

## **Multifunctionality and Land Use Policy: An Application of Nonmarket Valuation to Urban Fringe Farm and Forest Preservation (46)**

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A tenet of multifunctionality is that agricultural land uses should be compensated for the delivery of nonmarket benefits (amenities) just as they are for market commodities. European and U.S. approaches to multifunctionality differ. As a generalization, European policy has placed greater emphasis on multifunctional benefits and the preservation of these benefits through regulatory or entitlement programs. U.S. policy, in contrast, is more likely to promote policies that favor market incentives and values, though there is increasing openness to evidence of nonmarket values. Both approaches would benefit from systematic evidence concerning public values and willingness to pay (WTP) for nonmarket amenities; the European approach could then more efficiently balance the social value of agricultural and competing land uses, while the U.S. approach could gain greater recognition of the value of multifunctional benefits.

A large research literature shows that the public can hold significant values for nonmarket amenities and associated preservation policies (Bergstrom and Ready 2005). However, these results are mainly disseminated through academic journals and not in a policy-relevant form, i.e., one in which WTP estimates allow policymakers to better understand the relative marginal values for a wide class of preserved land attributes. As a result, land use policy rarely reflects amenity values held by the broader public, and policy debates are increasingly driven by rhetoric from various special interests. Within this context, there is a clear need for user-friendly information on public values for farm and forest preservation, and related policy guidance.

This paper offers a detailed application to demonstrate the importance of WTP data in land-use policy debates involving multifunctional agriculture. Using parametric results of community-

based and statewide surveys for the preservation of farm and forest parcels in Delaware, this paper presents results on a matrix of WTP for the preservation of various land uses in Sussex County, Delaware (13% population growth between 2000 and 2005). The model explicitly allows for WTP to vary as a function of multifunctional attributes, and clearly illustrates tradeoffs involved in policies designed to promote multifunctionality.

The data are drawn from distinct but functionally related choice experiment surveys implemented across the State of Delaware and in targeted Delaware communities. Respondents were asked to evaluate alternative options for farm and forest preservation, where preservation policies varied across attributes characterizing such features as the quantity and type of land preserved, public access provisions, the role of development risk in site selection, preservation methods applied, and household cost. The final survey instrument was mailed to a stratified random sample of 2500 respondents, using Dillman's (2000) survey design method.

Mixed logit models were estimated from survey data, with implicit prices (WTP for marginal attribute changes) and compensating surplus simulated following standard methods (Hensher and Greene 2003). Results allow assessments of point estimate magnitudes of estimated welfare. Capitalized per acre values range between \$15,000 and \$80,000, depending on land and community characteristics. The matrix provides detailed, specific WTP results for particular land types. The development value and agricultural-use value of land parcels in the County are also discussed, suggesting circumstances under which maintaining multifunctional uses is likely to pass the benefit-cost test. Implications for land-use policy are discussed in a concluding section. Results are also discussed in light of possible negative externalities from agricultural use. Finally, a research agenda is outlined for interdisciplinary work in this area.

#### References

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