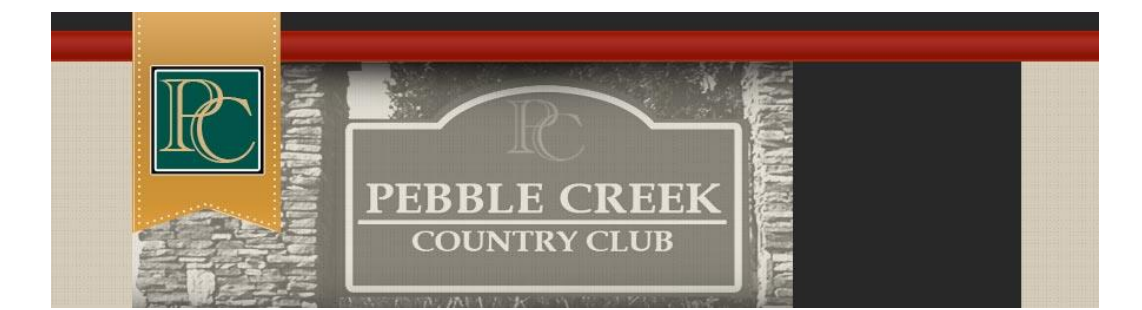




Private vs Public? Golf Course's Effect on Real Estate Value

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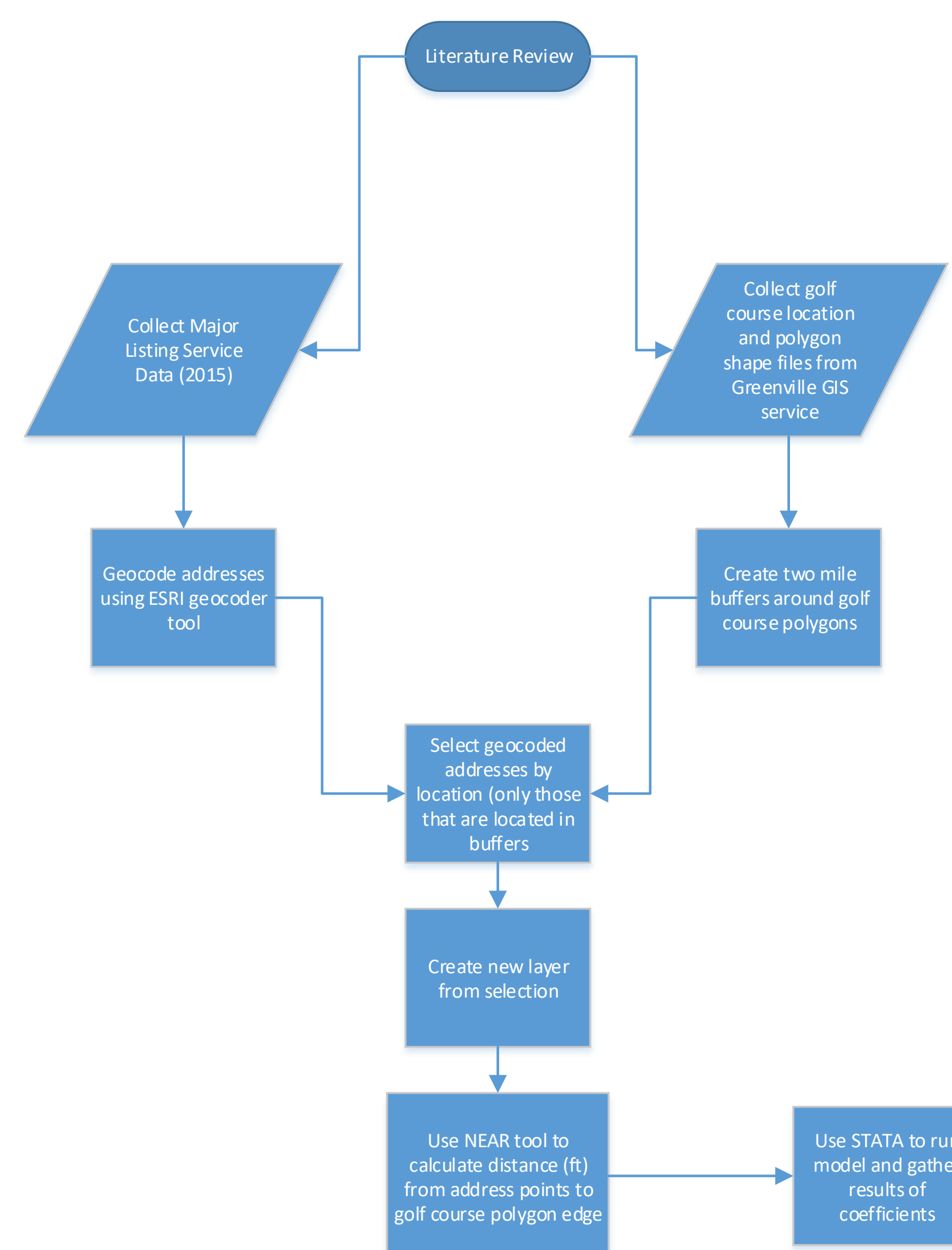
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Abstract

The valuation of various green space and other outdoor amenities is continuously explored in both environmental studies and economic literature. A golf course is considered within that category of recreational outdoor spaces and thus can be valued using the same methodology. The goal of this research is to assess the effect of proximity to a golf course on the final selling price of homes. By identifying this relationship, one can draw a monetary value of the golf course. Finally, this research also looks to find the difference in value between a private golf course and a public golf course and assess its significance. Using 2015 final home selling prices around two local courses (Paris Mountain Country Club and Pebble Creek Country Club) and Geographic Information Systems to determine proximity. It is concluded home value is inversely related to distance from a golf course. In that, as a house increases its distance from the edge of a course, the value of that house declines. Any specific interpretation cannot be made however, because of lack of observations and statistically insignificant results.

Methodology

Below shows a flowchart of the exact methodology used to complete this analysis. Much of the data collection and manipulation happened within the GIS program, but once the distance values were calculated and exported, the model was run using the statistical program, STATA. The tables to the left show the results of the model from STATA.



Model

Below is the regression model used to find the relationship between the distance variable (distance in feet each house is from the edge of the golf course) and the final selling price. It is using the ordinary least squares estimation technique (OLS) and thus it could be compared to a line of best fit. The betas shown below indicate the coefficient associated with each variable and the corresponding relationship with final selling price. Because OLS is used, each beta can be interpreted in the following way: for every one foot increase in the distance from the golf course, the final selling price of the home changes by “β1” amount. Housing controls and census controls are other variables that affect the final selling price of a given home. They must be included in the model as well to ensure the validity of the distance variable. So, the interpretation of the β1 includes the assumption that all other control variables are considered constant. The housing controls include, number of bathrooms, number of bedrooms, garage capacity, total finished square feet and days on market. The census controls include, average family size, average household size, and percent black, all as averages of the particular census tract the house is located in. The epsilon is the stochastic error term or the variable that catches all relationships not included in the model.

$$\text{soldprice} = \beta_0 + \beta_1 \text{Distance} + \beta_n \text{HousingControls} + \beta_{n2} \text{CensusControls} + \epsilon$$

Public Results: Paris Mountain

Without Census Controls		With Census Controls	
VARIABLES	(1) SoldPrice	VARIABLES	(1) SoldPrice
Distance	-8.407 (9.384)	Distance	-4.299 (12.18)
Number of Bathrooms	13.507 (20,745)	Number of Bathrooms	6.858 (17,607)
Days on Market	-76.65 (156.9)	Days on Market	-121.7 (168.2)
Number of Bedrooms	-17,250 (12,673)	Number of Bedrooms	-17,960 (12,250)
Garage Capacity	32,843 (19,759)	Garage Capacity	29,242* (15,609)
Total Finished Sqft	79.78*** (16.55)	Total Finished Sqft	86.56*** (18.87)
Constant	-16,023 (78,374)	Percent Black	-3.901e+06 (2.806e+06)
Observations	38	Average Household Size	931,316
Adjusted R-squared	0.631	Average Family Size	(584,853) 567,381
R-squared	0.690	Constant	(403,075) -3.670e+06 (2.320e+06)
		Observations	38
		Adjusted R-squared	0.669
		R-squared	0.749

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Private Results: Pebble Creek

Without Census Controls		With Census Controls	
VARIABLES	(1) SoldPrice	VARIABLES	(1) SoldPrice
Distance	-1.594 (4.614)	Distance	-0.937 (6.567)
Number of Bathrooms	-4.635 (13,082)	NumbBR	-4.396 (11,621)
DaysOnMarket	-48.68 (56.26)	NumOfBedrooms	-5.577 (4,341)
Number of Bedrooms	-5.382 (4,094)	GarageCapacity	18,262*** (6,512)
Garage Capacity	18,782*** (5,952)	TotalFinishedSqft	95.49*** (10.28)
Total Finished Sqft	95.93*** (19.17)	DaysOnMarket	-47.06 (61.05)
Constant	-996.5 (29,178)	PCTBlack	-14,584 (121,094)
Observations	149	AvgHouseSize	15,174 (77,474)
Adjusted R-squared	0.661	AvgFamSize	-22,671 (113,882)
R-squared	0.675	Constant	29,867 (274,903)
		Observations	149
		Adjusted R-squared	0.654
		R-Squared	0.675

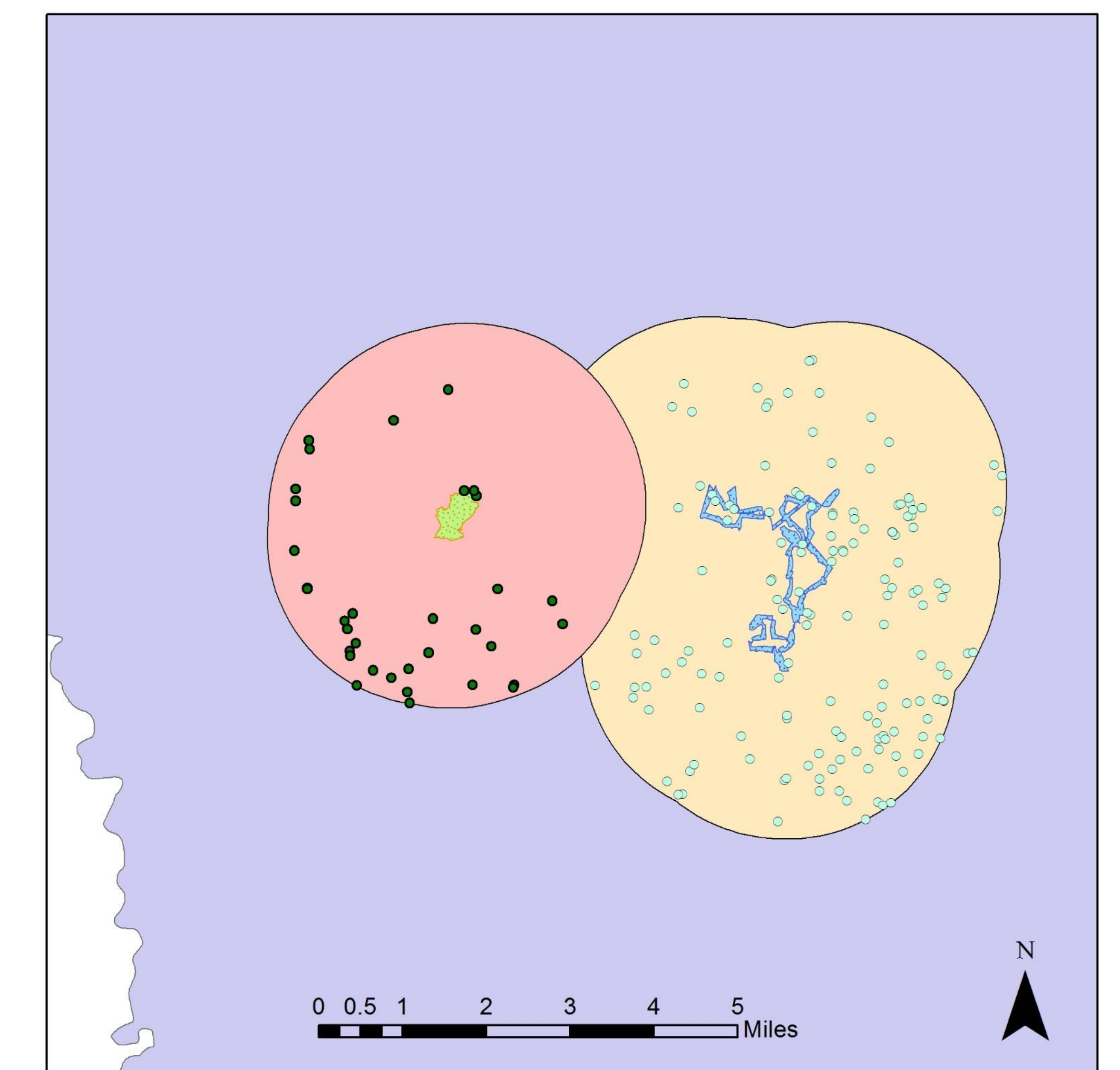
“On” Course vs “Off” Course

VARIABLES	(1) SoldPrice
On Course	7.066 (17,395)
Number of Bathrooms	-4,872 (12,829)
Days on Market	-51.15 (55.42)
Number of Bedrooms	-5,264 (4,220)
Garage Capacity	18,527*** (5,838)
Total Finished Sqft	95.79*** (19.90)
Constant	-3,181 (27,188)
Observations	149
Adjusted R-squared	0.662
R-squared	0.675

Red numbers represent negative coefficients associated with the distance variable (β1) of the model. For every foot of distance a house is away from the golf course, the value of the home drops by the red amount of dollars.

The green value represents a different interpretation. If a home is on Pebble Creek Golf Club (within a 100 feet), then the value of that home increases by the green amount of dollars.

Comparing Value: PMCC vs PBCC



Legend

- Pebble Creek houses
- Paris Mountain houses
- Paris Mountain Golf Course
- Pebble Creek Golf Course
- Paris Mountain Buffer
- Pebble Creek Buffer

This map shows both golf courses of interest (Paris Mountain Country Club and Pebble Creek Country Club). Each course is surrounded by a two mile buffer. Within those buffers are the recent sold homes in 2015.

Conclusion

After preliminary results, proximity to a golf course will increase the value of a home as it is located closer to the edge. However, due to lack of available house prices, the interpretation of the coefficient is unreliable and not statistically significant. When looking specifically at Pebble Creek, the effect of being on the course (within 100 feet of course edge) vs off the course shows the same relationship found with general proximity. Again, the number of observations limits the interpretation of the coefficient but the direction of the relationship remains the same. This analysis shows that people value property closer to golf courses due to either preference of green areas, community amenities, enjoyment of golf or a combination of many reasons. In order to correctly value each course, many more data points of recent home sales would be needed. A analysis could also be done using estimated value of homes that are located within the two mile buffer, not specifically sales price.

References and Data Sources

Major Listing Service
Greenville Country GIS
United States Census

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