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The Impact of Natural Amenities on Home Values in Western Colorado

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ABSTRACT

This paper investigates the impact that proximity to natural amenities has on improving home values in Mesa County, Colorado. Controlling for standard home characteristics, the study investigates the value to homes of the proximity to trails, the Colorado National Monument, Bureau of Land Management Land, golf courses, the Colorado/Gunnison River, open space, and public parks, using ordinary least squares, fixed effects (controlling for time and zip codes), and a spatial error model. GIS is used to determine distances for the spatial econometric model. Each amenity is evaluated at 250, 500, and 1000 meters. The results show that homes located within 250 meters of a trail sell for 4.45% more, homes located within 500 meters of BLM land sell for 9.07% more, homes located within 250 meters of a golf course sell for 12.70% more, and homes located within 250 meters of the Colorado National Monument sell for 12.90% more.

KEYWORDS

Fixed Effects, Hedonic Regression, Natural Amenities, Public Lands, Spatial Regression

INTRODUCTION

This paper studies the relationship between home values and the proximity to natural and recreational amenities using GIS and three different regression models. Specifically, the paper examines the implicit price that home buyers are willing to pay to be located near trails, golf courses, open space, parks, public lands, and rivers, controlling for other characteristics of the home. The study employed GIS to create a database of homes sold from 2013 to 2015, with each amenity's distance to each home calculated. The goal is to determine the value to home buyers of the following natural amenities: proximity to trails, U.S. public lands (Bureau of Land Management (BLM), U.S. National Parks (most specifically - the Colorado National Monument), local and state parks, other open spaces, the Colorado and Gunnison Rivers, and golf courses. The regression techniques used to determine the impact of these amenities on home prices include ordinary least squares (OLS), a fixed effects model (FE) controlling for time and zip codes, and a spatial error model (SEM) that controls for spatial effects. The models control for standard house characteristics, as well as socioeconomic characteristics of neighborhoods and disamenities.

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Literature Review

Hedonic house price models are a common model used to determine the value of various amenities and disamenities affecting home values (Chin and Chau, 2002; Taylor, 2008). Hedonic house models are one of the few ways to value a natural amenity. By controlling for all other amenities that contribute to a home's value, it allows the researcher to indirectly value the proximity to a natural amenity by inferring it from observable market transactions (Taylor, 2003). Many studies have investigated various types of natural amenities including open space, natural views, trails and greenways, lakes, parks, golf courses, national parks, etc. However, it is rare to have a geographic location where several of these amenities can be tested in the same model.

Trails can add recreational value for people and actual value to homes if they are within reasonable proximity. Many studies have evaluated the impact of forest or greenway proximity, but fewer have specifically examined the impact of trails. Existing research illustrates that close proximity to trails almost always has a positive impact on home values. Asabere and Huffman (2009) find that trails, greenbelts, and a product variable which represents greenbelts with trails have a 2, 4, and 5% price premium in San Antonio, Texas. Racca and Dhanju (2006) examine home values in Delaware and find that homes with a bike path in close proximity sell for approximately 4% more when controlling for other factors affecting the home.

The impact that National Parks or national monuments have on home values is an important question for many communities with these amenities. In the case of national parks and/or monuments, people may value the proximity to the amenity for recreation purposes, or they may value proximity to the amenity for the view. There are several studies that measure the impact of national parks on home values. Pearson, Tisdell, and Lisle (2002) study the impact of the Noosa National Park (outside of Brisbane, Australia) on surrounding home values. They find that proximity to the park is associated with a 6-7% increase in home values. Stetler (2009) finds that every kilometer closer to Glacier National Park in Montana improves home values. Sharma (2012) finds that the value of land located one mile from national park land is 118% higher than the value of similar land located one mile away from non-protected forest land. While this study focuses on the value of the land rather than residential prices, it is an important indicator for residential prices. If the land the house is built on is valued higher, the cost to build on it will be higher and that increase in cost will be reflected in the residential price. Findley, Gahramonov, Kling, and Theobald (2014) use spatial analysis to study the effect of proximity to protected land on residential prices in Larimer County, Colorado. They find that proximity to national or state park land, or open space has a significant positive impact on property values.

Golf courses are desired due to their views, status, and proximity to golf recreation. Lutzenhiser and Netusil (2001) find that proximity to a golf course increases home value by $8,849. Do and Grudnitski (1995) examine the Rancho Bernardo area in California and find that proximity to golf courses increase home values by 7.6%. Nicholls and Crompton (2007) find that in College Station, Texas, lots adjacent to golf courses sell for 25.8% of the average sales price of the home. In addition to the Glacier National Park finding, Stetler (2009) also finds that homes in western Montana adjacent to golf courses sell for a 19% premium. Anderson and West (2006) find that proximity to golf courses is positively related to home value.

The impact of local parks varies widely in the home value literature, with some studies showing that parks bring positive value to surrounding homes, and some studies showing negative value. Crompton (2001) conducts a thorough literature review of studies that try to measure the impact of parks on surrounding home values. Twenty five of the 30 studies he covers illustrate a positive impact on home value, leading to Crompton's conclusion that proximity to parks improves home values by approximately 20%. He also concludes that more heavily used parks may not add as much value to the home, instead adding 10% within approximately 3 blocks. In a subsequent study that uses regression analysis, Nicholls and Crompton (2005) study the area of Bastrop County, Texas, and find that parks do not have a statistically significant impact on home values. The authors reason that because the