Historic Preservation's Impact on Job Creation, Property Values, and Environmental Sustainability*

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Abstract

This study examines the impacts of historic preservation on jobs, property values, and environmentalism in Kentucky and its largest city, Louisville. Kentucky is a national leader in preservation, ranking first in the White House´s Preserve America initiative with 73 recognized communities. Tax incentive programs have been an effective tool for creating positive changes in historic areas. Historic preservation results in more job creation than most other public investments. In the presence escalating gas prices and assorted environmental practices, we show that neighborhoods containing historic districts exhibit higher increases in median neighborhood housing values than undesignated neighborhoods. This paper also shows that environmentalism and historic preservation are linked together and complement one other. Residents of historic urban neighborhoods exhibit more environmentally-friendly behavior, particularly those living in single-family homes.

Introduction

Kentucky has 73 recognized communities and neighborhoods in the Preserve America initiative, established by the White House to promote historic preservation and heritage tourism in communities across the nation. This number is higher than any other state in the country. Designation from Preserve America is significant because it provides these communities with the opportunity to apply for federal grants that benefit local preservation and tourism activities. Communities and sites are also eligible to receive Preserve America awards, which can raise their profile and bring national attention.

Given Kentucky's status as a national leader in preservation, we explore the economic and environmental effects of historic preservation in Kentucky and its largest city, Louisville. Louisville has a number of historic preservation ordinances/districts and contains the Old Louisville neighborhood—the largest collection of Victorian-era homes in the nation, taking up three census tracts, and the third largest National Register district in the entire United States (Historic Old Louisville, 2008). Specifically, we examine three impacts of historic preservation. First, we estimate the impact of historic preservation tax credits on job creation in Kentucky. Second, we isolate the effect of historic designation on neighborhood property values in Louisville. Finally, we examine the environmental impacts of historic preservation—presenting statistical findings on individuals' behavior and theorizing the connections between preservation and environmentally-friendly lifestyles and culture.

I. Historic Preservation Tax Incentives and Job Creation

Kentucky Tax Credit Program

The Kentucky legislature established a state historic tax credit for historic preservation in 2005, after years of lobbying by the preservation community. Recognized for its economic development potential, the historic tax credit program was a key component of the JOBS for Kentucky Tax Modernization Plan, which then-Governor Ernie Fletcher signed into law in March, 2005. Kentucky is now one of only 27 other states in the nation offering a state-level tax incentive for historic preservation. State tax credits are available for both commercial and residential rehabilitation projects for properties listed on the National Register of Historic Places.

Thirty percent of qualified rehabilitation expenses are available as a state tax credit for owner-occupied residential properties. The minimum investment is $20,000 and the total credit cannot exceed $60,000. Twenty percent of qualified rehabilitation expenses are available for commercial and rental housing, not to exceed $400,000 per project. A total of 172 historic rehabilitation projects have been reviewed through this program since its implementation in 2005. In total, this tax credit amounts to a projected investment of $171,112,857 in historic rehabilitation in Kentucky. To further validate this projection, we contacted Scot Walters, Coordinator of the KY Historic Preservation Tax Credit Program with the Kentucky Heritage council. According to Walters, the approved and completed projects so far have added up to $126,580, 971 and are expected to increase near to the original projected investment amount (Gilderbloom and Hanka, 2009). This tax credit has been so successful that advocates expect the Commonwealth will increase the tax credit from $3 million to $5 million. Projects include 76 commercial and 96 single-family, owner-occupied residential structures. According to the Rutgers PEI economic model, 43 jobs are created for every $1 million invested in historic rehabilitation. If the projection is met, this translates into 7,365 jobs created in Kentucky since the tax credit program started three years ago. An economic study of historic rehabilitation in

Bowling Green, Kentucky concluded that every $1 million invested in the rehabilitation of a property, state and local governments have seen a combined increase of $184,000 in new revenue (Kentucky Heritage Council 2007; City of Bowling Green 2007).

Federal Tax Credit Program

The Kentucky Heritage Council (KHC) also coordinates one of the most successful federal tax credit programs in the United States. For the last two years, Kentucky ranked fourteenth nationwide for the number of historic properties rehabilitated using this incentive (National Park Service Statistical Report and Analysis 2005; 2006). In 2006, the federal historic preservation tax program reached a new record of $4 billion in private investment spending, with 1,253 projects approved. Since this program began in 1976, federal tax incentives have prompted the restoration and rehabilitation of nearly 34,000 historic structures nationwide, and a total private investment leveraging $40.83 billion (National Park Service Annual Report, 2006).

Tourism is the state's third largest industry and second largest employer. According to a report by the Travel Industry Association (TIA), visitors to Kentucky spent more than $10 billion in 2006, the first time in the state's history, a nearly seven percent increase from the year before (TIA, 2006). Our published data also shows that 176,800 Kentuckians were employed due to tourism, earning more than $3.36 billion in payroll income and paying more than $987 million in federal, state, and local taxes (Kentucky Department of Tourism, 2007). The success of Kentucky's tourism industry is partially due to the wealth of unique historic resources available to visitors. Heritage sites are vital tourism attractions and help to stimulate local economies in nearly every county in the state.

Methodology

We utilize a respected job multiplier simulation model to quantify the economic impact which determines the direct, indirect, and total effects of an external infusion of funds for historic preservation efforts. This simulation model, developed by Rutgers University for the National Park Service, is called the Preservation Economic Impact (PEI) model. Based on real case studies of job creation put into a computer simulation model, this software calculates the total economic impact of historic preservation, determining both the direct and multiplier effects of rehabilitation. The labor and materials used specifically to purchase or rehab a historic home would be considered a direct effect. On the other hand, the multiplier effect consists of any indirect impacts, meaning any money spent on goods and services by the construction industries that produce the rehabilitation materials (National Park Service 2000).

Job Creation Findings

Historic preservation results in more job creation than most other kind of investments. According to Donovan Rypkema, investment in new construction creates forty jobs per million dollars compared to an investment in historic rehabilitation, which results in anywhere from 43 per $1 million (Donovan Rypkema 1997), to 49 new jobs per rehabilitation project (National Park Service Annual Report, 2006). We used a more conservative estimate derived from the Preservation Economic Impact Model (PEI) developed by Rutgers University Urban Planning Program and the National Park Service. According to the PEI model in Table 1, 7,365 jobs were created as a result of Kentucky state tax credits program from 2005 to 2007, resulting from direct, indirect, and induced effects of the $171 million spent. From this investment, the PEI

approximates that $229 million of income was generated and total gross domestic product was $356 million. The multiplier effect of state tax credits is 43—so for every $1 million dollars spent on state tax credits, 43 jobs were created. [Better explain content of table 1—lots of stuff there]

According to Table 2, the Main Street program in Kentucky has produced 4,720 jobs, resulting in approximately $149 million in income, and a total gross domestic product of over $237 million in 2006. According to the model, every $1 million spent on Main Street reinvestment results in approximately 29 new jobs. Out of the $292 million spent on Main Street reinvestment in 2006, including approximately $128 million in private investment, $70 million in public improvements (e.g., streetscape), and nearly $95 million in new construction, 8,468 jobs were created.

The PEI job creation estimates are just the tip of the iceberg, since there are hundreds who are employed maintaining, restoring, and upgrading thousands of historic homes around Kentucky. For this reason, most Kentucky preservationists see a large economic return (87 percent), and another 81 percent see potential job growth from preserving the physical built environment heritage of our ancestors (Gilderbloom, House, and Hanka, 2008).

This translates to…

State Tax Credits: $171 million investment results in 7,365 jobs in 3 years (2005-2007)

Federal Tax Credits: $52 million investment results in 2,236 jobs in 1 year (2006)

Main Street Program: $292 million investment results in 4,720 jobs in 1 year (2006)

Heritage Tourism: Total budget of $96 million and employs 2,700 Kentuckians (2002)

II. Historic Districts and Residential Property Values

Literature Review

The bulk of literature about local and National Register historic districts shows that property values rise faster than in unprotected or undesignated neighborhoods. The value of each "historic" home is protected by controls on the exterior of the house or by mandating that the house be well-maintained using historic paint colors and materials. Property values are further protected by an assurance that other nearby properties will maintain their historic character and never be demolished, which limits negative externalities. Most studies have shown a positive correlation between property value increases and historic preservation (Gilderbloom, et al. 2007: Gilderbloom, et al. 2008; Rypkema 1994; Coulson, et al. 2005; Coulson and Leichenko 2001; Leichenko, et al. 2001; Ford 1989; Shipley 2000; Mason 2005). Haughey and Basolo (2000) find a federal historic preservation district by itself has a positive impact on property values but when there is an overlapping restrictive law, values may decrease. Rypkema's (1997) study of a city in Indiana showed that five neighborhoods protected by local historic zoning ordinances in the state did better overall in property appreciation than similar, unprotected neighborhoods. Florida (2002) and Rypkema (2006) both focus on the powerful relationship between preservation and economic development. Incidentally, past research found that central cities do more historic preservation than suburban jurisdictions (Green and Fleischmann 1991, 150).

However, it should be noted that not all studies confirm a positive impact of preservation efforts. In some cases, local historic preservation ordinances have caused a loss in property appreciation (Asabere, et al. 1994; Haughey and Basolo 2000). Haughey and Basolo (2000) suggest that stringent local regulations, as opposed to federal designation, can cause property

values to fall in historic districts. Another study of historic preservation in Charleston, South Carolina found that housing of the lowest quality in a district experiences negative returns as a result of historic preservation (Lockard and Hinds 1983). Lockard and Hinds (1983) do find that historic housing of the highest and medium quality tends to see a positive impact from historic preservation.

Question, Data, and Methods

Given the literature's contradictory findings, we reexamine the impact of historic preservation on neighborhood property values using data for the 170 census tracts in Louisville. We review the summary statistics for preservation neighborhoods and then ask: do these neighborhoods with historic designation experience higher housing values than other neighborhoods, holding key housing and socio-demographic characteristics equal? Furthermore, have these neighborhoods containing historic districts appreciated at a higher rate over the recent housing boom (2000-2006)?

To answer these questions, we combine housing values from the Jefferson County Property Valuation Administrator (PVA), transaction prices from the Board of Realtors' Multiple Listing Service (MLS), and 2000 Census data to construct regression models predicting house values/prices and percentage increases. The assessed value of every property in Louisville Metro was geocoded by census tract and a neighborhood median value was calculated by the Kentucky State Data Center, for both 2000 and 2006. The sales price of every property sold in 2006 was geocoded by census tract and a neighborhood median price was calculated by the authors. The percentage increase in median assessed value from 2000 to 2006 was also calculated for each census tract.

We perform ordinary least squares regression analysis using housing value/price (PVA and MLS) or percentage increase in housing value (PVA) as the dependent variable and the census variables as the independent controls. The test independent variable is a dummy variable identifying the ten census tracts containing a historic preservation district. Since the unit of analysis is census tract—a proxy for neighborhood—every tract containing a historic preservation district was coded "1", while those not containing a district are coded "0." While the historic districts do not necessarily overlap perfectly with the census tracts, in most cases they cover a majority of the tract's land area. Control variables are standard neighborhood and socio-demographic controls, many of which offer competing explanations for the market-success of historic districts. These include: excess supply (vacancy rate), presence of historic architecture (age in years), size of housing (median rooms), racial composition (nonwhite percent), proximity to employment (employment density, i.e. jobs per square mile), percent of same-sex households, and proximity to the central business district (CBD; in miles).

We test the models for multicollinearity and spatial dependence. While both are present, to some degree, in the models, we do not believe they significantly affect our conclusions. To check for excessive multicollinearity, we examine tolerance scores which are presented in the regressions results (Tables 5, 6, and 7). All tolerance scores exceed .20—which, admittedly, is a generous cutoff point. However, most tolerance scores greatly exceed the cutoff and all independent variables are warranted and capture disparate phenomenon.

Housing age and distance from the CBD are most-highly correlated and thus have the lowest tolerance scores in the .20s. We use GeoDa to check for spatial dependence (Authors 20XX; Anselin, et al. 1996). While spatial autocorrelation is a concern, spatial lag or error modeling offers miniscule improvements in model fit and do not entirely eliminate spatial bias.

In addition, parameter estimates are only slightly altered, which results in the same or similar conclusions concerning individual variables' significance, direction, and effect sizes. For brevity's sake, we present only the OLS results in this paper.

Property Value Findings

We start with a presentation of the maps showing percent change in neighborhood housing value from 2000 to 2006. Certain downtown Louisville neighborhoods experienced value increases of near or even exceeding one-hundred percent between 2000 and 2006, while many neighborhoods farther from downtown remained stagnant. This trend is evident in our map of percent increases in median housing value over this seven-year period (Figure 1). Many of the darker neighborhoods situated around the CBD are sites of historic preservation efforts or other housing interventions (HOPE VI or university-community partnerships). Eight of the ten highest property value increases are located within the perimeters of Louisville's inner beltway (I-264, the Watterson Expressway), while the ten neighborhoods with the lowest increases are located outside the inner beltway and some even beyond the outer beltway (I-265, the Gene Snyder Freeway).

Table 3 displays the numbers of properties, property values, and changes from 2000 to 2006 for the ten census tracts containing Louisville's historic preservation districts. On average, these ten neighborhoods exceeded the market performance of the non-designated neighborhoods. The average percent increase in median value for historic district neighborhoods was 58 percent, while non-historic neighborhoods in Louisville averaged a 32 percent increase. Eight out of the ten historic district neighborhoods were in the top 15 percent in terms of increases. The other two historic districts, Limerick and Cherokee Triangle, were in the top 50 percent.

We conduct a regression analysis to examine whether these above-average increases persist when controlling for other factors. The historic district dummy variable is indeed positive and significant in all three models (Tables 5, 6, and 7). In model one, which predicts median assessed value, historic designation accounts for an additional $59,000 in median value for 2006, holding the control variables equal (Table 5). While our other research finds that assessment data compares favorably with sales prices and US Census housing data, model two confirms that this is not a "fluke" produced by our use of assessment data (Authors 20XX). Median residential properties located in neighborhoods containing historic districts on average sold for $67,000 more than those without districts in 2006, *ceteris paribus* (Table 6). Not only are these protected homes worth more, they are apparently better investments as well. Table 7 reports that the ten historic neighborhoods indeed saw higher increases over the seven-year housing boom (00-06). Historic district neighborhoods saw an additional 21 points in appreciation in their median housing value over this period. In other words, these neighborhoods increased above and beyond the level predicted by their housing and socio-demographic characteristics.

Of additional note is the significant, negative effect of housing age in all three models (which may take a U-shape if age-squared were added to the equation). It is accepted knowledge that older housing tends to be worth less than newer units, particularly those in disrepair, unless substantial renovation is undertaken. These regression results confirm that historic preservation incentives flip the effect of older stock in those neighborhoods with designated districts. We also did a regression run where we removed a historic district from the regression equation that protected only six commercial buildings in these two census tracts. This preservation district is unique because the eight other districts protected nearly all the properties within that census tract. Once this was done, median neighborhood properties were sold for $29,000 more than the

original finding of $67,000. Consequently, the unstandardized regression coefficient shows a neighborhood housing value increase of $83,000 instead of an median neighborhood assessed value of approximately $59,000 (josh, can you give us the right number when you do the actual run?).

III. Preservation and Environmental Sustainability

Theorizing the Lost Connection

A decade ago, few recognized the connection between sustainable neighborhoods and historic preservation. The 1992 United Nations Earth Summit in Rio de Janeiro, Brazil defined sustainable development as the means of providing for the basic necessities of life, such as food, education, jobs, worship, transportation, and safety, to meet our needs today while enabling future generations to meet their needs (United Nations, 1992; 2004).

A sustainable neighborhood is, by default, a historic neighborhood designed before the invention of the automobile or air conditioning. The layout of these neighborhoods placed stores, churches, schools, jobs, and recreation in close proximity to one another. Houses were designed with high ceilings, transoms, and operable windows, which now provide contemporary residents with an energy-conscious alternative to modern heating and cooling systems. These types of neighborhoods have lasted from past generations to the present and will allow future generations to live, work, and play there.

A sustainable neighborhood is one that preserves the past for the present and future generations. Restoring these beautiful buildings is an important environmental act. Historic preservation is a natural ally of environmentalism, which provides residents the opportunity to reduce their carbon footprint by refraining from excessive automobile and high-cost energy use.

An historic neighborhood is a healthier neighborhood because many of its citizens are more active (Gilderbloom, House, and Hanka, 2008).

Older neighborhoods and newer housing have been compared in terms of the ease of commuting from home to school, work, recreation, shopping, or public transportation outlets (Rypkema 2002, 7-9). Older neighborhoods are in closer proximity to work (i.e., CBD employment and other urban job centers) and places of recreation and leisure. According to the American Housing Survey (1999), 42 percent of all historic house residents were within five miles of their work, compared to 23 percent of people living in new housing constructed within the past four years. Similarly, two-thirds of the people living in older neighborhoods were within one mile of an elementary school with a 25 percent drop for those living in new houses (39 percent). The percentage of those that shop within a mile of their home was 62 percent for older neighborhoods versus 41 percent for new neighborhoods. In terms of the availability of public transportation, 59 percent had easier access in older neighborhoods versus 26 percent in newer developments. Finally, the amount of affordable housing was about 20 percent greater in older neighborhoods.

Houses built in the 1800s were designed without the need for air conditioning. In the 19th century, homes were designed with ten to 14-foot ceilings to allow hot air to rise and escape through door transoms, cooling the first floor on hot summer nights. Large attics, ranging anywhere from eight to 16 feet, were built to capture the hot air, and large basements were built to keep perishables cool in the summer. Also, working-class "shotgun" and "camelback" houses were built with raised floors and high walls that helped cool the buildings. The basements were often used for storage along with providing protection against inclement weather.

With new advances in energy conservation, including insulation materials, fan and duct systems, and energy-efficient air conditioning, liberating the transom, preservationists are able to

create new spaces out of these unused spaces—whether it's an in-law apartment, a private refuge for either a "man's space" or "woman's space," pool playing, working out, a home office, or a rental unit to bring in revenue. Energy costs from these attic or basement spaces can be significantly lower if one uses passive solar design, fans, insulation, and proper ventilation. In our survey, we found that the majority of Kentucky preservationists believe owners should be allowed to convert basements, garages, and attics into additional housing in historic buildings (64 percent) (Gilderbloom, House, and Hanka, 2008).

As we have shown elsewhere, preservation of historic housing is strongly associated with the creation of affordable rental housing because it is profitable and increases property values. That is why preservationists in Kentucky (8 of 10) claim it is a more profitable return on investment than other kinds of investments (authors, xxx). Moreover, the cost of rehabilitating old buildings is not only more environmentally-friendly (90 percent), but costs less than constructing new buildings with the same amount of space, according to 78 percent of our respondents (Gilderbloom, Hanka, and House 2008). While not always the case, these restoration and adaptive reuse strategies seem to be more affordable than building new units. Consequently, there is more money invested in new construction and builders create the myth that renewal or preservation is too costly.

As Rypkema has said, "the best green house is an old house" (2006). We would add that that best green house is an old house that lies within a functioning historic downtown neighborhood. Rypkema (2006) argues that every time a large historic house is demolished, the construction debris put in a landfill is equal to one million recycled aluminum cans. Rypkema argues the relationship between historic preservation and sustainability:

> Razing historic buildings results in a triple hit on scarce resources. First, we are throwing away thousands of dollars of embodied energy. Second, we are

> replacing it with materials vastly more consumptive of energy. What are most historic houses built from? Brick, plaster, concrete, and timber are among the least energy consumptive of materials. What are major components of new buildings? Plastic, steel, vinyl, and aluminum—among the most energy consumptive of materials. Third, recurring embodied energy savings increase dramatically as a building life stretches over fifty years. You're a fool or a fraud if you claim to be an environmentalist and yet you throw away historic buildings, and their components.

As Chiras (2004: 16) argues, the best kind of sustainable shelter is maintaining and enhancing historic housing. He states that renovating an historic home is the:

> …epitome of conservation and is arguably one of the most sustainable forms of construction….it uses existing resources such as lands, foundations, and walls. No new land must be bulldozed or cleared to make room for a new home: trees do not need to be cut down. Further benefits can be achieved if wastes generated from the project are recycled.

Many older houses can be saved at a cost substantially below market rate. An old house contains a great deal of "embedded" energy, which is wasted when it is demolished. Embedded energy describes the totality of energy used to build and create one house at one particular location, such as the sum result of energy needed to produce a house by cutting down trees in the forest for wood, hauling the wood back on trucks, manufacturing the steel and bricks, and creating the infrastructure of roads, sidewalks, gas, water and sewer lines. According to Rypkema (2006):

> When we throw away an historic building, we simultaneously throw away the embodied energy incorporated into that building. How significant is embodied energy? In Australia, they have calculated that the embodied energy in their existing building stock is equivalent to ten years of the total energy consumption of the entire country.

Richard Moe (2008), president of the National Trust for Historic Preservation, offers an example of preserving a historic building:

> Boston City Hall has about 500,000 square feet of space. The amount of energy embodied in that building is about 800 billion BTUs. That's the equivalent of about 6.5 million gallons of oil and if the building were to be demolished, all of that embodied energy would be wasted. What's more, demolishing City Hall would create about 40,000 tons of debris. That's enough to fill more than 250 railroad boxcars a train nearly 2 ½ miles long, headed for a landfill that's probably almost full already. Finally, constructing a new 500,000-square-foot building on the City Hall site would release about as much carbon into the atmosphere as driving a car 30 million miles or 1,200 times around the world.

Preservation equals a commitment to sustainable practices. Government can use an array of bold and innovative steps to enhance historic preservation efforts, such as raising the cap on state tax credits, establishing additional historic zoning overlays, providing soft second loans, providing grants for façade restoration, and expanding educational opportunities to historic property owners.

Environmental Question and Methodology

A related connection between historic preservation and environmental sustainability is whether residence in an historic district neighborhood indeed encourages more environmentally-friendly lifestyles. No secondary data is available to test whether the residents of Kentucky's and/or Louisville's historic districts are any more pro-environment in their beliefs, concerns, or behavior. Thus we are unable to test the desired question regarding the impact of historic district residence on individuals' environmentalism. However, to shed limited empirical light on the effect of historic preservation on environmentalism, we ask a revised question: do residents of urban (generally historic) neighborhoods closer to downtown exhibit higher degrees of pro-environmental behavior than those living in surrounding suburban neighborhoods? Furthermore, we test if those residing in single-family homes in these historic neighborhoods are more environmentally-friendly than their neighbors living in (likely newly-built) condominiums or apartments.

We draw data from the biennial Louisville Metro Survey (LMS) collected in spring 2006 by the University of Louisville's Urban Studies Institute in consultation with the Department of Sociology. The adjusted response rate for this survey was rather low (approximately 15 percent). However, previous research on environmentalism had similarly low response rates, particularly when including urban populations (Morrissey & Manning, 2000). Ambrosius (2008) does find that the LMS responses compare favorably with 2000 US Census Data and are thus likely fairly-representative of Louisville's population.

A total of 807 complete interviews were conducted by telephone using random digit dialing in Jefferson County, Kentucky ("Louisville Metro"). Participants were asked for responses on moral, environmental, and political issues along with basic socio-demographic characteristics. Just over half of cases (429) were asked thirteen environmental questions to limit

the length of the survey experience. Principal components analysis (PCA) was performed to extract several components of environmentalism from the thirteen LMS questions on environmental issues (Center for Sustainable Urban Neighborhoods, 2008, working paper). A factor analysis of pro-environmental behavior was conducted from responses to six questions meant to gauge a variety of conservationist behaviors done for "environmental reasons" (all six loaded on a single component). These are: 1) avoiding products with unnecessary packaging; 2) conserving resources in one's home; 3) purchasing products produced in an environmentally-friendly manner; 4) avoiding disposable paper or plastic products; 5) limiting driving; 6) and recycling appropriate products. Chronbach's alpha (α) is .761, which means the index is internally consistent at an acceptable level. Walton (2006) refers to this behavior scale, drawn from the same dataset, as "personal pro-environmental behavior" or PPEB.

Two models are specified using ordinary least squares (OLS) regressions—the first with the entire metropolitan dataset composing the sample (N=341 after listwise deletion of cases) and the second with just the "urban" respondents (N=97). The environmental behavior index is the dependent variable for both regressions. The key independent variables are an urban residence dummy (attributed to zip codes which composed the old city of Louisville), in the first model, and a home residence dummy in the second. Control variables include items present in the literature on environmental behavior—race, education, sex, age, income, and overall political ideology (Jones, et al. 1999; Nooney, et al. 2003; Samdahl & Robertson 1989; Morrissey & Manning 2000). The findings of this regression analysis are unique because previous research compares urbanites with rural residents, assuming that suburbanites share the same environmental outlook as central-city residents (Ambrosius 2008; Arcury & Christianson 1993; Nooney, et al. 2003). We believe a clear difference likely exists between residents of sustainable

urban neighborhoods and those living in younger suburban neighborhoods. Since the dataset is at the individual-level, excessive multicollinearity is not of concern.

Environmental Findings

We find that urban residents are indeed more environmentally-friendly in their behavior than their suburban counterparts, holding the control variables equal (Table 8). The coefficient on urban residence is positive and significant at the .05 level, although the beta size is the smallest of the significant predictors. In the second regression, we find that those urban residents who live in a house are more environmentally-friendly than their urban counterparts living in an apartment or condominium (Table 9). The coefficient on the home dummy is positive and significant at the .001 level. Interestingly, the effect size is the second greatest—only falling behind race. Type of dwelling has a greater impact on environmental behavior than age, income, or liberal ideology.

This evidence leads us to conclude that those living within a central-city are, on average, more pro-environment in their behavior and that those urbanites living in likely-historic homes are even more pro-environment than those residing in higher-density, new-build apartment complexes and condos. This confirms our suspicions regarding the effect of historic preservation on environmentally-sustainable behaviors and practices. Encouraging the renovation of historic structures not only preserves existing housing stock and conserves costs, energy, and materials, but it also encourages individuals to reside in neighborhoods that naturally foster more environmentally-friendly behaviors.

Discussion

In 2007, the Commonwealth of Kentucky approved a tax incentive package to the Ford Motor Company totaling $66 million over a ten-year period to support the expansion of facilities and operations at the Kentucky Truck Plant (Office of the Governor 2007). Also in 2007, the General Assembly passed legislation providing Peabody Energy of St. Louis, Missouri, $250 million in tax incentives to create a coal gasification plant in Western Kentucky (Steitzer, 2007). If these types of incentive packages were similarly offered to historic rehabilitation work, the positive effects to Kentucky's economy would be substantial. Using the PEI job multiplier of 43 jobs for every $1 million invested in historic preservation, 2,838 jobs would be created over the next ten years for the same amount of money the state is gave to Ford in 2007, or roughly 284 jobs per year. For the amount of money the state is paying Peabody Energy to locate a plant in the state, 10,750 jobs would be created using the PEI multiplier.

Local estimates on job generation can average much higher. Local estimates are often "guesstimates" based on simplistic assumptions. These high estimates are driven by competition of other cities trying to demonstrate the biggest "bang for the buck." A historic property owner feels that their investment is more secure in historic districts because their neighborhoods are not only preserved, but are also well maintained. They recognize that a historic preservation district protects their investment and makes it more profitable. That is why neighborhoods that have enacted historic preservation districts throughout Kentucky overwhelmingly do not repeal them, and in several cases have increased the boundaries of the district. Stephen Roosa, a major owner of historic buildings in Louisville, agrees:

> Real estate can be a super long-term investment, especially in historic neighborhoods. When I first decided to focus my efforts in the Old Louisville and Highlands neighborhoods, most real estate professionals I talked with discouraged me from

> investing in these neighborhoods. I persisted and now have several properties in my portfolio in these areas. As these neighborhoods have improved over the years, these investments have provided much greater returns than if I had invested elsewhere in the county (Gilderbloom and Hanka, 2007).

Investors do not want to see the home next door or across the street demolished and replaced with a cinderblock house that looks like it came out of the hills of Costa Rica, or see a 1920s bungalow covered with vinyl siding, original windows replaced, and original wooden doors replaced by a cheap, manufactured door bought from a big box store. Removing these important architectural details and modernizing them with inexpensive materials is devastating to the value of the defaced home, but it also hurts nearby property values.

Conclusion

This paper examines the benefits of historic preservation and how it relates to sustainable development. We make this argument using three major sources of data: 1) first, we looked at the impact of state and federal tax credits on investment in older housing, which allow for reuse; 2) we looked at the impact of historic preservation on property values in all 170 census tracts and neighborhoods in Louisville; and 3) we used survey data in Louisville about how historic space might impact environmental attitudes.

This is a case study of one state and one city in the United States that is committed to historic preservation. Louisville is among 140 cities in the U.S. with a population of 50,000 or more and is not located within twenty miles of another city with a population of 50,000 or more (Gilderbloom and Appelbaum 1988). While examining historic preservation and environmentalism, Louisville is more of a representative city than New York, or Juneau, Alaska.

Louisville, KY is unique in that it leads the nation in good historic preservation practices, which complements sustainable practices.

This paper argues that historic preservation has a positive impact on job creation, property values, and environmental stewardship. We demonstrated empirically via a computer economic stimulation model that historic preservation creates more jobs than most other investments. Our research also supports policy recommendations at the local, state, and federal level such as higher tax incentives for historic preservation, including façade restoration, and forgivable loans for historic rehabilitation. These types of measures will not only encourage economic development and increased revenues, but it will do so in a way that protects the natural environment. Restoring an older home or building is more labor-intensive than other kinds of public investments. Because of their location to downtown, and consumer preferences for housing with reduced energy costs, historic buildings experience higher appreciations in property values than newly constructed homes and buildings. Many of these historic buildings were designed to live in year-round before electricity and air conditioning. This paper also shows that environmentalism and historic preservation are linked together and compliment one another. Residents of historic neighborhoods exhibit more environmentally friendly behavior, particularly those living in single family homes. Saving one home including its pipes, wires, brick, wood, and metal means one less house built in suburbia. More research needs to be conducted in other countries, states, and cities, to see if these results can be replicated.

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Table 1. PEI Model for Kentucky State Tax Credits, 2005-2007

	Economic Component		
	Employment (jobs)	Income (000$)	Gross Domestic Product (000$)
I. TOTAL EFFECTS (Direct and Indirect/Induced)*			
Private			
1. Agriculture	56	1,030.0	4,054.0
2. Agri. Serv., Forestry, & Fish	125	2,970.0	3,597.0
3. Mining	75	3,185.0	7,893.0
4. Construction	2,372	64,090.0	74,686.0
5. Manufacturing	1,166	41,679.0	69,088.0
6. Transport. & Public Utilities	414	15,114.0	32,524.0
7. Wholesale	313	13,079.0	22,020.0
8. Retail Trade	984	16,779.0	26,834.0
9. Finance, Ins., & Real Estate	568	29,223.0	52,592.0
10. Services	1,260	39,863.0	60,303.0
Private Subtotal	7,333	227,010.0	353,591.0
Public			
11. Government	32	1,945.0	2,818.0
Total Effects (Private and Public)	7,365	228,955.0	356,409.0
II. DISTRIBUTION OF EFFECTS/MULTIPLIER			
1. Direct Effects	3,027	89,023.0	117,032.0
2. Indirect and Induced Effects	4,339	139,932.0	239,377.0
3. Total Effects	7,365	228,955.0	356,409.0
4. Multipliers (3/1)	2.433	2.572	3.045
III. COMPOSITION OF GROSS STATE PRODUCT			
1. Wages--Net of Taxes			174,915.0
2. Taxes			
a. Local/State			31,426.0
b. Federal			
General			21,678.0
Insurance Trusts			17,649.0
Federal Subtotal			39,327.0
c. Total taxes (2a+2b)			70,753.0
3. Profits, dividends, rents, and other			110,741.0
4. Total Gross State Product (1+2+3)			356,409.0
EFFECTS PER MILLION DOLLARS OF INITIAL EXPENDITURE			
Employment (Jobs)			43.0
Income			1,338,038
Local/State Taxes			183,657
Gross State Product			2,082,890

Note: Detail may not sum to totals due to rounding.

*Terms:

Direct Effect (State)--the proportion of direct spending on goods and services produced.

Indirect Effects--the value of goods and services needed to support the provision of those direct economic effects.

Induced Effects--the value of goods and sevices needed by households that provide the direct and indirect labor.

Table 2. PEI Model for Kentucky's Main Street Program, 2006

	Economic Component		
	Employment (jobs)	Income (000$)	Gross Domestic Product (000$)
I. TOTAL EFFECTS (Direct and Indirect/Induced)*			
Private			
1. Agriculture	33	607.0	2,434.0
2. Agri. Serv., Forestry, & Fish	32	797.0	936.0
3. Mining	31	1,300.0	3,397.0
4. Construction	1,410	38,046.0	44,407.0
5. Manufacturing	781	29,197.0	47,023.0
6. Transport. & Public Utilities	261	10,101.0	22,845.0
7. Wholesale	231	9,708.0	16,206.0
8. Retail Trade	641	10,830.0	17,412.0
9. Finance, Ins., & Real Estate	408	20,490.0	40,281.0
10. Services	866	26,423.0	40,383.0
Private Subtotal	4,695	147,501.0	235,326.0
Public			
11. Government	25	1,494.0	2,173.0
Total Effects (Private and Public)	4,720	148,995.0	237,498.0
II. DISTRIBUTION OF EFFECTS/MULTIPLIER			
1. Direct Effects	1,877	56,321.0	79,286.0
2. Indirect and Induced Effects	2,843	92,674.0	158,212.0
3. Total Effects	4,720	148,995.0	237,498.0
4. Multipliers (3/1)	2.515	2.645	2.995
III. COMPOSITION OF GROSS STATE PRODUCT			
1. Wages--Net of Taxes			114,544.0
2. Taxes			
a. Local/State			21,758.0
b. Federal			
General			14,570.0
Insurance Trusts			11,683.0
Federal Subtotal			26,252.0
c. Total taxes (2a+2b)			48,010.0
3. Profits, dividends, rents, and other			74,944.0
4. Total Gross State Product (1+2+3)			237,498.0
EFFECTS PER MILLION DOLLARS OF INITIAL EXPENDITURE			
Employment (Jobs)			28.7
Income			907,365
Local/State Taxes			132,502
Gross State Product			1,446,345

Note: Detail may not sum to totals due to rounding.

*Terms:

Direct Effect (State)--the proportion of direct spending on goods and services produced.

Indirect Effects--the value of goods and services needed to support the provision of those direct economic effects.

Induced Effects--the value of goods and sevices needed by households that provide the direct and indirect labor.

Table 3. Property Value Increases in Historic Preservation Districts, 2000-2006

Neighborhood	Residential Properties, 2000 (#)	Median Assessed Value, 2000 ($)	Residential Properties, 2006 (#)	Median Assessed Value, 2006 ($)	Change in Residential Properties, 2000-06 (#)	Change in Median Assessed Value, 2000-06 ($)	Change in Median Assessed Value, 2000-06 (%)	Rank
Butchertown	557	30,230	542	59,675	-15	29,445	97	3
Old Louisville	451	92,580	464	162,825	13	70,245	76	6
Old Louisville	63	77,360	59	127,300	-4	49,940	65	14
Old Louisville	496	61,115	504	97,600	8	36,485	60	16
Parkland	1,233	29,790	1,254	47,000	21	17,210	58	17
Parkland	1,100	26,760	1,125	40,940	25	14,180	53	20
Clifton	1,222	53,560	1,240	81,715	18	28,155	53	21
Limerick	327	75,900	313	112,620	-14	36,720	48	25
Limerick	68	60,380	58	83,645	-10	23,265	39	44
Cherokee Triangle	785	184,590	736	240,170	-49	55,580	30	86
Averages, preservation neighborhoods	630	69,227	629	105,349	-1	36,123	58	
Averages, non-preservation neighborhoods	1,349	89,838	1,453	117,726	110	26,894	32	

Notes. These ten neighborhoods were identified from the Louisville Metro government's Historic Landmarks and Preservation Districts Commission website (http://www.louisvilleky.gov/PlanningDesign/Historic+Landmarks+and+Preservation+Districts+Commission.htm) as those containing historic preservation districts. The West Main Street district is not included here because of a lack of accurate residential property assessment data for the central business district tract.

Table 4. Historic Preservation's Impact on Neighborhood Median Assessed Value, 2006

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-16.170	30.249		-.535	.594		
	Vacant percent, 2000	1.420	.919	.090	1.546	.124	.525	1.906
	Median housing age, 2000	-1.656	.297	-.408	-5.576	.000	.334	2.992
	Median number of rooms, 2000	42.567	3.446	.706	12.353	.000	.546	1.830
	Percent of nonwhite residents, 2000	-.867	.124	-.408	-6.965	.000	.519	1.926
	Employment density (jobs per square mile), 2000	.003	.002	.097	1.719	.088	.563	1.776
	Percent of same-sex households, 2000	9.827	7.293	.062	1.347	.180	.840	1.191
	Distance to the central business district (CBD) tract (49) in miles	-4.549	1.347	-.295	-3.378	.001	.235	4.264
	Contains an urban historic preservation district (dummy variable, 1/0)	**59.185**	**13.151**	**.228**	**4.500**	**.000**	**.695**	**1.440**

Notes. Dependent Variable: Median assessed value (000s of dollars), 2006; N=168; Adj. R-Square=.702; F=50.103***

Table 5. Historic Preservation's Impact on Neighborhood Median Sales Price, 2006

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-84.556	42.215		-2.003	.047		
	Vacant percent, 2000	1.801	1.357	.081	1.327	.186	.513	1.949
	Median housing age, 2000	-1.566	.456	-.269	-3.436	.001	.313	3.195
	Median number of rooms, 2000	56.387	4.919	.669	11.463	.000	.564	1.774
	Percent of nonwhite residents, 2000	-1.347	.182	-.445	-7.392	.000	.530	1.887
	Employment density (jobs per square mile), 2000	.010	.001	.468	8.931	.000	.700	1.429
	Percent of same-sex households, 2000	16.035	10.679	.072	1.502	.135	.835	1.198
	Distance to the central business district (CBD) tract (49) in miles	-5.005	1.964	-.232	-2.548	.012	.232	4.304
	Contains an urban historic preservation district (dummy variable, 1/0)	**67.417**	**18.581**	**.176**	**3.628**	**.000**	**.816**	**1.225**

Notes. Dependent Variable: Median sales price (000s of dollars), 2006; N=167; Adj. R-Square=.681; F=45.286***

Table 6. Historic Preservation's Impact on Percent Change in Neighborhood Median Assessed Value, 2000-2006

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	38.267	15.769		2.427	.016		
	Vacant percent, 2000	2.566	.479	.439	5.357	.000	.521	1.920
	Median housing age, 2000	-.817	.168	-.542	-4.878	.000	.284	3.527
	Median number of rooms, 2000	9.928	2.498	.444	3.975	.000	.281	3.564
	Percent of nonwhite residents, 2000	-.083	.076	-.106	-1.100	.273	.379	2.641
	Employment density (jobs per square mile), 2000	.000	.001	.021	.260	.795	.547	1.827
	Percent of same-sex households, 2000	2.914	3.827	.050	.761	.448	.825	1.212
	Distance to the central business district (CBD) tract (49) in miles	-2.316	.725	-.405	-3.194	.002	.218	4.583
	Contains an urban historic preservation district (dummy variable, 1/0)	**21.079**	**7.057**	**.219**	**2.987**	**.003**	**.651**	**1.536**
	Median assessed value (000s of dollars), 2000	-.283	.054	-.599	-5.285	.000	.272	3.674

Notes. Dependent Variable: Nominal percent change in MAV, 00-06 (ratio*100); N=167; Adj. R-Square=.419; F=14.289***

Table 7. Urban Residence's Impact on Environmentally-Friendly Behavior

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.839	1.080		11.890	.000
	Black (dummy, 1/0)	-1.620	.608	-.153	-2.665	.008
	Education level (8 categories)	-.004	.133	-.002	-.029	.977
	Male (dummy, 1/0)	-.256	.416	-.032	-.615	.539
	Age (years)	.042	.013	.176	3.326	.001
	Income (in $000s)	-.020	.009	-.134	-2.199	.029
	Liberal scale (1-5, 5=most liberal)	.374	.167	.120	2.245	.025
	Resides in urban area (assigned by zip code)	**1.014**	**.489**	**.116**	**2.073**	**.039**

Notes. Dependent Variable: Environmental Behavior Summative Index; N=341; Adj. R-Square=.077; F=5.059***; 28 percent reside in urban area

Table 8. Single-Family Home's Impact on Environmentally-Friendly Behavior for those Residing in the Urban Area

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.731	1.630		7.808	.000
	Black (dummy, 1/0)	-3.356	.701	-.435	-4.788	.000
	Education level (8 categories)	-.169	.218	-.083	-.772	.442
	Male (dummy, 1/0)	-.348	.621	-.047	-.560	.577
	Age (years)	.038	.019	.167	1.965	.053
	Income (in $000s)	-.049	.016	-.365	-2.992	.004
	Liberal scale (1-5, 5=most liberal)	.820	.244	.285	3.366	.001
	House (dummy, 1/0, 0=condo/apartment)	**3.321**	**.778**	**.407**	**4.270**	**.000**

Notes. Dependent Variable: Environmental Behavior Summative Index; N=97; Adj. R-Square=.342; F=8.134***; 72 percent live in a single-family home, as opposed to a condominium or apartment unit

Figure 1. Percent Change in Neighborhood Median Assessed Value, 2000-2006