Participation in Agricultural Land Preservation Programs: Parcel Quality and a Complex Policy Environment

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Data on owner and land characteristics are used to analyze factors affecting participation decisions in Delaware's agricultural lands preservation program, federal commodity programs, and federal conservation programs. A trivariate probit model estimates a set of random utility models of participation. Participation decisions at the state and federal levels are found to be driven by many of the same observed factors, but uncorrelated in unobserved characteristics. The important exceptions are that owners of small parcels under development pressure and with parcels of relatively low environmental quality tend to enroll in commodity programs rather than preservation. In part, the complex policy environment may therefore limit the effectiveness of programs seeking to preserve parcels with the highest environmental quality or facing the greatest development pressure.

Key Words: commodity programs, Conservation Reserve Program, development pressure, Environmental Quality Incentive Program, multivariate probit, Purchase of Agricultural Conservation Easements, Purchase of Development Rights

Farmland preservation programs reduce farmers' risk exposure to lawsuits at the suburban fringe (Adelaja and Friedman, 1999) and reward multifunctionality benefits (Batie, 2003), the amenities of which may have higher social values than the produced commodities (Libby and Irwin, 2003). This paper investigates factors influencing landowners' decisions to participate in farmland preservation programs. Policy makers ought to be concerned that expensive purchase of agricultural conservation easement (PACE) programs may be enrolling parcels that are at the least risk of conversion. This and other parcel-selection issues create a problem where a monopsonistic PACE agency buys a good with some unknown quality attributes—while market power ensures the price is low, asymmetric information suggests the quality is low as well.[1]

Lynch and Lovell (2003) argue that effective PACE programs must consider what motivates landowners to participate. Indeed, a better understanding of participation attenuates an agency's information asymmetry. This paper focuses on empirical participation patterns across two quality dimensions: (*a*) conversion risk from exogenous development pressure, and (*b*) environmental quality.

A trivariate probit model tests whether complementary factors drive participation in preservation, conservation, and commodity programs, and whether unobserved factors are correlated. The trivariate probit estimation improves the quality of coefficient estimates by preventing a source of statistical inefficiency and improves estimation consistency through the use of coefficient restrictions (Khanna, 2001; Poe, Welsh, and Champ, 1997). The conceptual

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[1] This problem is analogous to Akerlof's (1970) "lemons" problem—conceptually, a problem of adverse selection. Selection issues in PACE were, perhaps, first published in Field and Conrad (1975). Lynch and Musser (2001) argue that overcoming this problem is one of the four goals of farmland preservation programs.

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model also tests for the appropriateness of simplifying to single programs the landowners' decision problem. Interested landowners likely consider more than one program at a time, which may provide economies in information gathering and in participation. Single-program participation studies may therefore claim all welfare-enhancing (lowering) outcomes when landowners were actually using multiple programs to generate the synergistic (redundant) outcomes.

Search and learning costs also may be overestimated; Poe et al. (2001) found that education affects participation in voluntary programs. Using two existing data sets and a mail survey of Delaware landowners, the empirical results explain participation in the state preservation program and each of the federal programs. The results suggest owners perceive a complex policy environment—a term suggesting that factors driving participation in one program may also drive participation in other, related programs.

Conceptual models of such settings exist (Just and Antle, 1990), but most empirical studies estimate choice in a simple policy environment. Studies of participation in farmland preservation programs are not common. A recent analysis by Lynch and Lovell (2003) examined participation in Maryland's PACE and transfer of development rights programs. Using data from 902 phone interviews with participants and nonparticipants, Lynch and Lovell found that participation increases in crop production, acreage, satisfying eligibility criteria, farmer legacy, program awareness through neighbors, and distance from a city. Participation decreases in soil quality, off-farm income, and program awareness through a newspaper. Based on findings of earlier efforts evaluating Maryland's programs, PACE will be most successful in areas experiencing low development pressure (Phipps, 1983), and participation will be increased through use of personal contacts as the source of program information (Pitt, Phipps, and Lessley, 1986). This paper extends these efforts by using data from Delaware and by considering related participation decisions.

Although explaining federal participation is of secondary importance in this paper, the participation literature in these areas is larger and the methods are similar. Most studies focus on participation in the Conservation Reserve Program (CRP). CRP participation tends to decrease in land value and farm size (Konyar and Osborn, 1990; Cooper and Osborn, 1998) and increase in greater equivalence between rental payments and the opportunity cost of foregoing production (McLean-Meyinsse, Hui, and Joseph, 1994). Program awareness was also found to be important (McLean-Meyinsse, Hui, and Joseph). With regard to other programs, participation decreases in age, increases in acreage [the Farmer-Owned Reserve Program (Chambers and Foster, 1983)], and decreases in land quality [e.g., the corn program in Iowa (Brooks, Aradhyula, and Johnson, 1992)]. Participation also responds to uncertainty so as to distort benefit-maximizing parcel selection [the Wetlands Reserve Program (Poe, 1998)].

Using a bivariate probit model, Cooper and Keim (1996) assessed payment requirements and management-practice decisions associated with the Water Quality Incentive Program. They conclude that information alone may be enough to generate adoption by some nonparticipants, but also that the USDA's current payment is too low to generate broad participation. Although they employed a multivariate probit technique, Cooper and Keim examined two decisions related to a single program. It is somewhat surprising that few investigations have considered participation in more than one program at the same time. However, a 1987 study by Dicks, Riely, and Shagam found that commodity program participants were more likely to participate in CRP. Despite their use of a difference of means test, and not a multivariate model, the current study's trivariate probit replicates the Dicks, Riely, and Shagam result.

Most existing participation studies use random utility models (RUMs) to establish a coherent utility-theoretic basis for empirical analysis. This paper follows their approach. The institutional environment from which landowners make the three participation decisions is described in the section below. Institutions define markets for preservation easements and land conservation while also affecting supplier behavior in commodity markets. A model of these incentives is presented. The next section models behavior within markets using RUMs and with an econometric specification that tests for joint drivers of participation. The data sets, survey sampling, and main hypotheses are then described, followed by the presentation of estimates with key results and policy simulations. A summary and concluding remarks are offered in the final section.

A Model of the Institutional Context

The conceptual model focuses on the specific institutional environment from the outset. Delaware's agricultural landowning households (owners) are

the economic actors, and their choices about participating in one state and two federal programs are the units of analysis. This section limits discussion to the pecuniary incentives arising from institutions, while the next section integrates pecuniary with nonpecuniary incentives within the RUM framework.

Delaware's use-value assessment program offers baseline state program benefits. The use-value assessment program participants and nonparticipants may apply for higher-order farmland protection benefits from Delaware's two-tiered Agricultural Lands Preservation Program (DALP). Owners first apply to form a new Agricultural Preservation District (AD) or join an existing one, where the initial commitment is 10 years. Most active farms are eligible for AD.[2] Since PACE participants must be in the AD program, and since most in AD intend to enroll in PACE, AD and PACE participation are aggregated in this analysis as DALP participation, coded $D = 1$.[3]

The additional benefits of DALP participation include: (*a*) nuisance-suit protection, (*b*) zero property tax on cropland, (*c*) a realty-transfer-tax exemption, and (*d*) an easement payment for PACE participants. The one-time easement payment is $(1-d)a$ per acre, where a is the easement appraisal and d is the percentage discount the owner is willing to accept. To date, d averages 51%, and the average payment per acre has been $1,039 (Delaware Department of Agriculture, 2003). DALP participation costs include development restrictions (a market value of a) and prohibitions on rezonings and subdivisions. The annualized, net pecuniary returns from DALP participation are π_i^d, where participants respond to parcel-specific and institutional incentives.

The Environmental Quality Incentive Program (EQIP) and CRP determine federal conservation program participation. The pecuniary benefits of EQIP include: (*a*) federal cost-sharing, (*b*) reduced avoidance and averting expenditures accruing privately from improved environmental quality, and (*c*) reduced risk of lawsuit or liability arising from improved environmental quality. The costs include the annualized project expenses that are not cost-shared and the opportunity cost of foregoing production on affected lands. CRP participation generates rental payments and privately accruing environmental benefits. The costs reflect the annualized setup costs and the opportunity cost of production on affected lands. Owners who received any EQIP or CRP payments between 1996 and 2001 are coded as conservation program participants ($CON = 1$). Nonparticipants ($CON = 0$) received $0 in payments—meaning they received payments from other federal programs—or were not found in the database (discussed below). The net pecuniary benefits of participation in EQIP and/or CRP are denoted by π_i^{con}.

Seven programs define federal commodity program participation: production flexibility contracts, marketing loan assistance for commodity and noncommodity crops, loan deficiency payments, marketing loan gains, oilseed programs, and miscellaneous programs. Eligibility requirements for these programs are not modeled. One anticipates that the environmental provisions associated with commodity program participation (say, Swampbuster) may result in synergies for those who also participate in conservation programs. At the extremes of sampled participation, 31% selected production flexibility contracts, while only 1% received marketing loan gains. Owners either participate in commodity programs or knowingly do not. Benefits are summed over all commodity payments received. Similarly, the costs derive from all compliance requirements and foregone opportunities. The net pecuniary benefits are denoted by π_i^{com}. Participants received any positive amount of federal commodity program payments between 1996 and 2001 ($COM = 1$), while nonparticipants ($COM = 0$) received $0 or were not found in the database.

A Model of Behavior

Owners decide whether or not to participate in preservation, conservation, and commodity programs. The pecuniary benefits of participation affect these decisions, but the choice is more complicated than simply maximizing net pecuniary benefits in each program. Nonpecuniary incentives also affect choice, and benefits and costs may accrue jointly, which creates economies or diseconomies in joint

[2] The strictest eligibility requirement is the 200-usable-acre minimum. Yet, owners with less than 200 acres may join existing districts within three miles. The wide dispersion of districts in Delaware suggests the eligibility criteria likely exclude only a small number of agricultural land parcels.

[3] Two arguments support this assumption. First, AD participants not intending to enroll in PACE would reflect the limited circumstance in which an owner endured 10 years of AD participation to avoid a transfer tax or for nuisance-suit protection. Second, 78.4% of AD participants have applied at least once to enroll in PACE. Limited budgets prevented some applicants from being accepted. Of AD participants who had not applied, 57% reported on the survey that they are likely to apply in the future. Only 10 AD participants have not applied to PACE and say that they are unlikely to apply in the future.

participation. In particular, joint participation may economize on the costs of program information, or simply awareness. Owners should gather information less expensively for the federal programs than for a federal and a state program—if for no other reason than the administering agencies are in different governments. All owners face the same underlying choice set, subject to eligibility; yet, behavior in a complex policy environment depends on meta-decisions about awareness that form the effective choice set. The owner's problem is also complicated by uncertainty about program acceptance, which introduces risk preference, and various program eligibility requirements, which can be partially controlled.

These characteristics help explain the observed heterogeneity in participation behavior. They also warrant the use of RUMs, which allow for unobserved—often nonpecuniary—factors to affect decisions. Indeed, RUMs are standard models in the participation literature because they explain the drivers of observed participation outcomes even though the decision-making process and some possible explanatory variables are unobserved. A RUM explains each participation decision, and the trivariate probit model tests whether the unobserved factors in the decisions are correlated (Khanna, 2001). Estimated coefficients also test for complementarities in observed variables. These coefficients are directly comparable to existing empirical models of participation. A simple policy environment cannot be rejected if the participation decisions are uncorrelated and there are no complementarities among the estimated coefficients.

Random Utility Models of Participation

Each participation decision may have different explanatory variables, and so it is useful to begin by considering each decision separately. Let $\mathbf{X}_i^j$ be a vector of owner i's land characteristics, household characteristics, opinions, land management decisions, and higher-order policy decisions, all of which affect i's decision to enroll in program $j \in \{D, CON, COM\}$. This representation assumes that land management decisions and prior decisions about higher-order programs are exogenous. The net annual pecuniary agricultural returns per acre, $A_i(\mathbf{X}_i^j, D_i, CON_i, COM_i, t; D_i\pi_i^d, CON_i\pi_i^{con}, COM_i\pi_i^{com})$, reflect an owner's decisions vis-à-vis commodity markets and program participation. The option for owners to sell land into its highest-and-best use embodies exit, which has a per acre price of $P_i(\mathbf{X}_i^j, D_i, CON_i, COM_i)$.[4] Land values vary with all programs, though the increments capitalized via D are fully responsive to an owner's choice while those of CON and COM are sensitive both to choice and the degree to which one perceives federal programs to be persistent entitlements.

In the year a parcel enters DALP, the owner receives a one-time easement payment per acre of $E_i(\mathbf{X}_i^j) = (1 - d_i)a_i$, and the encumbered parcel's price falls to the capitalized agricultural returns:

$$(1)\quad P_i(\mathbf{X}_i^j, 1, CON_i, COM_i) = A_i(\mathbf{X}_i^j, 1, CON_i, COM_i, t; \pi_i^d, CON_i\pi_i^{con}, COM_i\pi_i^{com})/r,$$

where r is the discount rate. In any year, the appraised value of the easements should explain the difference between the encumbered and unencumbered land values: $P_i(\mathbf{X}_i^j, 0, CON_i, COM_i) = P_i(\mathbf{X}_i^j, 1, CON_i, COM_i) + a$. Optimal conversion occurs at t^*. In addition, owners earn annual off-farm income, $W_i(\mathbf{X}_i^j, t)$, and enjoy nonpecuniary returns, $Z_i(\mathbf{X}_i^j, D_i, CON_i, COM_i, t)$, which Lynch and Lovell (2003) term the nonconsumptive value of owning land at time t.

Owners i maximize utility from land by choosing whether or not to participate in each program. Optimal choices in three separate decision problems determine levels of utility from each program: V_i^d, V_i^{con}, V_i^{com}. Owners choose D_i such that:

$$(2)\quad V_i^D = \max_{D_i} D_i\left(\int_0^4 U_i\left[Z_i(\mathbf{X}_i^j, 1, CON_i, COM_i), A_i(\mathbf{X}_i^j, 1, CON_i, COM_i), W_i(\mathbf{X}_i^j, 1, CON_i, COM_i), rE_i(\mathbf{X}_i^j)\right]e^{-\theta t}\,dt\right) + (1 - D_i)\left(\int_0^{t^*} U_i\left[Z_i(\mathbf{X}_i^j, 0, CON_i, COM_i), A_i(\mathbf{X}_i^j, 0, CON_i, COM_i), W_i(\mathbf{X}_i^j, 0, CON_i, COM_i), COM_i)\right]e^{-\theta t}\,dt + \int_{t^*}^4 U_i\left[rP_i(\mathbf{X}_i^j, 0, CON_i, COM_i), W_i(\mathbf{X}_i^j, 0, CON_i, COM_i)\right]e^{-\theta t}\,dt\right),$$

where θ is assumed to be the owner's time preference. Simultaneously, the owner chooses whether to participate in the federal programs:

[4] The notation from Lynch and Lovell (2003) will be followed, where possible, and adapted to the complex policy environment. When $D_i = 0$, $P_i(\cdot)$ is analogous to Lynch and Lovell's $D_i(\cdot)$.

$$(3)\quad V_i^{con} = \max_{CON_i} CON_i\left(\int_0^4 U_i\left[Z_i(\mathbf{X}_i^j, D_i, 1, COM_i), A_i(\mathbf{X}_i^j, D_i, 1, COM_i), W_i(\mathbf{X}_i^j, D_i, 1, COM_i)\right]e^{-\theta t}\,dt\right) + (1 - CON_i)\left(\int_0^4 U_i\left[Z_i(\mathbf{X}_i^j, D_i, 0, COM_i), A_i(\mathbf{X}_i^j, D_i, 0, COM_i), W_i(\mathbf{X}_i^j, D_i, 0, COM_i)\right]e^{-\theta t}\,dt\right);$$

$$(4)\quad V_i^{com} = \max_{COM_i} COM_i\left(\int_0^4 U_i\left[Z_i(\mathbf{X}_i^j, D_i, CON_i, 1), A_i(\mathbf{X}_i^j, D_i, CON_i, 1), W_i(\mathbf{X}_i^j, D_i, CON_i, 1)\right]e^{-\theta t}\,dt\right) + (1 - COM_i)\left(\int_0^4 U_i\left[Z_i(\mathbf{X}_i^j, D_i, CON_i, 0), A_i(\mathbf{X}_i^j, D_i, CON_i, 0), W_i(\mathbf{X}_i^j, D_i, CON_i, 0)\right]e^{-\theta t}\,dt\right).$$

The owners' utility-maximization problem is additively separable:

$$(5)\quad \max_{D_i, CON_i, COM_i} V_i^d + V_i^{con} + V_i^{com}.$$

In order to maximize a well-defined utility function of this form, owners simply participate when the utility is higher from doing so; otherwise, they do not participate. Equations (2), (3), and (4) can be used to define fully the optimal decision space in terms of the specific incentives.

The model is limited in terms of timing and structure. The maintained conceptual perspective is that all three participation decisions were made in an unordered fashion between 1993 and 2001. Specifically, owners optimally gathered information on all programs of which they were aware, and then manifested their participation decisions by 2001. This time frame best reflects DALP, which began enrolling AD parcels in 1993 and PACE parcels in 1995. Since PACE was primarily funded by the proceeds from a well-publicized windfall legal dispute Delaware won against New York, most owners should have anticipated that PACE would enroll fewer parcels after this fund was exhausted. The slowing of enrollment began after 2000; most applicants from the 2000 and 2001 signups were still waiting in 2003 for funding for their bids.

Owners were also likely to reexamine their participation in the portfolio of federal programs since this time period coincided with the ostensible changes embodied in the 1996 Federal Agriculture Improvement and Reform (FAIR) Act. Therefore, owners faced with a short-term window of opportunity to participate in DALP can reasonably be expected to have reviewed their long-term farming plans during the time period. Nevertheless, a more complete model of this problem would have a dynamic element. The irreversible DALP decision is timed to maximize utility subject to short-term commodity program decisions and medium-term conservation program decisions. The simplified timing in this paper's model is a limitation.

The structural form of the decision problem also warrants qualification. The behavioral specification tests for the significant effect of factors driving three participation decisions and whether unobserved factors are correlated. Yet, there is no structural specification that tests how participation in one program affects participation in another program. Indeed, the model assumes there is no causal effect among programs. One therefore should not interpret the model as a system of simultaneous equations, but rather consider this as an initial effort to test whether agricultural owners' participation behavior is more appropriately viewed in a complex policy environment. Existing single-program participation studies also have assumed that related programs do not influence participation. One contribution of the present paper is to suggest that future research may need to derive structural specifications for the interactions of many programs. Structural models will also need to consider the influence of more programs and have a more sophisticated treatment of the timing of participation decisions.

An Econometric Model of the Complex Policy Environment

To construct the trivariate probit model of participation, begin by considering the owners' three decisions separately. The empirical version of the three observed participation decisions assumes the choices were optimal from the owners' perspectives and can be estimated parametrically as a collection of observable variables and unobservable factors. Utility is not observed, but there exist probabilities for each decision that sum to one and, if each decision is assumed independent, the marginal probabilities for the eight conditions also sum to one.

The six levels of utility, $\mathbf{V}_i$, are combinations of parameterized observable characteristics, $\mathbf{x}_i$, and unobservable characteristics that are distributed via the standard normal distribution: $V_{iz}^{y}(y = z) = \mathbf{x}_i^{y}\beta_z^{y} + \mu_{iz}^{y}, y = D, CON, COM; z = 0, 1$. Differencing results in three equations: $\Delta V_i^{y} = \mathbf{x}_i^{y}(\beta_1^{y} - \beta_0^{y}) + (\mu_{i1}^{y} - \mu_{i0}^{y}) = \mathbf{x}_i^{y}\alpha^{y} + \varepsilon_i^{y}$, where $\varepsilon_i^{y} \sim N(0, 1)$. Following Lynch and Lovell (2003), each of the three equations may be rewritten so that observed behavior is explained probabilistically:

$$(6)\quad \Pr(y_i = 1) = \Pr(\varepsilon_i^{y} > -\mathbf{x}_i^{y}\alpha^{y}) = 1 - \Phi(-\mathbf{x}_i^{y}\alpha^{y}),$$

where Φ is the cumulative normal distribution function, and $y = D$, CON, COM. Equations (6) are solved by selecting parameters, α^{y}, that maximize their likelihood functions:

$$L = \Pi_{y_i=0}\Phi(-\mathbf{x}_i^{y}\alpha^{y})\Pi_{y_i=1}[1 - \Phi(-\mathbf{x}_i^{y}\alpha^{y})].$$

It is expected that owners investigating programs between 1993 and 2001 perceived complementarities among programs. For example, an easement payment may provide an owner with capital for the environmental investments associated with EQIP and CRP. Therefore, *D* and *CON* might be expected to complement each other, and thus they may share a common driver. Econometrically, correlated decisions estimated as univariate probit models can introduce inefficiency (Greene, 2002, p. E17-1; Khanna, 2001; Poe, Welsh, and Champ, 1997).

This paper tests for joint drivers of participation using a trivariate probit model. The trivariate probit results are efficient and also allow for additional statistical efficiency from parameter restrictions (Poe, Welsh, and Champ, 1997). Correlated errors reflect a systematic pattern in the unobserved component of a RUM which, if not accounted for when explaining behavior, results in an invalidation of the assumed error structure. All else equal, this correlation (and the resulting statistical inefficiency) decreases as the observed variables more completely explain choice. Hence, significant correlation may result from a lack of explanatory power.

Greene (1997, p. 911) describes the extension from univariate to multivariate probit models, centering on a new error structure which is distributed by the standard trivariate normal distribution $STND(\rho_{dcon}, \rho_{dcom}, \rho_{concom})$, where $\rho_{i,\&i}$, for $i = D$, *CON*, *COM*, are parameters in the model that measures $\mathrm{Cov}[\varepsilon_i, \varepsilon_{\neq i}]$ and tests for its statistical significance. The trivariate probit produces a cumbersome expression for the likelihood function, which is difficult to evaluate simply because it involves trivariate normal integrals [(Greene, 1997, p. 911) estimated with LIMDEP version 8.0 (Greene, 2002)]. The trivariate probit offers the first set of key hypotheses. To explain the extent to which the owners' decisions vary together, one must look at the estimated correlation parameters and the estimated coefficients in those variables common to all models. If the null hypothesis is rejected for the correlation parameter between any two decisions, unobserved drivers of participation vary together (if $\rho_{i,\neq i} > 0$). If the null hypotheses cannot be rejected, then the trivariate probit results are statistically indistinguishable from the results of univariate probit models except for the parameter restrictions.

Data

Two existing micro-level data sets were linked and augmented by a household mail survey. The first data set included several DALP-participant characteristics, focusing on land characteristics and farm management for approximately 900 collections of parcels known as "projects." These data were reorganized to the household level using owner information. Several types of parcels were removed from the population, including those owned by the government or nonprofit organizations, those that had withdrawn from the AD program, and those with corrupted or highly incomplete records. The derived DALP-participant population included 402 households. Among these, 194 participated in AD, 189 participated in PACE, and 19 enrolled some parcels in PACE and others in AD. From the survey, it was found that 29.8% of DALP participants also owned land not enrolled in DALP.

Second, data on conservation and commodity program participation were collected using the Environmental Working Group's (EWG's) (2003) "Farm Subsidy Database" (FSD). DALP participant names and nonparticipant information—obtained from a USDA/Farm Service Administration (FSA) list—were used to search the FSD. Since the FSD is comprised of tertiary data, there may be some question about its quality. However, because federal participation is measured dichotomously and not in levels of support, it is reasonable to assume that an owner who is found in the FSD actually received some support. The analysis, nevertheless, relies upon the FSD categorization of conservation and commodity programs.

The third data set came from a mail survey, which was administered during the spring of 2003 to

participants and nonparticipants. Many questions on the instrument were designed so that participants and nonparticipants could provide commensurable measures on key variables even though their circumstances differ. Nonparticipants were also asked additional questions about their land characteristics so as to provide measures similar to those available on participants in the DALP data set.

The Dillman (2000) tailored design method was followed in contacting the population of 402 participants and the random sample of 310 nonparticipants, who were selected from the FSA list in proportion to the population in the three counties in the state. The first survey mailing included a $2 cash incentive. Among the participants, 361 were contactable. The adjusted response rate was 72.6%. There were 262 usable surveys out of 276 returned. There were 250 contactable nonparticipants, which excludes noncontactables and 24 people from the FSA list who reported they did not own farmland. Ultimately, 127 surveys were returned from nonparticipants. The adjusted response rate of 46% for nonparticipants reflects 115 usable surveys. The FSD was searched for all 712 members of the sample, and 110 participated in federal conservation and 214 participated in federal commodity programs. Among the 377 usable responses, 19.4% participated in conservation programs and 35.5% participated in commodity programs.

Table 1 presents participation statistics for the usable sample, which are not weighted to reflect the undersampling of DALP nonparticipants. Overall, 48.5% of DALP owners participate in at least one federal program. Statistical correlations suggest that the decisions to enroll are positively correlated. *D* has a correlation of 0.24 with *COM*, and 0.21 with *CON*. Yet, the correlation is higher (0.42) between the federal programs. The trivariate probit results will offer estimates of these correlations in unobserved factors, suggesting the remaining correlations between *D* and the federal programs are not statistically significant, but that *CON* and *COM* are even more highly correlated (0.64).

The independent variables are divided into three types: (*a*) land characteristics, (*b*) land management, and (*c*) owner characteristics/opinions. They measure or proxy for the incentives identified in the models, and thereby capture the returns to farming, returns to conversion, returns to program participation, and utility derived from land ownership in Lynch and Lovell (2003). With a few exceptions, the same variables are used to explain all three decisions.

Table 1. Participation Patterns

Program Participation	Usable Sample (Unweighted Percent [a] in Sample)	
Individual Program Participation:		
$D = 1$	262	(69.5%)
$D = 0$	115	(30.5%)
Use-Value Assessment (currently)	29	(7.7%)
Use-Value Assessment (in last 10 yrs.)	141	(37.4%)
$CON = 1$	73	(19.4%)
$COM = 1$	134	(35.5%)
Joint Program Participation:		
$D = CON = COM = 1$	51	(13.5%)
$D = CON = 1,\ COM = 0$	14	(3.7%)
$D = COM = 1,\ CON = 0$	62	(16.4%)
$CON = COM = 1,\ D = 0$	5	(1.3%)
$D = 1,\ CON = COM = 0$	135	(35.8%)
$CON = 1,\ D = COM = 0$	3	(0.8%)
$COM = 1,\ D = CON = 0$	16	(4.2%)
$D = CON = COM = 0$	91	(24.1%)
Total Joint Program	377	(100%)

[a] These percentages reflect unweighted sample statistics and thus do not reflect the oversampling of DALP participants.

Table 2 defines the variables, and table 3 offers descriptive statistics for DALP participants and nonparticipants. Since there are a large number of coefficient hypotheses, this section highlights only the most important hypotheses across decisions: development pressure and environmental quality.

Owners facing development pressure ought to participate in programs with shorter, nonpermanent commitments because their conversion incentive is higher, and thus DALP participation has a higher opportunity cost. Participants may opt in and out of commodity programs quite easily, implying these programs may offer a lower-cost way to hold land while waiting for the optimal conversion time. As such, DALP participation in high-pressure areas may signal a long-term commitment to agriculture, while those opting solely for commodity programs may be revealing an intention to convert ultimately. Without commodity programs, owners intending to convert would have a greater incentive to make their conversion and DALP decisions earlier. Commodity dollars therefore may prolong exit decisions rather than preserve agriculture.

This may distort the easement market and work against permanent farmland preservation in high-pressure areas. There are three countervailing effects. First, commodity programs may inadvertently

Table 2. Description of Variables and Identification of Sources

Variable	Description	Data Source
Dependent Variables:		
D	Indicator: DALP participant	DALP, FSA
COM	Indicator: Participates in a federal commodity program	EWG
CON	Indicator: Participates in a federal conservation program	EWG
Land Characteristics:		
LOWCSOIL[a]	Cropland soil limitations (low numbers are more productive)	DALP, Survey
Q	Log of total acres owned (range: 3 to 6,092 acres)	DALP, Survey
ENVL[b]	LESA (Land Evaluation and Site Assessment system) indicator: Higher number of environmental factors present	DALP, Survey
AGAREA	LESA indicator: Area is predominately agriculture (over 90% within 1 mile)	DALP, Survey
URBAN[c]	LESA categorical: Parcel proximity to an urban area (larger numbers are more urban)	DALP, Survey
SEWER	LESA indicator: A central sewer is located within 1/4 mile of parcel	DALP, Survey
NOINCREMT[d,e]	Land value in agriculture use equals that in development (low numbers indicate higher development increments)	Survey
Land Management:		
FARM	Indicator: Owner farms parcel(s)	Survey
POULT	Indicator: Poultry on parcel	Survey
CORNSOY	Indicator: Corn or soybeans on parcel	Survey
SALES	Indicator: Farm with sales over $30,000 (range: $500 to $520,462)	DALP, Survey
Owner Characteristics/Opinions:		
LOWPRESV[d,f]	Lack of preservation aesthetic (lower numbers indicate more importance given to preserving land)	Survey
HOURS	Log of average hours per week by household decision makers who work in farming and own land	Survey
V$OPTION	Indicator: Owner values land ownership because of the options it provides	Survey
NATURE	Nature aesthetic indicator: Owner values land ownership because of working w/nature	Survey
STEWARD	Stewardship aesthetic indicator: Owner values land ownership because of stewardship	Survey

[a] Scale: 1 = very high, 2 = high, 3 = medium, 4 = low, and 5 = severely limited. DALP participant data were converted from acres in 10 categories for cropland and six categories for forestland. For cropland, one-half of the weighted-category average was used. For forestland, "6" was recoded as "5" and a weighted average was used.

[b] Five environmental indicators were queried: floodplain, wetlands, historic or cultural sites, endangered or unique vegetation or animals, and potential for impairment of water quality. The approximately one-half of respondents who answered zero or one factor(s) were coded "0," while those with two or more factors were coded "1."

[c] Categories measure how many miles the parcel is from an urban area: 1 = more than 5 miles, 2 = 3–5 miles, 3 = 1–4 miles, and 4 = less than 1 mile. For participants, agency officials measured distance to nearest "high-density Census tract."

[d] Opinion scale (agree with a statement): 1 = very well/important, 2 = well/important, 3 = fairly well/somewhat important, 4 = somewhat poorly/unimportant, 5 = poorly/unimportant, and 6 = very poorly/unimportant.

[e] Respondents were asked how well this statement applies: "Development is worth more than farming in my area."

[f] Respondents were asked how important these factors are when considering DALP participation.

increase the development increment. Commodity programs may prolong exit, and thus participants who intend to convert are able to hold more land off the developed-use market. This may further increase developable land prices and make easements more expensive. All else equal, then, commodity programs may reduce the amount of acres that preservation dollars can buy. A secondary effect of commodity programs is that increasing land prices increases the incentive to convert. Depending on whether owners respond to this secondary incentive by bringing more land to market or increasing speculation, easements may increase or decrease in price. Third, commodity program payments may be partially capitalized into the agricultural land value. Capitalization will reduce the development increment on all parcels, regardless of development pressures. Hence, the net effect of commodity programs on the easement market is unclear, but it is possible these programs decrease the cost-effectiveness of preservation programs.

Table 3. Descriptive Statistics, DALP Participants and Nonparticipants

	Participants		Nonparticipants	
Variable	Mean	Standard Deviation	Mean	Standard Deviation
Dependent Variables:				
COM	0.43	0.50	0.18	0.39
CON	0.25	0.43	0.07	0.26
Land Characteristics:				
LOWCSOIL	2.40	0.71	2.79	0.84
Q [a]	197.19	598.62	60.00	304.62
ENVL	0.58	0.49	0.37	0.49
AGAREA	0.75	0.43	0.20	0.40
URBAN	1.87	1.08	2.49	1.04
SEWER	0.05	0.23	0.10	0.30
NOINCREMT	2.24	1.45	2.52	1.63
Land Management:				
FARM	0.47	0.50	0.30	0.46
POULT	0.16	0.37	0.16	0.36
CORNSOY	0.88	0.33	0.77	0.43
SALES [b]	0.74	0.46	0.52	0.36
Owner Characteristics/Opinions:				
LOWPRESV	1.67	1.14	2.44	1.55
HOURS [a]	15.00	46.76	0.50	27.92
V$OPTION	0.55	0.50	0.39	0.49
NATURE	0.56	0.50	0.44	0.50
STEWARD	0.64	0.48	0.48	0.50
N	262		115	

[a] Descriptive statistics for these variables are presented in levels, although logs are used in the analysis. Also, medians are presented rather than means.

[b] Data were missing in the original sales measure in 121 observations. Not surprisingly, the original sales measure was correlated with *Q*. So, the original sales measure was constructed by predicting the missing values using a linear regression of the observed *Q* and sales. The original sales measure was then dichotomized into the indicator *SALES*.

It is hypothesized that *D* may decrease and *COM* may increase in development pressure. Development pressure increases in *URBAN* and *SEWER*, which measure different aspects of the pressure exerted by the mixing of land uses. Development pressure also should decrease when farming and development have roughly the same market values, i.e., no development increment. The variable *NOINCREMT* categorically measures the absence of a development increment (*NOINCREMT* = 6), i.e., the owners' perception that development and agriculture have roughly the same market value. As owners perceive a higher premium on development, then *NOINCREMT* tends toward one.

A second key hypothesis is that owners with parcels characterized by lower environmental quality will tend to participate in commodity programs and shun state preservation. Commodity programs do not use environmental criteria (*ENVL*) to reward or increase the probability of selection, unlike DALP. Also, commodity participation ought to decrease in environmental quality because of self-selection; the attribute may indicate either low marketability to "environmental" type programs or a set of management decisions, over time, that produced the quality. As with development pressure, commodity programs may actually delay exit on parcels of lower environmental quality. These effects may be mitigated by broad-brush environmental requirements for participating in commodity programs. Owners who do not participate in any programs are the most free when making decisions affecting environmental quality.

Results

Table 4 presents the trivariate probit results, which fit the data well. LIMDEP offers fit statistics for the related univariate probit models. The Zevoina and

Table 4. Trivariate Probit Results

Variable	Dependent Variables		
	D	*CON*	*COM*
Land Characteristics:			
Constant	!1.25**	!1.36*	!2.28***
	(0.56)	(0.81)	(0.75)
LOWCSOIL	!0.37**	!0.26	0.07
	(0.18)	(0.25)	(0.16)
Q	0.44***	0.12	0.08
	(0.10)	(0.09)	(0.09)
ENVL	0.39**	!0.19	!0.42**
	(0.20)	(0.24)	(0.21)
AGAREA	1.36***	0.23	0.54***
	(0.20)	(0.26)	(0.21)
URBAN	!0.29***	!0.19*	!0.19*
	(0.08)	(0.11)	(0.11)
SEWER	0.10	0.78*	0.84**
	(0.38)	(0.41)	(0.37)
NOINCREMT	!0.09	!0.19**	!0.03
	(0.07)	(0.09)	(0.06)
Land Management:			
FARM			1.04***
			(0.22)
POULT	!0.64**	!0.19	!0.35
	(0.29)	(0.29)	(0.29)
CORNSOY	!0.12	0.54	0.92***
	(0.29)	(0.39)	(0.27)
SALES	0.12	0.12	0.12
	(0.15)	(0.15)	(0.15)
Owner Characteristics/Opinions:			
LOWPRESV	!0.19***	0.05	0.03
	(0.08)	(0.10)	(0.08)
HOURS	0.09**	0.19***	0.13**
	(0.04)	(0.05)	(0.06)
V$OPTION	!0.12	!0.39*	0.21
	(0.23)	(0.24)	(0.22)
NATURE			!0.46**
			(0.22)
STEWARD	0.39*	0.48**	0.31
	(0.24)	(0.22)	(0.22)
Correlations			
ρ(*D*, *CON*)	0.27		
	(0.19)		
ρ(*D*, *COM*)	0.18		
	(0.14)		
ρ(*CON*, *COM*)	0.64***		
	(0.11)		
Log Likelihood	!391.28		

Notes: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Values in parentheses are standard errors.

McKelvey (ZM) pseudo-R^2 procedure offered by Greene (2002, p. E15-30) reveals the following fit statistics: $ZM^d = 0.70$, $ZM^{con} = 0.52$, and $ZM^{com} = 0.59$. The observed participation frequencies are used to determine thresholds in the predicted outcomes (following Khanna, 2001; and Lynch and Lovell, 2003). The percentage of correct predictions was 85%, 58%, and 72% for *D*, *CON*, and *COM*, respectively. The especially strong fit to *D* should be expected since the behavioral data and the survey focused on DALP participation.

Two aspects of the estimation warrant discussion. First, the data were weighted to correct for the undersampling of nonparticipants, but the selection of the actual weights was somewhat subjective. Specifically, the decision to overweight nonparticipants (1.96 per observation) and to underweight participants (0.58 per observation) depended directly on the assumption about the size of the unknown population of nonparticipating owners. The weights were calculated to average one, so as not to inflate the data and artificially reduce the standard errors.[5] Estimating this population was a major challenge; FSD contains about 2,280 entries, but this includes participants and multiple entries for what this study measured as the same landowning household. The analysis assumes that the population of Delaware landowners was 1,000. This means all 402 participants were sampled, but only 310 nonparticipants were sampled from the remainder. If the nonparticipating population is larger, then the reported standard errors are too small. An ad hoc sensitivity analysis suggests that a small number of coefficients changed in significance as the population of owners varied from 1,000 to 2,000.

Second, several variables were excluded because the data were inadequate to distinguish their effects on participation. These variables included land value, wetland acres, livestock production, vegetable production, debt pressures, retired members of households, owner's value for crop production, and a use-value assessment indicator.

All variables affected at least one participation decision except *SALES*, the coefficient for which was restricted across decisions. *D* increases in cropland soil quality, acreage, relative environmental quality, predominantly agricultural areas, distance from urban areas, owner's value for stewardship, farming hours worked, and owners with a preservation aesthetic. *D* decreases in poultry production. The signs and statistical significance on acreage and distance from urban areas correspond to findings in

[5] The weights calculated must satisfy two conditions. First, they must average to one and not create new data: $262\,w_p + 115\,w_n = 377$. Also, the weights must reflect the undersampling of nonparticipants. Nonparticipants constitute 59.8% of the population, but only 30.5% of the sample. Hence, $30.5\,w_n = 59.8$. Solving these two equations determines the correct weights.

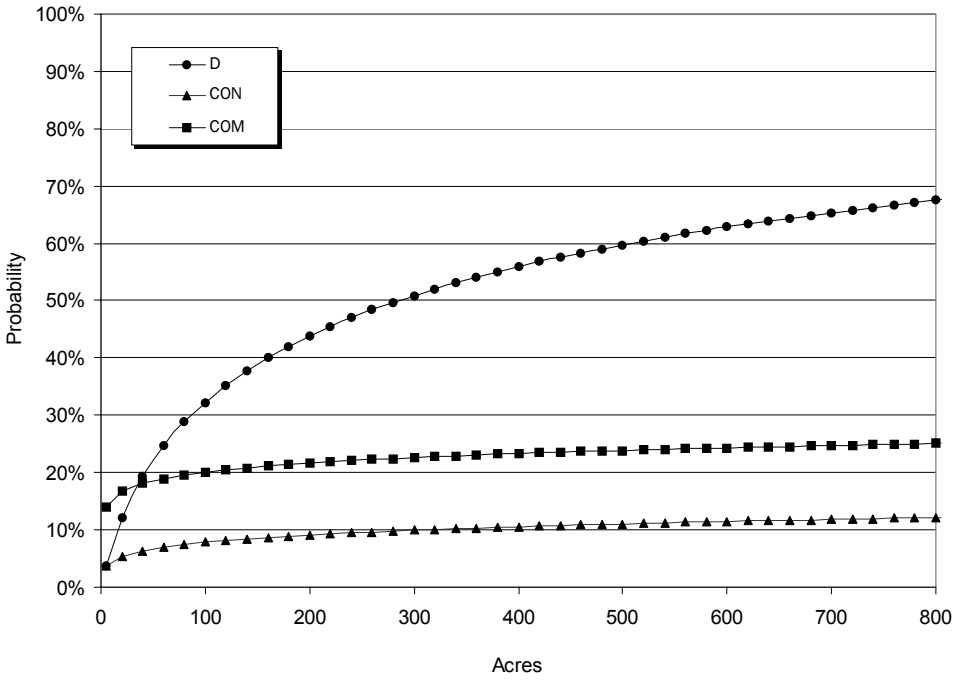

Figure 1. Participation probability by acres

Lynch and Lovell (2003). *CON* increases in distance from urban areas, sewer proximity, the development increment, and farming hours worked. Owner opinions affected *CON*, also; participation increases in an owner's value for stewardship and decreases in owners who value their land-use options. *COM* increases in predominantly agricultural areas, distance from urban areas, sewer proximity, owners who farm their own parcels, corn and soybean production, and farming hours worked. *COM* decreases in the nature aesthetic and environmental quality.

Figure 1 simulates the effect of acreage on participation probabilities using the estimated coefficients and the variables evaluated at their means (as in Greene, 1997, p. 879). Despite the shortcoming that acreage's effect on participation is only significant in *D*, figure 1 allows comparison of results from Delaware's PACE program to results on Maryland's program in Lynch and Lovell (2003). Figure 1 also establishes the basis for figures 2 and 3. Acreage varies up to 800 acres—88% of observations were below this level. Participation in DALP increases to more than 60% over this range of acreage. However, DALP participation lags COM participation at small acreages; their predicted probabilities are equalized at approximately 35 acres. Thus, for owners of small parcels, there is a greater tendency to participate in COM. DALP participation increasingly dominates at levels above 35 acres. On 600-acre parcels, the probability of DALP participation is 39% more likely than in commodity programs. Conservation programs are predicted to be the least popular at all acreage levels. Although the results indicate DALP participation probabilities have a tendency to increase with acreage (largely replicating previous findings), Lynch and Lovell (2003) found participation approached certainty in all the Maryland programs when farm size exceeds 400 acres. In contrast, Delaware participation exhibits more resistance. Even at 2,000 acres, the probability of participating in DALP is only 80%.

A Complex Policy Environment

These results imply DALP participation decisions are made in a largely complex policy environment. As seen from table 4, five variables had statistically significant and similarly signed effects in multiple programs. This finding demonstrates a high degree of complementarity among the observed components of the RUM. Specifically, two variables increased the probability that the owner would participate in all programs: distance from urban areas and farming hours worked. Sewer proximity increased participation in *CON* and *COM*. Owners in predominantly agricultural areas had increased participation

rates in *D* and *COM*. Owner's value for stewardship increased participation in *D* and *CON*. The observed complementarities suggest certain land characteristics and management approaches may indicate jointness in participation. In contrast, higher environmental quality increased participation in DALP but decreased participation in COM. This effect will be assessed below. Because only one variable had a statistically significant, but opposing, effect in multiple programs, there exists evidence that these programs are mainly complementary in observed characteristics.

The results also show that only *CON* and *COM* have statistically significant positive correlations in the unobserved components of decision making (table 4). The estimated correlation between *D* and *CON* is 0.27, and between *D* and *COM* is 0.18, but these estimates are not statistically significant. Yet, there is evidence of complementarity between the federal programs' unobserved effects. Specifically, $\rho(CON, COM) = 0$ can be rejected at the 1% level, suggesting there are unobserved effects that lead the federal programs to be strongly correlated—$\rho(CON, COM) = 0.64$. As indicated by the econometric evidence, the decision to enroll in DALP is affected by many of the same observed factors, but not unobserved factors, that drive participation in federal programs. The methodological implication is that univariate participation results are not necessarily statistically inefficient compared to the trivariate results. The trivariate model, however, allows for the restriction on *SALES*, which equates the marginal utility of "income" across the decisions.

Development Pressure and Participation

If participation among the programs varies differently in development pressure, then there may be opportunities to adjust DALP's parcel selection procedures to provide amenity benefits more effectively. Indeed, Duke and Aull-Hyde (2002) found that 21.2% of the support for PACE in Delaware derived from its growth-control services. For the trivariate probit model, a χ^2 test was performed to determine if the model with all three development pressure variables was statistically different from a restricted model. The null hypothesis that the full and restricted models were the same was rejected at the 5% level. Collectively, development pressure affects participation.

The measure of development pressure increases in *URBAN* and *SEWER* and decreases in *NOINCREMT*. Individually, the statistically significant coefficients from the trivariate estimation suggest proximity to urban areas decreases participation in all programs, but proximity to a sanitary sewer only increases participation in the federal programs. Respondents who report greater development increments are more likely to participate in CON. Hence, the net effect of development pressure is somewhat uncertain. The statistically significant marginal effects of these variables are derived from the univariate results. [Greene (2002, p. E17-10) argues that there exists "ambiguity" about marginal effects in the trivariate model since there is no unique, obvious conditional mean function to which one can attribute the effect.] Proximity to sewers increases the probability of COM participation by 29% and of CON participation by 17%. In contrast, a one-category increase in proximity to urban areas—at the mean, parcels that are 1–3 miles away rather than 3–5 miles—decreases the probability of participation in DALP by 10%, in CON by 3%, and in COM by 6%. A one-category increase in the perceived development increment (*NOINCREMT* decreases) increases the probability of participation in CON by 3%.

The collective effect of development pressure was more pronounced. Figure 2 simulates how *D* and *COM* vary in development pressure (the effect on *CON* shows only a small amount of variation and is not reported). To create a "low" development pressure scenario, the variables were restricted: $URBAN = 1$, $SEWER = 0$, and $NOINCREMT = 6$. In the "high" development pressure scenario: $URBAN = 4$, $SEWER = 1$, and $NOINCREMT = 1$. The results, in part, reflect how participation changes with acreage, but are striking, nevertheless. The probability of participating in DALP under low pressure dominates that of high pressure at all levels. This accords with Phipps' (1983) claim. In contrast, the probability of commodity program participation under high pressure dominates. Thus, these programs lack coordination with respect to development pressure.

The conclusion may also be seen by tracing the outer envelope of maximum high- and low-participation probabilities. Under high-development pressure, owners have a higher probability of choosing commodity programs than DALP up to 300 acres. This differential is largest in connection with small farms—at five acres the advantage is 26%—and it decreases with acreage. Since 60 acres is the median parcel owned by those not participating in DALP, commodity programs are more likely to be favored in high-development pressure areas. In low-

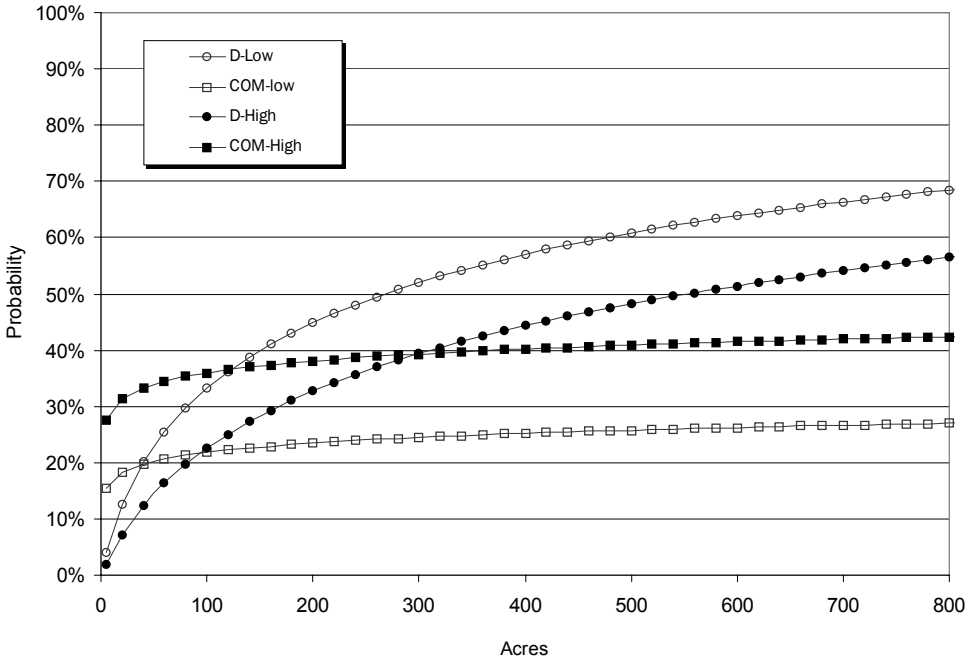

Figure 2. Participation probability and development pressure

development pressure areas, owners with parcels up to 40 acres still have a greater tendency toward commodity programs. Above this level, however, DALP becomes an increasingly preferred option under low pressure. The additional probability of DALP versus commodity program participation in low-pressure areas exceeds 42% on parcels over 800 acres.

The different responses to development pressure may arise from DALP's selection procedures: (*a*) historically, DALP may have been maximizing acres enrolled, thus selecting less expensive parcels; (*b*) DALP's auction favors those willing to accept the "deepest discount" on their development rights, which would not tend to occur in developing areas where land markets are more active; and (*c*) DALP explicitly favors larger parcels, which tend to be located farther from urban areas. The effect also may come from owners self-selecting in response to pecuniary and nonpecuniary incentives. As discussed above, owners may participate in commodity programs as part of their strategy for exiting agriculture. The short-term commitment favors commodity programs over DALP.

Environmental Quality and Participation

A final set of results concerns the effect of environmental quality on participation. Figure 3 predicts DALP and commodity program participation by turning the relative environmental quality indicator off (low quality) and on (high quality). For conservation programs the coefficient on *ENVL* cannot be distinguished from zero, which fails to replicate a similar result from Konyar and Osborn (1990)—higher soil erosion rates increase CRP participation. As with development pressure, a lack of coordination exists. The results show that the predicted probability of commodity program participation is higher among owners with lower environmental quality parcels, while the opposite is predicted for DALP. Under low quality, smaller parcels (under approximately 100 acres) will be more likely to enter commodity programs than DALP. But in higher acreages, DALP participation becomes more likely. At 800 acres, low environmental quality DALP participation is 29% more likely. DALP participation is also favored at an increasing rate in the high-quality scenario. On high-quality parcels over approximately 10 acres, commodity programs are less likely than DALP to generate participation. The probability of DALP versus commodity participation among high-quality parcels increases to 56% more likely at 800 acres.

In sum, high environmental quality parcels favor DALP over commodity programs at almost all acreage levels. Yet, low-quality parcels—at acreages

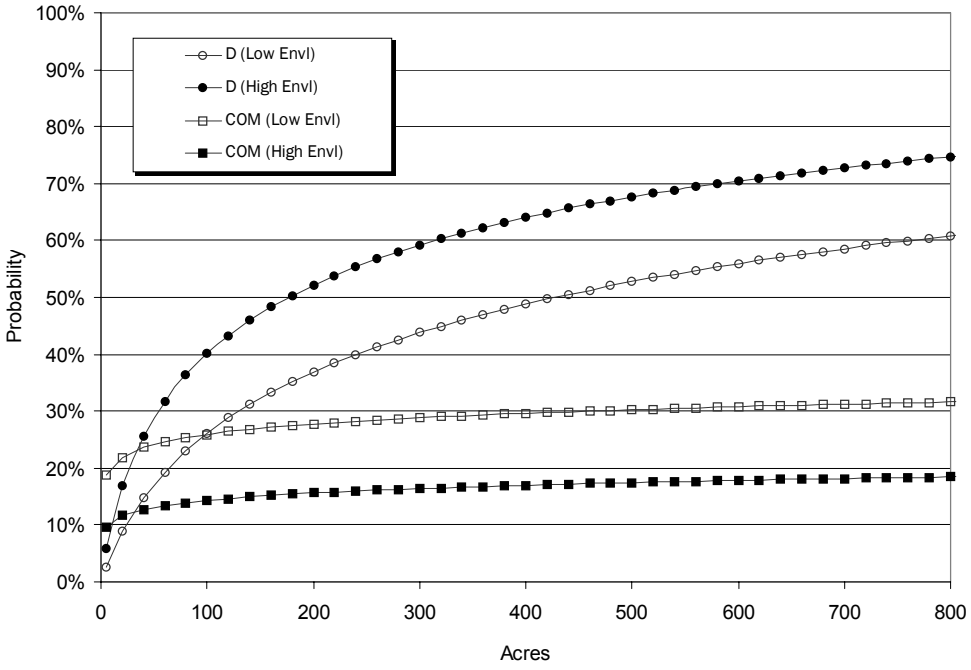

Figure 3. Participation probability and environmental quality

that reflect median nonparticipants—prefer commodity programs. These results are not entirely surprising given that DALP selection procedures reward high environmental quality and commodity programs do not. Nevertheless, the availability of commodity programs may be providing temporary farmland preservation at the suburban fringe. DALP attracts high environmental quality parcels, but these parcels tend to be farther from urban areas where their amenity benefits might be comparatively low. Commodity programs may be keeping lower environmental quality land from exiting farming near urban areas.

Conclusions

This study offers an empirical investigation of participation decisions among state preservation programs, federal conservation programs, and federal commodity programs. The empirical results suggest many observed variables have complementary effects on participation. Furthermore, the unobserved factors affecting the federal programs are positively correlated. The collective evidence reveals that owners tend to make the preservation, conservation, and commodity program participation decisions in a complex policy environment. Nevertheless, the results also indicate preservation and commodity programs may work against one another in terms of development pressure and environmental quality. Collectively, owners tend to participate in commodity programs and not DALP at the suburban fringe, where parcels are smaller and have higher development pressures. For these parcels, the probability of permanent preservation is low. Similarly, owners of low environmental quality parcels collectively have a tendency toward commodity programs but not DALP on small acreage parcels.

These two effects have policy relevance. Parcel selection procedures may need to be adjusted if the goal of preservation is to prevent conversions rather than maximize acres enrolled. High environmental quality preservation participation occurs at high rates and is preferred by owners in the areas far from cities. However, if these parcels are the comparatively less likely to convert, then preservation is not necessarily cost-effective. In areas under the most development pressure, owners tend to shun preservation. Part of this lack of participation may be attributed to the presence of commodity programs, which offer participants an alternative to preservation without requiring a long-term commitment. Development pressure, environmental quality, and acreage are entirely observable. Hence, the fact that DALP tends to select larger parcels with more environmental quality and farther from urban areas

mainly reflects an explicit or implicit policy choice. Based on this analysis, if DALP were to target smaller parcels under more development pressure—with high and low environmental quality—then it also must account for an owner's incentive to participate in commodity programs. Obvious solutions include countervailing selection-ranking or easement-payment bonuses for observable measures, such as small acreage or distance to urban areas, or for observable policy choices, such as commodity program participation.

Program managers may also want to consider the more difficult to observe nonpecuniary drivers of participation. A preservation aesthetic, valuing land-use options, and a nature aesthetic each affected participation in only one program. A less subjective measure—farming hours worked—increased participation in all programs. If an information asymmetry vis-à-vis owner development intentions or willingness to participate is preventing program managers from optimally targeting participants, then the econometric results on these indicators of nonpecuniary value may be useful. The results may help in redesigning parcel selection procedures or program marketing.

If maximum participation is desired, for instance, then there exists a possibility for managers of all three programs to share the costs of an informational packet marketing all programs to nonparticipants, especially those who work many hours on their farm. Targeting using the more observable indicators of parcel quality should be possible, too. For instance, owners in predominantly agricultural areas will be more likely to participate in both DALP and commodity programs. If those types of parcels are desired by DALP, then the agency might increase participation by marketing both programs to nonparticipants in these areas. A final qualification is that the results reflect data with good coverage in Delaware, but the results may not apply well in other states.

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