumprecht (2008a), a predominant researcher of college towns, finds that college towns vary from other locales in the United States due to their distinctive socioeconomic traits. Several differentiating features of college towns include an abnormally well-educated and affluent population coupled with an elevated cost of living and high quality of life (Gumprecht, 2008a). Another important component of the college-town real estate market is studentification, which relates to undergraduates residing in rental houses scattered throughout the community due to a lack of on-campus student housing (Powell, 2016).

It is commonly known that location is an important component of residential real estate valuation (Kashian & Rockwell, 2013). Even though residential real estate is a cyclical asset, specific locales have the potential to outperform their neighboring communities during economic contractions. In industry, college-town real estate is perceived to be a recession-resistant investment due to the steadiness of the local college-town economy (Gopal, 2008). Aspiring students are commonly thought to pursue higher education regardless of

macroeconomic conditions, with enrollments of some schools actually increasing during recessionary periods (Betts & McFarland, 1995; Dellas & Koubi, 2003).

However, college-town real estate performance under specific economic conditions has not been scientifically demonstrated in an academic study. Therefore, in this study I seek to determine whether college-town residential real estate is able to retain its value better than residential real estate in noncollege towns during real estate bear markets. I will examine the mediating factor of the local unemployment rate as an answer to why this outperformance by college-town real estate may exist.

Potential Contribution

My contribution to economic literature will be to empirically test the importance of college-town real estate for investment portfolio protection during recessionary periods as well as to offer a stable housing option for homeowners with risk aversion. But it must be stated that real estate is a local market, and it is neither realistic nor feasible for homeowners to live more than a certain distance away from where they work. In the same vein, many real estate investors will choose to invest locally due to the implied ease of active management in these hands-on projects. An established boundary condition throughout this study is that all real estate is local, meaning unlike other types of assets, real estate is finite, permanent, and cannot be relocated. It is important to acknowledge that there is a distinct possibility that noncollege towns outperform college towns in real estate bull markets. However, bull market returns are not the focus of this study. My premise is that college-town real estate can be considered an investable asset class that presents a low-risk, low-beta option during periods of economic stress.

Theoretical Framework

Theoretically, these embedded traits of college towns should translate into a strong, stable real estate performance. Three academic theories provide the basis for my claims. Unique, location-specific characteristics contribute to the allure and popularity of college-town real estate (Gumprecht, 2021). Thus, Rosen's (1974) theory of hedonic valuation provides an ideal explanation for why locational attributes of college towns create a steady desire for college-town real estate. Pleasure derived from collegiate amenities coupled with an irreplaceable location provide the basis for stable residential real estate demand. Human capital theory, first presented by Schultz (1960) and Becker (1962), offers a justification for why economic stability exists in college towns regardless of fiscal cycle, since student enrollment actually increases during recessions (Betts & McFarland, 1995; Dellas & Koubi, 2003; Dellas & Sakellaris, 2003). The flocking of students to universities during recessionary time periods reflects a quest for self-betterment coupled with few available job opportunities (Dellas & Koubi, 2003).

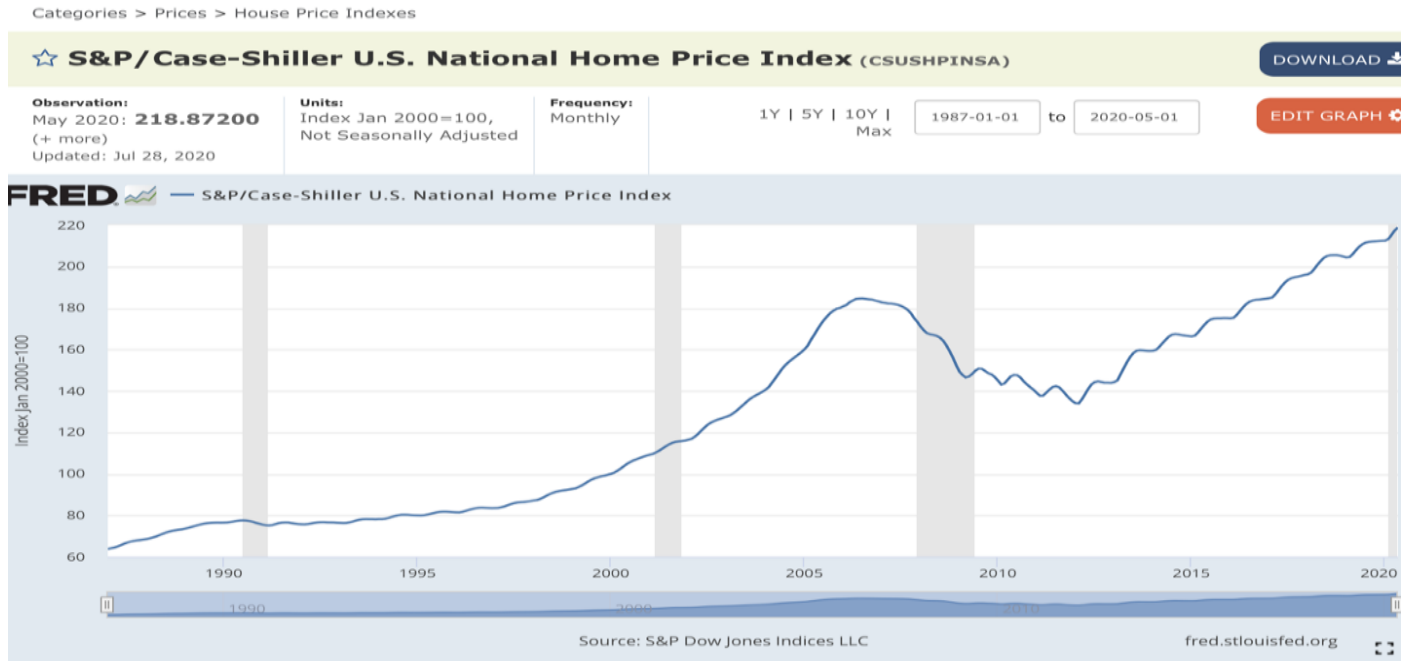
Demographics of colleges themselves may offer a view into which college towns perform the best. The inclusion of demographic variables will be used to determine when this college-town real estate outperformance is highest amplified if this effect is actually shown to exist. Social identity theory focuses on individuals identifying with something larger than themselves, in this case, a collegiate brand (Tajfel, Turner, Austin, & Worchel, 1979). Considering social identity theory, it is posited that the research level of the institution as well as NCAA sports division level will be found to be significant predictors of performance during recessionary periods.

Lastly, the ratio of student population to town population is predicted to be a key factor in the economic performance of college-town real estate during recessionary time periods. Since studentification aids in increasing residential real estate valuations (Powell, 2016), the influx of college students combined with the need for college housing will generate price stability in the local real estate market even during periods of economic distress.

Presentation Format

For this study, real estate downturns will be measured using the Case-Shiller U.S. National Home Price Index (Figure 1), looking at the embedded return from peak to trough. This index is a tabulation of existing home sales in 20 major U.S. cities that is used to represent trends in the U.S. housing market (S&P/Case-Shiller U.S. National Home Price Index, 2021). Real estate is a lagging indicator. Even though the Great Recession ended in 2009, residential real estate did not reach the bottom until three years later. Foreclosures peaked in 2011 (Wang, 2019a), and the most recent national real estate downturn extended through early 2012 per the Case-Shiller index. Since the Case Shiller U.S. National Home Price Index captures recessions at the national level, this study will also focus on recessionary periods at the national level.

Figure 1: Case-Shiller U.S. Home Price Index



This research will not only explore whether and when college-town real estate outperforms during the typical business cycle, but will also theorize on why college-town real estate performs so well, if indeed it is found to do so. I posit that the lower involuntary unemployment rates of college towns will explain the relationship between college-town real estate and recessionary performance. My first study compares the return of college-town residential real estate to noncollege-town residential real estate during a real estate downturn. I predict that college-town real estate will significantly outperform noncollege-town real estate in a real estate bear market. This study also presents the mediating effect of involuntary unemployment in order to explain why college-town real estate retains its value better than noncollege-town real estate during an economic downturn.

Subsequently, my second study culminates with the inclusion of demographic variables in an attempt to explain the within-unit variances between college towns by isolating their bear market performances. These three explanatory variables include: the research level of the collegiate institution, the NCAA divisional level of its sports program, and the student population as a percentage of the total town population. For both studies, it will be important to control for the total population of every college town so that conclusions can be drawn regardless of how large or small the town population actually is in each locale.

Chapter II includes a full literature review of college towns, focusing specific attention on Gumprecht's (2008a) seminal studies as well as the concept of studentification. Also found in Chapter II are the key theories of hedonic valuation and human capital, which serve as the basis for my argument as to why I expect college-town residential real estate to retain more of its value than noncollege towns during downturns in real estate. My two hypothesized models consisting of six testable hypotheses are then presented.

Chapter III focuses on the methods I will use to operationalize the variables in my study as well as how data will be analyzed. In Chapter IV, I present my findings and analyze the quantitative outcomes of my study, including descriptive statistics and regression results. Finally, in Chapter V I concentrate on the qualitative takeaways from this study, including a discussion on whether each hypothesis was supported and why these results are important. Limitations of this study and a call for future research conclude the chapter.

CHAPTER II

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

College Towns

Gumprecht (2008a), a geography scholar and seminal investigator of college towns, argues that college towns are municipalities where the college is the “dominant influence” (p. 1). He is adamant that college towns are “youthful places” (p. 4), but hesitant to formally define a college town as a construct, citing too much potential variability in a theoretical classification. However, he does believe that college towns can be measured, broadly quantifying college towns as municipalities with less than 350,000 residents coupled with a student population that is greater than 20% of the town’s total population. Per his extensive research on the subject, his classification yields a population of 305 college towns in the United States. These specified towns are unique due to their intimate settings and small populations. Gumprecht specifically notes that cities like Austin, Texas do not fit the definition of a college town even though Austin is home to a famous university. As the capital city of Texas, Austin is not solely defined by the University of Texas because other demographic variables like its large population as well as a significant governmental influence also characterize the city.

Study #1

In the real estate industry, college towns are presumed to be resistant to recessions due to a constant need for university housing stemming from continued student, faculty, and staff demand (Gopal, 2008). A recession is loosely defined as a decline in economic activity for a specified period of time. Inverted yield curves can actually be used to predict recessions in the United States (Ercolani & Natoli, 2020). This inversion occurs when short-term interest rates are higher than long-term interest rates. The expectation of investors is that the Federal Reserve will respond to a stalled economy by lowering interest rates in the future in order to increase spending and economic output. Involuntary unemployment rises during recessions due to layoffs from a slow economy. Subsequently, a 2008 *Businessweek* study compared the value retention of college-town real estate to real estate prices at the state level, finding that 17 of 25 college towns observed exhibited superior value retention over and above their states (Gopal, 2008).

However, comparing a college town's real estate performance to the performance of its home state is too broad in order to ascertain any real empirical takeaways. Carson and Dastrup (2013) recommend examining single-family housing at the local level because local demographics can vary widely across larger areas, thus significantly impacting residential real estate pricing. To further emphasize this point, this *Businessweek* study in question found that residential real estate in Williamsburg, Virginia (home of The College of William & Mary) underperformed residential real estate in the state of Virginia by 13% in 2007, once home prices began to decline during the financial crisis (Gopal, 2008). Since Virginia is a large state with a diverse topography and economy, it is not equitable to compare the college town of Williamsburg with the total market return of the entire state of Virginia. A

comparison of Williamsburg to a sample of other college and noncollege towns is likely more justified.

Human Capital Theory

Human capital theory (Schultz, 1960; Becker, 1962) and hedonic valuation theory (Rosen, 1974) are linked in this study to justify why residential real estate located in college towns is predicted to better retain its value during recessions than noncollege-town real estate. Per human capital theory, an investment in education has the potential to pay off financially over time (Becker, 1993). Investing in education is countercyclical, meaning university enrollments actually increase as unemployment increases (Betts & McFarland, 1995; Dellas & Koubi, 2003; Dellas & Sakellaris, 2003; Barbu, 2015). This increase in collegiate enrollments should lead to stable employment in college towns since the university is typically the largest employer in the area (Gumprecht, 2008a). With limited job loss in college-town communities, residential real estate in close proximity to campus will remain in demand, even during recessionary environments.

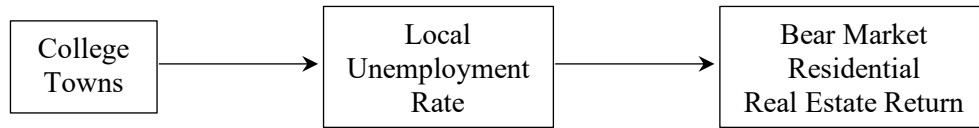
College enrollments rise during recessions because the opportunity cost of prioritizing education is minimized due to good jobs being scarce (Dellas & Sakellaris, 2003). Subsequently, Dellas & Sakellaris (2003) find that a 1% increase in unemployment equates to a 2% increase in university membership (Barbu, 2015). Huckfeldt (2016) refers to this phenomenon as “countercycle upskilling” where individuals flock to campuses in order to make themselves more attractive to future employers. Hershbein and Kahn (2016) find similar results on upskilling during recessions (Huckfeldt, 2016). Ultimately, businesses can require more skills during recessionary periods due to “slack” in the labor markets (Huckfeldt, 2016).

Because university enrollments increase during recessions (Betts & McFarland, 1995; Dellas & Koubi, 2003; Dellas & Sakellaris, 2003), college towns should be less vulnerable to economic shocks. Another patriarch of human capital theory, Schultz (1960) theorizes that the college educated have the potential to earn more money in their lifetimes. Therefore, education should actually be viewed as an investment as opposed to “consumption,” since education has the opportunity to “pay dividends” in the future. Becker (1993) began incorporating the concept of rational choice in conjunction with human capital theory because he alleges “forward-looking” individuals are focused on permanence and predicting the unknown (Chamlin & Cochran, 2000). But whether individuals are rational in returning to college is not the premise of this paper. The key takeaway from existing literature is that collegiate enrollments increase during recessions (Betts & McFarland, 1995; Dellas & Koubi, 2003; Dellas & Sakellaris, 2003).

Human capital investment is a combination of two components: the affordability of education combined with a desire to obtain additional education (Dellas & Koubi, 2003; Dellas & Sakellaris, 2003). During recessions, people choose alternate activities for time consumption and personal betterment since jobs are scarce. One of these substitute choices is education (Dellas & Koubi, 2003). Even more so, wealthy families have the option of sitting out the poor job market, instead making an investment in their futures by choosing education. In times of economic uncertainty, people with socioeconomic status increase their spending on higher education. The gap in educational spending between wealthy and poor families actually widened during the Great Recession (Lunn & Kornrich, 2018). On the macroeconomic level, strong prospects for education lead to economic survival and recovery

(Becker, 1992). From a microeconomic perspective, the speed of economic recovery is based partially on the amount of human capital found locally (Schultz, 1962).

Figure 2: Hypothesized Model 1



This local component of stability and survival should result in job retention for those employed by a college as well as industries associated with a college, thus leading to a steady demand for housing by investors and full-time residents alike. College towns are partially insulated from recessions due to predictable annual tourism that brings students, their families, tourists, and full-time residents to the downtown area for cultural events, restaurants, and nightlife (Mitchell, 2009). This “buzz” around college towns creates an atmosphere of excitement as well as a rise in entrepreneurship and telecommuting (Mitchell, 2009). Intellectual and human capital are also important drivers of economic growth, where the continuous commitment to innovation in college towns creates stable employment and brings new businesses to the area (Martin & Samels, 2019). The consistent demand for education fosters job stability for university employees (Gopal, 2008). Universities are a major employer in college towns; thus, the continuous employment of university faculty and staff helps stabilize demand for local real estate.

H1: During a recession, the unemployment rate of a college town will be lower than the unemployment rate of a noncollege town.

To further make the case that college-town real estate returns in economic recessions exceed that of noncollege towns, one must consider why economic demand is more stable in

college towns. An obvious answer is studentification. Studentification is the process in which students infiltrate the surrounding areas in close proximity to campus due to the lack of available housing on campus (Powell, 2016). Subsequently, studentification normalizes demand for local rental real estate in close proximity to college towns. Both investors and universities alike purchase residential properties near college campuses in order to meet the demand for student rental housing (Powell, 2016).

In addition to homeowners, investors, and campus sprawl, parents will also purchase homes for their students and rent out extra bedrooms in order to reduce the cost of housing for the duration of enrollment (Gumprecht, 2021). This constant demand for off-campus housing tends to displace full time residents, who relocate slightly further away from campus (Powell, 2016). A real estate power struggle then ensues, creating a “town and gown divide” between the permanent residents and the seasonal students (Mapes et al., 2017). Gumprecht even used the term “student invasion” during a recent conversation when discussing how students descend on these college towns in droves each fall (Gumprecht, 2021). However, this rift between the town’s residents just further solidifies the strength of college-town real estate prices regardless of national economic conditions.

As the evolutionary process of studentification changes the dynamics of the college-town landscape, developers are constructing “purpose-built” housing with unique amenities specifically marketed to students (Foote, 2017). Foote (2017) identifies six types of housing in college towns: middle-class, minority-concentrated, stability, elite, mix/renter, and student, finding that the number of elite neighborhoods has increased while the number of middle-class neighborhoods has declined. Furthermore, he argues that these transitions increase the “flows of knowledge, people, and capital,” resulting in economic increases for college-town

communities. This economic surplus found in college towns bodes well for its real estate valuation and sustainability during economic downturns. Comparatively, low-income neighborhoods are not nearly as impervious to recessionary forces (Wang, 2016). Both university affiliation and studentification help generate stable economic conditions in college towns since businesses benefit from the constant demand for amenities by those associated with the school.

Hedonic Valuation Theory

Turning to hedonic valuation theory, location is a key component of real estate valuation. Even multiple recent machine learning studies acknowledge the importance of hedonic valuation theory and utilize hedonics as a partial basis for their real estate pricing models (Oladunni & Sharma, 2016; Perez-Rave, Correa-Morales, & Gonzales-Echavarria, 2019). The origins of hedonic valuation theory can be traced to a pivotal paper by Sherwin Rosen (1974), who believes that the value of a good is calculated by the sum of its positive and negative elements. Applying hedonic valuation theory to residential real estate pricing, tangible traits specific to each property can be divided into three subcategories: structural attributes, locational attributes, and environmental attributes (Annamoradnejad, Annamoradnejad, Safarrad, & Habibi, 2019). Of particular interest to this study is the locational component of real estate valuation. A property's distance to the city center was found to be a significant variable, directly affecting the sale price of settled real estate transactions (MacDonald & Veeman, 1993; Dong & Hansz, 2016). Residential properties located closest to the center of major metropolitan areas are least affected by recessions as compared to "fringe" properties (Dong & Hansz, 2016).

Access to community services results in real estate pricing disparities as well. Some municipalities offer city services like refuse collection to all residents. These amenities are referred to in the real estate industry as the *capitalization effect* since homeowners realize additional benefits due to the location of their property being inside municipal boundaries. These city properties are held in high regard, as residential real estate located inside municipal boundaries is priced above comparable homes outside the boundary due to the perks associated with being a municipal resident (Dorr, 2016).

Based on a study of existing home sales in the Wisconsin college town of Whitewater, proximity to campus was definitely important; homes closest to campus sell for more money (Kashian & Rockwell, 2013). However, that study only explored the results of home sales in one college town with no economic constraints, exposing a gap in the academic literature. To fill that gap, my study focuses on a collection of college towns under specific economic restrictions.

While location and proximity continue to be of interest to academic researchers, this gap in the literature exists due to the lack of studies about college-town real estate under segmented economic periods like real estate downturns. Nor has an inclusive study of the real estate performance of all college towns, as defined by Gumprecht (2003), even been published. To date, studies like that of Kashian and Rockwell (2013) or Kashian, Tittle, and Cliff (2020) have focused only on one specific college town, and neither study has looked specifically at price retention during an economic downturn. My study will go beyond the convenience of only examining one locale, instead focusing on a sizable sample of Gumprecht's (2008b) U.S. college towns.

Location is such an integral part of real estate valuation. This proximity component cannot be ignored when considering the intrinsic value of college-town real estate. Additionally, an inverse relationship exists between automobile independence and depth of real estate recessionary impacts (Dong & Hansz, 2016; Wang, 2019). Predictably, campus commuters and college students want to live as close to school as they can afford due to their preference for nonmotorized transportation and public transit, which implies a tradeoff between proximity and real estate pricing (Zhou, Wang, & Wu, 2018). Even retirees are actively moving to college towns, in part because they appreciate the walkability of the area (Mitchell, 2009). Furthermore, a recent academic study finds that the rezoning of rental properties near college campuses equated to a 12% premium, on average, for residential properties in close proximity to campuses, with premiums as high as 26% for the best locations (Kashian et al., 2020). Rezoning has led to population increases in college towns, resulting in a higher density of people living near campuses (Kashian et al., 2020).

This inverse relationship between distance and housing price retention should also be tested during periods of economic stress. To date, no academic studies of college-town real estate have focused on the comparative constancy of demand for college-town real estate during tumultuous economic periods. Expanding on the Kashian, Tittle, and Cliff (2020) study, another gap in the literature exists in whether residential properties within close proximity to college campuses will exhibit greater value retention during bear markets in real estate. Drawing on hedonic valuation theory (Rosen, 1974), I posit that college-town real estate will retain its value more than noncollege towns during times of economic stress in the real estate market.

H2: College-town real estate will retain its value better than noncollege-town real estate in a real estate downturn.

Economic Resiliency

The concept of resiliency has been used to explain why some cities and metropolitan areas bounce back from recessions quicker than others (Martin, Sunley, Gardiner, & Tyler, 2016; Wang, 2019). Holling's (1973) view of resilience, rooted in ecology, is now of interest to real estate researchers who focus on which geographic areas are able to maintain their values and bounce back first (Delmelle & Thill, 2014, Martin et al., 2016, Wang, 2019b). This notion of resilience can be directly applied to the economy of college towns. Martin et al. (2016) posit that certain locations have a "resilience to recessions," while also focusing on the "depth of recession" in specific locales. College towns are less vulnerable to economic shocks because of their stable economies and predictable annual influx of students. This influx of students actually increases during recessionary periods.

Surges in local unemployment cause migration to areas where jobs are plentiful, and the economy is stable (Chapple & Lester, 2010). Areas like Austin, TX, Raleigh-Durham, NC, and Boulder, CO are seeing a "booming high-tech economy" because employers are following the intellectuals (Chapple & Lester, 2010). While these three metros are not college towns by Gumprecht's (2008a) definition, the fact that all three of these areas are major university hubs with high populations of scholars exhibits the point of resilience. This relocation of human capital should adversely impact real estate in areas where jobs are scarce and reward areas where jobs are bountiful since a negative relationship between residential real estate prices and unemployment rates is known to exist (Belke & Keil, 2018). Therefore,

residential real estate in areas where job growth is steady should retain its value better than areas where jobs are sparse.

I hypothesize that the local unemployment rate will further explain why a positive relationship exists between college-town real estate and its recessionary performance. Because collegiate enrollment rises during recessions (Betts & McFarland, 1995; Dellas & Koubi, 2003; Dellas & Sakellaris, 2003; Barbu, 2015), I predict that local employment in college towns will remain stable, outpacing other geographic areas that are less financially reliant on the health of a local university. This fiscal strength caused by increases in student population will afford a consistent demand for residential real estate located near colleges even during recessions. Both studentification and university affiliation create economic stability in college towns as ancillary retail and service businesses located in them also benefit from steady demand for products and services by students and employees of the university.

Focusing on the hedonic portion of valuation theory, the pricing power of residential real estate in close proximity to a campus will provide a comparative advantage over noncollege-town residential real estate during economic downturns. This strategic location of college-town real estate will result in home price retention, due in part to the relatively strong job market in college towns even during recessionary periods. Over and above the relative strength of university employment, high tech employers are also relocating to areas near college campuses (Chapple & Lester, 2010). This locational component of hedonic valuation relates directly to college-town real estate performance. The predicted comparatively low unemployment rates of college towns during economic downturns foster the explanation for why college-town real estate outperformance will occur.

H3: During a real estate downturn, the local unemployment rate will mediate the positive linear relationship between college-town real estate and real estate return.

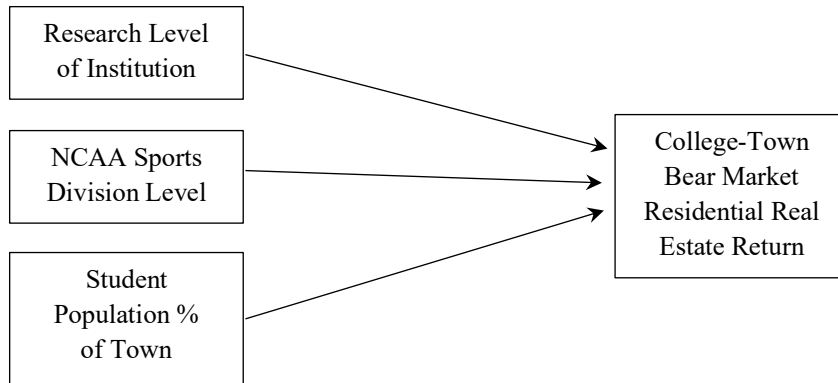
My first model concentrates on predicted disparities between college-town and noncollege-town residential real estate during recessionary time periods. This first study emphasizes the variables of local unemployment rates and residential real estate returns in order to isolate these recessionary differences. Like the first study, my second study also concentrates on college-town real estate during recessionary time periods. However, the upcoming research model investigates potential differences between college towns in order to ascertain whether it is possible to predict which college towns will in fact exhibit the greatest real estate outperformance during a real estate downturn.

Study #2

Figure 3 represents the second model of this study, where each college town's performance becomes the dependent variable allowing for the specific comparison of college towns based on three demographic independent variables. I will calculate college-town residential real estate performance during bear markets as the bear market return from the 2006 peak to the 2012 trough for each of the college towns in this study.

Many college towns have benefited economically from urban redevelopment and the revitalization of downtown areas. The term "urban form" specifically refers to town layouts, whether purpose built or evolving over time without urban planning (Dong & Hansz, 2016). Due in part to urban planning, living in college towns is being marketed to potential residents as "cool" with "nightlife focused" downtowns (Mapes et al, 2017). This branding strategy is

Figure 3: Hypothesized Model 2



referred to as “place making,” where college towns possess distinctive characteristics that create an easily distinguishable and eclectic vibe (Mapes et al., 2017). A “place marketing” strategy is then implemented to harness this college-town energy for increased revenue generation from residents, students, and tourism (Mapes et al., 2017). Even students can be viewed as tourists due to high turnover in the undergraduate population every semester (Gumprecht, 2021). Successful place making and place marketing strategies provide the inherent benefit of economic stability for college towns.

College campuses have both positive and negative economic effects on the neighboring residents. Year-round residents may express anger about seasonal noise and higher property taxes, partially due to some public universities paying little or no property taxes yet consuming a significant portion of the public services (Vandegrift et al., 2012). Vandegrift and colleagues (2012) find that even though the negative socioeconomic impacts of a collegiate university on its locale cannot be denied, a university does have an overall positive influence on the economic viability of its community. Increases in sports, culture, parks, and technology contribute to college town home prices that are typically 2.7% higher than surrounding areas (Vandegrift et al., 2012).

Based on the Vandegrift and colleagues (2012) findings, isolating academic culture and collegiate sports as predictive variables allows for the testing of comparative real estate outperformance between college towns. As proxies for these two concepts, I chose the research level of the institution to symbolize academic culture and athletic division to represent collegiate sports. It is noteworthy that Gumprecht's (2008b) study labels colleges as either land grant, regional, flagship, historically black, religious, private, or a mix. The academic classifications per the 8th Chancellor of University of California, Berkeley, such as flagship can be viewed as pretentious, "elitist," and "politically incorrect" in today's society (Berdahl, 1998). Therefore I justify my choices of research level and athletic division as more appropriate collegiate subcategories in this modern era.

Research Level of the Collegiate Institution

Theoretically, an additional component of hedonics is the popularity of the school brand. Social identity theory (Tajfel et al., 1979), stating that membership in a specific group can unite individuals, also plays a role in this analysis because college towns have the potential to create a sense of belonging and purpose. Schools like University of Massachusetts in Amherst, MA have a strong financial impact on the community, even during recessions (Mitchell, 2009). This direct impact instills that the collegiate brand is embedded in the community. Smaller schools in college towns like University of Wisconsin-Whitewater, as researched by Kashian and Rockwell (2013), do not carry the national branding of a well-known research institution like UMass. Therefore, the investments that R1- and R2-level research schools make in their college towns will continue to buoy the local economies of these renowned research institutions, resulting in continued tourism to college towns even during recessions. It is predicted that the research level of an academic institution will prove

to be an important variable in comparing the outperformance of various college towns during real estate downturns.

H4: The research level of a university will have a positive effect on college-town real estate returns in a real estate downturn.

NCAA Sports Division

Employing social identity theory (Tajfel et al., 1979), university brands have the potential to define individuals who love the concepts of team unity and school spirit. Collegiate sports provide a vital boost to the local economies of college towns (Gumprecht, 2003). In the college town of Auburn, Alabama, alumni continually return to campus in order to support their team, the Tigers. Opposing fans also descend on Auburn in droves with approximately 8,000–10,000 rival fans visiting Auburn on game day (Gumprecht, 2003). These home games, especially football contests, are an economic boom for the local economy. In Gumprecht's research, he references a college-town drug store that no longer sells prescriptions, instead focusing solely on selling memorabilia and refreshments due to strong demand because of Auburn's thriving sports program.

The stadium itself is also an important driver of economic success. Stadiums of Division 1 schools in college towns like Auburn have a seating capacity that is approximately twice the size of the town's population (Gumprecht, 2003). Universities located in college towns that compete in Division 1 athletics will benefit from the tourism and support of students and alumni regardless of economic conditions (Mitchell, 2009). Therefore, college towns that are home to schools who participate in Division 1 athletics will outperform college towns with schools that do not participate in Division 1 athletics during real estate downturns.

H5: The NCAA athletic division level of the institution will have a positive effect on college-town real estate returns in a real estate downturn.

Ratio of Student Population to Town Population

Once more turning to hedonic valuation theory, studentification adds value to residential real estate (Powell, 2016). Homes located close to campus can be repurposed as rentals, even in recessionary real estate markets (Kashian et al., 2020). The possibility of loss is diminished when strong demand exists for rental housing regardless of macroeconomic conditions (Kashian et al., 2020). College-town real estate affords its owners a stable investment, even during times of economic stress. The continued need for college housing regardless of market conditions will also contribute towards a stable demand for housing in areas within close proximity to campus (Gopal, 2008). Locational advantages of college-town real estate coupled with a stable demand for housing will result in college-town real estate depreciating less during real estate slumps.

Applying the hedonic portion of valuation theory, both owner occupants and investors alike can find solace in knowing that a robust labor market will yield superior asset valuations, even during recessionary environments. During recessions, the comparatively strong economies of college towns will provide a pent-up demand for real estate in close proximity to college campuses due to the continued need for student and staff housing. It is predicted that college towns with larger student-to-full-time resident ratios will experience the most price stability based on the stable local demand for rental housing as well as the economic benefits of conspicuous consumption from students, sports, and tourism.

H6: Student population percentage will have a positive effect on college-town real estate returns in a real estate downturn.

CHAPTER III

METHODOLOGY

Location is a focal point of real estate valuation. Real estate recessions offer a unique opportunity to discern which locations best retain their value when housing markets decline. During economic downturns, the best locations from a valuation retention perspective should prove to be those with low local unemployment rates. In this study, I posit that college towns exhibit qualities such as steady academic enrollment and stable local employment that should prove valuable in buoying residential real estate prices during recessionary periods. Properties in college towns will be better protected from economic collapse. In order to empirically test this thesis, I turn to archival data from multiple well-known sources. Each of my hypotheses will be tested by utilizing key variables and metrics.

Development of the College-Town Measure

As previously presented, college towns are municipalities where the college is the “dominant influence” (Gumprecht, 2008a, p. 1). Gumprecht’s definition will be used to measure college towns in this study. Focusing on the concept of dominance and mirroring Gumprecht’s own literature, a college town will be defined as a location with one or more colleges that boasts a local population of 350,000 residents or less, coupled with students

being at least 20% of the local population. Gumprecht's research in the first decade of this millennium uncovered 305 college towns. Since the last real estate recession occurred during that decade, this study will concentrate on the same college towns as Gumprecht (2008b). I was able to obtain testable data for 261 of Gumprecht's 305 college towns. All 261 towns remain the home of a college to this day.

Of note are the college towns Johnson, VT and Lyndonville, VT, which were homes to the colleges of Johnson State College and Lyndon State College, respectively, at the time of Gumprecht's study. In 2018, Johnson State College and Lyndon State College combined to form Northern Vermont University. Per their website, Northern Vermont University has a split campus, with the Johnson, VT campus focusing on liberal arts education while the Lyndon, VT campus concentrates on professional development. Both campuses still provide student housing, and both Vermont towns are included in this study.

Data & Study Design (Study 1)

Zillow publishes average monthly home sale and performance data at the town and zip code levels. Its dataset also spans the time period in question. Therefore, I will use this Zillow dataset to measure residential real estate performance during this recessionary period. To capture the bear market performance of residential college-town real estate, I will use the Case-Shiller U.S. National Home Price Index peak of July 2006 and trough of February 2012 in this study. This Case-Shiller index is published on the St. Louis Federal Reserve's web database (S&P/Case-Shiller U.S. National Home Price Index, 2021).

The college-town variable itself will be dichotomous, thereby comparing the returns of college towns with noncollege towns. Zillow reports data on 261 of Gumprecht's (2008b) 305 college towns for home sales in the years 2006 through 2012. Therefore, I will capture

261 of Gumprecht's college towns by this independent variable since I attempt to focus on the entire population of college towns. I will record the percentage change in mean home price for all included college towns. For comparison, I chose 261 noncollege towns using a random number generator. Random selection of noncollege towns should provide a representative sample of American towns that do not fit Gumprecht's definition of a college town. This noncollege-town sample is taken from a population of 14,699 noncollege towns found in the Zillow database. The change in average home price for both college towns and noncollege towns will serve as the dependent variable for this first study.

Since various locales may be economically inconsistent, controlling for individual states should isolate the specific return of the town by removing any variations due to geography, population, zoning, or governmental structure. For the 2006-2012 time period analyzed in this study, Zillow reports monthly home sale data for towns in all states except South Dakota. Therefore, 49 dichotomous state control variables can be created using this secondary data source. Washington, D.C.'s residential real estate data will be included in the dataset, but a Washington D.C. control variable will not be created since there are less than 30 unique observations for this locale. To further test the direct effect of college towns on bear market residential real estate performance, these state control variables will be compiled from the entire Zillow dataset with 14,960 observations, not just the sample dataset of 522 observations.

Local unemployment rates will be accessed through the HomeFacts website. This real estate website publishes unemployment data at both the local level and state level. As with the bear market performance variable, the focus of unemployment will be during the time period of the most recent real estate downturn, which spanned from July 2006 through

February 2012. Per this dataset, the unemployment rate peaked in 2009; October was the apex. For an accurate measurement of unemployment, the October 2009 statistics will be deployed. State unemployment rates will also be recorded and used as a control variable when analyzing the effects of local unemployment.

To test for mediation, both the Baron and Kenny (1986) as well as the Shrout and Bolger (2002) methods will be considered. Barron and Kenny (1986) advise analyzing the total effect of the direct path from college towns to bear market return since they feel this is a mandatory step in testing for mediation. Shrout and Bolger (2002) are less concerned with the significance of the total effect and more focused on the inclusion of confidence intervals in the analysis of the indirect effect. Per Shrout and Bolger (2002), for mediation to be present, the confidence interval of the indirect effect should not include zero.

Data & Study Design (Study 2)

The second testable model in this study focuses solely on the performance of college towns during real estate downturns, theorizing that the specific college-town demographics of academics, sports, and percentage of students will be found to have significant impacts on residential real estate value retention.

Each college and university in the United States is categorized based on level of academic research by the Carnegie Classification of Institutions of Higher Education. Schools (2017) with “very high research activity” are considered R1; schools with “high research activity” are considered R2. I will create a dichotomous variable by segmenting R1/R2 schools as compared to non-R1/R2 schools. I will regress college-town residential real estate bear market performance on this independent variable to test the significance of this path.

Collegiate sports are an integral part of the university experience. Students, alumni, and fans alike attend games to root on their school of choice. Each college is sorted into divisions by the National Collegiate Athletic Association; currently there are 353 Division I schools (Division I Schools, 2021). To test for significance of athletic impact, I will create a dichotomous variable for collegiate divisional classification, with Division I schools pitted against non-Division I schools.

Gumprecht (2008b) also captured the variable of student-to-town population in his study. Following Gumprecht's lead, a ratio will be created by dividing university enrollment by the population of the college town. This ratio will be the third independent variable tested in the second model. Gumprecht's study of college towns utilized data from the 2000 U.S. Census. Since the years 2000 and 2010 fall within the same decade as the most recent national real estate collapse, I will also rely on data from the 2000 U.S. Census as well as the 2010 U.S. Census. Control variables in the second study will include: college-town population, student population, and median family income. Each of these control variables comes from Gumprecht's November 2008 college-town database, which is stored at UMass Amherst. All paths will be tested for significance at ($p < 0.05$) using multiple regression analysis.

CHAPTER IV

RESULTS

Study 1

I conducted analyses for these two studies using SPSS software. In the model for the first study, I predicted college towns to have a significant negative effect on the mediator, the local unemployment rate (Hypothesis 1). I also predicted college towns to have a significant positive effect on the dependent variable, bear market residential real estate return (Hypothesis 2). To test Hypotheses 3, referring to the indirect effect of college towns on bear market residential real estate returns through the local unemployment rate, I used the local unemployment rate to predict bear market residential real estate returns, controlling for the direct effect of college towns. Neither the dichotomous independent variable (*college towns*) nor the mediator (*local unemployment rate*) was centered, since zero actually has a unique meaning for both variables. For the dichotomous independent variable, non-college towns were coded as zero and college towns were coded as one.

Table 1 shows the means, standard deviations, and correlations of the independent and control variables utilized in this first study. The independent variable, college town, was negatively associated with local unemployment rate ($r = -0.25, p < .01$) as well as state unemployment rate ($r = -0.12, p < .01$) and state population ($r = -0.09, p < .05$).

Local unemployment rate had a significant positive association with both state unemployment rate ($r = 0.74, p < .01$) and state population ($r = 0.27, p < .01$). The control variable of 2010 state population was positively correlated with state unemployment rate ($r = 0.40, p < .01$) and state population increase from 2000 to 2010 ($r = 0.15, p < .01$).

Table 1: Study 1 - Descriptive Statistics for Independent and Control Variables

	M	SD	1	2	3	4	5
1. College Town	0.50	0.50	1.00				
2. Local unemployment rate	8.53	2.61	-0.25**	1.00			
3. State unemployment rate	8.97	1.95	-0.12**	0.74**	1.00		
4. State population 2010 (millions)	9.86	8.27	-0.09*	0.27**	0.40**	1.00	
5. State pop % increase 2000-2010	8.47	6.31	-0.32	0.06	0.07	0.15**	1.00

N = 522. Correlation significance: * $p < 0.05$. ** $p < 0.01$

Tables 2 and 3 show the results for my three hypotheses. College towns explained 12% ($R^2 = 0.12$) of the variance in local unemployment rate when controlling for 2010 state population and state population increase from 2000 to 2010. When the control variable of state unemployment rate was added to the model, the R^2 increased to 0.568. College towns experienced significantly lower unemployment rates during bear markets ($b = -1.169, p < .01$) when controlling for the effects of 2010 state population and the state population increase from 2000 to 2010. The effect of college towns on bear market unemployment rates remained significant ($b = -0.831, p < .01$), even when additionally controlling for the state unemployment rate. Hypothesis 1 was supported.

College towns were found to have a significant direct effect on bear market residential real estate performance ($b = 5.742, p < 0.01$) when controlling for both the state and local unemployment rate, 2010 state population, and 2000 to 2010 state population increase. Therefore, Hypothesis 2 was supported.

Table 2: Study 1 - Mediation Analysis

	Local Unemployment Rate		Bear Market RE Return			
	<i>b</i>	<i>SE</i>	Total Effect		Direct Effect	
			<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Intercept	8.300**	0.243	-9.226**	1.456	4.401	2.530
College Town	-1.169**	0.216	7.201**	1.296	5.283**	1.283
State Population 2010 (mil)	-0.077**	0.013	-0.622**	0.079	-0.496**	0.079
State Pop % Increase	0.006	0.017	-0.082	0.104	-0.071	0.100
Local Unemployment Rate					-1.642**	0.254
R ²	0.120		0.169		0.231	
<i>Indirect Effect:</i>			<i>Estimate</i>		<i>CI = 95%</i>	
College-Town Real Estate: Local Unemployment Rate			1.919		1.092 – 2.998	
Strength of Mediation			0.267			

N = 522. All coefficients unstandardized. LL and UL refer to the Lower and Upper Level for the 95% Confidence Interval of the indirect effect. Bootstrap = 1,000. **p* < 0.05. ***p* < 0.01

Table 3: Study 1 - Mediation Analysis (Also Controlling for State Unemployment Rate)

	Local Unemployment Rate		Bear Market RE Return			
	<i>b</i>	<i>SE</i>	Total Effect		Direct Effect	
			<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Intercept	0.233	0.388	11.079**	3.167	11.249**	3.159
College Town	-0.831**	0.152	6.351**	1.244	5.742**	1.275
State Unemployment Rate	0.982**	0.042	-2.471**	0.346	-1.751**	0.493
State Population 2010 (mil)	-0.014	0.010	-0.393**	0.082	-0.403**	0.082
State Pop % Increase	0.005	0.012	-0.077	0.099	-0.073	0.099
Local Unemployment Rate					-0.733*	0.358
R ²	0.568		0.243		0.249	
<i>Indirect Effect:</i>			<i>Estimate</i>		<i>CI = 95%</i>	
College-town Real Estate: Local Unemployment Rate			0.609		0.042 - 1.289	
Strength of Mediation			0.096			

N = 522. All coefficients unstandardized. LL and UL refer to the Lower and Upper Level for the 95% Confidence Interval of the indirect effect. Bootstrap = 1,000. **p* < 0.05. ***p* < 0.01

To continue exploring the effects of college towns on bear market real estate performance, I used the entire dataset of 14,960 observations in order to obtain state-specific control variables. Table 4 shows that the mean bear market real estate return for the entire dataset was -16.58% with a standard deviation of 17.84%. Uncontrolled, real estate in college towns is predicted to outperform noncollege-town real estate by 8.35% during a real estate

downturn (see Table 5). To additionally isolate the effects of college towns on bear market real estate performance, I created 49 state control variables. When controlling for 49 individual states, college towns still significantly outperformed noncollege towns by 3.63% ($p < 0.01$). Thus, Hypothesis 2 was further supported.

Table 4: Study 1 - Descriptive Statistics for Dependent Variable

	N	M	SD
Bear Market Return	14,960	-16.58%	17.84%

College Town $N = 261$, Noncollege Town $N = 14,699$

Table 5: Study 1 – Further Exploration of the Direct Effect (Hypothesis 2)

Bear Market Real Estate Return		
	<i>b</i>	<i>SE</i>
<i>Not controlling for state returns</i>		
Intercept	-16.729**	0.147
College Town	8.351**	1.112
R ²	0.004	
<i>Controlling for individual state returns</i>		
Intercept	-12.916	11.998
College Town	3.631**	0.754
AK-Alaska	15.981	12.168
AL-Alabama	1.989	12.018
AR-Arkansas	6.921	12.011
AZ-Arizona	-26.630*	12.037
CA-California	-29.165*	12.004
CO-Colorado	4.185	12.018
CT-Connecticut	-10.290	12.041
DE-Delaware	-11.810	12.124
FL-Florida	-33.107**	12.007
GA-Georgia	-9.270	12.008
HI-Hawaii	-7.363	12.124
IA-Iowa	14.151	12.027
ID-Idaho	-8.658	12.125
IL-Illinois	-9.283	12.007
IN-Indiana	6.778	12.021
KS-Kansas	13.289	12.075
KY-Kentucky	10.984	12.012
LA-Louisiana	9.193	12.048
MA-Massachusetts	-6.373	12.015
MD-Maryland	-15.690	12.012
ME-Maine	0.874	12.018
MI-Michigan	-16.285	12.008
MN-Minnesota	-8.629	12.011
MO-Missouri	-3.547	12.018

Bear Market Real Estate Return		
	<i>b</i>	<i>SE</i>
MS-Mississippi	-2.459	12.828
MT-Montana	13.866	12.346
NC-North Carolina	4.139	12.009
ND-North Dakota	23.089	16.984
NE-Nebraska	14.891	12.039
NH-New Hampshire	-4.567	12.025
NJ-New Jersey	-13.612	12.009
NM-New Mexico	5.357	12.184
NV-Nevada	-41.222**	12.210
NY-New York	3.110	12.008
OH-Ohio	-0.936	12.004
OK-Oklahoma	15.601	12.009
OR-Oregon	-9.231	12.021
PA-Pennsylvania	4.207	12.007
RI-Rhode Island	-17.371	12.136
SC-South Carolina	1.929	12.020
TN-Tennessee	10.566	12.009
TX-Texas	8.981	12.011
UT-Utah	5.549	12.055
VA-Virginia	-5.924	12.016
VT-Vermont	14.152	12.021
WA-Washington	-9.419	12.018
WI-Wisconsin	0.301	12.019
WV-West Virginia	12.778	12.024
WY-Wyoming	18.586	12.726
R ²	0.549	

N = 14,960. All coefficients unstandardized. **p* < 0.05. ***p* < 0.01

Mediation Analysis

Hypotheses 3 focused on the indirect effect of college towns on bear market real estate return through the local unemployment rate. When controlling for 2010 state population as well as state population increase from 2000-2010 (see Table 2), college towns had a significant indirect effect through the local unemployment rate on bear market real estate returns (IE = 1.919, CI_{95%} = 1.092, 2.998). Based on the Sobel approach, confidence intervals can be utilized to test for mediation (Shrout & Bolger, 2002). Mediation exists when zero does not fall within the confidence interval.

For this study, I used the Process Macro designed by Andrew Hayes (2022) in SPSS to generate the confidence intervals. Hayes' Process Macro includes the option for bootstrapping when creating confidence intervals, which helps reduce the effects of skewness by utilizing randomness. This reduction of skewness is critical when analyzing confidence intervals (Shrout & Bolger, 2002). In this analysis, I bootstrapped the sample dataset 1,000 times when computing the confidence intervals. Since zero did not fall within the 95% confidence interval, Hypothesis 3 was supported when controlling for both the 2010 state population and the state population percentage increase from 2000-2010.

To further test the mediating effects of the local unemployment rate on the relationship between college towns and bear market real estate performance, I also included the state unemployment rate as a control variable in Table 3. When also controlling for the state unemployment rate, the indirect effect was reduced but still significant per Shrout and Bolger (2002), due to the confidence interval excluding zero (IE = 0.609, CI_{95%} = 0.042, 1.289). Strength of mediation is calculated by dividing the indirect effect by the total effect. The strength of mediation decreases from 0.267 to 0.096 but remains significant regardless, when also controlling for state unemployment rate.

As a final test for mediation while also controlling for the state unemployment rate, the Baron and Kenny (1986) approach states that mediation occurs when the following procedure of regression analysis is successfully applied. College towns must have a significant effect on the local unemployment rate ($b = -0.831, p < 0.01$). They must also have a significant effect on bear market real estate returns ($b = 6.351, p < 0.01$). The local unemployment rate must have a significant effect on bear market real estate returns when controlling for college towns ($b = -0.733, p < 0.05$). Assuming each of these requirements is statistically significant,

observe the effect of college towns on bear market real estate performance when the local unemployment rate was also included in the regression ($b = 5.742, p < 0.01$). For mediation to be present, the effect of college towns on bear market real estate performance must be lower with local unemployment rate in the model than with local unemployment rate not included (Baron & Kenny, 1986). Since each of these conditions exists, the Baron and Kenny (1986) approach confirms the presence of partial mediation; thus Hypothesis 3 is supported by both the Shrout and Bolger (2002) method as well as the Baron and Kenny (1986) method.

Study 2

Table 6 shows the means, standard deviations, and correlations of the independent and control variables utilized in the second study. The independent variable, research level of the institution, was positively associated with sports division ($r = 0.69, p < .01$), town population ($r = 0.56, p < .01$), student enrollment ($r = 0.71, p < .01$), and median income ($r = 0.23, p < .01$). Sports division, a second independent variable, was positively associated with town population ($r = 0.52, p < .01$), student enrollment ($r = 0.67, p < .01$), and median income ($r = 0.21, p < .01$). Town population was negatively associated with student population percentage ($r = -0.30, p < .01$), but positively correlated with both student enrollment ($r = 0.81, p < .01$) and median income ($r = 0.13, p < .05$). Finally, median income was positively correlated with student enrollment ($r = 0.20, p < .01$).

Table 6: Study 2 – Descriptive Statistics for Independent and Control Variables

	M	SD	1	2	3	4	5	6
1. Research Level	0.30	0.46	1.00					
2. Sports Division		0.40	0.49	0.69**	1.00			
3. Student Population % of Town	62.88	56.78	-0.03	-0.01	1.00			
4. Town Population (thousands)	23.88	27.92	0.56**	0.52**	-0.30**	1.00		
5. Student Enrollment (thousands)	10.32	9.95	0.71**	0.67**	-0.04	0.81**	1.00	
6. Median Income (thousands)	46.71	11.89	0.23**	0.21**	0.04	0.13*	0.20**	1.00

N = 261 except family income *N* = 260. Correlation significance: **p* < 0.05. ***p* < 0.01.

In Table 7, the research level of the institution was not found to have a significant direct effect on college-town bear market real estate performance ($b = -1.02$, $p = 0.69$) when controlling for sports division, student population percentage, town population, student enrollment, and median income. Therefore, Hypothesis 4 was not supported in this study.

Whether the institution competed athletically as a D1 school was not found to have a significant direct effect on college-town bear market real estate performance ($b = 1.378$, $p = 0.54$) when controlling for research level of the institution, student population percentage, town population, student enrollment, and median income. Therefore, Hypothesis 5 was not supported in this study.

Table 7: Study 2 – Regression Analysis

	College-Town Bear Market Real Estate Return	
	<i>b</i>	<i>SE</i>
Intercept	0.613	3.204
Research Level	-1.020	2.562
Sports Division	1.378	2.266
Student Population % of Town Population	-0.015	0.015
Town Population (thousands)	-0.066	0.051
Student Enrollment (thousands)	0.048	0.166
Median Income (thousands)	-0.157*	0.065
R ²	0.040	

N = 261. All coefficients unstandardized. **p* < 0.05. ***p* < 0.01

The student population as a percentage of college-town population was also not found to have a significant direct effect on college-town bear market real estate performance ($b = -0.015, p = 0.32$) when controlling for research level of the institution, sports division, town population, student enrollment, and median income. Therefore, Hypothesis 6 was not supported in this study.

Interestingly, the control variable, median income, did have a significant negative effect on college-town bear market performance ($b = -0.157, p < 0.05$). This means that for every additional \$1,000 of median income, a college town's bear market real estate performance is expected to decrease by 0.16%.

CHAPTER V

DISCUSSION

Research Summary

The main objective of this study was to empirically prove that college-town residential real estate outperforms noncollege-town residential real estate during real estate downturns. Based on the results of this study, the performance of college-town residential real estate significantly exceeds that of noncollege towns during a bear market in residential real estate. During the 67-month downturn examined in this analysis, homes in college towns were found to retain an extra 3% to 8% of their value depending on which control variables were included in the model. For a \$300,000 home owned during a real estate downturn, this equates to a predicted \$9,000 to \$24,000 additional retention of value over comparably priced noncollege-town residential real estate.

Also of interest is that the local unemployment rate is significantly lower for college towns than for noncollege towns during the recessionary period studied. This reduction in local unemployment as compared to noncollege towns helps to explain why college-town residential real estate retains its value better than noncollege-town real estate. Higher job retention equates to home price stability. The mediating effects of the local

unemployment rate were further shown to be significant, even when controlling for state-specific unemployment rates. This mediation illustrates the positive impact an institution of higher learning can have on a local community.

Even though none of the three hypotheses in the second study were found to be significant, multiple takeaways still exist. First, it is interesting that neither premier athletics nor intellectual rigor translate into higher real estate valuations. From a real estate investment perspective, this levels the playing field for smaller regional schools. The residential real estate in towns that are home to provincial liberal arts schools have the same resiliency in housing-price retention as nationally renowned college towns. Furthermore, the control variable of median family income was found to be significant and actually worked against residential real estate prices, exhibiting the possibility that lower earnings could equate to home price stability.

Theoretical Contributions

In this study, I expand human capital theory by validating the resiliency of college-town real estate in economic downturns, due in part to the benefits of a stable collegiate enrollment. Based on the results of this study, investments in education during periods of economic uncertainty appear to matriculate into home price stability for college towns. Finding college towns to have lower local unemployment rates during economic downturns than noncollege towns further adds to the scope of human capital theory. Discovering that college-town real estate prices are comparatively robust during economic downturns, lower local unemployment rates due to stable collegiate enrollments additionally explain why this relationship exists.

Hedonic valuation theory was also enhanced by this study, where the locational components specific to college towns equate to lower home price volatility. In the context of recessionary environments, college towns have lower unemployment rates than noncollege towns. The strategic location of college-town real estate leads to value retention in periods of economic stress. Students, faculty, and staff must live reasonably close to campus, further enhancing this advantageous locale and adding to the strategic location of college towns. Comparatively lower local unemployment rates of college towns explain why college-town residential real estate fares better during periods when real estate prices are declining. Finally, the merging of human capital theory and hedonic valuation theory serves to academically substantiate practitioner logic based on anecdotal assumptions regarding the relationship between college towns and residential real estate performance in economic downturns.

Practical Implications

For the practitioner, the takeaways from this study are numerous. College towns have the potential to be considered a stand-alone investable asset class. Residential real estate located in college towns has the optionality of being included in low-beta real estate investment portfolios. By adding college-town real estate to a portfolio, real estate investors can take comfort in knowing they have some additional downside protection during bear markets. There is also the possibility of establishing a Real Estate Investment Trust (REIT) that focuses specifically on college-town real estate investments. Hedge funds focusing on low-volatility investments may want to include college towns in their portfolios when deploying capital. Mortgagees such as banks can specifically target college towns, thus focusing their lending efforts on areas with relative price stability.

Limitations

The dependent variable in this study was calculated from archival data obtained from the website Zillow. Neither home sales from the state of South Dakota nor from 44 of the 305 college towns were included in the Zillow dataset for the time period studied. Also, I only analyzed the most recent bear market in real estate in this study. Future analysis could focus on past bear markets if a data source is available. There is also a possibility that college towns will be forever changed by the ongoing pandemic that began in 2020. Future research may want to focus on whether college town resiliency holds post-pandemic.

This study utilized Gumprecht's (2008a) definition of a college town, where a college town must have less than 350,000 residents and student enrollment must exceed 20% of the town population. When discussing the parameters of this study with peers, multiple individuals anecdotally mentioned specific "college" towns that they are surprised not to see reflected in Gumprecht's list. This is typically due to a student population that does not surpass 20% of the town's population. Future research could explore whether these larger towns, which are typically home to flagship universities, exhibit the same qualities as the college towns analyzed in this study.

Future Research

Since this study only focused on residential real estate, a potential path for future researchers is to test whether this bear market outperformance also holds true for commercial properties located in college towns. Commercial rents and vacancy rates could be analyzed, as could proximity to campus. Future researchers may want to investigate whether college towns are proxies for other locales that are home to a dominant industry or have a large, economically stable employer. Net rent as a percentage of purchase price (*cap rates*) in

college towns could be the focus for future research since any excess profits obtained by investors through the ownership of college-town rental properties could be considered an additional factor in the outperformance of college-town real estate. As discussed in the Limitations section, future research can also focus on whether college towns are still more immune to the moderating effects of local unemployment post-pandemic.

Chapter VI of this dissertation includes a supplemental study on predicted college-town residential returns (as compared to noncollege towns) during bull markets in real estate. Peak-to-peak residential real estate returns are also calculated. Based on the preliminary results in the supplemental study, it appears that college-town residential real estate underperforms noncollege towns. However, looking at total cycle returns from peak bull market to peak bull market, college-town residential real estate significantly outperforms noncollege-town real estate. This could be due to the low-beta nature of college-town real estate and the fact that recessions have a lesser impact on college-town home valuations; therefore, college towns have less to gain back during bull markets. Further research is recommended to explore this potential phenomena.

Conclusion

Theoretically, this paper has the potential to spawn a lineage of future academic research on the valuation of college-town real estate. From a practitioner standpoint, my anticipation is that this study serves as a foundation for viewing college towns as an investable asset class in residential real estate. Moreover, this study reveals that college towns are unique, college towns are special, college towns are truly “youthful places” (Gumprecht, 2008a, p. 4).

CHAPTER VI

SUPPLEMENTAL STUDY

I performed further analysis of the data collected. I also analyzed the performance of college-town real estate during bull markets in residential real estate. For this analysis, I utilized the entire dataset of 14,960 observations. Recall that college-town real estate outperformed noncollege-town real estate by 3.63% ($p < 0.01$) during bear markets in residential real estate when controlling for the effects of 49 individual states (all states except South Dakota).

For this supplemental study, I defined the most recent bull market in residential real estate as the trough of February 2012 to the peak of January 2020 in order to eliminate any effects of the ongoing pandemic from this analysis. During that timeframe, the average home in each American town in the dataset saw a 41.33% increase in value ($N = 14,960$), as is shown in Table 8. From trough to peak, college-town real estate was found to underperform noncollege-town real estate by 2.95% ($p < 0.05$) when controlling for 49 individual state as seen in Table 9.

Table 8: Supplemental Study – Descriptive Statistics for Dependent Variables

	<i>N</i>	<i>M</i>	<i>SD</i>
Bull Market RE Return	14,960	41.33%	30.51%
Peak-to-Peak RE Return	14,960	15.50%	26.66%

College Town *N* = 261. Noncollege Town *N* = 14,699

Table 9: Supplemental Study – Direct Effects

	Bull Market RE Return		Peak-to-Peak RE Return	
	b	SE	b	SE
Intercept	63.35**	21.54	42.25*	20.21
College Town	-2.95*	1.35	3.10*	1.27
Alaska	-40.74	21.85	-15.75	20.50
Alabama	-39.87	21.58	-32.61	20.24
Arkansas	-33.42	21.57	-20.53	20.23
Arizona	17.21	21.61	-36.03	20.28
California	17.71	21.55	-40.09*	20.22
Colorado	8.56	21.58	13.24	20.25
Conn	-54.95*	21.62	-58.97**	20.28
Delaware	-41.64	21.77	-50.79*	20.42
Florida	15.85	21.56	-47.71*	20.23
Georgia	-3.10	21.56	-20.31	20.23
Hawaii	-25.09	21.77	-32.04	20.42
Idaho	32.32	21.77	8.17	20.42
Iowa	-35.09	21.59	-12.39	20.26
Illinois	-40.40	21.56	-48.09*	20.23
Indiana	-27.43	21.58	-14.83	20.25
Kansas	-31.76	21.68	-10.84	20.34
Kentucky	-31.59	21.57	-12.99	20.24
Louisiana	-44.23*	21.63	-27.60	20.30
Mass	-28.74	21.57	-34.02	20.24
Maryland	-40.26	21.57	-55.94**	20.23
Maine	-43.31*	21.58	-36.69	20.25
Michigan	0.23	21.56	-28.70	20.23
Minnesota	-14.41	21.56	-26.62	20.23
Mississippi	-42.90	23.03	-40.90	21.61
Missouri	-27.86	21.58	-28.27	20.25
Montana	-24.03	22.17	-2.03	20.80
North Dakota	-28.17	30.49	5.13	28.61
Nevada	38.79	21.92	-50.59*	20.57
North Carolina	-35.05	21.56	-25.36	20.23
Nebraska	-13.66	21.61	11.07	20.28
New Hampshire	-31.40	21.59	-33.44	20.26
New Jersey	-48.21*	21.56	-57.99**	20.23
New Mexico	-46.88*	21.87	-34.38	20.52
New York	-39.77	21.56	-30.93	20.23
Ohio	-29.57	21.55	-26.87	20.22
Oklahoma	-27.47	21.56	-2.36	20.23
Oregon	5.96	21.58	-10.64	20.25

	Bull Market RE Return		Peak-to-Peak RE Return	
	b	SE	b	SE
Pennsylvania	-44.13*	21.56	-33.17	20.23
Rhode Island	-26.54	21.79	-47.77*	20.44
South Carolina	-31.44	21.58	-24.67	20.25
Tennessee	-19.34	21.56	-1.60	20.23
Texas	-10.12	21.56	4.60	20.23
Utah	11.98	21.64	19.91	20.31
Virginia	-40.50	21.57	-43.14*	20.24
Vermont	-50.52*	21.58	-28.17	20.25
Washington	17.82	21.58	-3.06	20.25
Wisconsin	-23.61	21.58	-20.14	20.25
West Virginia	-42.53*	21.59	-21.28	20.26
Wyoming	-11.39	22.85	18.81	21.44
R ²	0.503	0.428		

N = 14,960. All coefficients unstandardized. **p* < 0.05. ***p* < 0.01

However, when focusing not only on bull or bear markets but instead focusing on bull market peak to bull market peak, college-town real estate was the stronger performer as witnessed in Table 9. The peak-to-peak timeframe consists of the return from July 2006 (peak #1) to January 2020 (peak #2). When controlling for the 49 individual states listed, college towns outperform noncollege towns by 3.1% (*p* < 0.05). As seen in Table 10, another significant finding when focusing on college-town real estate returns is that for every 1% increase in student-to-town population ratio, the expected college town peak-to-peak real estate return decreases by 4.4 basis points (*p* < 0.10).

Table 10: Supplemental Study – Student Population as a % of Town Population

	<i>b</i>	<i>SE</i>
Intercept	30.763	5.378
Research Level	-1.984	4.302
Sports Division	-2.223	3.803
Student Population % of Town Population	-0.044*	0.025
Town Population (thousands)	-0.040	0.086
Student Enrollment (thousands)	0.339	0.278
Median Income (thousands)	-0.132	0.109
R ²		

N = 261. All coefficients unstandardized. **p* < 0.10. ***p* < 0.05. ****p* < 0.01

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