

**Residential Selling Price Performance In and Next to Historic Districts:
A Case Study of Savannah, Georgia**

Serge Atherwood
College of Agricultural Sciences
Pennsylvania State University
Rebecca J. Walter, Ph.D. and Russell Ivy, Ph.D.
Department of Geosciences
Florida Atlantic University

1. Introduction

Historical designation has developed into a widely used planning and economic development tool in the U.S. following the 1966 National Historic Preservation Act and a popular movement to preserve architectural and cultural heritage (Leichenko *et al.*, 2001; Noonan and Krupka, 2011). The act of designation provides positive externalities, such as preservation of neighborhood character and quality (NYC IBO, 2003). Case law has found in favor of preservation as a public good (*q.v.*, *Penn Central Transportation Company v. New York City*, 1978) (Leichenko *et al.*, 2001) and owners of historic properties can seek the federal tax benefits that come from national registration of their properties (Haughey and Basolo, 2000). Importantly, the preponderance of empirical research over the last three decades has shown that historic designation also results in improvements to property value (Zahirovic-Herbert and Chatterjee, 2011; Asabere and Huffman, 1994).

Although historic designation has been used for decades as an economic tool, its role in preserving property values may be only now emerging in the wake of the real estate bust that followed the dramatic housing boom of the mid-2000s. The period between 1997 and 2007 witnessed a transition in housing strategy in the U.S., in which homeownership was encouraged at the federal level; home mortgage debt ballooned, especially among lower-income households; and real estate valuations almost tripled (Hendershott *et al.*, 2010). Part of this rapid growth is attributable to monetary policy by the Federal Reserve in the years following the collapse of the dot-com bubble in 2000. Short-term yields were reduced to 45-year lows, leading to historically low mortgage rates (Zhou and Sornette, 2006). Households took advantage of low interest rates to enter into homeownership and risked assuming more debt with the expectation of substantial appreciation gains. This led to an untenable situation; in 2007, the collapse of the real estate bubble began a cascade of related credit and employment exigencies, eventually culminating in the 2008 financial crisis (Depken II *et al.*, 2011) that erased trillions of dollars of wealth.

In the wake of the massive real estate market correction, the topic of property valuation and appreciation rose to the forefront in the national discourse. Beyond avoiding another asset bubble calamity in the future, there was public interest in understanding the factors that affect property value and selling price. This research explores the contribution of historic designation in preserving the value of properties in historic districts *vis-à-vis* non-historic districts during a period of economic growth and recession—a factor not addressed in prior studies—and whether geographic proximity to historic districts confers buoyancy to non-historic residential property values.

2. Literature Review

Designation is generally applied in two ways—to individual buildings, monuments, and sites, and to districts containing one or more properties of historic value (Coulson and Leichenko, 2001). Whereas a historic designation to a building or site reflects the significance of that specific property, designation of a district may include non-historic properties dispersed among properties of historic value. This results in every property within the designated district receiving any positive externality conferred by designation (Coulson and Leichenko, 2001).

The body of research on effects of historic designation on residential property values can be organized by whether the designation was applied to the building or the district. Three decades of research on property values of historic and non-historic buildings yield mixed results as to the extent that a historic designation affects a property's selling price. A historic designation on a property, or the area surrounding a property, can lend an aura of cultural significance that adds value to the property (Leichenko *et al.*, 2001). It can also add hedonic economic value from the curated appearance of historic architecture that ensures future neighborhood character (Thompson *et al.*, 2011; Noonan and Krupka, 2011). Alternately, a historic designation can reduce the value of a property by limiting the kind of improvements permissible to the structure or land, thereby reducing the range of opportunities to maximize its highest and best use (Haughey and Basolo, 2000). Historic designations also carry upkeep requirements that can increase maintenance costs and limit the resale potential of properties, both of which can decrease property value (Listokin, 1985; NYC IBO, 2003).

Many studies examining property values of individual historic properties demonstrate that historic designation increases value. In Baton Rouge, Louisiana, designation increased the value of house prices in the bottom quantile by eight percent (Zahirovic-Herbert and Chatterjee, 2011). Thompson *et al.* (2011), using a difference-in-difference model, found that single-family home prices in Lincoln, Nebraska, increased an average of \$5,000 after receiving a historic designation. Coulson and Leichenko (2001), using a hedonic price model, discovered an increase in internal and external benefits valued between \$4 million and \$7 million for residential properties in Abilene, Texas, registered in local and/or national historic databases. Additionally, studies that examined the value of residential properties within historic districts also generally show that selling prices increase when the properties are located in designated districts. In New Orleans, homes in districts listed on the National Register of Historic Places sold for one-third more than homes outside of historic districts, when using a hedonic price model (Haughey and Basolo, 2000). Leichenko *et al.* (2001), employing hedonic modeling, found statistically significant property value increases of 5 to 20 percent in historic districts of seven Texas cities. On the other hand, Noonan and Krupka (2011), also using a hedonic model, discovered that residential property price impacts were highly variable throughout historic districts in Chicago in the 1990s. This was similar to findings by Schaeffer and Millerick (1991), using Chicago data from the 1960 to 1980s.

An important aspect of this study related to historic designation is the positive externalities that proximity to an amenity may have on adjacent properties lacking that amenity. Evidence shows that this kind of location attribute can confer increased value to the adjacent property. For instance, Tyrväinen (1997), Tyrväinen & Miettinen (2000), and Bolitzer & Netusil (2000)

discovered that environmental variables, such as proximity to wooded urban spaces, have a strong positive influence on the prices of residential apartments. Similar influence on property prices was revealed by Luttik (2000) for views of water, landscape, and open spaces, and by Major & Lusht (2004) for adjacency to a beach. When the amenity is a historically significant house, the proximity effect on property values in one study added up to 3.7 percent to adjacent home values (Narwold, 2008). In another study, however, no significant effect on homes adjacent to historically designated districts was conferred (Clark and Herrin, 1997).

3. Methodology

This study examines historic districts and neighborhoods in Savannah, Georgia, a city that has exceptionally preserved its architectural legacy and features distinguishable historic areas (Ivy, 2011). Included in the study area are seven historic designated districts out of 11 historic districts in the center city (Table 1) and 12 adjacent non-historic neighborhoods (Table 2). Districts or neighborhoods with insufficient residential property data for longitudinal study or that were not contiguous with the study area were excluded.

The study area contains 4,100 residential properties and is organized in two parts: a “primary” area containing the seven contiguous historic districts and eight adjacent neighborhoods (Fig. 1), and an “extended” area comprising the primary area and four additional neighborhoods immediately adjacent to the primary study area (Fig. 2). The primary study area contains 2,931 properties within historic designated districts and 868 non-historic properties in eight adjacent neighborhoods. The extended study area adds an additional 301 non-historic residential properties from the four neighborhoods.

Savannah’s neighborhoods in the center of the city are defined separately from the city’s historic districts, resulting in partial geographic overlap with historic district boundaries in all neighborhoods except the four in the extended study area (Cann Park, Bingville, Live Oak, and Dale Terrace). In this study, a distinction is made between residential properties in a historic district and those in a neighborhood, even if a neighborhood includes a historic district by city definition (*e.g.*, Ardsley Park). Information about historic district and neighborhood boundaries, land uses, and sales transactions was obtained from a GIS shapefile created by the Savannah Metropolitan Planning Commission. Square footage of housing units was obtained from Chatham County Board of Assessors data for the year 2011. For each property, we organized in a spreadsheet the latest sales year, selling price, square footage of the residence, and calculated price per square foot.

Two sets of shapefiles were developed from which the study sample of residential properties was created. The first featured residential properties in each historic district of the study area (all nonresidential properties were eliminated); the second featured residential properties in the eight neighborhoods adjacent to the study area that had historic districts fall partially or entirely within them and four more adjacent neighborhoods that did not. Shapefile data was exported to Excel as a spreadsheet, from which all residential properties in neighborhoods and historic districts that had a sales transaction between the years 2002 and 2010 were selected. To minimize the influence of quitclaim deeds and non-arm’s-length transactions, we eliminated transactions priced at less than \$10,000, obvious transactions between spouses or relatives, transactions

Table 1: Historic districts in study area

Historic District	Year of Designation	Size of District and Number of Residential Properties	Description
Savannah National Historic Landmark District	1966	531 acres 1,175 properties	Oldest, largest, most prestigious historic district, dating back to 1733. Most of the original gridiron layout has been preserved or restored. Combines historic residential buildings in various architectural styles (Federal, Georgian, Colonial, Italianate, Gothic Revival, etc.) with other uses; some original residential properties have been converted into storefronts, restaurants, and offices.
Savannah Victorian Historic District	1974	186 acres 346 properties	Numerous two-story, well-maintained historic homes on stately, tree-lined streets. Considered first suburb of the original settlement (developed between 1870 and 1910). Includes unimproved properties and former single-family houses divided into multifamily units.
Ardsley Park-Chatham Crescent Historic District	1985	392 acres 455 properties	Prominent, upscale residential district with large Period Revival homes originally developed in the 1920s-1930s as a streetcar suburb.
Thomas Square Historic District	1997	292 acres 387 properties	Mixed district without a strong residential character and extensive medium density commercial uses. Originally developed in the late 19 th century as a streetcar suburb.
Cuyler-Brownsville District	1998	189 acres 254 properties	Residential district with mixed quality of housing stock (<i>e.g.</i> , dilapidated units in same area as improved and newly built properties). Largely African-American suburb designated shortly after the Civil War.
Daffin Park-Parkside Place Historic District	1999	159 acres 127 properties	Primarily residential district with modest, 1,000 sq. ft. homes on shaded streets. Family-friendly. Originally developed in the early 20 th century as an automobile suburb.
Eastside Historic District	2002	156 acres 187 properties	Newest district to be designated, with housing stock of mixed age and condition. Originally a late 19 th -early 20 th century streetcar suburb.

Source: Author

Table 2: Neighborhoods in study area

Neighborhoods with Non-Historic District Properties Used in Study	Size of Neighborhood and Number of Residential Properties in Study Area	Description
Ardmore/Gould Estates/Olin Heights	309 acres 401 properties	A stately, but somewhat modest, version of Ardsley Park Historic District. Family-friendly. Well-kept masonry single-family houses on large lots with deep setbacks. Neat-kept lawns and wider streets than adjacent neighborhoods.
Ardsley Park/Chatham Crescent	21 acres 39 properties	Primarily residential neighborhood comprising the Ardsley Park Historic District, with non-historic properties sharing some architectural characteristics to their historic-district neighbors, although many properties are smaller. Most houses and lots are in good repair.
Baldwin Park	17 acres 35 properties	More unkempt neighborhood buffering Ardsley Park from Midtown with numerous wood/stucco houses in disrepair. Higher prevalence of territoriality and fenced lots. Neighborhood is located between areas of improved visual character.
Benjamin Van Clark Park	99 acres 98 properties	Neighborhood blocks represent mix of postwar housing stock and new single-family tract houses. Houses are in variable condition. Newer housing on the south end of the neighborhood is similar in character and arrangement to housing funded by tax credits and other financial assistance programs.
Bingville	87 acres 39 properties	Neighborhood is a mix of commercial, single-family residential, and multifamily residential. High variability in housing condition, type (mostly wood/stucco), upkeep, lot setback, and age.
Cann Park	75 acres 57 properties	Predominantly comprising smaller homes on small lots with narrow setbacks. Numerous houses advertise security features (e.g., iron bars over windows). Housing condition is variable, although with a large number of improved houses, the neighborhood appears to be in transition.
Cuyler-Brownsville	45 acres 42 properties	Neighborhood is in higher state of decline than surrounding districts, with some houses in dilapidated condition. Small single-family houses are predominant, many of them of the early postwar era. Narrow frontages and setbacks; numerous carports and few garages; large number of undeveloped lots.
Dale Terrace	95 acres 18 properties	Lower density mixed-use neighborhood with majority of homes on 1/8-acre lots. Predominately single-story, single-family homes of variable architectural style and age.
Eastside	142 acres 13 properties	Majority of neighborhood occupied by nonresidential uses, particularly outdated industrial. Housing units, located adjacent to the Eastside historic district, are modest in size and condition.

Live Oak	227 acres 187 properties	Neighborhood composed of larger and better-kept houses than surrounding districts. Numerous two-story houses of variable architectural styles distributed among the single-story homes. Masonry units more common than in adjacent neighborhoods
Midtown	189 acres 210 properties	Older residential neighborhood with small number of businesses. Modestly sized wood/stucco housing units of average condition/upkeep on 1/8-acre lots.
Parkside	21 acres 29 properties	Modest version of the Parkside historic district, located directly alongside it. Mostly single-family residential units of older architectural type and in good upkeep.

Source: Author

missing data from the Chatham County property appraiser database, and transactions between commercial enterprises.

Square footage data was compiled for remaining properties in the sample. Transactions were organized by year and district or neighborhood, with total number of transactions and median selling price determined for each district or neighborhood. To examine the relationship between non-historic residential property value and geographic proximity to a historic district, year-over-year changes in price per square foot were calculated by district and neighborhood from 2003 through 2010, allowing comparisons between historic and non-historic properties at two scales: all historic districts in aggregate (combined districts) contrasted with all non-historic neighborhoods in aggregate (combined neighborhoods), and individual historic districts contrasted with adjacent non-historic neighborhoods (district-neighborhood pairs). Price per square foot is used predominantly in this study, as it is the standard method of comparing property prices in the real estate industry.

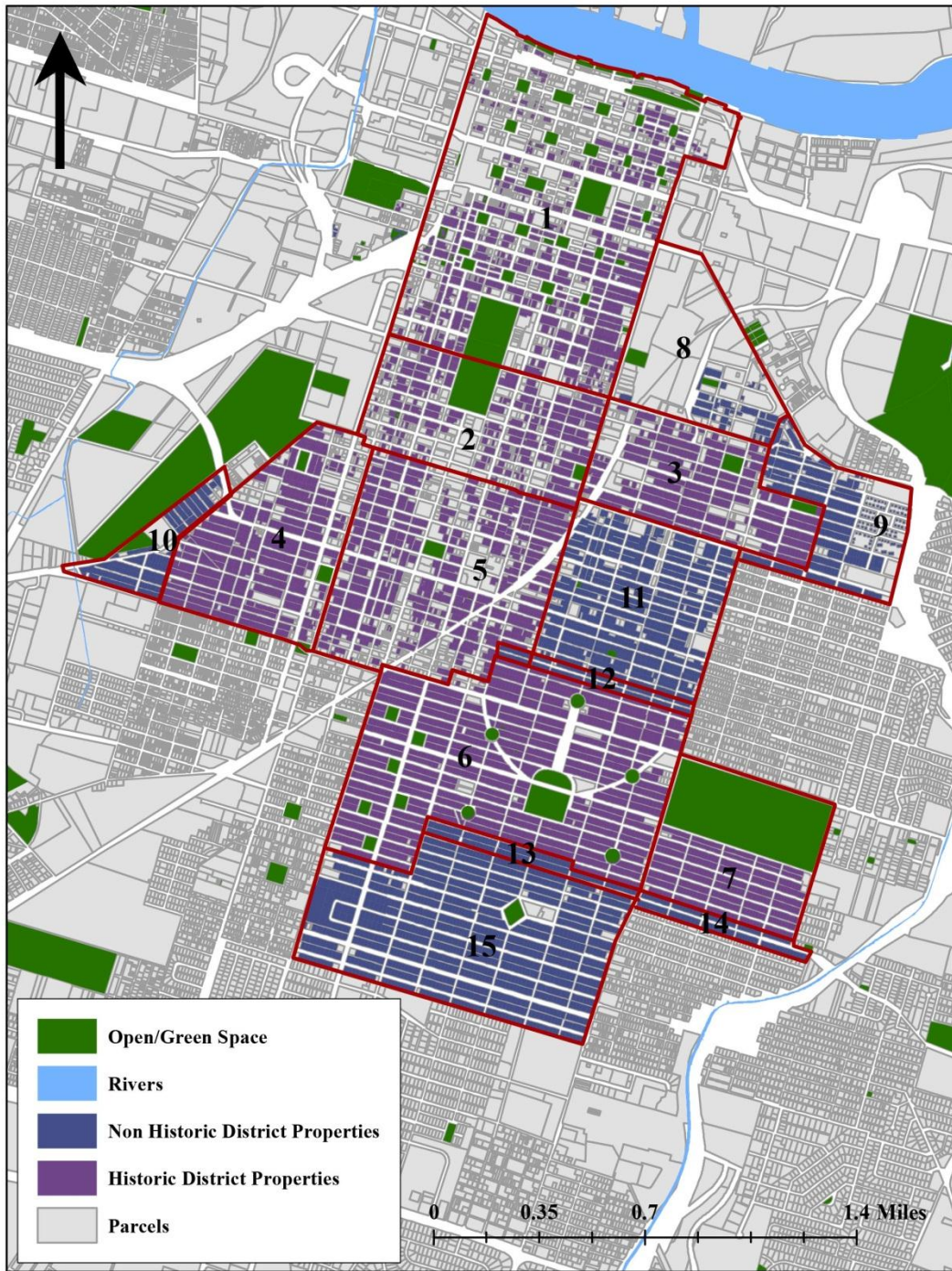
4. Results

Overall Pattern for Combined Districts and Combined Neighborhoods

Residential properties in combined historic districts show stronger price appreciation and command higher prices per square foot than in non-historic combined neighborhoods. Across the nine-year period from 2002 to 2010, median selling prices were both higher and faster growing in combined historic districts than in combined non-historic adjacent neighborhoods, rising from a median of \$160,000 in 2002 to \$223,528 in 2010. In the non-historic neighborhoods, selling prices registered little or no growth during the same time frame—approximately \$100,000 in the primary study area and \$50,000 in the extended study area (Fig. 3).

Median price per square foot showed a similar pattern, growing from \$89.29 in 2002 to \$144.90 in 2010 in historic districts (an increase of 62.3 percent) and ending flat in non-historic neighborhoods. Peak price per square foot was attained in historic districts in 2007 and in non-historic neighborhoods in 2006, with the lone exception of median selling price in the extended study area, where the peak was attained in 2008 (Fig. 4).

Fig 1: Primary study area



- Historic Districts**
 1) Savannah National
 2) Savannah Victorian
 3) Eastside

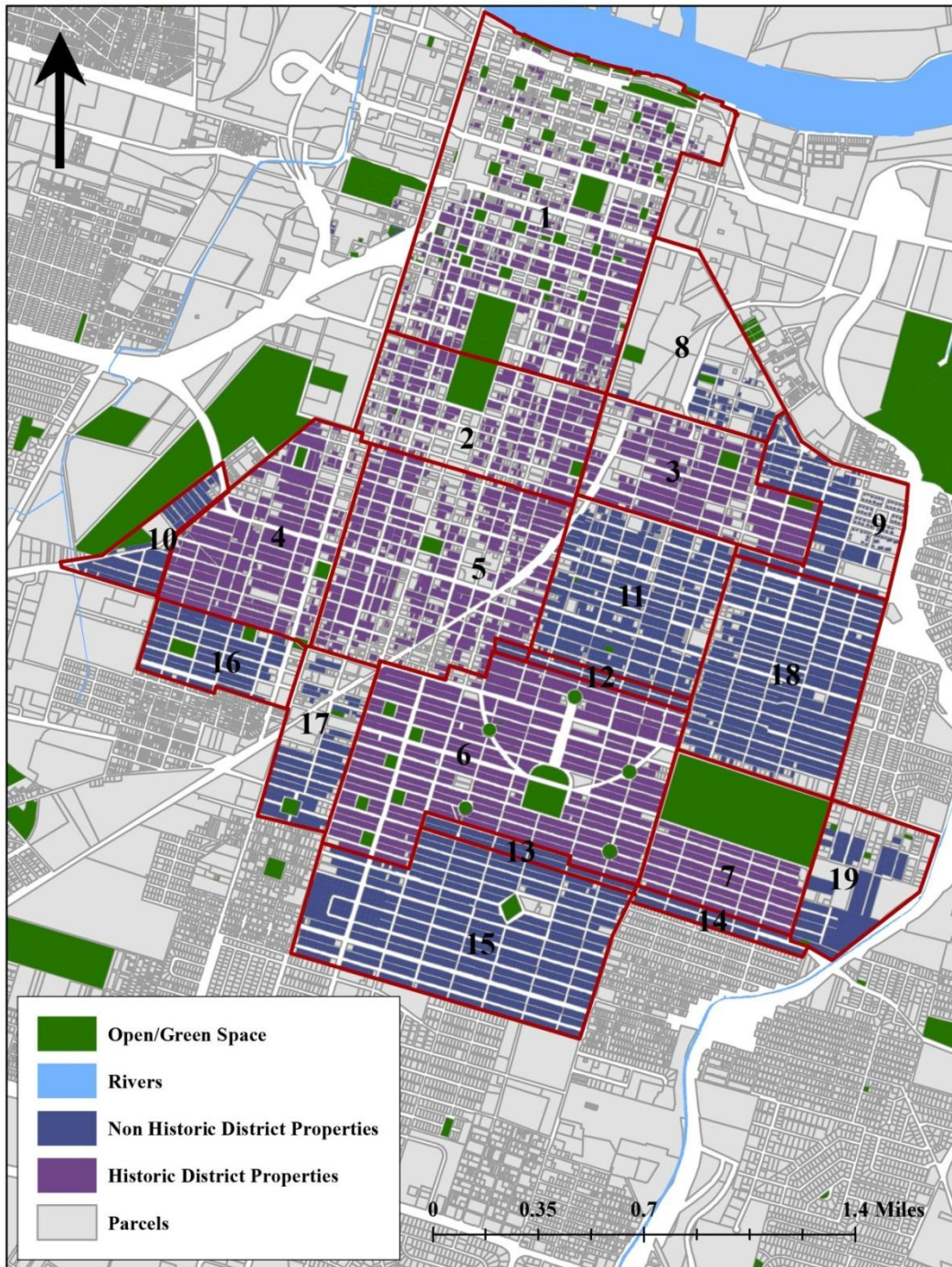
- 4) Cuyler-Brownsville
 5) Thomas Square
 6) Ardsley Park
 7) Parkside

- Neighborhoods**
 8) Eastside
 9) Benjamin Van Clark
 10) Cuyler/Brownsville
 11) Midtown

- 12) Baldwin Park
 13) Ardsley Park
 14) Parkside
 15) Ardmore

Source: Author

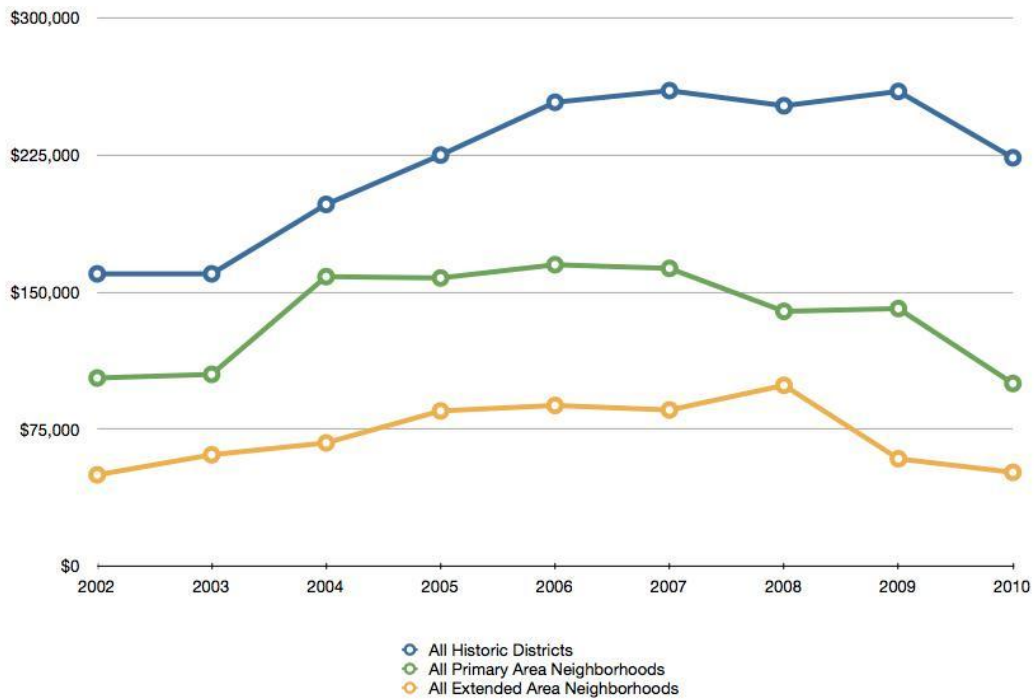
Fig 2: Extended study area



- | | | | | |
|---------------------------|-----------------------|------------------------|------------------|------------------|
| Historic Districts | 4) Cuyler-Brownsville | Neighborhoods | 12) Baldwin Park | 16) Cann Park |
| 1) Savannah National | 5) Thomas Square | 8) Eastside | 13) Ardsley Park | 17) Bingville |
| 2) Savannah Victorian | 6) Ardsley Park | 9) Benjamin Van Clark | 14) Parkside | 18) Live Oak |
| 3) Eastside | 7) Parkside | 10) Cuyler/Brownsville | 15) Ardmore | 19) Dale Terrace |
| | | 11) Midtown | | |

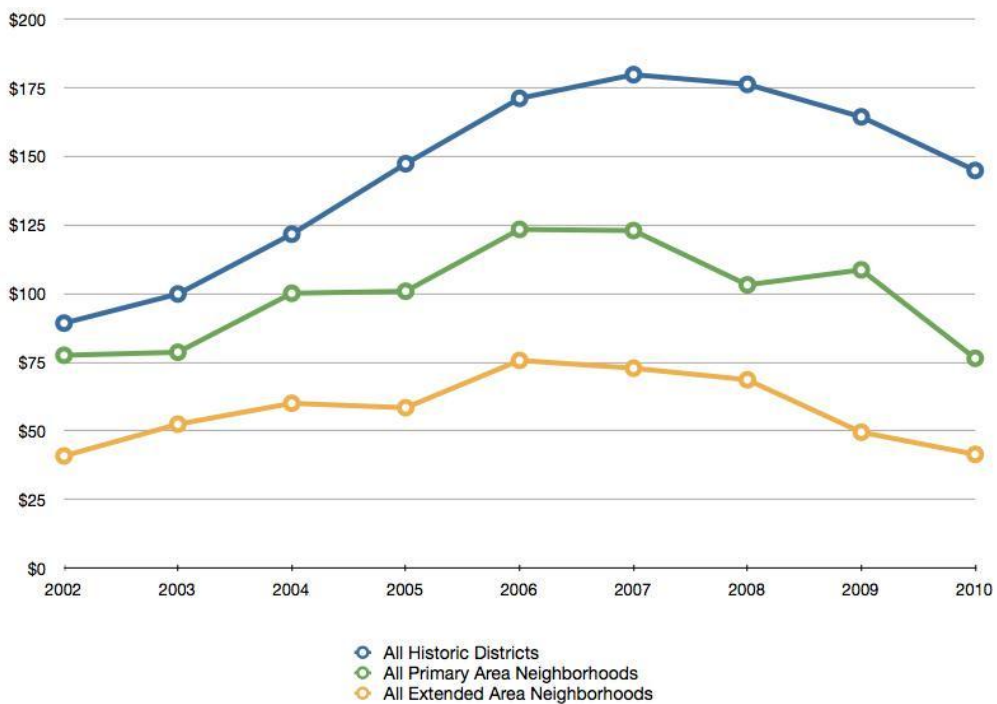
Source: Author

Fig. 3: Median selling price - Combined districts and neighborhoods



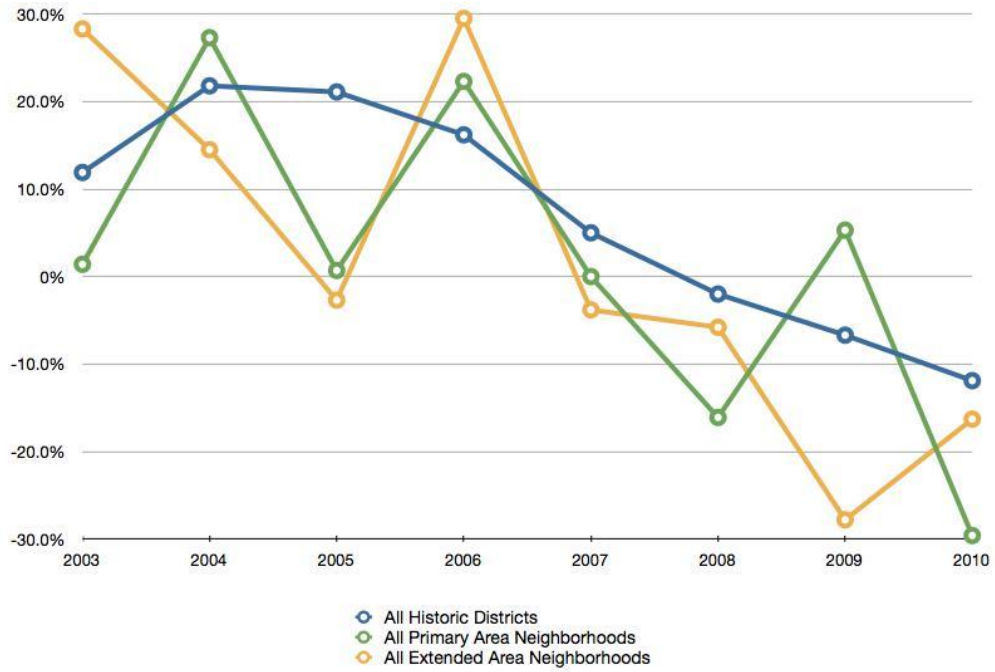
Source: Author

Fig. 4: Price per square foot - Combined districts and combined neighborhoods



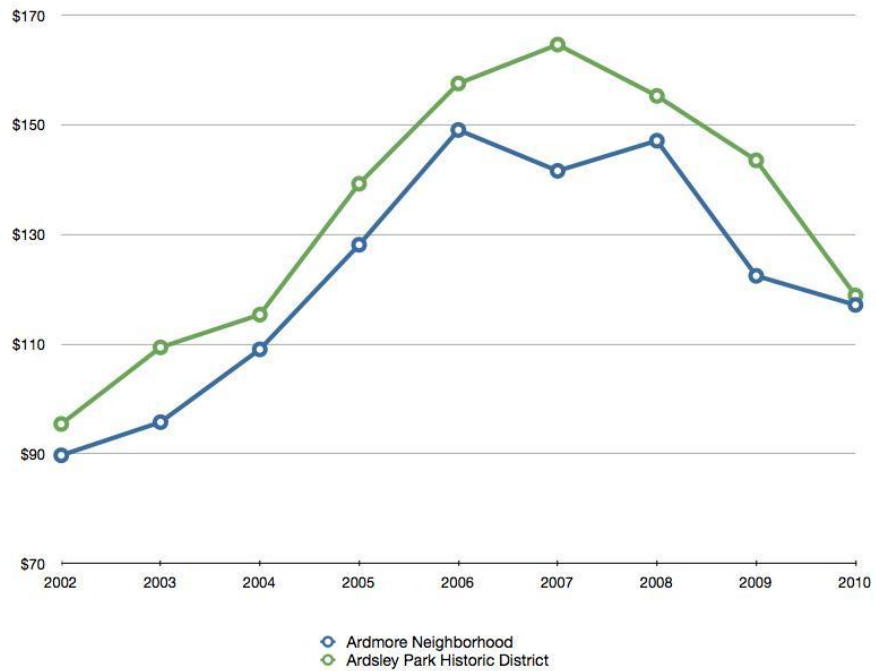
Source: Author

Fig. 5: Percent year-over-year change, price per square foot - Combined districts and combined neighborhoods



Source: Author

Fig. 6: Price per square foot - Ardsley Park historic district-Ardmore neighborhood



Source: Author

Between 2002 and 2007, combined districts enjoyed an unbroken sequence of annual price per square foot increases, although the percent amount of increase varied each year. (Fig. 5) Combined neighborhood price movements were variable, with the primary area neighborhoods flat and the extended area neighborhoods declining in 2007 as the combined historic districts continued to rise. From 2008 to 2010, all three geographic areas ended in decline. Although 2008 marked the first year that overall price performance in the real estate market entered into year-over-year decline, the final price per square foot performance for combined historic districts was significantly stronger than in adjacent non-historic neighborhoods; giving up only 38.6 percent of their price gains through the 2007 peak while non-historic neighborhoods gave up all (or almost all) their gains since their 2006 peak (102.4 percent in the primary study area and 98.3 percent in the extended area). Overall, from 2007 to 2010, the median price per square foot for combined historic districts declined only 19.4 percent since its 2007 peak while non-historic neighborhoods in the primary study area declined by 37.8 percent and in the extended area by 43.1 percent.

Table 3: 2002-2010 change in price per square foot by district and neighborhood

District / Neighborhood	Percent Change
Savannah National Historic Landmark District	+60.8
Savannah Victorian Historic District	+35.0
Ardsley Park-Chatham Crescent Historic District	+24.6
Thomas Square Historic District	+7.0
Cuyler-Brownsville District	+19.0
Daffin Park-Parkside Place Historic District	+31.8
Eastside Historic District	-23.1
Ardmore/Gould Estates/Olin Heights	+30.6
Ardsley Park/Chatham Crescent	+55.2
Baldwin Park	-81.8
Benjamin Van Clark Park	+39.3
Bingville	-88.4
Cann Park	-18.2
Cuyler-Brownsville	+3.8
Dale Terrace	+243.0
Eastside	-88.4
Live Oak	-10.0
Midtown	+40.0
Parkside	+27.3

Source: Author

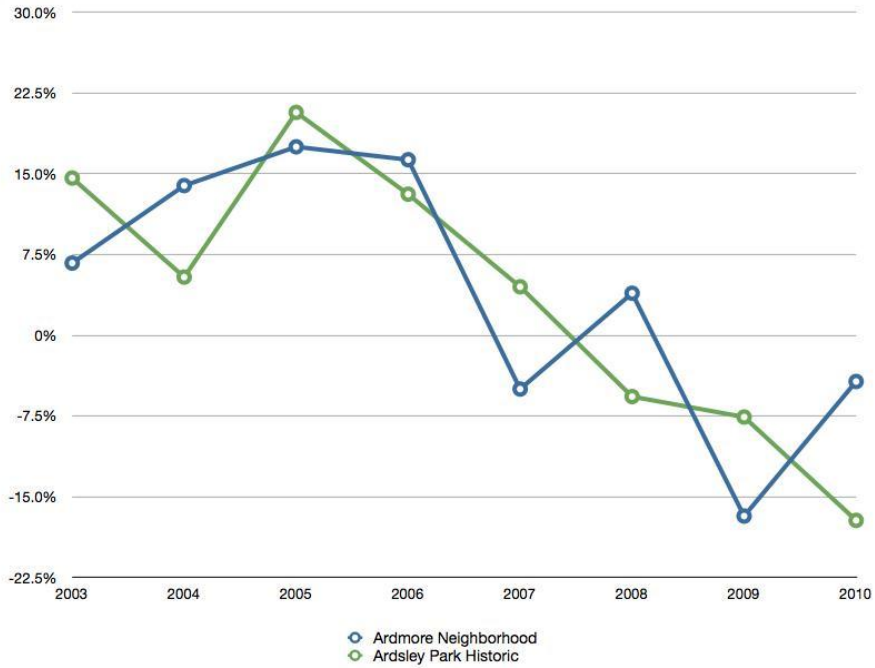
District-Neighborhood Pairs

Five district-neighborhood pairs in the primary study area featured sales transactions for each year of the study period. Two of the pairs feature locally significant residential historic areas and have large sales transaction samples: Ardsley Park historic district-Ardmore neighborhood (455 and 401 transactions, respectively), and Thomas Square historic district-Midtown neighborhood (387 and 210 transactions, respectively). Year-over-year price performance of district-neighborhood pairs was erratic in almost all cases. The only pairs that performed relatively equally (rising or declining in comparable measure) in consecutive years were Ardsley Park historic district-Ardmore neighborhood between 2005 and 2006, Thomas Square historic district-Midtown neighborhood between 2004 and 2005, and Parkside historic district-Parkside neighborhood between 2009 and 2010. Over the 2002-2010 period, only two district-neighborhood pairs experienced overall price changes that moved in the same direction within 10 percentage points of each other: Ardsley Park historic district (+24.6%) and Ardmore neighborhood (+30.6%), and Parkside historic district (+31.8%) and Parkside neighborhood (+27.3%) (Table 3).

Ardsley Park historic district-Ardmore neighborhood: Ardsley Park is among the most recognized and valued historic residential districts in Savannah, a condition reflected by the high prices of houses in the district. Ardmore neighborhood, located to the south of Ardsley Park, is a comparably desirable neighborhood similar in architectural character to Ardsley Park, although homes are somewhat more modest in size. Between 2002 and 2006, both the historic district and adjacent non-historic neighborhood experienced growth in price per square foot (Fig. 6), although the rate of growth was variable each year (Fig. 7). The variability of year-over-year price changes in Ardsley Park historic district and Ardmore neighborhood continued through the end of the study period, by which point the price per square foot in either area became almost equivalent.

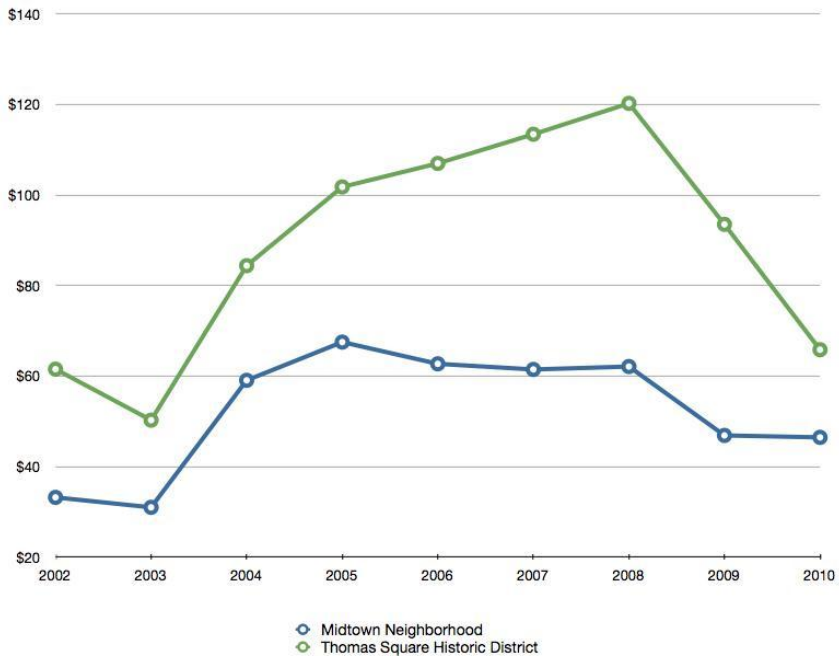
Thomas Square historic district-Midtown neighborhood: Thomas Square is another of Savannah's popular and valued residential historic districts, although it features a large contingent of nonresidential uses as well. Directly to its east is Midtown neighborhood, which is primarily residential and more architecturally differentiated from Thomas Square historic district than Ardmore neighborhood was from Ardsley Park historic district. Thomas Square's price per square foot has always remained significantly higher than that of adjacent Midtown and continued to grow after Midtown's peak was attained in 2005 (Fig. 8). However, a massive price correction occurred in the historic district between 2008 and 2010, returning price per square foot approximately to where it was in 2002, whereas Midtown's price per square foot registered a modest increase over the same period. Thomas Square and Midtown show similar trend lines in yearly changes in price per square foot, although the historic district showed positive growth for five consecutive years, until 2008, while the non-historic neighborhood was registering very low growth or modest declines (Fig. 9).

Fig. 7: Percent year-over-year change, price per square foot - Ardsley Park historic district-Ardmore neighborhood



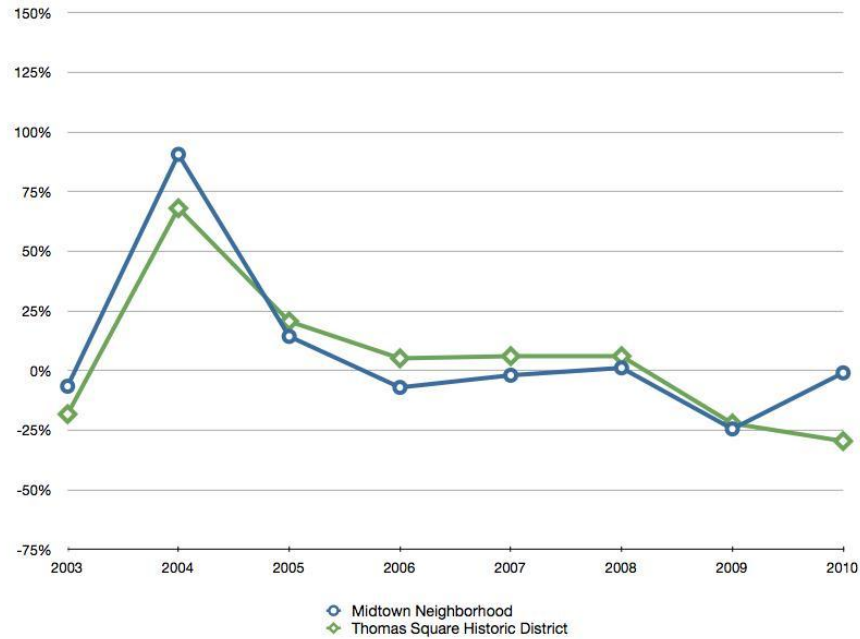
Source: Author

Fig. 8: Price per square foot - Thomas Square historic district-Midtown neighborhood



Source: Author

Fig. 9: Percent year-over-year change, price per square foot - Thomas Square historic district-Midtown neighborhood



Source: Author

5. Discussion

The findings reveal that year-over-year prices in residential properties in historic and adjacent non-historic areas changed independently of each other even while following the prevailing industry trend of price appreciation in 2002-2007 and subsequent decline, and that price-per-square-foot and the selling prices of homes in historic districts were consistently higher than in non-historic neighborhoods, even after real estate bubble deflation. This discovery applies for combined historic districts and combined adjacent non-historic neighborhoods and for individual district-neighborhood pairs. Overall, residential properties in non-historic neighborhoods failed to make any significant gain in median price appreciation by price per square foot or median selling price from 2002 to 2010, despite riding a wave of growth in the first half of the decade, while properties in historic districts preserved most of the median price gain through 2005, losing only the additional gain experienced in 2006 and 2007 before the price declines occurred.

Geographically, there is a price premium for residential properties contained in designated historic districts, particularly if those districts are locally renowned and appreciated, as in the case of Savannah's National Landmark District, Victorian District, and Ardsley Park. This premium is extended to a lesser degree to properties in immediately adjacent non-historic neighborhoods that share a common name or architectural character. Adjacent neighborhoods that are more differentiated architecturally, as in the case of neighborhoods in the study's extended area, do not experience this premium and are significantly less expensive per square foot. This is a possible corroboration of Narwold's (2008) finding that historic designation increased the value of proximal properties. However, proximity to historic districts did not result

in any absolute-dollar price gains over the course of the 2002-2010 study period for either set of non-historic neighborhoods, indicating that, so far, we have found no evidence that proximity results in *lasting* benefit to property values.

We recognize that the housing market is still in recovery in 2012 and believe that incorporating data from the years 2011, 2012, and beyond may yield insight into the prolonged resiliency of selling prices in historic districts. Moreover, it will be valuable to take the statistical analysis further, using a hedonic pricing model to seek out correlational patterns between historic and non-historic properties that make use of additional property characteristics.

References

Asabere, P.K., and Huffman, F.E. 1994. Historic designation and residential market values. *Appraisal Journal* 62(3), 396–441.

Bolitzer, B., and Netusil, N.R. 2000. The impact of open spaces on property values in Portland, Oregon. *Journal of Environmental Management* 59:185-193.

Clark, D.E., and Herrin, W.E. 1997. Historical preservation and home sale prices: Evidence from the Sacramento housing market. *Review of Regional Studies* 27:29-48.

Coulson, N.E. and Leichenko, R.M. 2001. The internal and external impact of historical designation on property values. *Journal of Real Estate Finance and Economics* 23(10):113-124.

Depken II, C.A., Hollans, H., and Seidler, S. 2011. Flips, flops and foreclosures: anatomy of a real estate bubble. *Journal of Financial Economic Policy* 3(1):49-65.

Haughey, P., and Basolo, V. 2000. The effect of dual local and National Register historic district designations on single-family housing prices in New Orleans. *The Appraisal Journal* 68(3):283-289.

Hendershott, P., Hendershott, R., and Shilling, J. 2010. The mortgage finance bubble: causes and corrections. *Journal of Housing Research* 19(1):1-16.

Ivy, R. 2011. Historic preservation and tourism development in Savannah, Georgia. *Grazer Schriften der Geographie und Raumforschung* 46: 189-200.

Luttik, J. 2000. The value of trees, water and open space as reflected by house prices in the Netherlands. *Landscape and Urban Planning* 48:161-167.

Leichenko, R.M., Coulson, N.E., and Listokin, D. 2001. Historic preservation and residential property values: an analysis of Texas cities. *Urban Studies* 38(11):1973-1987.

Listokin, D., Listokin, B., and Lahr, M. 1999. The contributions of historic preservation to housing and economic development. *Housing Policy Debate* 9(3):431-478.

Narwold, A.J. 2008. Estimating the value of the historical designation externality. *International Journal of Housing Markets and Analysis* 1(3):288-295.

New York City Independent Budget Office (NYC IBO). 2003. *The impact of historic districts on residential property values*. New York City Independent Budget Office: New York, NY.

Noonan, D.S., and Krupka, D.J. 2011. Making—or picking—winners: evidence of internal and external price effects in historic preservation policies. *Real Estate Economics* 39(2):379-407.

Schaeffer, P.V., and Millerick, C.A. 1991. The impact of historic district designation on property values: an empirical study. *Economic Development Quarterly* 5(4):301-312.

Tyrväinen, L. 1997. The amenity value of the urban forest: An application of the hedonic pricing model. *Landscape and Urban Planning* 37:211-222.

Tyrväinen, L., and Miettinen, A. 2000. Property prices and urban forest amenities. *Journal of Environmental Economics and Management* 39:205-223.

Thompson, E., Rosenbaum, D., and Schmitz, B. 2011. Property values on the plains: the impact of historic preservation. *Annals of Regional Science* 47:477-491.

Zahirovic-Herbert, V., and Chatterjee, S. 2012. Historic preservation and residential property values: evidence from quantile regression. *Urban Studies* 49(2):369-382.

Zhou, W-X., and Sornette, D. 2006. Is there a real estate bubble in the US? *Physica A: Statistical Mechanics and its Applications* 361(1):297-308.