

Land with a View:

HOW NUTMEGGERS LOOK AT OPEN SPACE

BY EKATERINA GNEDENKO AND
DENNIS HEFFLEY

What's your definition of "open space"— public parks, privately held farmland, or just a big backyard? Support for different types of open space depends on how much people are asked to pay for it, knowledge of and attitudes toward open space preservation, age, and housing lot size. Controlling for these and other factors, people with larger lots demand more, not less, publicly provided open space.

Each type of open space is shaped by public policies. Federal, state, and local governments acquire land that is used for public parks, conservation areas, and the like. Generally, the public uses this type of space at little or no charge. But not all open space is really open to the public. Connecticut, for example, also uses taxes to finance the purchase of development rights (PDR) to farmland. The farmer receives a sum of money to give up future rights to develop the land. The land can still be sold, but it must remain in agricultural use as long as the State holds the development rights. This type of open space might offer visual amenities, environmental protection, and local "food security," but PDR programs do not ensure public access to the land. Finally, local zoning ordinances affect the size of building lots ("private open space") and the overall density of residential and commercial development.

So how do people value these different types of open space? Is there any link between their support for public parks or PDR programs and the size of the lot they occupy? At first blush, these three types of open space might seem to be substitutes—items that can

be used in place of one another. If my backyard is big enough, I may not care much about public parks or farmland preservation, but if I live in a high-rise apartment with little yard space of my own, I might see public forms of open space as essential—a way to compensate for my crowded living conditions.

But suppose that people who value "private open space" and live on large lots also value other types of open space, revealing this preference in their willingness to pay for more public parks or more farmland preservation. For these folks, the various types of open space are complements—items that are used together, rather than in place of one another.

Both stories are plausible, so which is it, substitutes or complements? One way to approach this question is simply to ask people how they feel about various types of open space. Fortunately, that's been done. In 2002, the University of Connecticut's Department of Agricultural and Resource Economics teamed up with the Center for Survey Research and Analysis (CSRA) to survey 700 Connecticut residents on their attitudes toward open space preservation. The survey included two key questions about the degree of support for the state's PDR program and its purchase of open space for parks and other public uses. About half the respondents were asked the following questions.

Question 1: "Over the past ten years, the state bought development rights to an average of 1,000 acres of farmland each year throughout Connecticut. Next year, if the program bought development rights on 1,000 acres, and cost your household an additional \$X in Connecticut state

Ekaterina Gnedenko is a Ph.D. student in the University of Connecticut's Department of Agricultural and Resource Economics.

taxes, would you favor or oppose this program?”

Five different values of X (1, 3, 5, 7, 9) were randomly used in Question 1, and respondents were asked if they: strongly favored, mildly favored, mildly opposed, strongly opposed, or did not know. Other factors constant, we would expect a *higher* value of X to draw *less* support for the PDR program.

Question 2: “Over the past ten years, the state bought an average of 3,000 acres of open space land for parks and conservation areas throughout Connecticut. Next year, if the program bought 3,000 acres of open space, and cost your household an additional \$Y in Connecticut state taxes, would you favor or oppose this program?”

Five different values of Y (4, 12, 20, 28, 36) were randomly used in Question 2, and respondents were again asked how strongly they supported or opposed the program. (Values of Y used in Question 2 exceeded the values of X used in Question 1, because more acreage is involved and it costs more to purchase land outright than to simply purchase development rights.) As before, a *higher* value of Y should elicit *less* support for state purchases of land, other things constant.

The percentage distribution of responses to each question is shown in the double bar graph. The raw responses suggest that open space preservation, via PDRs or direct land purchase, enjoys considerable public support. But these responses alone tell us little about whether the tax-price of such programs (X or Y) affect this support, and whether other factors might also play a role. Fortunately, the same survey also gathered data on respondents’ knowledge of the PDR program; whether they felt it was appropriate to use tax money for PDRs and land purchases; whether they had visited a farm or public park; and their age, race, gender, education, household

income, number of children, and housing lot size. The last variable is particularly useful in determining whether the various types of publicly provided open space are substitutes or complements for that backyard. If they are substitutes, a larger lot should *reduce* the individual’s support for open space; if complements, a larger lot should *increase* support.

We used a logistic regression model to analyze the factors that contribute to a “favor” (versus “oppose”) response to the two survey questions noted earlier. This type of model has the desirable property of ensuring that the predicted probability that any respondent in the sample will favor the proposal, based on the estimated relationship, will range from zero to one. Standard linear regression models lack this feature.

For the first question, we find that X, the proposed tax-price to the individual, reduces the probability that the person will favor the government’s purchase of development rights, but this effect is small and not very significant. This result may reflect the limited range of proposed values (X = 1, 3, 5, 7, 9); a larger range might have elicited more price-sensitivity. Other, statistically more significant, variables included: whether the person interviewed believed that PDR programs represent a good use of tax dollars (positive effect); whether the person was under 35 years of age (positive effect); and whether the person’s housing lot size exceeded one acre (positive effect). The latter result suggests that (inaccessible) open space provided via

a PDR program is a complement to housing lot size. People who have plenty of private open space still want to see that farmland.

But it’s not just the demand for PDRs that increases with the respondent’s lot size. A similar analysis of answers to the second question, regarding the state’s outright purchase of open space, again indicates mild sensitivity to the tax-price (a higher Y reduces support), and positive effects on support for state land purchases if the person interviewed: had heard about this program; believed such purchases were a good use of tax dollars; and was under 35 years old. Support for land purchases, like the support for PDRs, was positively related to lot size, but this effect was statistically less reliable than in the PDR case.

What can we conclude from such results? First, as households “sprawl” into less urban settings and consume more private land per person (bigger housing lots), they may also increase their demand for publicly-funded open space, adding even more to the pressure on suburban and rural land markets. But this may ultimately provide a brake on the process. As land prices rise due to this pressure, it becomes increasingly expensive to purchase large lots and to provide open space through direct land purchases by the state or its PDR program. How soon this will happen is a question that requires a more dynamic study of housing markets, open space programs, and how they interact to shape Connecticut’s pattern of land use.

