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## Discussion of "Crop Insurance Research Needs"

Randall A. Kramer\*

King has presented an interesting appraisal of research needs on crop insurance which he is in a good position to do, given his own activities in this area of inquiry. I will highlight some of his suggestions, make a few comments about his proposed research agenda, and add a few items to that agenda.

King raises an important issue on research methods that needs further examination. This is the matter of interaction between subjective probabilities and risk attitudes. I have long suspected this was a potential problem and he reports some tentative evidence that it does exist. If in fact more risk averse individuals assign higher probabilities to low outcomes, this can cause serious problems for risk analysts applying expected utility based models. Further research on the significance of this interaction is perhaps something this group can make a contribution to.

I am in strong agreement with King about the danger of ignoring interactions among government programs. Given the widespread participation in both price support and crop insurance programs, models which I and others have used to analyze crop insurance purchase decisions in isolation from other programs may yield misleading information about the risk reducing effects of crop insurance.

This interaction problem carries over to natural resource policy. There are a number of studies recently completed or currently in progress which are asking what would be the effects of a cross compliance requirement between price support programs and soil conservation programs. By ignoring the risk reducing benefits of price support programs, many of these studies may give inaccurate predictions.

King has noted the limitations of using county level data to examine policy issues with econometric models. I agree that farm level data such as he has collected is useful and probably necessary, for example, for testing the effects of the individual yield coverage provision. I support the need for such research. However, given the cost associated with the collection farm level data, I would suggest that it would be fruitful to also glean any additional information we can obtain from existing county data. I view the work of Gardner and Kramer on county level demand for crop insurance I view as a pilot study. It would be worthwhile to reexamine the hypotheses tested in that study with a larger sample. Furthermore, there are other questions that might be addressed with aggregate level data. One that intrigues me is supply response to crop insurance. That is, does the existence of crop insurance result in increases in supply. Previous research has suggested there may be a supply response to price stabilization programs (Just). It would be interesting to test whether or not the same thing is happening in response to

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the expanded crop insurance program. It may well be that crop insurance is complicating the supply control objectives of the PIK program, acreage reduction program, and other supply control measures.

Turning to other issues, I would suggest that further research needs to be conducted on the distributional consequences of crop insurance. Do some income classes or farm sizes benefit more from crop insurance subsidies than others? Are some geographical regions benefiting more than others? Are these distributional impacts different from those of the almost defunct disaster payments program? From a public choice perspective, one might ask what these distributional impacts suggest about why the political decision was made to replace disaster payments with crop insurance. While some information on distributional effects can be obtained from farm level optimization models, a more complete set of answers can probably best be obtained with cross sectional data and analysis.

Next I would like to make a few comments on income insurance, that is, insurance which covers both price and yield risk. Given the current revival of interest in income insurance, it is worthwhile to reexamine some earlier attempts at income insurance in order to understand why our current FCIC program only covers yield risk and not price risk (Kramer).

In 1899 the Realty Revenue Guaranty Company wrote an all-risk insurance policy which covered both price and yield risk. At the farmer's option, the company would purchase the entire small grain crop for \$5 per acre. Details on the outcome of this experiment are unknown except that the company soon discontinued it. Beginning in 1917 there were several other private income insurance schemes which failed for a variety of reasons. The Hartford Fire and Guaranty Company insured both price and yield risk in a policy offered for sale in 1920. The company's idemnities exceeded premiums by \$1.7 million primarily because of sharp declines in prices. For example, the price of corn dropped from \$1.50 a bushel to \$0.64 between 1919 and 1920.

Due to these problems with price risk, President Roosevelt's special committee on crop insurance recommended that price risk be excluded from any government sponsored insurance program, and this recommendation was adopted in the first crop insurance bill passed in 1938. Since that time federal crop insurance has only insured against yield risk.

Recently, there has been a revival of interest in crop insurance. For example, Ed Schuh has argued, "The final basis for scrapping the old program and moving to a comprehensive income insurance program is that it would reduce government-induced instability in commodity markets. Key decisions, instead of being made by a handful of policymakers, would be decentralized into the marketplace and to the private speculators" (p. 177).

In spite of arguments in favor of income insurance, I have doubts about its feasibility. My concern is that it would be difficult to design an actuarially sound insurance program that covers price as well as yield risk. This is because these are two very different types of risk. Yield risk arises primarily because of weather and pest problems. Price risk is due in part to these natural factors, but is also affected by political events. It is difficult to

imagine how one would design premium calculation methods which could account for the vagaries of political decision making or policy risk. Price distributions are subject to dramatic shifts in shape and location due to governmental actions. A case in point is the PIK program. No one had heard of the program until a few months ago. Yet it has been instituted and widely adopted with resulting significant changes in the price distributions for major commodities.

Even if we could be assured that our own government would not intervene in commodity markets once an income insurance program was in effect, price distributions would still be subject to changes caused by political decisions in other exporting or importing countries. Policy risk is difficult to quantify because we do not know what probabilities to attach to different policy actions. Therefore, I would argue that it would be difficult to design a workable public insurance program which would insure against price risk without substantial additional subsidies.

In conclusion, King has presented us with a good summary of recent research efforts on crop insurance. Much of that work has focused on farm level impacts. In the future perhaps we will see more work on issues such as interaction with other programs, distributional impacts, and supply response effects.

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