

THE DEVELOPMENT AND TESTING OF PROPERTY VALUE MODELS: AN EDUCATIONAL APPLICATION USING HISTORICAL PRESERVATION DISTRICTS, HEDONIC REGRESSION AND INFORMATION ASYMMETRIES

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ABSTRACT

This paper examines what is meant by designating real property or entire districts as historically significant and how this can be utilized in a classroom setting. The economic and social implications of such a designation are expanded on. The role of a local historic preservation commission is explained. It is shown that such an organization enhances the benefits of a historical designation by eliminating informational asymmetries. This makes for an excellent example to be used on topics concerning such information differences. A simple economic model is developed demonstrating the valuation changes arising from the benefits of the historical designation. Difference in difference models along with hedonic multiple regression models are explained. Empirical results from these models are surveyed. Many of these topics can be used within various economic courses.

INTRODUCTION

The purpose of this paper is to demonstrate the benefits of having an active and governmentally supported local historical preservation district commission. A secondary purpose is to provide material that can be used as pedagogical aids in the teaching of various undergraduate and graduate economics courses. The role of the commission is of course to ensure the historical preservation of the district in question. This paper will also show the several types of benefits that accrue not only to the historical preservation district itself, but also to the surrounding commercial and residential community. These benefits exist even in preservation districts without any local ordinances regarding land use in place, but are much more pronounced where local ordinances are used. They can be used as examples of social benefits when teaching economics. A straightforward economic model will be utilized to help demonstrate some of these direct and indirect benefits. More formal models including hedonic regression models will also be explained. This allows students to see firsthand how regression analysis is used in practice. Empirical results utilizing these models will also be reported.

SIGNIFICANCE OF HISTORICAL DESIGNATION

The main rationale for having an area within a city or town designated as being historically significant is to provide a means of protecting the area from physical deterioration. The National Historic Preservation Act gives the U.S. Secretary of the Interior the authority to designate a building or district as being historically significant. Upon receiving this designation the building or district is given official recognition by being placed on the National Register of Historic Places which is most commonly referred to as the National Register. Although this national honor offers some protection for the sites listed in the register it does not guarantee the maintenance of such sites. Physical deterioration of the buildings in question might still occur. This is where the local preservation commissions play such an important role. They are truly the front line enforcers of maintaining and preserving the substance and value creating nature of the historic sites and neighborhoods. Local preservation districts have the biggest impact when the following two conditions exist: clearly written and publicized guidelines for all affected properties and active educational outreach to the real estate community including brokers, owners, architects and bankers. These two conditions are predicated by the existence of a fully staffed local preservation historical committee which makes consistent and predictable decisions. The presence of such districts makes for a good research topic in an economic history course.

EFFECTS ON DEMAND

Although the main reason for historical designation relates to preventing the deterioration of buildings and thus maintaining their value, a secondary effect also is prevalent. This relates to a positive spillover effect on commercial and especially residential properties within and surrounding the historical district. A simple supply and demand model can be used to demonstrate the increase in property values. We will assume that the demand for properties is a negative function of price and a positive function of both household income and an active local historical preservation district commission. Graphically this means that when the desired quantity demand (horizontal axis) for properties is plotted against the property values (vertical axis) the demand curve will have a downward (negative) slope. Increases in household income would cause the demand curve to increase (shift to the right). In other words we are assuming that properties are a normal good. The Preservation Economic Impact model developed at Rutgers University demonstrates that historical preservation results in more job creation than new construction thus creating higher household income which in turn enhances the demand for properties. The presence of, and higher activity level of, the local preservation commission would also cause an increase in demand. Any increase in demand would cause property values to increase.

There are several reasons why a direct relationship exists between the presence and activities of the commission and the demand for properties. First of all the commission plays an important role in seeing that land use ordinances are abided by. The preservation of such properties encourages potential buyers of property that the neighborhood will not be permitted to decay over time. This would also provide incentives for property owners surrounding the district to revitalize their properties. Secondly, the commission serves to reduce informational asymmetries that might exist in real estate markets. Asymmetric information exists when the buyers and sellers have different information sets. Normally a seller would possess a more vast quantity of information about a property than a potential buyer. Real estate brokers do offer warranties that sellers can attach to their properties which can reduce the information differences, but these add to the cost of the property and thus discourage demand. One important implication of an information asymmetry is that demand is reduced and subsequently real estate values are reduced. Adverse selection might arise where too few of the higher quality properties normally associated with in and around a

historical district become sold. The historical preservation commission provides additional important information about the nature, significance and quality of structures within the district and thereby reduces or eliminates informational asymmetries. This in turn stimulates demand and prices for the properties within and surrounding the historical district.

EFFECTS ON SUPPLY

We will assume that the supply of properties for sale are a direct function of real estate prices and an indirect function of tax benefits of property ownership, favorable neighborhood effects, stronger sense of community and land use ordinances. As with demand, real estate values are measured on the vertical axis and quantity of properties for sale on the horizontal axis. Since a positive relationship is assumed to exist between these two variables the supply curve would have a positive slope. Increases in tax benefits, neighborhood effects, sense of community, and land use ordinances would all cause the supply to decrease which would be shown as a leftward shift in the supply curve. Any decrease in supply would cause property values to increase.

The active presence of a local historic preservation committee can lead to a national government designation such as a listing in the National Register of Historic Places. Such a designation comes with substantial tax benefits such as a federal tax credit for the rehabilitation and maintenance of the designated properties. The known presence of these tax benefits would provide an incentive for current property owners to maintain and retain their real estate therefore decreasing the supply of properties for sale on the market. The tax benefits might not be known to the general public. The local commission can once again play a vital role in disseminating this important information. A firmer sense of community or attachment to a community would further serve to reduce the supply of property for sale. If property owners have an emotional attachment to the area they of course will be reluctant to relocate their residence or business operation. Local land ordinances also have the advantageous effect of keeping properties off the market.

VALUATION DIFFERENCES

The historical designation along with an active local historic preservation commission leads to the aforementioned changes in supply and demand. These changes in turn lead to an increase in the values of properties within the district. Properties near the historic district also will see similar changes in supply and demand and thus similar changes in property values. Here we can employ what we will call the Disney World Effect. Before Disney World opened in central Florida the area was essentially worthless swamp land. When the theme park opened in 1971 the land that Disney World occupied increased exponentially in value. But as we now know, the value of land surrounding Disney World also increased exponentially in value. This is a type of neighborhood effect. Increases in property values do indeed appear to be contagious.

The academic literature abounds with examples of rigorous studies showing the positive effects that historical preservation districts have on the value of real property within the district and surrounding the district. Most of these types of studies utilize one of two accepted valuation models: difference in difference models or hedonic regression models. The difference in difference models are the easier of the two to utilize. This model involves computing a sample mean for the growth rates in property values within and surrounding an historical district and also a sample mean for the growth rate of property values clearly outside the district. A statistical test is then performed checking to see whether or not there is a significant difference in the growth rates. The major problem with this type of study is that no specific variables are controlled for.

The averages mask the probable significance of the variety of differences that exist in the many properties themselves. These would include square footage differences, number of bedroom differences and the condition of the property. The hedonic regression model is thought to be superior to the difference in difference models. This type of model provides a means to estimate the implicit value of various structural characteristics of a property. It allows for an accurate assessment of the extra value given to a property with historic designation while controlling for specific property and neighborhood characteristics. In this type of theoretical model we assume that utility is a function of a vector of attributes of the property and a composite attribute of all other goods. The problem that a household must solve is to maximize this utility subject to a budget constraint involving rental prices for houses and a unit price for the composite good and also subject to a linear transformation technology that relates attributes to the housing stock. Statistical hedonic models typically include the natural log of the property price as the dependent variable and structural and neighborhood characteristics as well historic preservation district status as the independent variables. (The semi-log form of the model is normally used, because then the coefficients on each explanatory variable can be interpreted as percentage changes in the property price given a one unit change in the independent variable.)

SAMPLING OF EMPIRICAL RESULTS

Both types of studies confirm statistically significant extra positive values associated with properties within and surrounding a district identified as historically significant. Examples of such studies include Ford (1989), Leichenko, Coulson and Listokin (2001), Clark (1997), Coffin (1989), Linneman (1980), Rypkema (2005), and Listokin, Listokin and Lair (1998). Many of these studies see additional benefits to property values when known local land ordinances exist alongside a local preservation district. Market failures, due to informational asymmetries, resulting in lower property values might arise if these benefits are not publicly pronounced. The local historic preservation commission would play this important role.

CONCLUSION AND SUMMARY

There are many places within the study of historical preservations districts where economics can be used. Several were mentioned in this article. They would include utilizing a simply supply and demand model. This gives student real world practice in seeing how particular market supply and demand changes can impact values. Seeing how a regression model is constructed and then interpreted is also an excellent topic for upper level economics classes. Another area that could be covered is the difference between pure private benefits and social benefits. Spillover effects also play a role here. It is clear that the study of historical preservation districts allows college educators to infuse many facets of economics into their particular study.

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