DISCUSSION PAPER

The Trade-off between Private Lots and Public Open Space in Subdivisions at the Urban–Rural Fringe

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Abstract

In many communities on the urban–rural fringe, subdivisions are subject to "clustering" rules, in which houses must be located on a portion of the total land area and the remainder of the land is left as open space. This open space may be undisturbed forest or pastureland, or it may include recreation facilities and trails. In some communities, the open space may remain in agricultural use as pasture or cropland. Although the open space may provide benefits to subdivision residents, it means that those residents are living in a higher-density setting than people living in conventional subdivisions. It is unclear whether the benefits offset the loss experienced by smaller lots and higher density. This trade-off is the focus of our study. We use data on subdivision house sales occurring between 1981 and 2001 in a county on the fringe of the Washington, DC, metropolitan area to estimate a hedonic price model. We examine how households value being adjacent to open space and having more open space in the subdivision, and how they may be willing to trade off those amenities with their own private lot space.

We find that private acreage matters to households—a 10 percent larger lot leads to about a 0.6 percent higher house price, all else being equal. Subdivision open space is also valuable to households, but the marginal effect is much smaller than the marginal effect of private lot space. We also find that subdivision open space does substitute for private land, but the extent of the trade-off is small. We use the results of the estimated hedonic model to simulate the effects on prices of jointly increasing open space and reducing average lot size, holding the size of the subdivision constant. We find that average house prices are lower with clustering, particularly for interior lots that are not adjacent to open space.

Key Words: subdivisions, clustering, hedonic property values, open space

JEL Classification Numbers: Q51, Q24, R14, H41

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Introduction

Open space in the form of parks, forest preserves, wetlands, and protected agricultural lands provides a range of benefits to local communities. Many hedonic property value studies have shown that house sales prices are higher, all else being equal, the closer a house is to open space, the greater the amount of open space surrounding the house, and the larger the size of the open space (McConnell and Walls 2005). However, few studies have focused on the particular type of open space we analyze here: preserved open space within a residential subdivision.

In many communities, particularly those on the urban–rural fringe, most housing is located in subdivisions. Increasingly, those developments are subject to "clustering" rules, in which houses must be located on a portion of the total land area and the remainder of the land is left as open space. In some communities, zoning laws mandate clustering; in others, clustering is recommended but not required. This subdivision open space may be undisturbed forest or pastureland, or it may include recreation facilities and trails. In some communities, the open space may remain in agricultural use as pasture or cropland. Proponents of clustering requirements argue that undeveloped areas convey value, not only to the residents of the subdivisions themselves, but also to the broader community, by preserving more of the aesthetic and rural character of the community and improving environmental quality through habitat protection or water pollution reduction (Arendt 1992). In communities on the urban–rural fringe,

clustering residential developments may be one option in the local government's toolkit for maintaining an agricultural base and curbing sprawl.[1]

Open space may provide benefits to subdivision residents, but clustering means that those residents are living in a higher-density setting than residents of conventional subdivisions, with neighboring houses in closer proximity to one another. Although the external benefits from the preserved forest, wetland, recreation area, or other kind of open space may be positive, it is unclear whether those benefits offset the loss experienced by smaller lots and higher density. This trade-off is the focus of our study. We use data on subdivision house sales occurring between 1981 and 2001 in Calvert County, Maryland, located on the fringe of the Washington, DC, metropolitan area, to estimate a hedonic price model. We examine how households value being adjacent to open space, how they value having more open space in the subdivision, and how they may be willing to trade off those amenities with their own private lot space.

We find that private acreage matters to households—a 10 percent larger lot leads to about a 0.6 percent higher house price, with all other factors held constant, and this result is significant and robust to all specifications of our model. Subdivision open space is also valuable to households, but the marginal effect of an additional acre is much smaller than the marginal effect of an additional acre of their own private lot. We also find that although subdivision open space does substitute for private land, the magnitude of the effect is small. Having a lot that is adjacent to subdivision open space also enhances the value of a house, particularly if the open space is not too steeply sloped. However, we find no evidence of homeowners' willingness to trade off their own lot size for adjacency to the open space. Finally, we use the results of the estimated hedonic model to simulate the effects on house prices of jointly increasing open space and reducing average lot size, holding the size of the subdivision constant. We find that average house prices are lower with the clustering, particularly for interior lots that are not adjacent to open space.

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[1] Daniels (1997) takes a more critical view of the use of clustering requirements for preserving farmland on the urban fringe. He argues these requirements are often incompatible with an active agricultural economy and are often used as a "quick fix" by local planners and elected officials faced with difficult land use choices.

Overview of Relevant Literature

McConnell and Walls (2005) review the extensive revealed and stated preference literature on valuing open space. In the revealed preference literature, almost all the studies use a hedonic property value approach. These studies look at a range of different types of open space—natural areas, wetlands, urban and suburban parks, forested lands, and different kinds of farmland. They use different measures of open space, including distance from the house to the nearest open space, open space acreage, adjacency dummy variables, and the percentage of land in a particular radius around the property that is in open space; many studies include interaction variables between these different measures.

In this brief review, we emphasize studies that focus on the value of open space amenities within and surrounding residential subdivisions. Lacy (1990) and Mohamed (2006) compare housing prices in clustered versus non-clustered, or conventional, subdivisions in communities in Massachusetts and Rhode Island, respectively. Lacy (1990) does not use the hedonic approach but finds prices appreciate slightly more in subdivisions with commonly owned open space areas than in non-clustered subdivisions. Mohamed (2006) uses data from South Kingstown, Rhode Island, to examine per-acre lot prices in the two types of subdivisions as well as costs of development. He estimates a price premium in "conservation" subdivisions of 12 percent to 16 percent and also finds development costs to be lower in conservation subdivisions.[2] Neither of these studies controls for the many other factors that could explain price differences.

Peiser and Schwann (1993) analyze house prices in a Dallas subdivision that has publicly useable open space between houses and also survey residents about their preferences. While the survey findings suggest that households place a high value on the open space, the hedonic price analysis shows otherwise. Houses on the open space generally sold at a premium, but the effect was statistically insignificant and much smaller in magnitude than the effect of the size of the private lots themselves.

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[2] The term "conservation" subdivision usually implies something broader than clustering. Arendt (1997), the most notable proponent of conservation subdivisions, suggests that prior to building on a parcel, the important natural resources and habitat areas should be delineated and designated as open space. Then, after the developer has considered slopes and soils, houses should be clustered onto the land most suitable for development.

Although other studies using subdivision sales data do not focus specifically on the effects of clustering on house prices (or the extent of the trade-off between subdivision open space and lot size), they still shed light on the value of particular characteristics of open space amenities within subdivisions or from proximity to open space surrounding, but external to, the subdivision. For example, Thorsnes (2002) uses sales data from 1978 to 2000 from three subdivisions in Grand Rapids, Michigan, each bordering permanently preserved forested lands, to estimate hedonic price equations for both building lots and houses for each subdivision. He finds that lots next to the preserves sell at a premium equal to 19 percent to 35 percent of the total lot price, but the benefits appear very localized. Prices of lots across the street from the preserve are, for the most part, no different from those of other lots in the subdivisions.

Hardie, Lichtenberg, and Nickerson (2006), using a random sample of subdivisions in five Maryland counties, calculate the average per-acre price of developed lots in 255 subdivisions. Their price estimate is a function of the percentage of the subdivision area that is required to be planted in trees (by the state Forest Conservation Act) and the percentage of surrounding land in farmland and other kinds of open space as well as other factors likely to affect house prices. They find that land prices increase with an increase in the percentage of land that is required to be planted in trees. Their paper is only able to draw conclusions about average prices in a subdivision.[3]

Patterson and Boyle (2002) focus on estimating the value of a view from evidence on housing prices. Using a hedonic estimation, they find that houses with forested area visibility have higher value than those with visibility of agricultural land. Kearney (2006), in a survey of residents of different subdivisions with different configurations and different amounts and types of open space, also finds that the view from a home, and particularly views of forested areas, are strongly valued by residents.

Complementing the economic literature are several studies by urban planners who look at the environmental merits of clustering rules and conservation subdivisions, especially with

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[3] Because of missing data, they must also construct lot sales prices for some subdivisions before averaging.

respect to habitat and ecological benefits that likely pertain to the entire region, not just the subdivision. Berke and his colleagues (2003) find that there are potential watershed protection benefits to new urbanist developments compared to conventional developments.[4] Odell, Theobald, and Knight (2003) show that songbird habitat is less disrupted by clustered development than conventional, non-clustered development. A survey of residents of subdivisions in Michigan by Kaplan, Austin, and Kaplan (2004) find that "natural features" of subdivisions appear to be important to residents of clustered subdivisions.

These studies provide evidence of different types of amenities from open space in or next to subdivisions. We look for similar evidence but focus on open space amenities within the subdivision and trade-offs between those amenities and private lot space.

Data

Calvert County is located in southern Maryland on the western shore of the Chesapeake Bay. It has 101 miles of shoreline along the Chesapeake Bay and the Patuxent River to the east. Historically, the county has been made up of small villages and predominantly rural lands and has had an agricultural economy. In the past 20 years, however, population growth has been high and the county has increasingly become part of the broad Baltimore-Washington, DC, metropolitan area.[5]

Most of the housing growth in recent years has been in low-density suburban subdivisions in the residential and rural areas of the county. Figure 1 shows average lot sizes within the county by different time periods.[6] Although the average gross lot size, calculated as total subdivision acreage divided by the number of houses, has remained relatively high and constant over time, the average lot size net of open space has declined. This provides some

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[4] The term "new urbanist" generally implies more than conserving open space and building more densely; it also incorporates mixed use development, providing pedestrian and transit options, and other factors. For studies that focus on the merits of new urbanism, see Song and Knaap (2004).

[5] The northern border is about 35 miles from Washington, DC, and 40 miles from Baltimore.

[6] The time periods are chosen to reflect zoning and other changes in the county.

indication of the extent to which clustering has increased in the county in recent years. Gross lot size trended up in the late 1990s due to the downzoning that occurred, but actual house lot size continued to fall slightly, reflecting more open space in subdivisions.

Figure 1. Average Lot Size in Subdivisions, Calvert County, Maryland
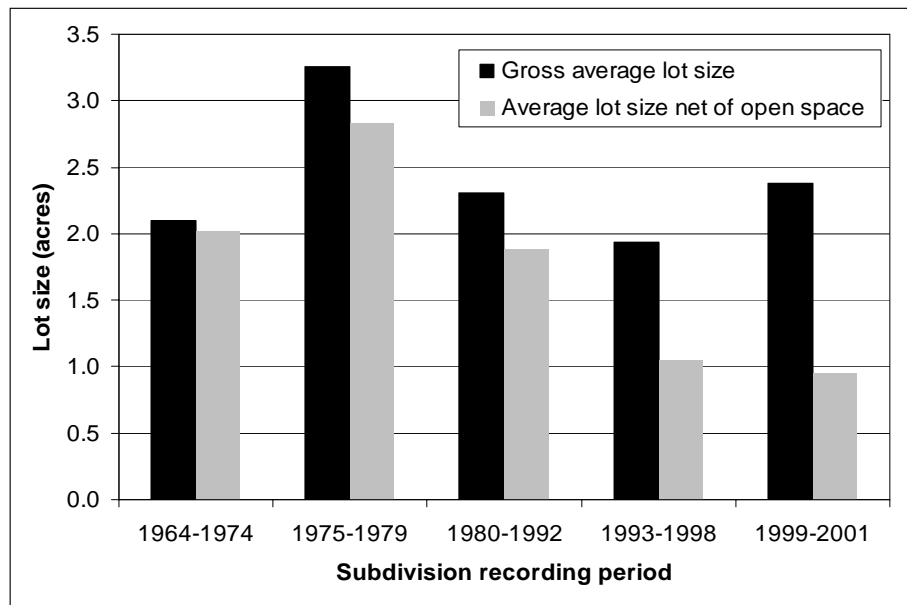
In this study, we limit the sample to subdivisions that had at least 10 house sales over the study period (1981–2001). This allows us to include 3,386 individual house sales within 89 subdivisions. Table 1 provides summary statistics for house and subdivision level variables included in the model. The mean lot size is 1.5 acres and subdivisions are, on average, 134 acres with a little more than 20 percent of their land under easement as protected open space. The degree of clustering varies considerably over the sample, however; 16 of the 89 subdivisions have minimal open space (less than 1 acre) and 20 subdivisions have more than 40 percent of their acreage in open space.

Table 1. Summary Statistics for House and Subdivision Data, Calvert County, MD

Variable	Mean	Std. Dev.	Range
House variables (3,386 house sales)			
House sale price (in year 2000 dollars)[a]	221,749.30	74,000.48	12642.15–939179.5
Lot size (acres)	1.511	1.586	0.034–30.41
Sale year	1994.422	5.087	1981–2001
Structural characteristics:			
House size (square feet)	2075.047	801.959	576–6575
House age (years)	5.821	10.026	0–186
Dwelling grade (dummy)[b]	0.177	0.382	0–1
Number of full bathrooms	1.999	0.512	1–5
Number of half bathrooms	0.583	0.498	0–2
Fireplace (dummy)	0.618	0.486	0–1
Townhouse	0.008	0.091	0–1
Open space and surrounding land uses (dummy variables):			
Adjacent to subdivision open space area	0.249	0.433	0–1
Adjacent to another subdivision's open space	0.024	0.153	0–1
Adjacent to preserved farmland or parkland	0.014	0.118	0–1
Adjacent to undeveloped, unpreserved land	0.142	0.351	0–2
Adjacent to water	0.016	0.126	0–1
Subdivision variables (89 subdivisions)			
Size of subdivision (acres)	133.615	104.853	16.609–589.590
Size of subdivision open space area (acres)	28.951	46.316	0.250–295.130
Proportion of open space area in steep slopes[c]	0.373	0.347	0–1
Subdivision recording year	1983.675	10.218	1928–1999
Accessibility/location:			
Distance to the northern border of county (meters)	18965.170	13351.700	955.715–49912.290
Access to Town Center index[d]	10.732	83.375	0–768.431
Distance to Route 2/4 (meters)	2419.191	1799.510	167.872–7633.653
RCD Rural zoning district (dummy)	0.685	0.467	0–1
FCD Rural zoning district (dummy)	0.079	0.271	0–1
Residential zoning district (dummy)	0.213	0.412	0–1
Town Center (dummy)	0.022	0.149	0–1

[a] CPI adjusted prices.
[b] Dwelling grade equals 1 if house is categorized as low to fair quality, and 0 otherwise.
[c] Steep slopes are defined as land with a grade of 15 percent or higher.
[d] Access to Town Center is a simple gravity index that is increasing in the size of the eight major town centers and decreasing with distance from the subdivision location. The index is defined as:

$$I_i = \sum_{k=1}^{c} (M_k / d_{ik}^2)$$

where *i* denotes the subdivision, *c* is the number of town centers, M_k is the size of town center *k*, and d_{ik} is the distance from subdivision *i* to town center *k*.

Econometric Model and Results

We assume households choose housing characteristics, location, and open space amenities so as to maximize utility. Under this assumption and also assuming a housing market in equilibrium, we can use the hedonic price model to examine consumer behavior with regard to housing choices.[7] The hedonic price function is specified as:

$$P = f(l, C, S, T, O), \tag{1}$$

where P is the price of the property, l represents the lot size, C is a vector of the structural characteristics (age, number of bathrooms, square footage, etc.) associated with the house, S is a vector of subdivision characteristics other than open space amenities, T represents a vector of accessibility measures, and O is a vector of open space attributes.

Because evidence from the literature suggests that the value of open space amenities to residents may vary by proximity or the type of open space (e.g., number of trees, usability, steepness), in our model we include three subdivision open space variables: open space acreage, a dummy for whether a house is adjacent to subdivision open space, and the percentage of subdivision open space that is in steep slopes. We also include interaction variables, which we discuss below, as well as surrounding land use variables, including adjacency to preserved agricultural land.

Several econometric issues must be addressed in estimating the hedonic model. Irwin (2002), in a study focusing on farmland and forested lands, discusses the problem of possible endogeneity of these kinds of open space. In this study, since we are focusing on the amount of open space inside the subdivision, it is unlikely that endogeneity is a serious concern. Moreover, all subdivisions since 1993 have had minimum open space requirements. We also assume that households know and accept county rules, which require that subdivision open space has a permanent easement barring future development.

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[7] See Rosen (1974) for the foundations of hedonic analysis.

We also address the issue of unobserved spatial correlation in the error term, a common source of inefficiency and inappropriate covariance estimates in spatial models. To partially address this problem, we have included dummy variables for the 31 census block groups in our sample to account for any unexplained effect of different neighborhoods on prices.[8] In addition, we tested for spatial autocorrelation and rejected the null hypothesis that it is not present, even with block group dummies.[9] Therefore, to account for spatial correlation caused by misspecification of the regression function (e.g., omitted variables), we specify the error term with a standard first-order AR process (Anselin 1988), in which the error depends on the weighted average of the error terms of "neighboring" houses, which we define to be houses that are in the same or adjacent subdivisions.[10] The results are shown in Table 2. We tested the sensitivity of our results by estimating the model with an alternative weighting scheme in which all houses within 1 mile of each other are considered neighbors.[11] This latter specification yielded coefficients of similar magnitude and significance as the results presented in Table 2.

Results: Preferences for Lot Size and Subdivision Open Space Amenities

Households have a consistent preference for larger lots, when all other factors are the same. We calculate homeowners' marginal willingness to pay for additional private acreage and subdivision open space by the partial derivatives of the price function with respect to each attribute, evaluated at the mean values of the relevant interaction variables. The elasticity estimates at the bottom of Table 2 summarize the results of that calculation. We find that a 10

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[8] We tested a number of different specifications, including a subdivision fixed-effects model. While that specification has the advantage of controlling for all unobserved subdivision characteristics, it prevents us from estimating the effect of specific subdivision-level variables, including the total amount of subdivision open space. In general, coefficients on house-specific variables are very similar to the results with block group fixed effects shown in Table 2.

[9] The Moran I statistic is found to be 11.570.

[10] Letting u denote the vector of error terms, u_i, $i = 1$ to N, in our model, we assume $u_i = \rho W_i u + \varepsilon_i$, where ρ is the spatial autocorrelation parameter to be estimated, W_i is the ith row of the weighting matrix, W, and ε_i is the component of the error term made up of independently and identically distributed (iid) random variables. The weighting matrix, W, selects the "neighbors" so that $W = \{w_{ij}\}$, where $w_{ij} = 1/n_i$ (where n_i = number of "neighbors" of house i) if i and j are within the same or adjacent subdivisions. Because a subdivision is not viewed as its own neighbor, $w_{ii} = 0$ for all i.

[11] With the 1-mile weighting scheme, the Moran I test statistic is 12.895.

percent increase in private lot size is associated with an approximately 0.6 percent increase in house price, all else being equal. This suggests that for an average-priced house in 2004 (about $300,000), an increase in lot size from 1 acre to 1.5 acres would increase the house price by about $9,000. The magnitude of this estimate is robust across various specifications of the model, including one with subdivision fixed effects.

The amount of open space in the subdivision, given subdivision size, is also statistically significant; its effect on house prices is small, but positive. When all other factors are held constant, a 10 percent increase in subdivision open space leads to a 0.1 percent increase in average house price. This result was also robust to alternative specifications of the model. This suggests that increasing open space acreage from 20 acres to 30 acres would increase sales price by half a percent, or $1,500 per house (evaluated at an average of $300,000), holding all else constant. Of course, all the houses in the subdivision would be affected if open space increased.

There is some evidence that residents will trade off their own lot size for the amount of open space in the subdivision. The interaction term between the amount of open space and private lot size is negative, which implies some trade-off. We show the full effects of changes below.

Adjacency to subdivision open space has a positive effect on house prices, but the magnitude of the effect depends on how much of the open space is in steep slopes. The greater the percentage of open space that is steep, the smaller the effect that adjacency has on house prices.[12]

Perhaps our most surprising result is that we find no willingness of households to trade off their own lot size for adjacency to open space. One explanation for this may be the result from the literature that suggests it is not so much proximity to open space, but having a view of forested or undeveloped areas, that is valuable to residents (e.g. Patterson and Boyle 2002).

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[12] Our steepness variable can not measure the slope of the open space adjacent to particular houses, but the greater the percentage of open space in the subdivision in steep slopes, the higher the probability that any house adjacent to open space will be adjacent to steep open space.

Table 2. Results of the Spatial Error Model with Block Group Fixed Effects

(Dependent variable is the natural log of house sale price)

Variable	Description	Coefficient (t-stat)
1	Own lot size (acres, logged)	0.078*** (10.423)
	Variables related to subdivision open space	
2	Subdivision open space (acres, logged)	0.010** (2.279)
3	Percent of open space acres in steep slopes	−0.024 (−1.140)
4	Subdivision open space (var 2)*pct steep (var 3)	−0.003 (−0.410)
5	Subdivision open space (var 2)*own lot size (var 1)	−0.007*** (−2.715)
6	Adjacent to own subdivision open space (dummy)	0.029** (2.181)
7	Adjacent to own sub open space (var 6)*pct steep (var 3)	−0.059** (−2.327)
8	Adjacent to own sub open space (var 6)*lot size (var 1)	0.016 (1.512)
	Other adjacency variables	
9	Adjacent to another subdivision's open space area	0.010 (0.582)
10	Adjacent to water	0.300*** (12.805)
11	Adjacent to undeveloped, unpreserved land	−0.006 (0.741)
12	Adjacent to preserved farmland or parkland	−0.012 (0.532)
	House characteristics	
13	House size (square ft, logged))	0.280*** (23.042)
14	Age of house	−0.002*** (−5.896)
15	Dwelling grade	−0.090*** (−6.845)
16	Number of full baths	0.073*** (10.159)
17	Number of half baths	0.039*** (5.437)
18	Fireplace (dummy)	0.037*** (5.922)
19	Townhouse (dummy)	−0.113** (−2.435)
	Accessibility variables	
20	Distance to northern border of county (meters, logged)	−0.129*** (−4.361)
21	Distance to Route 2/4 (meters, logged)	−0.026** (−2.533)
22	Accessibility to Town Centers	0.000 (0.245)
	Other subdivision variables	
23	Subdivision size (acres, logged)	0.026*** (2.751)
24	Year subdivision was recorded	0.002*** (75.502)
25	Subdivision in Farm Community District	0.011 (0.473)
26	Subdivision in Residential zone	−0.025 (1.241)
27	Subdivision in Town Center	0.037 (0.168)
28	Constant	4.792 (14.909)
29	Spatial autocorrelation parameter, ρ	0.358 (41.269)
	R^2	0.7795

Coefficients on individual sale year and census block group dummy variables available upon request.
Asymptotic t-statistic given in parentheses. *** signifies significance at the 99% level; ** at the 95% level; * at the 90% level.

Elasticity of sales price with respect to:	*Marginal effect evaluated at var. means (t-stat in parentheses)*
Own lot size[a]	0.055*** (7.15)
Subdivision open space acreage	0.006* (1.75)
Adjacency to own subdivision open space	0.014* (1.68)
[a]Marginal effect for interior lot; for lot adjacent to open space, the marginal effect of own lot size is 0.070	

Results: Other Variables

Most of the other explanatory variables in the model are significant and of the expected sign. All the variables describing house characteristics and variables measuring proximity to commuting routes are significant at the 99 or 95 percent level. The northern edge of Calvert County marks the closest point in the county to the urban centers of Washington, DC, and Baltimore; moving the average house 1 mile farther south reduces house price by a little more than 1 percent. Locating the average house farther from the major highway in the county, Route 2/4, also significantly reduces sales price. Larger and newer subdivisions tend to have slightly higher-priced houses.

Some of the other amenities and surrounding land uses are important in explaining house prices and others are not. Being on the water is highly valuable: sales prices of waterfront houses (on the Patuxent River or Chesapeake Bay) are found to be 30 percent higher than prices of other houses. However, being adjacent to parkland, privately owned preserved farmland, or the open space area of another subdivision does not significantly affect housing prices.[13]

Simulating the Effect of Clustered Subdivisions on House Prices

There are multiple effects of lot size and open space amenities on housing prices from the analysis above. We can illustrate the overall effects of changes in subdivision configuration by a simple simulation.

We start with a representative subdivision in our sample: 134 acres in size, with about 30 acres of open space and an average lot size of 1.5 acres. Holding total subdivision size and the number of lots constant, doubling the amount of open space to about 60 acres would require average lot size to decrease to 1.1 acres. Based on the results in Table 2, we find that such an increase in clustering (from about 22 to 44 percent) would decrease the average house price by 1.2 percent (for a house not adjacent to open space). The loss in value from the smaller lot size dominates any increased value from more subdivision open space. The additional clustering may

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[13] Adjacency to another subdivision's open space becomes significant at the 10 percent level if subdivision fixed effects are included in the model.

also increase the probability of a house being adjacent to the open space area, however, and this adds some value. For houses on lots that become adjacent to subdivision open space as a result of the increased clustering, we find the change in sale price is minimal, decreasing by only 0.3 percent.

Conclusions

Our results suggest why we may not see many clustered subdivisions on the urban–rural fringe without government regulations requiring such clustering. Households appear to strongly value their own private lots. While we do find in our analysis that households also value having more open space in their subdivisions or having a lot that is adjacent to subdivision open space, they do not value these amenities nearly as much as a larger private lot. Thus, reducing private acreage to provide more public subdivision open space tends to lead to overall reductions in house prices, all else being equal. The small amount of previous literature on this issue has been mixed, but these results are consistent with those of Peiser and Schwann (1993).

One of the most important questions we wanted to address in this study is whether households would be willing to trade off the size of their own lot for open space in the subdivision. Clustering subdivision development is being viewed by local governments as a way to reduce the development footprint and preserve open space in fringe communities. Our findings suggest that there is some small willingness to trade off lot size for more subdivision open space. But overall, clustering appears to come at a cost to residents within the subdivision. Creating an acre of subdivision open space in a fixed amount of total land area comes at the expense of private lot space. When all other factors are equal, this reduces property values, particularly for lots not adjacent to any open space.

There are caveats to our findings. First, they may be specific to Calvert County, a community on the urban–rural fringe with very large average lot sizes and a great deal of surrounding open space and farmland. It is possible that households highly value their large lots in such a community and also that there are adequate substitutes for subdivision open space. In addition, the open space in Calvert County subdivisions tends to be forested lands surrounding the houses and such land may not have a high-use value component. Second, the values captured

in a hedonic price study may not include all the values of open space, including aesthetic values to residents outside of the subdivisions, ecological values from habitat protection, and groundwater protection and stormwater management benefits. These benefits, which accrue to a wider population, are not likely to be capitalized into house prices within the subdivision.

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