POLICY-RELATED RISK RESEARCH: A VIEW FROM WASHINGTON

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We at ERS are acutely aware of the critical role played by risk in producers' decisions and, hence, the performance of policies. There is also growing recognition of the importance of the policy process and program implementation methods for decision makers in all sectors of the economy. Although we recognize the importance of risk for policy makers, our ability to incorporate risk in policy analysis is limited. The challenge to agricultural economists, researchers and analysts alike, is to develop new ways of applying what we do know about risk to policy analysis.

As Congress considers major changes in the direction of agricultural policy, risk concepts become more important than ever for policy analysis. The current policy debate and its outcome will shape the risk environment in which producers operate. Furthermore, the success of new policies in dealing with agriculture's problems will depend on how farmers, agribusiness, lenders, and other market actors and institutions respond to them.

The Current Policy Environment

Before the ink was dry on the Food Security Act of 1985, obituaries began to appear. By late 1986 the agricultural community began to discuss the possibility of a 1987 Farm Bill. However, it is not likely that Congress will deliver major new farm legislation this year. The lack of consensus on how to approach agriculture's problems, the distraction of Congress and the administration by the Iran-Contra affair, and the pressing need to deal with the problems of the Farm Credit System in 1987 now seem to preclude passage of a farm bill. But the issues that sparked speculation about an '87 Farm Bill remain. They include large expenditures for farm programs, continuing financial stress in the farm sector, and sagging exports.

The debate over the direction of farm policy in 1987 will set the tone for farm policy debate for the remainder of this administration. Congress is likely to face at least 3 major proposals for farm legislation in this session: Senator Harkin's Family Farm Act, the Administration's proposal for changes in the Food Security Act, and perhaps a new version of the 1985 Boschwitz-Boren bill. While each of these proposals takes a very different approach to solving the problems facing agriculture, there are 2 key themes of the debate: supply management, and distribution of program benefits. In terms of latest buzzwords, debate over the next few years will boil down to decoupling, mandatory controls, and targeting.

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In the midst of this debate policy makers will be looking to agricultural economists for answers to two critical questions: "How will alternative policies affect supply response and hence budget exposure?" and, "How will alternative policies affect the well being of farmers?"

Are We Prepared to Answer These Questions?

In 1983 Dave Harrington and Ken Baum discussed risk research and agricultural policy with this group. They presented an approach to risk analysis that would provide policy makers with the information needed to evaluate the effects of their decisions on the risks faced and decisions made by agricultural producers.

One of the key points made by Harrington and Baum was the distinction between program and policy analysis. They defined policies as the rules for playing an economic game and programs as the means used to execute policy. They noted that almost all of the risk-related work done in the profession is directed at optimization under a given set of program parameters while little work is directed at predicting producers' behavior under different policy regimes or analyzing the effects of risk on aggregate outcomes.

The relevance of Baum and Harrington's comments is borne out by the fact that the same paper would be appropriate for the situations we face today. However, there are some notable, though not surprising, differences.

> First, our need to know about the effects of different policy regimes has increased dramatically with the introduction of several farm bill proposals that differ markedly from current legislation.
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> Second, the gap between what we need to know and what we do know is growing ever larger.
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> Third, the issue of policy risk is among those at the forefront of our concerns.

Researchers involved in the S180 project have been a source of major advances in our understanding of risk and its effects on individual producers' decision making. However, two things keep much of the work from being directly applicable to the policy analysis that the profession is now called upon to provide. The first is that in the micro-economic approach most often taken, policy is treated as an exogenous variable. When policy changes, we adjust program-related variables and evaluate the producer's optimization problem under the new policy. We have made little progress toward incorporating policy risk in firm level models. Secondly, although empirical work has provided useful examples of producer behavior in a risky environment, there has been little work using a representative sample from which inferences about a population can be drawn.

How Can We Contribute to the Policy Debate?

The current policy environment is rife with uncertainty for both producers and policy makers. As we all know, one of the most common responses to uncertainty is to look for new information. The use of this strategy in Washington now is evidenced by the number of requests for analysis that ERS has received from members of Congress and policy officials. This search for new information provides a window of opportunity for our profession to contribute to the current policy debate. While there is a plethora of concepts and studies in the general area of risk that are pertinent to policy questions, much of this information is several steps removed from being directly applicable to today's policy questions. It is unrealistic to suggest that this gap can be bridged within the time frame of the current policy debate. However, we can take several steps to build a stronger foundation for policy analysis. I would like to briefly discuss three areas with great potential.

1. A re-examination of our overall approach to research on the many risk-related questions facing decision makers on the farm and in Washington.

2. The addition of risk attitude to the list of characteristics used to disaggregate the farm sector.

3. Increased attention to the economics of information.

Our approach to risk research

Most agricultural policy questions fall within the purvue of those interested in risk and uncertainty. The nature of each question influences what variables we treat as endogenous and exogenous in our models. In order to obtain meaningful results from our models, we must make numerous assumptions about the risks involved, sector participants' reaction to the risk, and the institutions that arbitrage or distribute risk. This short-run expediency has lead us to developing a literature containing many pieces of the risk-policy puzzle but no general framework for integrating or solving the puzzle. We feel that the profession could reap substantial benefits from re-organizing research efforts to focus on the components of risk in agriculture and develop a framework for each section of the puzzle as a step towards assembling the whole.

The goal of dividing the risk and uncertainty research into distinct components is to build the foundation for their re-integration. In the mean time, being clear about the dimension of the risk problem we are studying will enable us to treat each component more systematically. In particular, it will help to clarify our assumptions and the selection of endogenous and exogenous variables.

There are at least three major components of the risk puzzle. One is the study of risk itself. Another major component is producers' response to risk. The third is the structure of risk management institutions.

As we fill in the pieces of the first component of the puzzle, we need answers to an interesting set of questions. First, how do we treat policy risk? Can it be incorporated into firm level models using appropriate random

variables? Or, is it something that has no formal probabilistic structure and must be incorporated via some other means?

Second, does it make sense to use the characteristics of observed distributions of events, such as prices, as a measure of the risk faced by producers. Several distinct forces contribute to price movements. These include general trend, cycles, both agricultural and business, the time during the marketing year, and random variation. As uncertainty about policies increases -- as it is doing today -- trend becomes a "risky" component of price variation. The growing uncertainty about policy in the 1980's is leading producers to view price distributions differently than they did during the 1960's and 1970's. Therefore, policy analysts must be increasingly concerned about the effects of alternative policies on price distributions and the perceived risk generated by those distributions, and hence, on supply response.

Furthermore, although it is not politically palatable to discuss, there is a growing recognition that policy changes affect the structure of the sector. In order to analyze these structural effects, we need to know a lot more about how producers make long term strategic decisions about investment and disinvestment in on-going farm operations. We also need to explore decisions to enter or exit farming.

The third component of the risk and uncertainty puzzle is the institutions that arbitrage or distribute risk, e.g. futures and options markets and government and private insurance programs. Understanding how these institutions function and are used by producers are only two pieces of the puzzle. We also need to consider the behavior of commercial traders, options writers, lenders, and insurance brokers, and their incentives. In addition, there is a real need to move from descriptive analysis of existing institutions to the design of alternatives.

One idea that is currently receiving attention in Washington is the use of futures and options markets as a substitute for, or supplement to, existing CCC programs. Among the arrangements suggested is government subsidized put options for producers. In order to evaluate these types of proposals we need to be able to predict producer behavior under these conditions and determine how it differs from behavior under current programs. In addition, we must be able to specify the aggregate effects of alternative policies on market price distributions and supply response.

It would be interesting to compare the relative merits of this approach with that of providing incentives to the writers of options rather than to commodity producers. In many respects, this is similar to the question of whether the Farm Credit System should provide low interest rate loans directly to producers or subsidize interest rates and provide loan guarantees to private lenders.

Addressing the role of differences in risk attitude in the sector

Because risk and producers' behavior are important in policy analysis, we need to develop some way to characterize firms based on risk attitudes. Currently, the sector is disaggregated by farm size, financial position, sales,

commodity and region; should the risk attitude or risk attitudes of the operator be added to this list? You already know many of the complex questions this involves. Some that immediately come to mind are: "What is the source of risk we should be concerned with?"; "What outcomes should be used in measuring risk attitude: income, wealth, changes in wealth?"; "Do producer's decisions reflect a "consistent" attitude towards risk?" ; "If not, is this due to the producer or the measure we are using?".

The questions of the actual risk aversion of producers and the distribution of risk attitudes within the sector become increasingly important with the renewed emphasis on targeting and budget outlays. Typical policy-related concerns are whether assuming one risk attitude for the sector will lead to unintended distributional consequences of programs. Another is the sensitivity of supply response and cost estimates to assumptions about the existence of a variety of in risk attitudes.

To make the role of risk preference operational in policy analysis, we must determine the actual distribution of risk attitudes among sector participants and reconfigure our models to reflect the differences in risk attitude. While this is a monumental task, we can take some short run steps toward this goal by designing empirical studies that use a representative sample of the target population.

The economics of information

Stiglitz, in his 1984 address to the Royal Economic Society, noted that there are two different ways to study information in economics. One is to examine the informational assumptions underlying our market models. The other approach is the economics of information, i.e. its valuation and use in decision making.

We know that information and risk are "opposites" in the sense that information reduces uncertainty and can be used to manage risk. Yet, there is currently no satisfactory specification of the relationship between information and risk. Moreover, we have only a vague notion of how individuals use information in their decision making processes. Unanswered questions include how individuals value information, decide to acquire information, and incorporate it in the process of forming expectations.

Developing a formal model of the relationship between risk and information and exploring the formation of expectations can aid in the design of policy recommendations. Development of this theory is key to designing a new generation of supply response models for policy analysis.

The challenge to members of this project is to find answers to two questions. What is the value of different types of information to different decision makers? How should society value the benefits of information? Should it be based on individuals' willingness to pay for information services, or the gains in efficiency that may result from the incorporation of information into decisions?

In order to provide appropriate information to decision makers both on the farm and in policy making positions, we need a better understanding of how information is acquired and used, the most effective institutional structures for delivering it, and the most appropriate format for its dissemination. By beginning to understand these issues, we are in a better position to determine the "value added" of additional analysis of raw data prior to its release to decision makers. It can also help to provide economic justification for data collection and analysis and help us to target our analytical talent at those areas with the highest value.

Packaging and Delivering Information to Policy Makers

The issue of the appropriate content and structure of information about risk is particularly important to those working in the delivery of policy analysis to decision makers in government. Policy makers and analysts often lament the dearth of usable information while economists despair over the fact that their findings are not reflected in the decisions that are made. This situation has lead to calls for researchers in risk to give increased attention to policy-related concerns. However, the questions asked by policy makers often do not differ substantially from those already being examined by researchers. While part of the problem lies in the content of the existing knowledge base, an equally important problem is how the knowledge is packaged and related to policy issues.

The gap between the information required by policy makers and what exists in our literature is illustrated by our ability to explain the effect of risk attitudes on supply response. Many policy makers are aware that risk and risk attitudes have some importance. But, there has been little work in this area that carries through to direct application in policy analysis. Therefore, in responding to inquiries about the effect of a change in policy on supply response, we can only condition our numerical results with caveats about risk attitudes and their effects. As the results are summarized and summaries are further condensed, the caveats are invariably separated from the numbers and risk attitudes fall by the wayside. We need to be able to incorporate this information, if it is important, directly into the numerical results that survive the condensing process.

We have suggested several steps toward building a stronger foundation for analysis of policy questions. One is to concentrate our efforts on addressing some of the unresolved questions about risk, decision makers' attitudes towards risk, and institutions that arbitrage or distribute risk before further work is done to integrate these components of the risk puzzle. The second is to pursue the theoretical end empirical research needed to explicitly incorporate the effects of different producer's risk attitudes into our models. The third is to devote attention to the economics of information.

The payoff from this work can be our profession's increased influence on policy decisions. However, for this to come to fruition, the goals of integrating knowledge and increasing its accessibility must remain in sight throughout the research and reporting process.

References

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