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Abstract

Interest in conservation easements has grown, but relatively little is known about agricultural landowner preferences for conservation easements. Survey data are collected, segmented by landowner respondents' states of residence, and analyzed. Responses indicate landowners are interested in preserving agricultural lands, but the majority of respondents were not interested in choosing conservation easement scenarios. Results suggest that interaction with conservation organizations, mistrust of land trusts, knowledge of easements, and less financial dependence on agriculture impacts preferences for conservation easements. The authors suggest that increased educational information and tradable income tax credits may improve landowner acceptance of conservation easements.

Landowner Preferences for Conservation Easements: Responses from Two Intermountain States

By Graham H. McGaffin, Donald M. McLeod, Christopher T. Bastian, Catherine Keske Hoag, and Dana L. Hoag

Introduction

Landowners interested in preserving agricultural lands for continued production may consider conservation easements as they can prevent conversion of agricultural land to alternate uses and the subsequent loss of productivity and other associated amenities. The use of conservation easements as a means of protecting agricultural and rural amenities has increased in recent years (Kiesecker et al., 2007). The market for conservation easements, although expanding, remains difficult to observe due to the dynamics of easement transactions. Conservation easements (CEs) are agreements via private negotiations between landowners and organizations seeking to acquire easements. Factors that influence the supply of easements consequently are not fully understood.











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CEs are voluntary but legally binding agreements established between the landowner and an organization. When agreeing to a conservation easement either through donation and/or a sale, a landowner forgoes his or her right to develop the land or sell it to a developer. Landowners can organize the agreement such that they are still able to live and work on the land. Landowners entering into an easement frequently receive tax benefits and/or payments for retiring the development rights from their land. Because CEs are private agreements, many different issues may be specifically addressed in the documents based on the desires of both landowners and conservation organizations.

This research explores conservation easement preferences of agricultural landowners as well as other relevant information that may influence easement decisions. Survey responses of Colorado and Wyoming landowners are analyzed to achieve the research objective. Understanding factors that influence conservation easement decisions may improve the overall efficiency of matching landowners and land trusts within this emerging market. Moreover, CEs may lead to increased retention of the agricultural production potential for future generations as well as maintain the presence of agriculture as a base of rural economies.

Background and Review of Previous Work

Olenick et al. (2005) found that the majority of landowners responding to their survey were willing to participate in a land management program, but they preferred to do so through a shortterm commitment (5-10 years). Chouinard et al. (2006) investigate the trade-off agricultural producers in eastern Washington often face between profits and "stewardly" activities when selecting farm practices. Chouinard et al. (2006) define stewardship to be someone who is responsible for another's property, and explain that stewardly producers view their own property as someone else's property (i.e., future generations' property). Their results conclude that some farmers stated a willingness to forgo profits, and the amounts stated by those willing to trade profits for conservation activities were at "...reasonable levels for the farm area in question" (Chouinard et al. 2006, pp. 32). These results suggest that farmers are not solely motivated by a profit-maximizing decision framework and prefer shorter term commitments for programs.

Duke (2004) investigated factors influencing Delaware landowners' decisions to participate in farmland preservation programs. Data were collected for the analysis from mail surveys sent to both

participants and non-participants of land preservation programs. The results indicated that stewardship (i.e., a belief that ownership of the land is shared with future generations and therefore land should be responsibly managed to ensure future uses) increased participation in state level agricultural lands preservation programs and participation in federal conservation programs. The results also indicated that working with nature decreased participation in federal commodity programs while valuing land ownership decreased participation in federal conservation programs.

Lynch and Lovell (2003) obtained data to explain participation in agricultural land preservation programs collected through a phone survey conducted in 1999 in Maryland. Results indicate that if a landowner had a larger percentage of prime soils relative to other landowners, then that landowner was less likely to participate in land preservation programs. The results also identified that if a landowner earned less than 25 percent of their income from farming, that landowner was less likely to participate.

Zollinger and Krannich (2001) conducted both focus group interviews and a mail survey of agricultural landowners in Utah regarding their preferences toward farmland preservation programs. These programs included agricultural zoning, right to farm legislation, purchase of development right (PDR) programs, greenbelt tax relief, and inheritance tax relief. The authors concluded that tax relief programs were the most preferred and PDR programs to be the least acceptable. The authors note that PDR programs tended to be viewed more favorably by landowners with knowledge of PDR programs.

Some conclusions that can be drawn from relevant literature about landowners include the following: preferences for shorter term contracts; a willingness to forgo profits to ensure land conservation when motivated by stewardship; the negative influence of prime soils on program participation; the negative influence of lower dependence on agriculturally earned income; and preferences for programs that offer tax benefits. This research focuses on a broader set of conservation methods than easements, however.

Methods

The results reported here were obtained from responses to the Wyoming and Colorado Landowner Survey conducted in January, 2007. Information used to construct the survey was gathered through a series of focus groups with Colorado and Wyoming landowners.

Focus groups were held in a very informal environment and landowners were encouraged to speak their thoughts regarding topics addressed (see Miller et al., 2011 for details). After constructing a survey draft, feedback was collected from persons knowledgeable in survey methods and design as recommended by Dillman (2000).

The Wyoming Agricultural Statistics Service in conjunction with the Colorado Agricultural Statistics Service drew a random sample of agricultural producers throughout Colorado and Wyoming that possessed at least fifty acres and had \$1,000 dollars annually in sales. The random sample was stratified by acres owned and amount of sales based on the most recent agricultural census proportions available. The sample drawn was to be representative of producers in Colorado and Wyoming as a region.

The survey was delivered by the National Agricultural Statistics Service using a modified Dillman (2000) design. The first mailing was a pre-questionnaire message printed on a post card that informed potential respondents about the survey to come. The second mailing consisted of a cover letter, the survey, and a business reply envelope. One week later a postcard reminder was sent asking landowners to reply. Two weeks after that, the final mailing was sent out. The final mailing consisted of a cover letter (asking landowners to reply if they had not done so already), the survey, and a business reply envelope. Two weeks after the final mailing, approximately 10 percent of non-respondents were sampled via telephone. Telephone respondents were interviewed with the entire survey, not a sub-sample of questions.

Surveys were mailed to 4,935 potential respondents (3,764 from Colorado and 1,171 from Wyoming), with a total response rate of 46 percent after mailings and phone interviews, resulting in 2,270 responding landowners; 1,575 Colorado landowners and 508 Wyoming landowners responded to the survey. Remaining respondents (187) did not indicate a state of residence. Response rates across the individual versions of the survey were similar by state. It should be noted that Miller (2007) examined mail versus phone respondents by state and concluded non-response bias was not an issue.

Survey Description

The survey consisted of four sections. Section A included Likert Scale questions designed to elicit responses regarding landowners' preferences for agricultural land preservation, agricultural land

development issues, and the importance of agricultural amenities to their specific communities. Likert scale questions had a five point scale ranging from strongly disagree to strongly agree which also included a neutral response. Such questions measure the strength of respondents' attitudes (Zikmund 1989). Section B included questions regarding the characteristics of the land and what the landowner estimated his or her land to be worth in the current market (\$ per acre).

Section C focused specifically on conservation easements. This section also included two stated choice questions designed to elicit landowners' preferences regarding conservation easements. For each of the two stated choice questions, landowners were asked to choose one of two given easement scenarios they preferred, or choose neither. Twelve versions of the survey, containing two stated choice questions each, were developed with varying attribute levels across each easement scenario. It is important to note that all questions other than the stated choice scenarios were the same across all of the surveys. Thus, only attribute levels of the easements in the stated choice questions varied across the survey versions. The twelve versions were mailed to an equal number of potential respondents. Section D of the survey elicited respondents' demographic information.

Results

Table 1 reports frequencies of responses to selected Likert Scale questions (6 out of 18 questions) allowing respondents to check how strongly they agreed or disagreed with statements in Section A of the survey regarding their preferences for agricultural land preservation, agricultural land development issues, and the importance of agricultural amenities to their specific communities. The majority of respondents agreed or strongly agreed that agricultural lands were being converted to development and/or being purchased by people with little interest in agricultural production. Moreover, the majority of respondents agreed or strongly agreed that people moving into their communities were changing its customs and cultures. These results suggest the majority of landowners responding to these questions were impacted by issues related to loss of agricultural lands for productive purposes and population inmigration to their communities. At least 77 percent of respondents indicated that the land they owned and that the natural amenities in their communities should be preserved for future generations. Moreover, nearly 75 percent of respondents indicated that they believed they managed lands in a manner that benefitted their communities. All of this suggests respondents are interested in preserving their agricultural

lands and the amenities they provide for their communities as development pressures increase. This would suggest there should be interest in conservation easements as a potential tool to protect these lands.

Each stated choice question allowing the respondent to choose or not choose an easement scenario is treated as a separate observation (see Louviere et al., 2000). Thus, cross tabulations regarding conservation easement selection results are based on a number of observations greater than the number of respondents reported in the methods section. Table 2 reports the calculated chi-square statistic across the two stated choice survey questions. The results indicate that approximately 31 percent of responding Colorado landowners and approximately 22 percent of responding Wyoming landowners chose one of the conservation easement scenarios offered in the survey. Moreover, the calculated chi-square statistic indicates significant difference in frequency of responses to the stated choice questions across state of residence, implying that regardless of sample size, Colorado landowners chose an easement significantly more frequently than Wyoming landowners (note that the results do not include non-responses). However, it is interesting to note that despite respondents' overall interest in preserving agricultural lands, most did not choose a conservation easement scenario. Understanding why Colorado landowners were more likely to choose an easement than Wyoming landowners could provide insights into this seemingly counter-intuitive result.

Table 3 reports chi-square statistics testing the percentage of respondents in Colorado and Wyoming or landowners that accepted an easement that have been approached by a conservation organization regarding easement placement on a parcel of the land they own or manage. The results indicate that the percentage of Colorado landowners who have been approached (17.77%) is significantly higher than the percentage of Wyoming landowners approached (11.45%). Table 3 also reports total responses across easement choices rather than total respondents, and it reports a chisquare statistic that compares the percentage of landowners choosing an easement that have been approached by a conservation organization against the percentage of landowners not choosing an easement that have been approached by an organization. The results indicate that landowners who have been approached by an organization are significantly more likely to choose a conservation easement than landowners who have not been approached. This suggests one reason why Colorado landowners are more likely to

choose a conservation easement is that they have been approached more frequently by conservation organizations.

Results reported in Table 4 identify that a significantly higher percentage of Colorado landowners have confidence in land trust organizations (LTOs) to protect their interests if an easement is established. Additionally, results in Table 4 indicate that a significantly higher percentage of landowners choosing easements have trust in LTOs than do landowners who did not choose an easement. It is again necessary to note that results reported in Table 4 represent responses to these particular survey questions, as landowners had two opportunities to choose a stated choice easement. These results are rather intuitive, but they suggest that Colorado landowners are more likely to choose conservation easements because a higher percentage of Colorado landowners believe LTOs will protect their interests if an easement is established.

Table 5 suggests that a significantly higher percentage of Colorado landowners own or manage land that currently borders land with an easement in place. Approximately 17 percent of Colorado landowners and eight percent of Wyoming landowners currently own or manage land that borders an existing easement. Table 5 also indicates that landowners who own or manage land that borders an easement are significantly more likely to choose an easement for their own property. This outcome indicates potential knowledge of, or experience with, conservation easements as compared to landowners whose land does not border an existing easement improves easement acceptance. This suggests landowners with additional experience and/or knowledge are more likely to choose easements overall.

Results reported in Table 6 indicate that Colorado landowners are on average more confident that they know enough about conservation easements that they could (or had) place(d) an easement on their property if desired. Table 6 also indicates that landowners agreeing that they know enough about easements are significantly more likely to choose a conservation easement. These results suggest that Colorado landowners may be more likely to choose an easement because a greater number of landowners in that state have prior easement knowledge.

An investigation into demographics related to easement acceptance indicates that landowners with more overall education are significantly more likely to choose a conservation easement (Table 7). Table 8 suggests that landowners who chose conservation easements

earned significantly less in agricultural sales during the previous year as compared to other respondents. Table 9 indicates that landowners earning a significantly lower percentage of their income from agriculture are more likely to choose an easement. These results suggest that landowners who are less financially dependent on farming or ranching are more willing to choose easements. This is somewhat counter to the results reported by Lynch and Lovell (2003).

Conclusions and Discussion

Overall, the majority of respondents seem to indicate increased pressures related to the loss of agricultural lands, and consistent with previous literature, the majority of respondents indicated a desire to preserve those lands and their amenities for future generations (Table 1). Despite these potential motivations, the majority of respondents did not choose a conservation easement across the stated choice questions (Table 2). The results presented above identify factors that appear to significantly influence Colorado and Wyoming landowner preferences for conservation easements and ultimately their decisions to accept or reject an easement.

To summarize, the results indicate that Colorado landowners are significantly more willing to accept conservation easements (Table 3). This phenomenon may be due to greater interaction with conservation organizations (Table 3); a higher degree of trust for land trust organizations (Table 4); closer proximity and therefore greater experience with land that currently has an easement in place (Table 5); and a greater amount of baseline knowledge of easements (Table 6). This suggests that land trusts and other organizations interested in agricultural land preservation need to increase contacts with and provide more educational information to landowners in general. Moreover, the results suggest that entities who seek to expand the number of conservation easements may do so by increasing awareness or transparency of the easement process so that landowners are more familiar with easements and gain more trust of potential easement holders. While there is a positive correlation between land trust contact and landowner perceived trustworthiness of these trusts, it would be beneficial to explore the reasons driving the increased trust, aside from mere contact.

The results also suggest that landowners may be less willing to accept easements if they have higher agricultural sales and/or greater financial dependence on agriculture (Tables 8 and 9). This may indicate concern with potential loss of income from placing an easement on the part of landowners. This suggests greater financial

incentives may be required for some landowners if easements are to be of interest to them. These benefits could come in the form of direct financial compensation for extinguishing development rights or potential tax benefits as noted by Zollinger and Krannich (2001).

One example of a program that could affect landowner willingness to enter into easements is found in Colorado. Colorado offers landowners transferable income tax credits, which have been touted as "more powerful incentives than (income tax) deductions" (Lindstrom 2007, pp 2). As part of this program, Colorado landowners who may not have the income necessary to use the income tax credit can sell one dollar worth of income tax credits to a third party for approximately eighty cents. The buyer receives a one dollar tax credit, while the seller earns cash for their efforts (Keske, Gripne, and Sherrod, 2008). Most states, including Wyoming, do not offer these transferable income tax credits. The lack of these financial incentives may be another possible explanation of why Wyoming landowners are less willing to choose easements as compared to Colorado landowners.

Given the potential differences across states and these results, several recommendations seem appropriate for landowners considering conservation easements. There seems to be a general lack of education regarding conservation easements, which likely indicates such information is not easily obtained. Thus, landowners will need to seek out professionals in their area whom they trust and can get desired information from. Professionals such as tax accountants and lawyers should be among those sought out. Moreover, it would seem important for landowners to seek out potential land trusts in their area and ask for information regarding such things as the land trust's mission statement, goals and objectives as well as potential landowners working with them that could be contacted.

These findings also invoke several policy questions that merit further investigation. One key question is the extent to which the Colorado transferable tax credit, apart from other conservation policies, has increased the willingness for Colorado landowners and land trusts to engage in conservation easement transactions. This knowledge would be of benefit to the other states that currently have or are considering transferable tax credit policies. Similarities and differences in the conservation values of protected lands within Colorado and Wyoming would also be of interest in further research.

Endnote

¹ The total sample was split 76 percent Colorado landowners and 24 percent Wyoming landowners, reflecting respective state numbers. This sample split was maintained across survey versions. Response rates across the 12 versions of the survey for Colorado landowners averaged 45.4 percent with a standard deviation of 3.4. Response rates across the 12 versions of the survey for Wyoming landowners averaged 48.5 percent with a standard deviation of 7.6.

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Table 1. Frequency of responses to survey questions regarding agricultural land preservation and development issues

Survey Question	Frequency of responses
Undeveloped, rural and agricultural	58.10% agree or strongly
lands are being converted into	agree
housing developments	
Agricultural land is being purchased	70.40% agree or strongly
by people who have little interest in	agree
agriculture	
People moving into my community	59.40% agree or strongly
are changing its customs and cultures	agree
I believe the land I own or manage	77.00% agree or strongly
should be preserved for future	agree
generations	
Natural amenities in my community	77.62% agree or strongly
should be preserved for future	agree
generations	
I manage my land in a way that	74.28% agree or strongly
maximizes benefit to my community	agree

Table 2. Frequency of response difference regarding easement acceptance segmented by state of residence across stated choice questions

	Accept	Did not accept
Colorado landowner responses (n = 2676)	n = 821 (30.68%)	n = 1855 (69.32%)
Wyoming landowner responses (n = 906)	n = 199 (21.96%)	n = 707 (78.04%)
Calculated $\chi^2 = 25.24$, degrees of freedom = 2	2, Significant at 0.05	

Table 3. Frequency of response difference regarding approach by a conservation organization segmented by state of residence and easement acceptance

	Has been	Has not been		
	approached	approached		
Colorado landowner responses (n = 1514)	n = 269 (17.77%)	n = 1245 (82.23%)		
Wyoming landowner responses (n = 498)	n = 57 (11.45%)	n = 441 (88.55%)		
Calculated $\chi^2 = 11.03$, degrees of freedom = 2	2, Significant at 0.05			
Responses from landowner choosing CE	n = 242 (23.18%)	n = 802 (76.82%)		
(1044)				
(n = 1044)				
Responses from landowners not choosing	n = 326 (12.67%)	n = 2248 (87.33%)		
CE (n = 2574)				
CE (n = 2574)				
Calculated $\chi^2 = 62.05$, degrees of freedom = 2, Significant at 0.05				

Table 4. Frequency of response difference regarding landowner trust in LTOs segmented by state of residence and easement acceptance

	Trust LTOs	Do not trust LTOs		
Colorado landowner responses (n = 1402)	n = 449 (32.03%)	n = 953 (67.97%)		
Wyoming landowner responses (n = 458)	n = 87 (19.00%)	n = 371 (81.00%)		
Calculated $\chi^2 = 28.57$, degrees of freedom = 2	2, Significant at 0.05			
Responses from landowners choosing CE	n = 520 (53.01%)	n = 461 (46.99%)		
(n=981)				
Responses from landowners not choosing	n = 449 (18.67%)	n = 1956 (81.33%)		
CE (n = 2405)				
Calculated $\chi^2 = 402.17$, degrees of freedom = 2, Significant at 0.05				

Table 5. Frequency of response difference regarding land currently bordering a CE segmented by state of residence and easement acceptance

	Yes	No	Don't know		
Colorado landowner responses (n =	n = 260	n = 840	n = 430		
1530)	(16.99%)	(54.90%)	(28.10%)		
Wyoming landowner responses (n =	n = 39 (7.82%)	n = 292	n = 168		
499)		(58.52%)	(33.67%)		
Calculated $\chi^2 = 26.34$, degrees of freedom = 2. Significant at 0.05					
Responses from landowners choosing	n = 232	n = 584	n = 238		
CE (n = 1054)	(22.01%)	(55.41%)	(22.58%)		
Responses from landowners not	n = 297	n = 1478	n = 816		
choosing CE (n = 2591)	(11.46%)	(57.04%)	(31.49%)		
Calculated $\chi^2 = 78.38$, degrees of freedom = 2, Significant at 0.05					

Table 6. Frequency of response difference regarding knowledge of CEs segmented by state of residence and easement acceptance

	Disagree or	Neutral	Agree or
	Strongly		Strongly Agree
	Disagree		
Colorado landowner responses	n = 416	n = 344	n = 708
(n = 1468)	(28.34%)	(23.43%)	(48.23%)
Wyoming landowner responses	n = 168	n = 105	n = 203
(n = 476)	(35.29%)	(22.06%)	(42.65%)
Calculated $\chi^2 = 8.47$, degrees of freed	om = 2, Significant	at 0.05	
Responses from landowners	n = 221	n = 239	n = 591
choosing CE (n = 1051)	(21.03%)	(22.74%)	(56.23%)
Responses from landowners not	n = 814	n = 586	n = 1106
choosing CE (n = 2506)	(32.48%)	(23.38%)	(44.13%)
Calculated $\chi^2 = 56.24$, degrees of free	dom = 2, Significar	nt at 0.05	

Table 7. Frequency of responses difference regarding completed education segmented by easement acceptance

	High	Some	Technical/	Bach.	Some	Graduate
	School	College	Vocational	Degree	Grad.	Education
			degree		Education	
Responses from	n = 233	n = 228	n = 91	n = 239	n = 74	n = 183
landowners	(22.23%)	(21.76%)	(8.68%)	(22.81	(7.06%)	(17.46%)
choosing				%)		
CE (n = 1048)						
Responses from	n = 735	n = 723	n = 268	n = 442	n = 131	n = 269
landowners not	(28.62%)	(28.15%)	(10.44%)	(17.21	(5.10%)	(10.48%)
choosing				%)		
CE (n = 2568)						

Calculated $\chi^2 = 71.71$, degrees of freedom = 5, Significant at 0.05

Table 8. Frequency of response difference regarding agricultural sales segmented by easement acceptance

Indicate last year's gross agricultural	\$0 - \$9,999	\$10,000 -	\$100,000 and	
sales		\$99,999	greater	
Responses from landowners choosing	n = 358	n = 419	n = 245	
CE (n = 1022)	(35.03%)	(41.00%)	(23.97%)	
Responses from landowners not	n = 765	n = 1084	n = 549	
choosing CE (n = 2398)	(31.90%)	(45.20%)	(22.89%)	
Calculated $\chi^2 = 5.38$, degrees of freedom = 2, Significant at 0.05				

Table 9. Frequency of response difference regarding percentage of household income earned from agriculture segmented by easement acceptance

What percentage of your household	0 – 25%	26 - 50%	51 – 75%	76 – 100%
income comes from agriculture				
Responses from landowners choosing CE	n = 509	n = 187	n = 60	n = 250
(n = 1006)	(50.60%)	(18.59%)	(5.96%)	(24.85%)
Responses from landowners not choosing	n = 1091	n = 424	n = 173	n = 676
CE $(n = 2364)$	(46.15%)	(17.94%)	(7.32%)	(28.60%)

Calculated $\chi^2 = 5.38$, degrees of freedom = 3, Significant at 0.05