# *Using wages and property values to value environmental amenities*

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This method of valuation is driven by the basic insight that the **use** values associated with site-specific environmental amenities get *capitalized* into wage rates, land prices, or both

> That is, ceteris paribus (c.p.), in nice places, wages are lower and land prices are higher.
>
> Also, nice houses sell for more money than do crappy ones.

*Capitalized* as in *built into*

Such model predictions are based on the following sorts of assumptions:

- Either everyone has similar preferences, or, to the extent preferences vary, there are a substantial number of individuals in each preference group.
- Either everyone has the same skill level, or to the extent that skill levels vary, there are a substantial number of individuals in each skill group.
- People are mobile (they are willing and able to change jobs and locations/move)
- People get utility (well-being) from market goods and nonmarket commodities including environmental commodities.

Expressing utility for every individual who live in city *i* in terms of exogenous variables that describe city *i*:

$$u_i = u(p_i, w_i, r_i, A_i)$$

Where $i$ indexes the city of residence

$p_i$ is the price index for goods and services in city *i*

$w_i$ is the wage rate

$r_i$ is the rental price of housing (reflects the cost of land)

$A_i$ is a vector of the characteristics (weather, crime rate, schools, environmental amenities, etc.)[1]

Note that above we restrictively assumed everyone in city *i* has the same utility, because they have the same preferences (utility function) and experience the same constraints. (This assumption can be relaxed, but this simplifying assumption makes the presentation of the hedonic technique simpler.)

Since all that is important is relative prices, we can rewrite the utility function as[2]

$$u_i = u(w_i/p_i, r_i/p_i, A_i) = u(\tilde{w}_i, \tilde{r}_i, A_i)$$

[1] For now. we will assume there are no individual-specific non-market commodities, stuff like where your friends and family live.

[2] Actually, this is what is called an *indirect utility function* because it is utility as a function of the constraints one faces, not a direct function of the chosen bundle.

where $\tilde{r}_i$ is the relative price of housing and $\tilde{w}_i$ is the real wage.

Imagine there are only four places to live, Boulder, Aspen, Pueblo and Denver.

*i* = 1 is Boulder, 2 is Aspen, 3 is Pueblo and 4 is Denver. For example, utility from living in Pueblo is

$$u_3 = u(\tilde{w}_3, \tilde{r}_3, A_3)$$

Given that we have assumed that everyone has the same preferences and that people are mobile, an individual will move from city *m* to city *n* if $u_n > u_m$.[3]

Therefore, everyone will be happy staying put (in equilibrium) only when

$$u_1 = u_2 = u_3 = u_4$$

What will cause equilibrium to occur? As individuals move from city *m* to city *n* the supply of labor will decrease in city *m* and increase in city *n*. This will cause $\tilde{w}_m$ to increase and $\tilde{w}_n$ to decrease. Everything else constant the individuals leaving *m* and going to *n* makes *m* more attractive in terms of wages and *n* less attractive in terms of wages.

In addition, as individuals move from city *m* to city *n* the demand for housing will decrease in city *m* and increase in city *n*. This will cause $\tilde{r}_m$ to decrease and $\tilde{r}_n$ to increase.

That is, everything else constant, the individual's leaving m and going to *n* makes *m* more attractive in terms of housing prices and *n* less attractive in terms of housing prices.

In addition, as individuals move from city *m* to city *n*, $A_m$ and $A_n$ will change. City *n* will possibly become more congested, more polluted, etc, while city *m* will become cleaner and less congested.

In summary, as individuals move from city *m* to city *n*, $u(\tilde{w}_n, \tilde{r}_n, A_n)$ likely decreases and $u(\tilde{w}_m, \tilde{r}_m, A_m)$ likely increases, making it less attractive to move and bringing the system into equilibrium.

Obviously, the real world is complicated by the fact that everyone does not have identical preferences, moving is costly, some city characteristics (e.g. family and friends) are individual specific, and some amenities increase when a city's population increases,[4] but you get the idea.

[3] The utility difference has to be enough to cover the cost of moving.
[4] Small towns won't provide a ballet, or opera, or a bunch of fancy restaurants.

When the system is in equilibrium, the values of the amenities in city *i* will be capitalized into $\tilde{r}_i$ and $\tilde{w}_i$. That is, nice places will have lower wages and higher housing prices.

Therefore, we can estimate use values for environmental amenities by seeing how $\tilde{r}$ and $\tilde{w}$ vary across cities as a function of the environment and other components of *A*.

Studies that value amenities in this manner are called hedonic studies.

There are three types of hedonic studies: hedonic property-value studies, hedonic wage studies, and joint property-value and wage studies.

A hedonic property-value study estimates changes in housing prices as a function of the characteristics of the property (house/condo/property) and its surrounding amenities and disamenities.

In contrast, a hedonic wage study estimates how wage rates vary across localities as a function of the amenities and disamenities in the locality.

For example, assume that within Boulder amenity levels (crime rates, school quality, access to open space, views, traffic, etc.) vary from neighborhood to neighborhood. Housing prices will differ across neighborhoods and one can use these variations to value neighborhood amenities such as distance to open space, or distances to schools.

Imagine two neighborhoods that are identical (types of houses, crime, etc.) in every respect, including the characteristics of the houses, except for distance to open space, which varies between these two neighborhoods. The difference in the average price of a house in the two neighborhoods values the difference in distance to open space. That is, it

determines what a representative individual is willing to pay for being closer to open space.

To do a hedonic property-value study of the value of open space in Boulder, one would want to estimate something like the beta's in the following function (obviously one would have to include all the determinants of the price of a house and maybe your function will need to have a bunch of nonlinear terms and interaction terms

$$\tilde{r}_{ji} = \alpha_0 + \beta_1(squareft_{ji}) + \beta_2(\#ofbathrooms_{ji}) + \beta_3(dist_{ji}) + \varepsilon_{ji}$$

where $\tilde{r}_{ji}$is the price of house *j* in neighborhood *i*, relative to the price index for people living in that neighborhood.

One collects a bunch of data on house prices, the characteristics of the houses, and the characteristics of the neighborhood. One then finds those values of the betas that best explain the prices as a function of the house and neighborhood characteristics.

The estimate of $\beta_3$is an estimate of the marginal value of being closer to open space.

If, for example the estimate house prices are expressed in thousands of dollars, *dist* in measured in one-mile units, and the best estimate of $\beta_3$is -5, then wtp for each mile closer is $5,000.

A former student estimated such a regression for her class paper in this class: she did a hedonic property-value study of Grape Street in Boulder. Grape Street runs east/west for a few blocks. It is on the west side of Broadway in north Boulder. The houses on Grape are very similar to the other houses in this neighborhood, but those on Grape sell for thousands less. Why???

## A hedonic wage example:

Imagine two areas that are identical in every respect except for weather. In one place it is nice and the other place the weather is lousy. Both places are featureless plains. (In this case, the weather difference will likely be capitalized into $\tilde{w}$.)

If so, we could value the nicer weather by looking at the difference in the wage rates. People give up a certain amount of income per year to live in the place with better weather.

## Some complications:

- Amenities are often capitalized into both wage rates and housing prices, not just one of these prices, which is why a joint wage and property value study might be preferred to one that only considers wages, or one that only considers property values.[5]
- For example, in Boulder real wages are low relative to other places, and housing prices are high.

  My salary at C.U. and the value of my house.

- In general (there are exceptions), very local (site-specific) amenities get capitalized more into housing prices and more regional amenities, such as weather, get capitalized more into wage rates.[6]

- The hedonic technique only estimates **use** values because nonuse values are not capitalized into prices.[7]

  E.g. a hedonic property value study to value open space would not pick up any nonuse values associated with the existence of the open space.

[5] This is more complicated one has to jointly estimated wage rates and property values taken into account all the ways they interact. This includes a model that determines the degree to which different amenities are capitalized in terms of wages and property values.
[6] So, are the mountains a local amenity or a regional amenity?
[7] Why aren't non-use values capitalized into prices?

## Does the above theory explain why some types of individuals are more likely to move to certain places?

- Consider retired people. Unlike most, they don't worry about wage rates: they don't work
- Where should they move?
- They should move to places where there are positive amenities that are capitalized into wages rather than into housing prices. If they move to such places they can make themselves better off than the rest of us (but only as long as there aren't too many old people with the same idea).
- Arizona is—used to be—the place. Old farts moved to Arizona because the weather is nice,[8] which is capitalized into wage rates because weather is a regional amenity, and old farts do not participate in the labor market, so do not suffer the low wages. That said, the advantage of moving to Arizona decreases as old people become a larger proportion of the population.

[8] You can't slip on the ice and break your hip.

# Calculating WTP for open-space using property values: a very a simple, too simple, example

Consider the following scenario:

Assume that there are only two non-housing commodities: beer and access to open-space.

Assume more beer is always preferred, and closer to open-space is better if one lives within a mile of it. If one lives more than a mile from open-space one does not care whether one moves closer or farther, as long as one does not move across the one-mile boundary.

We won't assume everyone has the same preferences.

Further assume that everyone has a fixed income per-year of $100,000 and that all money spent on beer and rent goes to the French (who live elsewhere, own all the land, and sell us the beer). We don't need to worry about wages—no one works.

Assume that all houses are identical.

Consider two parallel universes: one with no open-space (no one cares where they live) and one with open-space at the end of society's only road (everyone lives on the road).

In the second universe, individuals prefer, at the same rent, to live closer to the open-space, but only if they live within one mile of the open-space

Maybe the open space at the end of the road is a beach or a rain forest.
In the world with no open-space, all the properties will rent for the same price (no reason they would not). Assume its $20,000/year, so everyone drinks $80,000 of beer per year. The French would like to charge you more but can't.[9] This is the equilibrium because no one has an incentive to change their behavior (no incentive to move).

In the universe with open-space, rents will differ. They will be the same for all houses more than a mile from the open-space ($20,000),

But, assume, the 10 houses within a mile rent, in terms of distance from the beach, for $100,000, $90,000, $80,000, $70,000, $60,000, $50,000 $40,000 $30,000, $25,000, and $21,000. Assume this is the equilibrium distribution of prices in that with this rent vector no one will want to move. That is, no one can make herself better off by moving.

The open space gives added value to each property within a mile of the open space. $80,000 is the value added to the property closest to the beach. We know that among the population the household with the highest wtp to live near the beach will live in this house: if someone other than the current resident had a higher wtp for the location they would outbid the current resident. Each location is going to the highest bidder for that location, the household that has the highest wtp for each lot.

[9] They are worried about their total profits: profits from rent, and from beer sales.

What is this society's willingness to pay for the creation of that open-space?[10]

$80,000 + $70,000 + $60,000 + $50,000 +$40,000 + $30,000 + $20,000 + $10,000 + $5,000 + $1,000 = $366,000, which is a lot.

We just valued the open space using the hedonic property-value method.

Note that in the second universe, society is not better off because of the open-space: the entire surplus has been paid to the French in terms of higher rents. So, the creation of the open space did not make the locals any better off.[11]

One can calculate WTP in more complicated worlds; it is only a more complicated endeavor.

There are many hedonic questions in the review questions.

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The following is a short review of the literature on using hedonic property-value studies to value an urban park, something I wrote for a client who needed to value a new urban park. I include it for those of you who might have additional interest in how hedonics are used in practice.

A common method for getting a lower-bound on the use value of an urban park is a hedonic property-value study; these studies typically find that a natural park or greenspace adds substantially to property values.[12]

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[10] Who is included in society? The residents of the road, for sure. How about the French landowners? For now, let's assume it is only the people who live on the road. Note we are holding constant the number of houses and are assuming no in or out migration.

[11] Did the creation of Boulder openspace make the residents of Boulder better off? Individuals who are residents now or individuals who resided in Boulder when the open space was created? Does it matter whether one rents or owns?

If there was no open space and the French owners could create one for less that the total WTP, they would make themselves better off if they created the open space. How about creating an open-space at the other end of the road?

Put simply, hedonic studies estimate how much housing prices increase as a function of the house's distance to the greenspace, so they estimate use values for only the local residents (typically people who live a few miles or less from the park), but not for other users. One could do such a study after the Popp's Ferry Park is finished, but not now. Such a study would value not the existence of the site, but rather its improvement and improved accessibility for locals.
Studies done in other cities indicate that parks, wetlands and greenspaces have value. For example, Mahan, Polasky and Adams (2000) estimated the value of urban wetlands in Portland Oregon, finding that reducing the distance to the nearest wetland by 1000 feet increased the value of a residence by $436. For Portland, Bolitzer and Netusil (2000) estimate, depending on the model specification, that having a urban public park within 1500 feet of a home increases its sale price between $1100 and $3000 (2012$). For Greenville, South Carolina, Espey and Owusu-Edusei (2001) estimate that an attractive medium size parks with some natural features increases property values by about six percent for houses between 200 and 1500 feet of the park. Poudyal et al. (2008) review the hedonic literature on the demand for and benefits from urban recreation parks; see also Shoup and Active Living Research (2010)

Kulshreshtha and Gilles (1993) find that "the aesthetic value of the river [the South Saskatchewan river] includes the presence of parks, trails, and vegetation along the riverbanks… and the total annual value of the river to the City of Saskatoon through **addition of aesthetic amenities** [emphasis added] was estimated at $1.2 million in 1989 dollars." Neumann, Boyle and Bell (2009) discuss much of this literature noting that

> Economic evidence suggests there are positive price effects associated with open space that are capitalized into land values of neighboring properties (e.g. Knetsch, 1962; Correll et al., 1978; Beasley et al., 1986; Garrod and Willis, 1992; Geoghegan, 2002; and others). Compton (2005) argues that this price relationship was the rationale for the first publicly funded park in Birkenhead, England in 1847… Variations in these potential price premiums across different types of open space have been the focus of several studies (e.g. Lutzenhiser and Netusil, 2001; Shultz and King, 2001; Irwin, 2002; Smith et al., 2002; Anderson and West, 2006).

In their study, Neumann, Boyle and Bell find that "a property located 100 meters closer to the NWR [National Wildlife Refuge] than a neighboring property has a price premium of $984. For additional estimates see Table 1 (page 31) in McConnell and Walls (2005).

Works cited:

Gajanan Bhat, John Bergstrom, R. Jeff Teasley, J. M. Bowker, and H. Ken Cordell, "An Eco-regional Approach to the Economic Valuation of Land and Water-Based Recreation in the United States," *Environmental Management*, Vol. 22(1), 69-77 (1998)

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

> Abstract: Open spaces such as public parks, natural areas and golf courses may have an influence on the sale price of homes in close proximity to those resources. The net effect of open-space proximity is theoretically uncertain because the positive externalities associated with proximity such as a view or nearby recreation facility might be outweighed by negative externalities, for example, traffic congestion and noise. The impact of open-space proximity and type is examined empirically using a data set that includes the sales price for homes in Portland, Oregon, a major metropolitan area in the United States, geographic information system derived data on each home's proximity to an open-space and open-space type, and neighborhood and home characteristics. Results show that proximity to an open-space and open-space type can have a

[12] Open space, like the site in its current condition, can decrease nearby property values if the site is considered unattractive or unsafe (Troy and Grove 2008). The site in its current form seems to have isolated, dilapidated, deserted feel To the extent this assessment is correct, the Park, intended to make the site safe and welcoming, will turn a disamenity into an amenity.

statistically significant effect on a home's sale price. These estimates provide an important step in quantifying the overall benefit from preserving open spaces in an urban environment.

William S. Breffle, Edward R. Morey and Tymon S. Lodder, "Using Contingent Valuation to Estimate a Neighborhood's Willingness to Pay to Preserve Undeveloped Urban Land. *Urban Studies* 35(4): 715–27 (1998)

Abstract: Contingent valuation (CV) is used to estimate a neighborhood's willingness to pay (WTP) to preserve a 5.5-acre parcel of undeveloped land in Boulder, Colorado, that provides views, open space, and wildlife habitat. Households were surveyed to determine bounds on their WTP for preservation. An interval model is developed to estimate sample WTP as a function of distance, income, and other characteristics. The model accommodates individuals who might be made better off by development and addresses the accumulation of WTP responses at zero. Weighted sample WTP estimates are aggregated to obtain the neighborhood's WTP. This application demonstrates that contingent valuation is a flexible policy tool for land managers and community groups wanting to estimate WTP to preserve undeveloped urban land.

Dietrich Earnhart, "Combining Revealed and State Preference Methods to Value Environmental Amenities at Residential Locations," *Land Economics,* 77(1): 12–29 (2001)

Abstract: This paper combines an established revealed-preference method, discrete-choice hedonic analysis, and a relatively new stated-reference method, choice-based conjoint analysis, in order to estimate more accurately the aesthetic benefits generated by the presence and quality of environmental amenities associated with residential locations. It applies the combined approach to the housing market of Fairfield, Connecticut, which contains several environmental amenities and is experiencing an improvement in the quality of its coastal wetlands due to active restoration efforts.

Molly Espey and Kwame Owusu-Edusei, "Neighborhood parks and residential property values in Greenville, South Carolina," Journal of Agricultural and Applied Economics, Vol. 33(3), 487-492 (2001)

Abstract: The effect on housing prices of proximity to different types of parks is estimated using a unique data set of single-family homes sold between 1990 and 1999 in Greenville, South Carolina. While the value of park proximity is found to vary with respect to park size and amenities, the estimates from this study arc larger than previous studies. The greatest impact on housing values was found with proximity to small neighborhood parks, with the positive impact of proximity to both small and medium-size parks extending to homes as far as 1500 feet from the park.

Aliza Fleischer and Yacov Tsur, "Measuring the Recreational Value of Open Space," *Journal of Agricultural Economics* 54 (2): 269-83 (2003)

Abstract: We develop aggregate measures of the recreational value of types of open space when data on individual site visitation are not available. Our procedure accounts for both the allocation (between the different types of open space) and participation (total number of trips) decisions. The procedure is applied to estimate the recreational value of three types of open spaces (beaches, urban parks and national parks) in Israel.

Jason C. Kinnell, Matthew F. Bingham, Ateesha F. Mohamed, William H. Desvousges, Thomas B. Kiler, Elizabeth K. Hastings, and Karen T. Kuhns, "Estimating site choice for urban recreators," *Land Economics*, 82(2):257-272 (2006)

Abstract: This manuscript presents the results of a random utility model that estimates site choice decisions for urban recreators. The model uses data from residents in five northern New Jersey

counties that contain some of the most densely populated areas in the United States. In addition to including typical site choice attributes such as distance and recreation area amenities, the model also accounts for potentially negative site attributes such as industrialization, crime, and congestion. The model provides insight regarding the site choice decisions of urban recreators and presents welfare estimates associated with example recreation improvements in urban areas.

S.N. Kulshreshtha and J. Gillies, "Economic Evaluation of Aesthetic Amenities: A Case Study of River View," *Water Resources Bulletin*, 29(2), 257-66 (1993)

Abstract: Presence of a river in an urban setting may contribute positively to an aesthetically pleasing environment. Such aesthetic effects are not typically linked to specific economic activities and occur, for example, when residents are exposed to a river view. Qualities enhancing the aesthetic value of the river include the presence of parks, trails, and vegetation along the riverbanks. The value of aesthetic amenities provided by the South Saskatchewan to the City of Saskatoon residents was estimated in this study using non-market methods. The implicit price of the river view was estimated using the Hedonic Price Model, whereas value through willingness to pay for property taxes or higher rents were also estimated using actual market data. The total annual value of the river to the City of Saskatoon through addition of aesthetic amenities was estimated at $1.2 million in 1989 dollars.

Michael Lockwood and Kathy Tracy, "Nonmarket economic valuation of an urban recreation park," Journal of Leisure Research, Vol. 27(2), 155-167 (1995)

Abstract: We briefly discuss the problem of valuing time in recreation demand studies, and report on a recent case study which assessed the nonmarket economic value of Centennial Park, Sydney, using both the Travel Cost and Contingent Valuation methods. Modal choice analysis was used to estimate the value of travel time for inclusion in a Travel Cost model. The nonmarket economic value of the park was estimated to be between $23 and $33 million per year, with at least $2.6 million due to nonuse value. This compared favorably with annual management and maintenance costs of under $6 million.

Mahan, B.L., S. Polasky and R.M. Adams, "Valuing Urban Wetlands: A Property Price Approach," *Land Economics*, 76(1), 100-113 (2000).

Abstract: This study estimates the value of wetland amenities in the Portland, Oregon metropolitan area using the hedonic property price model. Residential housing and wetland data are used to relate the sales price of a property to structural characteristics, neighborhood attributes, and amenities of wetlands and other environmental characteristics. Measures of interest are distance to and size of wetlands, including distance to four different wetland types; open water, emergent vegetation, scrub-shrub, and forested. Other environmental variables include proximity to parks, lakes, streams, and rivers. Results indicate that wetlands influence the value of residential property and that wetlands influence property values differently than other amenities. Increasing the size of the nearest wetland to a residence by one acre increased the residence's value by $24. Similarly, reducing the distance to the nearest wetland by 1,000 feet increased the value by $436. Home values were not influenced by wetland type.

Virginia McConnell and Margaret Walls, The value of openspace: evidence from studies of nonmarket benefits, Resources for the Future (2005)

John R. McKean, Donn Johnson, R. Garth Taylor and Richard L. Johnson, "Willingness to pay for non-angler recreation at the Lower Snake River reservoirs," *Journal of Leisure Research*, Vol. 37(2), 178-194 (2005)

Abstract: This study applied the travel cost method to estimate demand for non-angler recreation at the impounded Snake River in eastern Washington. Net value per person per recreation trip is estimated for the full non-angler sample and separately for camping, boating, water-skiing, and swimming/picnicking. Certain recreation activities would be reduced or eliminated, and new activities would be added if the dams were breached to protect endangered salmon and steelhead. The effect of breaching on non-angling benefits was found by subtracting our benefits estimate from the projected non-angling benefits with breaching. Issues in demand model specification and definition of the price variables are discussed. The estimation method selected was truncated negative binomial regression with adjustment for self-selection bias.

Bradley C. Neumann, Kevin J. Boyle and Kathleen P. Bell, "Property price effects of a national wildlife refuge: Great Meadows National Wildlife Refuge in Massachusetts," Land Use Policy, 26, 1011-1019 (2009)

Abstract: The amenity value of proximity to a National Wildlife Refuge (NWR) in central Middlesex County, Massachusetts is estimated and compared to the values of proximity to five other open space types, including agricultural land, cemeteries, conservation land, golf courses, and sport/recreation parks. A hedonic model is used to explore the relationships among residential property values and proximity to these distinct types of open space. Open space characteristics in the empirical model include measures of continuous distance from each property to the nearest open space of each type and an index describing the diversity of open space types within neighborhoods of 100 and 1000 meters around a home. Results reveal that a property located 100 meters closer to the NWR than a neighboring property has a price premium of $984. Further, proximity to the NWR is valued more than proximity to agricultural land, cemeteries, and conservation land. No significant differences are found among the values of proximity to the NWR, golf courses, and sport/recreation parks.

Linwood H. Pendleton (ed.), "The economic and market value of coasts and estuaries: what's at stake?" Produced by Restore America's Estuaries, Arlington VA, www.estuaries.org (2008)

Neelam C. Poudyal, Donald G. Hedges and Christopher D. Merrett, "A hedonic analysis of the demand for and benefits of urban recreation parks," *Land Use Policy* (2009)

Abstract: Increasing population and urbanization in U.S. cities is not only contributing to the congestion in urban recreation parks but also is likely to exceed the capacity of these parks' recreational and amenity benefits. In order to estimate the demand for and benefit of parks, we employed a typical hedonic model, which confirmed that the urban recreation park acres increase nearby property values. Two Step Clustering, which is capable of defining the optimum number of submarkets based on the data, was employed to define the submarkets within Roanoke, Virginia and to obtain enough implicit price points to further estimate the demand for urban park acres in the second stage. Results from the second stage hedonic estimation revealed that demand for urban park acres was inelastic in price and income; and the size of the park was a substitute for living space and proximity to park. In addition, increasing the average size of parks by 20% from the current level increased the per household consumer's surplus by $160. The estimated amenity benefits of urban recreation parks will be useful in urban land-use planning and open space preservation.

Lilly Shoup, "The economic benefits of open space, recreation facilities and walkable community design," Prepared for Active Leaving Research (2010)

Elwood L. Shafer, Robert Carline, Richard W. Guldin and H. Ken Cordell, "Economic amenity values of wildlife: six case studies in Pennsylvania," *Environmental Management*, Vol. 17(5), 669-682 (1993)

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Austin Troy and J. Morgan Grove, "Property values, parks and crime: a hedonic analysis in Baltimore, MD," Landscape and Urban Planning, 87(3), 233-245 (2008)

Abstract: While urban parks are generally considered to be a positive amenity, past research suggests that some parks are perceived as a neighborhood liability. Using hedonic analysis of

property data in Baltimore, MD, we attempted to determine whether crime rate mediates how parks are valued by the housing market. Transacted price was regressed against park proximity, area-weighted robbery and rape rates for the Census block groups encompassing the parks, and an interaction term, adjusting for a number of other variables. Four models were estimated, including one where selling price was log-transformed but distance to park was not, one where both were log-transformed, a Box–Cox regression, and a spatially adjusted regression. All results indicate that park proximity is positively valued by the housing market where the combined robbery and rape rates for a neighborhood are below a certain threshold rate but negatively valued where above that threshold. Depending on which model is used, this threshold occurs at a crime index value of between 406 and 484 (that is, between 406% and 484% of the national average; the average rate by block group for Baltimore is 475% of the national average). For all models, the further the crime index value is from the threshold value for a particular property, the steeper the relationship is between park proximity and home value