

## **Determinants of Agricultural Disaster Payments in the Southeastern U.S.: Is There A Role for Climate Forecasts?**

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We analyze natural and economic factors affecting agricultural disaster payments on a county level in the Southeastern U.S. The amount of money distributed as disaster payments is substantial: \$25.8 billion has been distributed to 2 million recipients nationwide during 1985-2005. In the Southeastern U.S., disaster payments to farmers, ranchers and others through eight separate programs to producers in AL, FL, LA, MS, NC, and TX was \$1.2 billion.

Direct disaster payments have been considered the least efficient form of agricultural disaster relief because they are determined on an ad hoc basis (Goodwin and Smith, 1995; Gardner, 1994). Consequently, disaster payment allocation has been described more as a result of rent seeking by interest groups (Schmitz, Furtan, and Baylis, 2002) than of actual damage and/or climate conditions. (Garrett, Marsh, and Marshall, 2006; Brooks, Cameron, and Carter, 1998; EWG reports). This study tests the hypothesis that both climate and non-climate variables such as local/regional economic, political, and community characteristics affect distributions of disaster payments on county level.

Annual county level disaster payments are modeled as function of climate data (temperature, precipitation, and ENSO phases), as well as socio-economic variables that may affect payment distribution. Besides, unobserved (latent) time invariant variables (political clout, etc.) hypothesized to affect disaster payments are accommodated in panel regression using fixed effect and random effect Tobit specifications. Possible endogeneity problem is corrected with 3SLS.

Data on county level crop related disaster payments in GA, AL, FL, and MS in 1995 to 2005 are collected from the Environmental Working Group's Farm Subsidy Database. Weather data are collected from the Florida State University's Center for Oceanic-Atmospheric Prediction Studies (COAPS) database provided by the South Eastern Climate Consortium (SECC). Temperature data approximates probabilities of freezes and precipitation data the positive/negative effects of rain. ENSO data are used to test previous findings that weather is more variable during non-neutral years and, in the Southeast, LaNina years are usually relatively dryer and warmer. County level census data include a number of socio-economic indicators that, together with payment concentration data, serve as only remote proxies for the factors that determine disaster payments apart from the elements.

Preliminary analysis of data from 91 counties in Georgia show that the weather and ENSO variables explain the largest portion of the variation in the crop disaster payments suggesting potential role of climate forecasts in planning disaster assistance. Socio-economic variables are not significant, as well as the latent time-invariant variable suggesting that the "behind the scenes" forces affecting disaster payment distribution on the county level are minimal at most. This does not negate the existing criticisms of inequitable distribution of the payments but supports the hypothesis that counties in the sample are not discriminated in the payment distribution process.

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