Journal of Agricultural and Applied Economics, 42,2(May 2010):357–365

Land Use Issues: The Last Settler's Syndrome

Peter A. Groothuis

In the last settler's syndrome, each new settler wants the area to remain as it was on their arrival. Newcomers' preferences often differ from long-term residents, and conflicts arise. To explore land use issues among various groups, a survey of opinions on mountain views was developed and administered to Watauga County residents in western North Carolina. Watauga County provides an interesting case study, because it is a growing area with an influx of newcomers along with long-time residents. The results suggest that agreements can be achieved on some land use issues, whereas disagreements will arise on others.

Key Words: billboards, contingent valuation, land use, scenic amenities, wind energy

JEL Classifications: R14, Q51

Rapid residential development in rural resort areas is occurring throughout the United States. This is particularly true in the Rocky Mountain areas of the west, the coastal regions of the southeast, and some areas of the Appalachian Mountains in the south. Riebsame, Gosnell, and Theobald (1996) focus on the changing landscape in the Colorado Mountains and identify what they call the last settler's syndrome, in which each new settler wants the area to remain as it was on their arrival. They further note that the arrival of more affluent immigrants to an area heightens class distinctions and sometimes creates local land use conflicts. This land use change has also occurred in the southeast, where residents of rural resort areas have divergent backgrounds and differing views of land use (Reynolds, 2001). In addition, in-migration tends to increase property values, road congestion, demand for community services, and additional infrastructure. These changes lead to opportunities and challenges in land use planning (McLeod et al., 1999; Bromley, 2006; Hite, 2001).

One difference that occurs between long-term residents and newcomers in rural areas is that long-time residents focus on land as an agricultural-productive resource, whereas newcomers view land mostly as a recreational-scenic amenity. However, both may be critical to future development. For instance, Hoag et al. (2005) reported that farmers and ranchers often would rather donate their land to conservation easements than sell their land for development. Cho et al. (2008) reported that residents in areas of high population growth are willing to buy conservation easements to protect the environmental amenities. Nelson (2001) noted that migration to a rural area influences both the aesthetics and class structure of the region, and that this creates tensions among area residents. Graves and Waldman (1991) contend that the migration decision of retired individuals depends more on local amenities and housing costs then productivity of labor in an area. Previous research has shown that if newcomers to an area are retirees, environmental amenities play a major role in the migration decision. McLeod, Woirhaye, and Menkhaus

Peter A. Groothuis, professor, Department of Economics, Appalachian State University, Boone, NC.

(1999) further support this view through their finding that in-migration to rural areas in Wyoming is driven by open space and environmental amenities.

Inman et al. (2002) and Inman and McLeod (2002) reported that differing groups have differing views on land use control policies. In particular, Inman and McLeod (2002) found that well-established residents and those with an economic interest in an area tend to support private management strategies, whereas college graduates, wage earners, and those who value a rural lifestyle tend to support public management strategies.

North Carolina's Watauga County offers an interesting case study because it is an area of in-migration among long-term residents. Several questions have arisen, including: Should counties develop zoning ordinances? Should states designate roads as scenic byways? Should billboards be removed? Should the erection of electrical generation wind turbines be allowed? Grassroots organizations have been formed to monitor land use in Watauga County, and one such group (the Committee of 100) helped to designate a section of the new Route 421 as a scenic byway, upon which no billboards are allowed. Another group that identified with the other side of this debate sported bumper stickers saying "No Zoning in Watauga County."

In Boone, the largest town in Watauga County, zoning laws have recently been enacted to protect scenic amenities by limiting development on steep slopes (Unified Development Ordinance). This steep slope ordinance states:

> The purpose and intent for creating the Viewshed Protection District is to preserve the scenic beauty and natural environment of Boone's hillside areas vital to preservation of a high quality of life and continued economic development. The district achieves this desired outcome by minimizing the visual impact of building construction and land development activities.

The changes in ordinances and land-use patterns have led to much contention among Watauga county residents; this contention was the catalyst for this study. To focus on differing land use preferences that may lead to potential conflicts, two contingent valuation scenarios were developed. The first addresses the removal of billboards; the second addresses the building of electrical-generating windmills. Both scenarios focus on changes to the mountain views in the area. In Watauga County, billboards have become an issue because some roads have been designated as scenic byways. Some citizens were opposed to this designation, whereas others suggested removing all billboards from Watauga County roads (Groothuis, Groothuis, and Whitehead, 2007). In addition, wind energy has become an issue. Many individuals want to pursue green energy; many others feel that electrical-generation windmills tarnish mountain views (Groothuis, Groothuis, and Whitehead, 2008).

The debate over the removal of billboards exists not only in the southern Appalachian Mountains, but in the west as well. Oregon has been one of the pioneers in billboard management, attempting to eliminate all billboards. In the United States, since the Highway Beautification Act of 1965, municipalities have passed laws for the removal of billboards for aesthetic reasons. Some have argued that billboard bans infringe upon freedom of speech but, in *Metromedia Inc. vs. San Diego*, the Supreme Court ruled that a city may regulate aesthetics under its police power and generally ban outdoor signs for aesthetic reasons alone (Bond, 1990). In North Carolina, a new state ordinance requires that landowners must be compensated for lost revenue if a municipality bans billboards. This explicitly assigns the property rights to the landowner, making the willingness to pay (WTP) method appropriate for valuation of the amenity.

Another local negative externality that may tarnish mountain views is electrical-generating windmills. For instance, Ladenburg and Dubgaard (2007) found that individuals are willing to pay higher electrical bills if it means that coastal wind farms will be built further from the coast. This negative externality could lead to NIMBY (Not In My Back Yard) syndrome. Economists theorize that NIMBY syndrome leads to inefficient allocation of resources because the external costs of locally undesirable land use are borne locally by the

neighborhood surrounding the facility, while the benefits are distributed globally throughout the economy (O'Hare, 1977; Kunreuther et al., 1987).

Inhaber (1992) suggest that when choosing a location for a NIMBY a politician's concern for remaining in office makes the status quo the default property right due to a reluctance to infringe upon the perceived property rights. To address the problem of inefficiency and to encourage the placement of locally undesirable land use, those that receive the benefits could compensate the neighborhood around the site for bearing the external cost (O'Hare, 1977; Kunreuther et al., 1987). When individuals perceive that the status quo defines the property rights, the WTA becomes the appropriate measure of compensation. Therefore, this study uses the WTA measure of compensation in the wind energy scenerio.

Although the WTP framework is the most common question format in contingent valuation (CV) analysis, the WTA framework is more appropriate given the perceived property rights of individuals in the current context. Carson, Flores, and Meade (2001) suggested that CV analysis will successfully measure the WTA when an appropriate incentive structure is provided and when respondents perceive that the status quo defines the property rights to a collectively owned good. Examples of CV studies that measured the WTA include: Groothuis, Van Houtven, and Whitehead (1998), who focused on hazardous waste facilities; Bateman et al. (1996), who focused on recreational woodlands; and van den Berg, Bleichrodt, and Eeckhoudt (2005), who focused on informal health care.

Although both mountain view scenarios focus on changes to the amenity, the billboard question focuses on a perceived improvement from the status quo with a payment vehicle while the electrical-generating windmill CV question focuses on a potential detrimental change from the status quo with a compensation vehicle. Given that the survey focuses on two different changes to mountain view amenities, it is not a test of the difference between WTP and willingness to accept (WTA) (Horowitz and McConnell, 2002). The different scenarios, however, provide a vehicle to test if changes to the mountain view amenity are different from changes to the status quo in mountain views. In addition, the survey provides insights into how different groups value changes to mountain views as well as the status quo.

Survey Methodology

The CV survey on the value of mountain views was mailed in the spring of 2005 to a random sample of 1,200 Watauga County residents. It was funded by a university research grant and tested using a small focus group. It consisted of a primary mailing, a postcard reminder, and a second mailing to all nonrespondents of the first wave. In the end, 901 useable addresses and 334 responses were obtained for a response rate of 37%. Table 1 contains a summary of the demographic variables. The average age of respondents was 55 years, whereas the average age of all residents over 20 was 45 according to the 2000 US census. The average income of survey respondents was \$61,000,[1] whereas the average income in Watauga County from the 2000 census was \$50,300 in 2005 dollars. The average level of education for the respondents was 15 years; for the county, it was 14 years. Therefore, respondents tend to be older, slightly more educated, and have higher income than the population.

In addition, 11% of the respondents retired to Watauga County,[2] 31% reported having ancestors who lived in Watauga County,[3] and 13% rented their homes in Watauga County.[4] Regarding mountain views, 81% of respondents said they have scenic views that

[1] Income tends to have the most item nonresponse of all demographic questions. Following Whitehead (1994), we impute 18 missing wage values using a wage equation.

[2] The calculation to determine whether a respondent retired to Watauga County was as follows: If Age − Years Lived in Watauga County was $g > 60$, the respondent was considered a retiree.

[3] The question to determine ancestory in Watauga County was: "Do you have ancestors who lived in Watauga County?" (1 = Yes, 0 = No)

[4] The question to determine renter status was: "Do you currently own or rent your home in Watauga County? (0 = Own, 1 = Rent)

Table 1. Summary of Demographic Variables ($N = 344$)

	Mean (Standard Deviation)
Log payment, billboards	4.38 (1.14)
Log offer, windmills	1.56 (1.27)
Ancestor in county (Yes = 1, No = 0)	0.31 (0.46)
Retiree (Yes = 1, No = 0)	0.11 (0.31)
Renter (Yes = 1, No = 0)	0.13 (0.34)
Home with view (Yes = 1, No = 0)	0.60 (0.49)
Drive with view (Yes = 1, No = 0)	0.81 (0.39)
Age in years	55.4 (16.0); range, 21–91
Income in dollars	$61,100 (33,789); range, $10,000 Max $120,000
Education in years	15.2 (3.8); range, 1–24

could be altered by billboards, windmills, or cell towers on daily drives, whereas 59% reported that scenic views from their home could be altered by billboards, windmills, or cell towers.[5] Previous research has found that newcomers, long-time residents, and part-time residents have differing attitudes on land use (Inman and McLeod, 2002; Inman et al., 2002).

In Table 2, opinions of land use for various subsets of Watauga County residents are reported for zoning, land use by owners, and the importance of mountain views. Residents with ancestors from the county were much more likely to consider land usage a private choice that should not be regulated. Regarding zoning, respondents with ancestors in the county were split down the middle, with 47% agreeing that there should be zoning and 43% disagreeing. Sixty-four percent of respondents agreed with the statement that land owners should use their land any way they want, suggesting that residents with ancestors from the area believe land use is an individual choice, not a community choice.

Individuals who retire to the mountains, however, are much more likely to be in favor of zoning regulations. Eighty-two percent of individuals who retire to the mountains favor zoning, whereas only 23% agree that landowners should uses their land any way they want. This group regards land use as more of a community choice.

Almost all respondents agreed or strongly agreed that mountain views are an important part of the quality of life in Watauga County, the only difference being that respondents with ancestors in the county were less likely to strongly agree. These results are consistent with the idea that long-time residents are more likely to value land as a productive resource for uses such as agriculture or forestry, with only secondary nonuse benefits of land as a scenic amenity. Retirees, however, view land largely as a scenic amenity and not as a productive resource. This is consistent with Graves and Waldman (1991), who suggested that environmental amenities are primary motivations for retiree migration. The next section provides an analysis on how much individuals value change in mountain views.

Bivariate Probit Analysis on the Value of Mountain Views

To further analyze land use preferences from various groups, a bivariate probit model is estimated on both the likelihood of agreeing to the removal of billboards and the likelihood of agreeing to allow electrical-generation windmills in a viewshed. The bivarate probit provides the ability to capture correlation in the error terms that univariate probit models ignore. Sun, van Kooten, and Graham (2009) use the bivariate

[5] Each subset of respondents is not mutually exclusive; therefore, comparison of the mean responses is suggestive of differences between groups but is not statistically different.

Table 2. Respondent Opinions of Zoning Regulations

	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know
We should have land zoning in Watauga County.					
Ancestor in county (n = 104)	0.24	0.23	0.20	0.23	0.10
Retiree (n = 37)	0.54	0.28	0.06	0.06	0.06
Renter (n = 43)	0.32	0.32	0.09	0.09	0.18
Total (N = 334)	0.46	0.25	0.10	0.11	0.08
Landowners in Watauga County should be able to use their land any way they want.					
Ancestor in county (n = 104)	0.36	0.28	0.22	0.13	0.02
Retiree (n = 37)	0.06	0.17	0.29	0.34	0.13
Renter (n = 43)	0.16	0.30	0.25	0.25	0.04
Total (N = 334)	0.17	0.21	0.36	0.22	0.04
Mountain views are an important part of the quality of life in Watauga County.					
Ancestor in county (n = 104)	0.55	0.41	0.02	0.00	0.02
Retiree (n = 37)	0.74	0.23	0.00	0.00	0.03
Renter (n = 43)	0.80	0.20	0.00	0.00	0.00
Total (N = 334)	0.73	0.24	0.01	0.00	0.02

Subsets are not mutually exclusive sets.

probit model to test for differences in WTP and WTA in public forage. In this case unmeasured characteristics may cause respondents WTP to be correlated with their WTA measure. Both choices are modeled as follows.

Billboards

Consider the utility function of a resident who receives utilities from both a consumption good, z, and a scenic view amenity, q, where q represents quality of the scenic amenity that can be affected by the presence of billboards. The resident then maximizes her utility, $u(q, z)$, subject to a budget constraint, $y = pz$, where the price of z is normalized to one. Solving for the indirect utility function yields $v(q, y)$. The WTP for the scenic view amenity is implicitly defined at the payment that equates indirect utility with different quality conditions, $v(q^o, y) = v(q', y - WTP)$, where q^o is the current quality and q' is the improved quality.

In our case, the WTP question for billboard removal follows a dichotomous choice framework. The variable *Yes* is a qualitative variable equal to 1 if the respondents answered "For" to the following question:

> The State of North Carolina through the Highway Beautification Act has suggested removing billboards along roads. The federal government has mandated that when billboards are removed land owners need to be compensated for lost income from billboards. Suppose Watauga County wants to remove billboards to improve mountain views. Suppose that to implement the removal of billboards county residents must pay \$A to compensate land holders for the removal of billboards. Remember, if the proposal passes you would make a one-time payment of \$A in higher taxes and you would have \$A less to spend on other things. Also remember that billboards would no longer be allowed on Watauga County highways. Are you in favor of this proposal?

where the possible answers are "For," "Against," and "Don't Know." \$*A* is a randomly assigned one-time payment variable with the value of \$10, \$25, \$100, \$250, or \$500.[6] One problem that arises when coding dichotomous choice CV questions is what should be done with "Don't Know" responses. We follow the status-quo conservative approach and code all "Don't Know" responses as "Against" responses (Champ and Bishop, 2001; Groothuis and Whitehead, 2002; Vossler and Kerkvliet, 2003;

[6] The bid values were chosen after a focus group provided input on early drafts of the survey.

Caudill and Groothuis, 2005). This becomes the **Yesb** variable.

Windmills

Wind energy may create negative externalities for citizens of the Appalachian Mountains when windmills are built in the viewshed (an area visible to the human eye from a fixed vantage point). Consider the utility function of a resident who receives utilities from both a consumption good, z, and a scenic view amenity, $x(q)$, where q represents quality of the scenic amenity that can be affected by the presence of windmills. The resident then maximizes her utility, $u(x(q), z)$, subject to a budget constraint, $y = px + z$, where the price of z is normalized to one. Solving for the indirect utility function yields $v(p, y, q)$, where p represents the price of the scenic amenity and y represents income. The WTA, for lowering the quality of a scenic view amenity is found when $v(p^0, q^0, y) = v(p^0, q^1, y + WTA)$, where p^0 is the current price, q^1 is lowered quality and WTA is the WTA compensating variation for lowering scenic view quality.

In our case, the CV question for the windmill proposal is:

> Suppose, to generate Green electricity, windmill generators are to be built on four ridge tops throughout Watauga County. To compensate individuals in the county for accepting windmills, electric utility bills would be reduced by $B each month per household. Suppose that this proposal, approving the electrical payment reduction and allowing electrical windmills to be built, is on the next election ballot. How would you vote on this proposal?

where the possible answers are "For," "Against," and "Don't Know." $\$B$ is a randomly assigned monthly payment variable with the value of $1, $2.50, $5.00, $10.00, or $50.00.[7] Once again, one problem that arises when estimating dichotomous choice CV questions is what to do with "Don't Know" responses. We follow the status quo approach and code all "Don't Know" responses as "Against" responses (Caudill and Groothuis, 2005; Groothuis and Whitehead, 2002). This becomes the variable labeled as **Yesw.**

In both specifications, the same set of independent variables is used. These variables include a dummy variable for the following respondent characteristics: retiring to the mountains, having ancestors in the county, and/or renting their home in the county. These variables can be used to test for divergence of preferences for protecting mountain views. The independent variables also include a dummy variable on whether billboards or wind turbines can influence the respondent's view of their home or daily drive. These variables capture respondent-specific effects on mountain views. It is predicted that respondents who have homes with mountain views may be more influenced by windmills, whereas respondents who have mountain views on their daily drive will be more influenced by billboards. Demographic variables on age, years of education, and income are also included. Positive coefficients on the income variable are predicted in both specifications if mountain views are considered normal goods.

Results

The results of the bivariate probit are reported in Table 3. The first test of the implication of the models is to determine whether compensation plays a role in the location of windmills and whether payment plays a role in the removal of billboards. First, the coefficient on the log tax amount for billboard removal is negative and statistically significant, whereas the log offer amount for allowing electrical generation windmills is positive and statistically significant. Both results are consistent with the theory of the WTP to remove billboards and the WTA to allow windmills.[8] These results show that most individuals regard mountain views as an amenity that is valuable to the quality of life

[7] The bid values were chosen after a focus group provided input on early drafts of the survey.

[8] Log values of A and B were used because they provided a better statistical fit. When the linear values of A and B were used, the results were essentially the same.

Table 3. Bivariate Probit Model Likelihood of the WTP to Remove Billboard Likelihood of the WTA to Allow Windmills ($N = 344$)

	Billboards, Yesb	Windmills, Yesw
Constant	−0.763 (0.14)	0.432 (0.40)
Log payment, billboards	−0.291 (0.00)	
Log offer, windmills		0.198 (0.00)
Ancestor in county	−0.659 (0.00)	−0.347 (0.04)
Retiree	0.654 (0.03)	−0.479 (0.05)
Renter	0.598 (0.02)	−0.025 (0.91)
Home with view	0.249 (0.16)	−0.293 (0.07)
Drive with view	0.687 (0.00)	0.081 (0.69)
Income	0.001 (0.51)	−0.004 (0.04)
Education	0.050 (0.02)	0.008 (0.68)
Age	0.008 (0.19)	−0.0003 (0.75)
Rho	0.170 (0.09)	
Log likelihood	−393.18	
Mean WTP (standard error)	$55.07 (15.88)	—
Mean WTA (standard error)	—	$1.64 (0.77)

P values are presented in parentheses (except for WTP and WTA values).

in Watauga County. People agreed to a one-time payment of $55 to improve mountain views through the removal of billboards but require compensation of $1.64 per month on their electrical bills when the mountain views are tarnished from the building of electrical-generating windmills. Both the median estimates and the standard error estimates were calculated using the Cameron and James (1987) technique.

In the windmill specification, the coefficient on income is negative and statistically significant, suggesting that the change in mountain views is a normal good. This result is not found in the billboard specification. The coefficient on education, however, is found to be positive in the billboard specification but statistically insignificant in the windmill specification. The coefficient on the age of the respondent is insignificant in both specifications.

As predicted, respondents who had homes with mountain views were less likely to accept windmills, and respondents who had daily drives with mountain views were more likely to pay more to remove billboards. These results suggest that compensation and payments are more important to respondents whose views are most affected by billboards or windmills.

Focusing on the various groups revealed that individuals who retire to the mountains are more likely to pay to remove billboards and less likely to accept windmills. Mountain views are therefore an important amenity for those who choose to retire to Watauga County. This result is consistent with Graves and Waldman (1991), who suggested that a migration decision in retirement depends primarily on environmental amenities. Individuals who have ancestors in Watauga county were less willing to pay to remove billboards and less willing to accept windmills, suggesting that the status quo in the mountains is important to this group. Individuals who rent homes are more likely to pay to remove billboards, whereas the coefficient on this dummy is statistically insignificant in the windmill specification. Overall, the results suggest that conflict may arise between residents with ancestors in the county and newcomers who are retirees in some areas, such as the removal of billboards, but agreement may be acheived in other areas, such as the building of electrical-generating windmills in the county. Finally, the correlation between specification error terms (as measured by rho) is positive and significant, suggesting that an unobservable characteristic makes individuals who are willing

to pay to remove billboards also are more likely to accept windmills in the county.

Conclusion

Rapid residential development in rural resort areas occurs throughout the United States, and subsequent conflicts often arise between newcomers and long-term residents. In this study, the results show that long-term residents are less in favor of zoning laws, whereas newcomers are more in favor of land use restriction. The bivariate probit results indicate that individuals who retire to the mountains are most interested in mountain view amenities. This group is willing to pay more to remove billboards but requires more compensation to allow windmills in their viewshed. The results also show that individuals who have ancestors in the area are more concerned with maintaining the status quo with regard to mountain views. This group is less willing to pay to remove existing billboards but requires more compensation to allow electrical-generation windmills.

To obtain an understanding of the magnitudes of the effects, both the WTP and WTA were estimated for the various subsets of respondents. For instance, the WTP to remove billboards was $55 when evaluated at the means. The WTP, however, rose to $840 for retirees and fell to $9 for respondents who have ancestors in the county. These results show a divergence of preferences. Conflict arises when newcomers see billboards as a major eyesore, whereas current residents with ancestral roots find billboards of little or no concern.

In addition, the WTA to allow electrical-generating windmills was $1.64 per month when evaluated at the county level means (about $20 a year). However, the WTA rises to $8.22 per month (about a $100 per year) for retirees and $4.22 per month (about $50 per year) for individuals who have ancestors in the area. These preferences show a convergence between groups. In this case, both groups viewed electrical-generating windmills as eyesores. Overall, the results show that mountain views are important to all residents but acutely important to individuals who choose to retire to a particular region.

Finally, the results suggest that with the continued migration of newcomers to areas with long-term residents, conflict need not arise on all land use issues. Newcomers will not always be at odds with long-time residents. When agreement between groups occurs, community planners would be wise to promote suchharmonious relations so that when more contentious issues arise, both sides may come to an agreement for the common good. In these cases, with the differing preferences between groups, conflicts that do arise can be lessened by addressing concerns that may appeal to both sides of the conflict. Future research should address how land preservation can enhance economic development in rural resort regions by benefitting both newcomers and long-term residents.

[Received September 2008; Accepted September 2009.]

References

Bateman, I.J., E. Diamand, I.H. Langford, and A. Jones. "Household Willingness to Pay and Farmers' Willingness to Accept Compensation for Establishing a Recreational Woodland." *Journal of Environmental Planning and Management* 39,1(1996):21–44.

Bond, R.D. "Making Sense of Billboard Law: Justifying Prohibitions and Exemptions." *Michigan Law Review* 88,8(1990):2482–2525.

Bromley, D. "Property Rights and Land Use Conflicts: Reconciling Myth and Reality." *Economics and Contemporary Land Use Policy: Development and Conservation at the Rural-Urban Fringe*. Robert J. Johnston and Stephen Swallow, eds. Washington, DC: Resources for the Future, 2006.

Cameron, T.A., and M. James. "Efficient Estimation Methods for 'Closed Ended' Contingent Valuation Surveys." *The Review of Economics and Statistics* 69(1987):269–76.

Carson, R.T., N.E. Flores, and N.F. Meade. "Contingent Valuation: Controversies and Evidence." *Environmental and Resource Economics* 19(2001):173–210.

Caudill, S.B., and P.A. Groothuis. "Modeling Hidden Alternatives in random Utility Models: An Application to 'Don't Know' Responses in Contingent Valuation." *Land Economics* 81(2005):445–54.

Champ, P.A., and R.C. Bishop. "Donation Payment Mechanisms and Contingent Valuation: An Empirical Study of Hypothetical Bias."

Environmental and Resource Economics 19(2001):383–402.

Cho, S.-H., S.T. Yen, J.M. Bowker, and D.H. Newmark. "Modeling Willingness to Pay for Land Conservation Easements: Treatment of Zero and Protest Bids and Application and Policy Implications." *Journal of Agricultural and Applied Economics* 40(2008):267–85.

Graves, P.E., and D.M. Waldman. "Multimarket Amenity Compensation and the Behavior of the Elderly." *The American Economic Review* 81,5(1991):1374–81.

Groothuis, P.A., J.D. Groothuis, and J.C. Whitehead. "The Willingness to Pay to Remove Billboards and Improve Scenic Amenities." *Journal of Environmental Management* 85,4(2007):1094–100.

———. "Green vs. Green: Measuring the Compensation Required to Site Electrical Generation Windmills in a Viewshed." *Energy Policy* 36,4(2008):1545–50.

Groothuis, P.A., G. Van Houtven, and J.C. Whitehead. "Using Contingent Valuation to Measure the Compensation Required to Gain Community Acceptance of a LULU: The Case of a Hazardous Waste Disposal Facility." *Public Finance Review* 26(1998):231–49.

Groothuis, P.A., and J.C. Whitehead. "Does Don't Know Mean No? Analysis of 'Don't Know' Responses in Dichotomous Choice Contingent Valuation Questions." *Applied Economics* 34(2002):1935–40.

Hite, J. "Land-use Change, Resource Competition, and Conflict: Discussion." *Journal of Agricultural and Applied Economics* 33,2(2001):307–9.

Hoag, D., C. Bastian, C. Keske-Handley, D. McLeod, and A. Marshall. *Evolving Conservation Easement Markets in the West*. Western Economics Forum, 2005.

Horowitz, J., and K. McConnell. "A review of WTA/WTP Studies." *Journal of Environmental Economics and Management* 44(2002):426–47.

Inman, K., and D. McLeod. "Property Rights and Public Interests: A Wyoming Agricultural Lands Study." *Growth and Change* 31(2002):91–114.

Inman, K., D. McLeod, and D. Menkenhaus. "Rural Land Use and Sale Preferences in Wyoming County." *Land Economics* 78,1(2002):72–87.

Inhaber, H. "Of LULU's, NIMBY's, and NIMTOO's." *The Public Interest* 107(1992):52.

Kunreuther, H., P. Kleindofer, and P.J. Knez. "A Compensation Mechanism for Siting Noxious Facilities: Theory and Experimental Design." *Journal of Environmental Economics and Management* 14(1987):371–83.

Ladenburg, J., and A. Dubgaard. "Willingness to Pay for Reduced Visual Disamenities from Offshore Wind Farms in Denmark." *Energy Policy* 35(2007):4059–71.

McLeod, D., J. Woirhaye, and D. Menkhaus. "Factors Influencing Support for Rural Land Use Control: A Case Study." *Agricultural and Resource Economic Review* 28(1999):44–56.

Nelson, P.B. "Rural Restructuring in the American West: Land Use, Family and Class Discourses." *Journal of Rural Studies* 17,4(2001):395–407.

O'Hare, M. "'Not on my Block You Don't': Facility Siting and the Strategic Importance of Compensation." *Public Policy* 25,4(1977):407–58.

Riebsame, W.E., H. Gosnell, and D.M. Theobald. "Land Use and Landscape Change in the Colorado Mountains I: Theory, Scale, and Pattern." *Mountain Research and Development* 16, 4(1996):395–405.

Reynolds, J.E. "Land Use Changes and Competition in the South. *Journal of Agricultural and Applied Economics* 33,2(2001):271–81.

Sun, L., G. Cornelis van Kooten, and M. Graham. "Voss, 'What Accounts for the Divergence between Ranchers' WTA and WTP for Public Forage?" *Forest Policy and Economics* 11,4(2009):271–9.

van den Berg, B., H. Bleichrodt, and L. Eeckhoudt. "The Economic Value of Informal Care: A Study of Informal Caregivers' and Patients' Willingness to Pay and Willingness to Accept for Informal Care." *Health Economics* 14,4(2005): 363–76.

Vossler, C., and J. Kerkvliet. "A Criterion Validity Test of the Contingent Valuation Method: Comparing Hypothetical and Actual Voting Behavior for a Public Referendum." *Journal of Environmental Economics and Management* 45(2003):631–49.

Whitehead, J.C. "Item Nonresponse Bias in Contingent Valuation: Should CV Researchers Impute Values for Missing Independent Variables?" *Journal of Leisure Research* 26(1994):296–303.