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Journal of Agricultural and Applied Economics, 40,2(August 2008):461–464
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Discussion: The 2007 Farm Bill and Crop Insurance: Implications for Crop Producers in the South

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The crop insurance program has grown significantly since passage of the 2002 Farm Bill. Total premiums more than doubled from $2.9 billion in 2002 to $6.6 billion in 2007. This growth in the crop insurance program is due to a combination of greater participation by growers at higher levels of coverage, an increased number of crops with coverage available, and a general rise in commodity prices. Not unexpectedly, there has been a corresponding increase in the cost of program delivery. The total amount of expense subsidy and underwriting gains paid to crop insurance companies increased from around $1 billion in 2001[1] to over $2.5 billion in 2007.

The profile of insurance coverage has changed as well, with a significant shift in demand away from yield-based coverage to revenue-based coverage. There has also been greater demand for area-based insurance coverage.

The growth of the crop insurance program, along with the shift toward revenue- and area-based coverage, have contributed to crop insurance having a greater role in the 2007 Farm Bill than in previous Farm Bills.

A significant focus of the 2007 Farm Bill deliberations has been the desire to obtain cost savings from the crop insurance program to fund other farm program initiatives. For example, both the Senate and House versions of the Farm Bill seek to reduce the amount of administrative and operating (A&O) subsidy provided to insurance companies. Further, the House version contains a measure that would reduce the underwriting gains paid to insurance companies. The House version would also reduce premium subsidies for the area-based plans of insurance while both versions would increase the administrative fee charged for catastrophic (CAT) coverage.

The focus of the selected papers, however, is on the new commodity program concepts that have been introduced in the course of the Farm Bill deliberations, in particular, the use of revenue-based farm program payments instead of the traditional price support program. The proposed revenue programs are structured as area-based revenue payments and so resemble crop insurance coverage to a far greater degree than the commodity programs in previous farm bills. This has potentially significant implications for the crop insurance program.

The three papers presented at this selected paper session provide several insights into the potential interactions between the crop insurance program and the new commodity programs proposed in the 2007 Farm Bill. They also provide an analysis of factors that have

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[1] Total payments to crop insurance companies fell to $580 million in 2002 as they suffered an underwriting loss of about $44 million on program operations. From 1992 to 2007, the companies experienced only two underwriting losses: in 1993, and again in 2002.

potentially influenced the crop insurance choices of growers.

Safety Nets or Trampolines

The proposed revenue-based commodity programs lead to the larger issue of the federal government's role in risk management for growers. Goodwin and Rejesus perhaps put it best when they asked: "Is it cost-effective for the government to offer two revenue programs that seem to mitigate the same types of risks?" With more than one program paying for the same decrease in yield or revenue, growers have the potential to collect an amount that exceeds their underlying loss—a "trampoline" effect to their income. The opening section of their paper, "Safety Nets or Trampolines: Federal Crop Insurance, Disaster Assistance, and the Farm Bill," provides an excellent overview of the agricultural policy, risk management, and the crop insurance program.

The analysis presented in the Goodwin and Rejesus paper combines data from several sources into a recursively structured model that reflects the timing of crop insurance decisions, disaster assistance receipts, and crop sales. The central implication from the analysis is that disaster assistance tends to crowd out crop insurance. This seems intuitive—why pay for something that is otherwise provided free?

The paper restricts its focus to the interaction between ad hoc disaster assistance and crop insurance. However, there is a proposal in the 2007 Farm Bill to provide growers with a standing disaster assistance program. An interesting extension of the paper would be to consider what implications the analysis of ad hoc disaster assistance may hold for the potential effect of a standing disaster program on the demand for crop insurance.

The analysis is rich with other implications about the factors influencing the demand for crop insurance. Demand is positively related to a grower's net return from insurance payments, number of acres, and share of sales from livestock. Higher premium rates—as well as consistent disaster payments—discourage crop insurance purchases.

Revenue versus Yield Insurance

The effect of government payments on a grower's binary decision of whether to purchase crop insurance is only part of the story. For those growers that purchase crop insurance, government payments can affect the optimal type of coverage to select. Quantifying this effect is necessary to understanding the potential effects of the 2007 Farm Bill's proposed commodity programs on crop insurance.

Vedenov and Power, in their paper entitled "Risk-Reducing Effectiveness of Revenue versus Yield Insurance in the Presence of Government Payments," simulate the effect of commodity program payments, both current and proposed, on a representative corn grower in Iowa and Texas. They apply an expected utility framework and measure the effect of various coverage choices according to their effect on the grower's certainty–equivalent wealth. A kernel copula is used in the modeling the joint distribution of prices and yields—an innovation that requires less restrictive assumptions.

The results of the analysis indicate that, given the current commodity programs, revenue coverage is generally preferred to yield coverage. Also, the optimal coverage level is lower in the Texas (high-yield risk) than in Iowa (low-yield risk). This provides a theoretical underpinning for the shift toward revenue that has been observed in the crop insurance program. It also helps explain why the average coverage level tends to be lower in high-risk areas.

The analysis also considers the difference in the insured price for corn between revenue coverage and yield coverage, finding that yield coverage becomes more attractive as its price converges to that offered for revenue coverage. This explains the observation that the general year-to-year increase in the proportion of growers selecting revenue coverage slows down, or even reverses, in years when the yield price is at or above the revenue price.

The paper suggests that the yield price should be brought closer to the revenue price. As it turns out, the Federal Crop Insurance

Corporation (FCIC) has proposed regulations that will move yield and revenue insurance prices to the same basis.

The paper also repeats the same analysis, but under the revenue-based programs proposed in the 2007 Farm Bill. Under this scenario, the general preference for revenue coverage remains in the low-risk example, but not in the high-risk example.

There are a couple of potential extensions to the analysis presented in this paper. For example, the proposed commodity programs give growers the option to remain with the current commodity programs. This brings up the question of what option growers will choose. The analysis in this paper clearly applies to this question.

Another potential extension concerns the FCIC's proposed regulations that would make yield and revenue prices the same. When growers are faced with the same insured price for both yield and revenue coverage, what would be their optimal choice? What would be the interactive effects between the proposed regulations and the proposed commodity programs in the Farm Bill? The analytical framework developed for this paper appears well-suited to address these questions.

Integrating Commodity Programs and Crop Insurance

The implications of the proposed revenue-based programs go well beyond the effects of growers' crop insurance purchasing decisions. Coble and Barnett bring up the broader question of how systemic risk should be addressed in their paper entitled "Implications of Integrated Commodity Programs and Crop Insurance," In particular, the authors explore the risk-reducing effects of area-based revenue programs.

The paper presents a model that simulates yield and revenue at the individual, county, and state levels of aggregation—while accounting for correlations across the various levels of aggregation and between price and yield. The model is then used to address the question of how much the expected mean and variance of the loss cost for individual insurance coverage would be reduced if losses from systemic risk were removed.

Systemic losses are based either on a state-level index (as in the Senate's proposed Average Crop Revenue proposal) or a national-level index (the House's proposed Revenue Counter-Cyclical Program). A county-level index (such as FCIC's group risk programs) is considered as well.

The results indicate that the removal of systemic risk can result in significant decreases in the mean and variance of loss costs for individual insurance policies—especially if the systemic risk is based on a state- or county-level index.

The authors point to some broad implications that these results could have for how risk is managed. If the federal government absorbs a sufficient degree of the systemic risk, such as through the Average Crop Revenue Proposal, then the remaining residual risk might potentially be borne entirely by the private insurance industry. In this sense, the proposed area-based commodity programs provide a form of reinsurance that protects insurance companies from losses that are correlated across insured units, such as a drought.

While the paper provides an interesting discussion systemic risk and federal agricultural programs, the degree to which the model's results support such a possibility is unclear. While a state- or county-based index payment clearly reduces the mean and variance of crop risk, is the reduction enough for private insurers to accommodate it? A helpful extension of the paper would be to put the model's results in the context of the property and casualty industry in general, such as a comparison of the residual crop risk to the level of risk private insurance companies face in other lines of insurance.

Conclusions

The three papers presented present useful insights into the factors influencing growers' crop insurance choices and the potential influence the 2007 Farm Bill will have in those choices. However, the fundamental question these papers point to is how the systemic risk

in production agriculture should be handled. In its original version, the Chairman's mark of the Senate's Farm Bill directly addressed this question by having the proposed Average Crop Revenue payments offset crop insurance indemnities. In this context, the commodity program would handle systemic risk and the crop insurance program handles the remaining risk. This avoids redundant payments for the same revenue loss ('trampoline' effect) and lowers crop insurance premiums. This measure, however, was later dropped.

It is likely that question of systemic risk and agricultural policy will play a significant role in future farm bills. The papers in this session help to inform this debate as well as provide a solid foundation for further research on this question.