Farmers in Low Socioeconomic Status Counties Enroll Less Land, Receive Less CRP Funding per Acre

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Study Conclusion: Unobserved Farm and Operator Characteristics, or a Role for Community Well-Being?

Results suggest that after controlling for factors typically thought to be associated with CRP participation, socioeconomic status accounts for some unexplained variation in participation. In general, farms in low socioeconomic status counties are less likely to participate in CRP, enroll a smaller share of their farms when they do participate, and receive smaller payments per acre enrolled. SES appears to have a larger impact on the probability of enrollment than the share of acreage enrolled and payments received per acre. Future research is required to determine whether those observations are due to unobserved, community-level factors that determine participation and are correlated with SES, or whether there exists some other relationship between community well-being and farm participation in Government programs.

References:


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Two Methods to Examine Participation: Logit and Tobit

We estimate a binary logit regression to describe the probability of CRP enrollment. The binary observation of whether or not a farm has land enrolled in CRP is regressed on farm-level characteristics, county-level CRP characteristics, and county-level community characteristics. We control for regression discontinuity status and without a measure of socioeconomic status (SES) to examine its association with other variables that may affect enrollment. Acreage enrolled and payments received in CRP are also of interest. Farms offering contracts in CRP must decide how much land to offer, so acreage and payments are critical variables to examine. In addition to the binary logit, we perform a Tobit model regression, which is a censored regression with left censoring at zero. Using this Tobit model, we calculate the marginal effects of a variable to find the change in probability of enrollment with a unit change in the variable of interest. We estimate a Tobit model in this case to account for the fact that many farms do not participate in CRP. The Tobit model is appropriate in this case because many potential offers of acreage and payments will not be observed when farms are not enrolled in CRP.

What Factors Influence Participation in CRP?

Farm-level characteristics that may be associated with CRP participation include farm size (in acres), operator age and education, tenure (share of operated acreage that is owned), farm household and off-farm income, non-CRP Government programs the farm is enrolled in, and whether the farm is operated by a beginning or minority farmer. Farm data are drawn from the 2002 and 2007 Agricultural Resource Management Survey, administered by NASS and ERS. From the Government side, the cost and potential environmental benefits of the proposed contract are important in determining which contracts are enrolled. Contract costs are based on soil rental rates, which capture the average opportunity cost of retiring farmland in a county. Potential environmental benefits are measured by county average soil erodibility and the county average score in CRP for providing air quality benefits and treating environmental issues in conservation priority areas.

The primary community-level factor of interest is socioeconomic status (SES). We measure SES at the county level with a normalized index of several key socioeconomic indicators (RAND, 2007). The index accounts for average household income, education levels, unemployment rate, poverty status, amount of public assistance, and households with children headed by a female. In addition to SES, we also control for characteristics that are observed on American Indian reservations, the share of county land that is in reservations, and whether the county is within a metropolitan area.

Does Community Socioeconomic Status Affect Individual CRP Decisions and Agreements?

The results suggest farms in low socioeconomic status counties are less likely to be enrolled in CRP (table 1). An increase in SES from the 20th percentile to the 50th percentile is associated with an increase in the probability of CRP enrollment of 0.6% (a 2.1% increase). Including SES affects the relationship between other variables and the probability of enrollment. Including SES variables that may affect enrollment. Acreage enrolled and payments received in CRP are also of interest. Farms offering contracts in CRP must decide how much land to offer, so acreage and payments are critical variables to examine. In addition to the binary logit, we perform a Tobit model regression, which is a censored regression with left censoring at zero. Using this Tobit model, we calculate the marginal effects of a variable to find the change in probability of enrollment with a unit change in the variable of interest. We estimate a Tobit model in this case to account for the fact that many farms do not participate in CRP. The Tobit model is appropriate in this case because many potential offers of acreage and payments will not be observed when farms are not enrolled in CRP.

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