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Perceptions of Marketing Efficiency and Strategies: Extension vs. Research Marketing Economists

Joe Parcell, Ted Schroeder, Terry Kastens, and Kevin Dhuyvetter*

Extension and research marketing economists spend considerable time educating clientele and publishing marketing and risk management strategies. Therefore, perceptions of extension and research marketing economists regarding price forecasting, futures markets, market timing strategies, and price risk management should be consistent. Results from surveys conducted of extension and research marketing economists found that perceptions differed in 7 of 12 questions posed to both groups. Increased collaboration between extension and research marketing economists appears to have merit in determining methods to solve these inconsistencies.

Introduction

Researchers have spent considerable time analyzing and reviewing futures market efficiency and marketing strategies. Much of the academic research suggests that commodity futures markets are efficient and that they often forecast as well as extension forecasters (e.g., Kastens, Schroeder, and Plain); yet, many extension economists think that their producer-clientele could use extension price forecasts to make money trading futures (Anderson and Brorsen). Extension economists have also indicated that the research published in professional journals has little relevance to real world applications (Anderson and Mapp). Schroeder et al., however, concluded that some producers' views are more consistent with published research than with extension economists' views. Yet, research economists have suggested that the relevance of journal articles needs to be demonstrated to maintain public support for journals (Robison and Coyler).

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The question emerges, How do perceptions of university researchers regarding market efficiency and price forecasting compare with extension economists' views, and are research economists' views consistent with published research? The objective of this research is to determine whether university extension and research economists have similar or different views regarding marketing strategies, price forecasts, and futures market efficiency. In addition, market efficiency perceptions of extension and research will be compared with published research.

Changes in farm programs and trade policy have increased price risk, escalating producers' interests in marketing and risk management. In response to clientele needs, university economists have increased or refocused their efforts to provide improved information and better educate producers on marketing and risk management issues. The Risk Management Agency within the U.S. Department of Agriculture was recently created to promote such research and education. Extension and research economists have different and creative ways of developing and conveying knowledge, but knowledge conveyed by these groups should be consistent. Marketing and risk management educators have a responsibility to convey consistent, practical, research-based marketing and risk management information to producer-clientele.

To determine differences and similarities in marketing and risk management perceptions, survey data were collected from a group of university research marketing economists during 1997 and a group of university extension marketing economists during 1996. Questions developed by Anderson and Brorsen conducted with extension marketing economists were asked of the university research marketing economists. Both extension and research economists were queried about futures markets, price forecasting, market risk management, and market timing signals. Their answeres are evaluated to determine if statistical differences exist. An ordered multinomial logit model is used to identify characteristics affecting extension and research economists' perceptions.

Relevance is a constant issue in agricultural economics. Extension and research collaboration is likely to enhance the relevance of both extension and research programs. Developing consistent marketing methods further enhances relevance; yet, first, the nature of any differences must be known. This study is a first step in determining whether marketing researchers' views are consistent with extension marketing economists' views. If researchers' perceptions are not consistent with extension economists' views, then we need to determine why. Conclusions of this study will make both research and extension economists more aware of their consistencies and inconsistencies regarding marketing views, ultimately benefitting university clientele.

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Survey Data

Data from two separate surveys were compiled to compare extension and research economists' perceptions regarding price forecasts and risk management. Data from extension economists are from surveys conducted by Anderson and Brorsen. During the spring of 1996, they surveyed 78 extension marketing economist of which 65 responded (83%). Of the 65 respondents, 5 were incomplete. Since the focus of our study is on comparing perceptions of marketing and risk management strategies between extension and research marketing economists, respondents indicating an extension appointment smaller than 50% were not used. This criterion resulted in 53 usable extension economist completed surveys from Anderson and Brorsen. Summary statistics of survey respondents are reported in tables 1 and 2. The average experience of these extension economists was 16 years, and the average extension appointment of these extension economists was 85%.

The second data set was obtained from research marketing economists attending the 1997 NCR-134 conference. In addition, surveys were sent to individuals who indicated specializations in either Agricultural Marketing (S820) or Agricultural Price/Income/Policy Analysis (S840) according to the 1995 American Agricultural Economics Association (AAEA) Directory and Handbook, and who were listed as having a research but not an extension appointment. Questions posed of extension marketing economists in the Anderson and Brorsen survey were also posed of the research marketing economists.

A total of 238 surveys were distributed to research economists, of which 115 were returned (48%). Of the returned surveys, 12 were incomplete and 43 indicated less than a 50% research appointment or were from universities outside the United States. Eliminating these yielded 60 usable surveys. Similar to the extension market economist respondents, the average experience of these research economists was 17 years (table 1). The average research appointment of these research economists was 67%.

Both groups were asked to rank why they believe producers attend outlook meetings (table 2), and both ranked highest that producers attend outlook meetings to obtain forecasts that can help them make profitable decisions. This result is somewhat surprising given that published literature (e.g., Kastens, Schroeder, and Plain; Just and Rausser; and Tomek (1997)) suggests futures markets are among the best forecasters of prices. Producers certainly have better access to futures market price quotes than to outlook forecasts. Additionally, researchers and extension economists ranked high that producers attend outlook meetings to obtain information so they can be informed traders. Schnitkey et al. reported that producers do not rank university outlook as one of their primary sources of marketing information. However, Schroeder et al. reported that producers rank university outlook as one of their major sources of price expectations.

Three questions were posed to research economists to determine the degree of collaboration between themselves and extension economists (table 1). Almost 55% of research survey respondents indicated they had not presented at an extension meeting in the last two years and only 17% indicated they presented at more than 5 meetings during this time. Apparently, few research economists consider direct delivery of research information to producers as part of their role as an academic. Research economists have often been challenged to address subject matter of interest to university clientele through increased emphasis on applied research (e.g., Beattie and Watts; Martin). Also, considerable restructuring has occurred within colleges of agriculture with the underlying motivation to integrate extension, research, and teaching (see Ilvento for examples).

The average number of peer reviewed journal articles published in the previous two years by research marketing economists was 4.5, with a range of 0 to 16 (table 1). The average percentage of co-authored journal articles with an extension economist in the previous two years was 8%, and 70% indicated they had not co-authored a journal article with an extension economist in the previous two years. Research economists seldom co-author journal articles with extension economists perhaps in part because extension economists tend to publish less (Robison and Colyer; VanTassell, McLemore, and Roberts) and typically there are fewer incentives for extension economists to publish (the average formal research appointment of extension economists in this study was only 8%). Salary incentives or advancement in tenure is one way to encourage more research publishing by extension economists and more extension deliveries by research economists, thereby, increasing the probability of collaboration between extension and research marketing economists.

Comparison of Extension and Research Economist Perceptions[1]

Frequency distributions of extension and research economists' responses to various marketing, futures market, and risk management questions are provided in figures 1-12. Included with each figure are mean responses, a *t*-statistic testing the null hypothesis that the mean responses are the same, and a chi-squared statistic testing the null hypothesis that response distributions are the same.

Categorical responses to each statement are numerically coded with *Strongly Agree* valued as 1; *Agree* valued as 2; *Indifferent* valued as 3; *Disagree* valued as 4; and *Strongly Disagree* valued as 5. In a preceding study evaluating producers' views and extension marketing economists' perceptions of marketing and risk management strategies (Schroeder et

[1]Questions posed to extension and research marketing economists in our study may be interpreted differently than intended. However, the argument over interpretation of survey questions enhances discussion of our results by extension and research economists.

al.), numerous questions arose as to how perceptions may differ for subcategories of respondents. Accordingly, in the present study an ordered multinomial logit model was used to determine the changes in probabilities of survey question responses for subcategories of respondents.

The ordered multinomial logit model was chosen because the survey responses (dependent variables) are ordinal. An ordered multinomial logit model is a superior estimator to linear regression in this situation since the logit model allows for the ranking of responses and does not treat the differences between responses linearly as would ordinary least-squares (see Greene for a discussion of the ordered multinomial logit model).

The logit model estimated for this analysis is of the general form:

(1) $$\textit{Survey Response} = f(\textit{Experience}, \textit{Appointment}, \textit{Commodity Focus}, \textit{Futures Market}, \textit{Region}),$$

where *Experience* represents the number of years since the economist received his/her Ph.D. *Appointment* is specified as a binary variable equal to one if the person's appointment is primarily research and zero if extension. *Commodity Focus* is specified as a set of dummy variables for *Grain* (*default*), *Livestock*, and *Other*.[2] The *Futures Market* variable is specified as a dummy variable set equal to one if the person's primary commodity focus is a commodity having a futures market, zero otherwise. *Region* is specified as a set of dummy variables set equal to one if the individual is employed at a university in that region, zero elsewhere (*default* equals *Southeast*). The parameter estimates from each logit model specified above were used to calculate the marginal probability of a *Strongly Agree* or *Agree* response to each of the questions asked of extension and research economists for a one unit change in each of the explanatory variables.

We have no *a priori* sign expectations for the changes in probabilities of survey question responses for any of the explanatory variables evaluated. Results of the logit models are reported in table 3. A parameter estimate of 10 in table 3 means there is a 10% higher probability a survey respondent possessing that characteristic *Strongly Agreed* or *Agreed* with the statement. Results of the logit model are used for differentiating responses between subsets of respondents.

Over 60% of the extension economists generally disagreed with the statement that farmers receive lower prices by forward contracting, and research economists tended to be indifferent (fig. 1). The logit results (table 3) indicate research economists have a 19% greater probability of agreeing with this statement than extension economists. Researchers' views are

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[2]The *Other* category for commodity focus includes the categories fruits/vegetables, poultry, dairy, and other.

more consistent with published research suggesting forward contracting results in a lower price than cash sales (Brorsen, Coombs, and Anderson; Elam; Elam and Woodworth; Townsend and Brorsen; Ward Koontz, and Schroeder). However, Schroeder et al. suggested that this question may have been interpreted by some to,"imply every year forward contract prices would be less than the eventual cash price, which is not true." Also, marketing economists whose primary commodity focus was livestock had a 16% higher probability of agreeing that forward contracting results in a lower average price than those economists with a grain commodity focus. This is consistent with published research on forward contracting of livestock. For example, Elam and Ward, Koontz, and Schroeder found that forward contracting resulted in a lower price than cash sales in the fed cattle market.

Extension and research marketing economists were asked if hedging reduces risk and lowers expected returns (fig. 2). Extension economists tended to disagree with this statement, while the research economists were bimodal, either agreeing or disagreeing. Overall, researchers had a 17.6% greater probability of agreeing with this statement than extension economists (table 3). Published research in this area generally concludes that over time hedging reduces mean and variance of returns (e.g., Berk; Bond and Thompson; Kahl; McKinnon; Schroeder and Hayenga; Zulauf et al.). This question perhaps was interpreted by some to mean revenue risk, as opposed to price risk. Lapan and Moschini demonstrated that small amounts of hedging reduce revenue risk and large amounts increase revenue risk. Furthermore, some respondents may believe that futures prices do not contain implicit risk premiums (Kolb), and they may have ignored transaction costs. This interpretation leaves the results suspect, and considering the bimodal responses, some respondents may have agreed with the first part of the question and disagreed with the second part.

Both Extension and research marketing economists tended to think that pre-harvest hedging strategies and market timing strategies exist which allow producers to increase price received (figs. 3 and 4), although research economists had a 14% and 20% lower probability of agreeing than extension economists (table 3). Marketing economists working with a futures commodity had a 24% higher probability of agreeing with the statement accompanying figure 3 (table 3). This makes sense in that commodities that do not have associated futures contracts likely have fewer opportunities for pre-harvest hedging. Marketing economists had a 1% higher probability of agreeing with these statements for each additional year of experience. This is somewhat troubling in that a more experienced marketing economists would tend to believe it is possible to forecast price better than the futures market.

Results from responses to questions 3 and 4 suggest that forecasters are able to forecast price more accurately than the futures market, contradicting the efficient market hypothesis suggested by Fama (1970, 1991). Kastens, Schroeder, and Plain and Just and Rausser have shown that the futures-based price forecasts outperform extension economists and large econometric models. Research exists in the literature supporting the efficient market hypothesis for grains (Garcia, Hudson, and Waller; Kastens and Schroeder (1996); and Kolb),

while, research by Bessler and Brandt and Kastens and Schroeder (1995) found that it may be possible to outperform the live cattle futures market.

The discussion around figures 3 and 4 motivates the question, What is the relevance of research to date in this area? Schroeder et al. posed the possibility that assumptions may be bad and models inflexible in capturing the dynamics of commodity markets. Grossman and Stiglitz argued that positive returns to hedging exist for those who first acquire new information, and Muth argued producers use rational expectations in hedging strategies to produce positive returns. Alternatively, Brorsen and Anderson (p. 90) suggested, "We have oversold our ability to forecast prices and oversold the benefits of hedging and forward contracting." Considerable research exists on this topic, and readers are referred to Zulauf and Irwin and Wisner, Blue, and Baldwin for further discussion.

Extension and research economists agree that selling multiple years production is not necessarily recommended (fig. 5). If this question was interpreted as using futures for selling multiple years' production, cash flow constraints are potentially important in meeting margin calls, and because producers may increase risk (Alexander). The logit analysis had only one regional dummy variable significantly different from zero for this statement. Both groups tended to disagree with the statement that farmers make money on futures transactions using price forecasts available to them (fig. 6). However, 25% of the extension economist perceived that money could be made from using their forecasts to trade futures. Kastens, Schroeder, and Plain found that extension economists' forecasts do not generally outperform the futures market. Additionally, Brorsen and Irwin argued:

> "Extension economists may provide inconsistent information because of the inconsistency of their underlying models. Some rely on conceptual models with naive expectations, while others employ models with rational expectations" (p. 73).

Figures 7 and 8 suggest that extension and research economists' views regarding marketing methods may differ. Both groups tended to disagree with the statement that farmers who do not use futures/options are poor marketers (fig. 7). That is, both groups feel that the lack of use of futures does not necessarily imply such farmers are poor marketers. However, nearly 50% of the extension economists perceive that farmers who use futures/options are good marketers, while research economists had a 24% lower probability of agreeing with this statement (fig. 8). Researchers' perceptions are consistent with those of producers' (Schroeder et al.), while extension economists are more likely to label producers as better marketers for their use of the futures markets. Some may interpret the use of futures markets to be correlated with education, thus, implying a better educated producer is a better marketer.

Both extension and research marketing economists tended to disagree that the primary goal of a marketing strategy is to reduce risk, although 35% of extension economists agreed

with this statement (fig. 9). Schroeder et al. found that producers primary marketing strategy is to reduce risk, which is somewhat different than most of the responses by econoimsts. As academic educators, are we mis-interpreting the goals of producers toward short-run risk reduction? Do economists believe that the goal of a short-run marketing strategy should be to increase revenues, and if so, are we doing a poor job of conveying that message or is it wrong? Both groups agree that long-run risk reduction is important (fig. 10). Additionally, those marketing economists with primarily a livestock focus had a 25% greater likelihood of agreeing with the statement accompanying figure 10 relative to economists with primarily a grain focus (table 3).

Research economists had approximately a 26% greater probability of agreeing that marketing strategy recommendations should be based on statistically significant findings (fig. 11) and that research results presented in journal articles are useful to extension economists (fig. 12). Extension economists tended to disagree with the statement corresponding to figure 11. However, while extension economists were indifferent on average, 40% agreed that research results reported in journals are useful to extension economists. This result is somewhat inconsistent with the results reported by Anderson and Mapp, and is an indication of the awareness of published research by extension economists. Additionally, a surprising result of the question in figure 11 is that over 50% of the research economists were indifferent or disagreed with this statement.

Implications for Extension and Research Marketing Economists

Extension and research economists spend considerable time teaching and publishing marketing and risk management strategies. Therefore, perceptions of extension and research economists' regarding price forecasting, futures markets, market timing strategies, and price risk management should be consistent. Results from surveys conducted of extension and research marketing economists found that perceptions differed in 7 of 12 questions posed to both groups.

Generally, research economists' perceptions were more consistent with published research than extension economists' perceptions. However, both groups were inconsistent with published research that supports the efficient market hypothesis. Tomek (1993) argued in his article on confirmation and replication, that the fragility of the underlying econometric models makes empirical results suspect. There appears to be a need to replicate previous studies to determine the fragility of these models.

Producers view reducing risk as the goal of a short-run marketing strategy, while extension and research marketing economists tended to disagree with this statement. As educators, either we are not conveying an appropriate message, or it is time we learn from our pupils on their goals in short-run marketing strategies.

One question posed to only research economists asked if increased emphasis should be placed on collaboration between extension and research marketing economists. Eighty-eight percent of the respondents agreed that increased emphasis is needed. Castle provided his view on the communication gap in agricultural economics:

> "Are researchers motivated to state research questions solely on the basis of an intellectual puzzle or are such questions investigated because it is believed that their answers are necessary for the solution of a real-world issue?" (p. 90).

Collaboration is surely a relevance enhancing progress, and integration of the intellectual puzzle and solutions of real-world issues are not mutually exclusive and can be aided through collaboration.

The focus of this study was to enhance communication between extension and research marketing economists regarding marketing and risk management strategies. Specifically, we encourage increased collaboration amongst researchers in extension and extension economists in research. Debate over the issues raised here should be on-going. The rapidly changing marketing environment is increasing demand for research-based information. We close with Tomek's (1997) conclusion in his article on "Commodity Futures Prices as Forecasts":

> "As academics, we must be realistic about what forecasting models can accomplish. In my view, most price analysts' models cannot improve on futures markets as forecasting agents, and if so, we must exercise great care in providing marketing advice based on such models" (p. 42).

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