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Exploring the Market for Agricultural Economics Information: Views of Private Sector Analysts

Victoria Salin, Amy P. Thurow, Katherine R. Smith, and Nicole Elmer

This survey of 100 economic analysts in agriculture, outside of government and academia, assesses the changing public-private balance in information services in agriculture. Its objectives were to (1) contact frontline private sector analysts who handle economic issues in agriculture and ask them about the data and information they most value and why; (2) experiment with measurement instruments to segment and describe information attributes that users value; and (3) assess the interest of front line analysts in the changing public-private balance in information provision. The results provide a list of information services used by analysts, descriptive responses on attributes that contribute to value added, and statistical analysis relating respondent characteristics to the use of information from the U.S. Department of Agriculture (USDA). Respondents use a wide spectrum of information services. USDA was the single source of agricultural economics information mentioned most often. Education of the respondent is positively associated with the probability of using USDA information services, and experience is negatively associated with the use of USDA information services.

Providing information on agricultural markets, costs, and prices is a primary function of public sector agricultural economists employed by the U.S. Department of Agriculture (USDA) and by land grant universities. The current research and Extension system was established during a time when agriculture was comprised of small farmers. Farmers and smaller agribusinesses had neither the

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discretionary resources nor the wherewithal to collect and analyze agricultural market information. The justification for the government's role in providing agricultural information is that freely available information makes markets more competitive and more efficient (Knutson, Penn, and Boehm).

In the increasingly industrialized agricultural economy — particularly in sectors with larger and fewer firms—information is often most valuable to the extent that it is tailored to firm-specific markets and conditions. Information that is sufficiently specific to be valuable is often proprietary. Accordingly, the private sector's role in collecting, analyzing, and packaging data is expanding. Electronic media are revolutionizing information dissemination and reducing the costs of information gathering.

Some information services are best provided by the private sector. Firms generate proprietary data to assist in strategic decision making, but do not share such information with competitors. This is a drawback to the private provision of information: often there is no incentive to share the information, and agents with information may use it to their advantage in the marketplace. Further, it may be difficult for users to assess the quality of the information services they purchase from private sources. Accurate information is crucial to producers in managing the increased risk caused by dwindling government support.

Public sector information providers serving agriculture face the challenge of remaining relevant as the agricultural economy changes, while dealing with the constraints of declining federal and state budgets. Public sector information providers recognize the importance of learning more about the clients who use their services in order to better serve them. Dialogue between public sector information providers and information users is institutionalized in an annual forum sponsored by the USDA's National Agricultural Statistics Service (NASS). In addition, the American Agricultural Economics Association has a standing committee interested in the data needs of the industry, and it lobbies for the continuation and fine tuning of government data series. Nonetheless, interaction between the public sector providers and private sector users is limited, and there has been no comprehensive assessment of the market for agricultural information.

This study was an initial step in a comprehensive assessment of the market for agricultural economics information. It was the first research to ask frontline economic analysts, in the private sector, what agricultural information they use and why. In August 1996, 100 analysts who use agricultural economics information to perform their jobs answered a series of questions and aired their concerns about current and future public sector information services. The purpose of this paper is to report the results of the survey and to frame the role of frontline economic analysts as participants in the debate about government involvement in agricultural information.

This research had three primary objectives: (1) to ask frontline, private sector analysts who handle economic issues in agriculture about the data and information they most value and why; (2) to experiment with measurement instruments for describing information attributes that users value; and (3) to assess the level of interest of frontline analysts in the changing public-private balance in information dissemination.

Literature Review

These objectives were formulated to fill a gap in the previous research related to agricultural and agribusiness information. One focus of previous work has been how the Internet and related technologies enhance market efficiency. For example, Thompson and Sonka explore the way information technologies reduce transaction costs and thus improve price efficiency in commodity markets. Streeter, Sonka, and Hudson argue that information technology improves coordination among the players in the agricultural production and marketing chain, as retailers use computer based information systems to discover consumer demands and pass this information along to producers.

Perhaps the largest body of work on information asks where farmers, growers, and ranchers go for information (Lippke and Rister; Schnittkey *et al.*; Perry; and Harris *et al.*). There also has been considerable research on farmers' use of computer based information systems for decision making (Garcia, Sonka, and Mazzocco; Jones, Sonka, and Mazzocco). Producers' valuation of weather information has been considered by a number of studies. The results in Mjelde *et al.* indicate that the economic value of climate forecasts to farmers depends on lead time, accuracy, and other interacting attributes of the forecast. Kenkel and Norris, using a contingent valuation approach to measure producers' willingness to pay, found that Oklahoma producers do not appear willing to pay significant fees for new technology that provides more accurate and timely weather information.

Another question examined in the literature is how public sector information affects the marketing system. Colling and Irwin tested the efficient market hypothesis in relation to the release of USDA reports, and found that the market reacted only to unanticipated shocks, and not to the information contained in the reports that had been expected. Some previous research addresses the issue of the public-private division of labor in information provision. For example, Boehlje suggests that agribusinesses and other private sector sources of information may have a competitive advantage over the public sector Extension system in providing information to agricultural producers.

The diversity of the previous research demonstrates that information relates to economic decision making in several ways. No previous study has examined a broad-based cross-section of frontline economic analysts whose work is grist for the decision-making process. This study focuses on that part of the private sector market for agricultural economics information.

Survey Procedures

The methodology was chosen to suit the exploratory nature of the research. A graduate research assistant called trade associations and chief executives at large agribusinesses. She asked for the person in charge of economics or market analysis and administered a short questionnaire over the telephone. Locating an economic analyst who was willing to participate was somewhat difficult because some initial contacts were unclear about what constitutes economic analysis. After completing the questionnaire, the interviewer asked each respondent for references to colleagues in the industry who might be willing to participate in this survey.

Asking for references was surprisingly productive: 66 of the 100 total respondents were contacted as a result of recommendations by other survey participants. References often converged on a single person who was considered a useful contact by several colleagues in the industry. This method helped to identify key contacts in an industry and include them in the sample. The willingness of respondents to discuss their opinions in depth and to refer others indicates that private sector analysts have a high level of interest in this topic.

Open-ended questions were posed to obtain a broad view of the information sources that frontline economists use. Analysts responded separately about information sources that are used to stay informed, as opposed to information products they use to prepare an analysis of market conditions for a principal client. The reasoning behind this distinction is that these two contexts often require different types of information. For example, information services used for keeping up-to-date need to be available on a timely basis and packaged in easily readable formats. In contrast, conducting market analysis may call for information products that contain accurate compilations of historical time series data or expert opinions about market trends.

Survey Findings

The first result from the survey was a comprehensive list of the public and private information services used by the analysts. The respondents use a wide spectrum of information services, as shown in tables 1 and 2. The USDA was the single source of agricultural economics information mentioned most often. One-fourth of all information services cited for keeping up-to-date were from the USDA, and 38% of the information services named as a source for conducting market analysis were from the USDA. The relative importance of USDA information was also measured by designating respondents as users of the USDA if they named at least one USDA source. Seventy-five percent of the respondents named at least one USDA source for daily reading material, and 82% of respondents used a USDA source in conducting market analysis. State government and university publications were other public sector sources mentioned, but they are less widely used, constituting 6% of the material for keeping up-to-date and 5% of the sources named for market analysis.

Many respondents expressed satisfaction with information resources available from the public sector. Thirty-eight of the 100 respondents could offer no further suggestions about what government providers could supply to meet their information needs. Several also were aware of budget constraints and indicated concern that information services not be cut further.

The private sector information services cited most frequently were consultants' reports, trade publications, and electronic news services. These three private providers together constituted 61% of the reading used to stay informed (table 1) and 50% of the sources used for market analysis (table 2).

Attributes of information services

The second objective of this survey was to experiment with questions designed to elicit what users consider important "value-added" attributes of agricultural information. Respondents were asked about several attributes. One question asked

Table 1. What analysts read to stay informed, by type of provider and by statistical or interpretive value

<u>Value Both Statistics and Interpretation</u>											
Provider of Information Service:	<u>Total^a</u>		<u>Value Statistics^b</u>		<u>Value Interpretation^b</u>		<u>Total^b</u>		<u>More Statistics</u>	<u>More Interp.</u>	<u>Equal</u>
	No.	%	No.	%	No.	%	No.	%	No.	No.	No.
USDA	83	25	44	53	1	1	38	46	13	1	24
Trade Publications	80	24	4	5	43	54	33	41	2	8	23
Consultants	67	20	8	12	23	34	36	54	3	11	22
News & Wires	56	17	7	12	25	45	24	43	1	6	17
Journals	13	4	0	0	9	69	4	31	0	1	3
University	11	3	0	0	8	73	3	27	0	0	3
State Government	9	3	3	33	0	0	6	67	0	0	6
Other Government	9	3	7	78	0	0	2	22	0	0	2
Total ^c	328	100	73	22	109	33	146	45	19	27	100

^aPercents in this column are the share of each provider of the total number of sources cited.

^bPercents in these columns are the values from the attributes as a share of the citations (total) for a provider.

^cParticipants cited more than one source of information so the total number of sources is greater than the number of respondents.

Table 2. Sources listed as used for market analysis, by provider type and by statistical or interpretive value

Provider of Information Service:		Value Both Statistics and Interpretation								
		Total ^a		Value Statistics ^b		Value Interpretation ^b		More		Equal
								Statistics	Interp.	
No.	%	No.	%	No.	%	No.	%	No.	No.	No.
USDA	106 38	68 64	2 2	36 34	13	1	22			
Consultants	80 29	12 15	26 33	42 53	1	11	30			
Trade Publications	37 13	13 35	11 30	13 35	3	2	8			
News & Wires	21 8	8 38	7 33	6 29	0	3	3			
Other Government	17 6	12 71	1 6	4 24	3	0	1			
State Government	8 3	3 38	1 13	4 50	0	0	4			
University	6 2	0 0	2 33	4 67	2	0	2			
Journals	1 0	0 0	0 0	1 100	0	0	1			
Total ³	276 100	116 42	50 18	110 40	22	17	71			

^aPercents in this column are the share of each provider of the total number of sources cited.

^bPercents in these columns are the values from the attributes as a share of the citations (total) for a provider.

^cParticipants cited more than one source of information so the total number of sources is greater than the number of respondents.

whether an information service is most valued for the statistical data it contains or for its interpretive content. This "statistics or interpretation" attribute is assessed in detail in the remainder of this paper. Another question asked respondents to rank the value of particular sources by assigning points to the top three or four sources named. The statistical results of this numerical ranking of sources are addressed

below. Finally, some qualitative attributes emerged from respondents' answers to Open-ended questions; these are also discussed in this section.

One attribute of information valued by economists is statistical content. The unvarnished facts about supply and demand are essential for many analysts to perform their jobs. USDA agencies have been collecting data on agricultural markets for many years and the reliability and comprehensiveness of USDA data series are appreciated. The initial working hypothesis for this survey was that respondents could distinguish between the statistical and interpretive content of the information services they use. Several respondents had difficulty with this distinction because some statistical series are developed through expert interpretation and adjustments. However, survey responses did confirm the hypothesis that private sector economic analysts consider statistical data an important attribute of an information service.

Some analysts use an information service primarily for its statistical content, but more often, both statistics and interpretation are of value in an information source. Of the materials analysts read to stay informed, 22% are valued mainly for statistics (table 1). Of the sources used for market analysis, 42% are valued mainly for statistical content (table 2). A large percentage of respondents reported using sources for both statistical and interpretive content (45% of items read to stay informed and 40% of sources used for market analysis).

Respondents turn to USDA sources mainly for statistics, although many use these sources for interpretation as well. More than one-half (53%) of USDA materials read to stay informed are valued for statistics and 46% are valued for both statistics and interpretation (table 1). Sixty-four percent of USDA sources used for market analysis are valued for statistics and 34% are valued for both statistics and interpretation (table 2). Of the 189 citations of USDA information products only three were tied to interpretation as the primary source of value from the information.

The "statistics or interpretation" attribute is not related to the ranking of information sources by points. Respondents did not rank the products valued for statistics higher or lower, on average, than those valued for interpretation.

Survey participants were asked about the importance of environmental information in their job performance. Environmental issues are increasingly interrelated with economic decisions in agriculture. A majority of the respondents (53%) keep up with environmental issues facing their industry, while the remaining 47% of respondents refer questions about environmental regulations to technical experts or rarely find them pertinent to issues facing their clients.

Many respondents elaborated on attributes that add value to information services in their responses to Open-ended questions. The reliability of USDA information was mentioned often. Fifteen of the 100 respondents were complimentary of USDA information and 11 of the 100 suggested that the accuracy of information should be improved. The timeliness of public sector information services is also important to private sector analysts. Eighteen of the 100 respondents were concerned about timely reporting; those analyzing international trade problems in particular would appreciate data arriving quickly.¹

Context-specific nature of demand for USDA information

Survey responses were examined to see if any identifiable characteristic of a user helps to explain the decision to use USDA information services. The qualitative

responses revealed that the demand for information is context- and task-specific. Users seek information pertinent to the specific market issues they are exploring, and their choices of information sources are influenced by their experience and education.

The sample consists of analysts with high levels of education and extensive experience in their industry (figure 1). Statistical analysis² of the characteristics of users suggests:

- Education is positively associated with the probability of using USDA information services.
- Experience is negatively associated with the probability of using USDA information services.

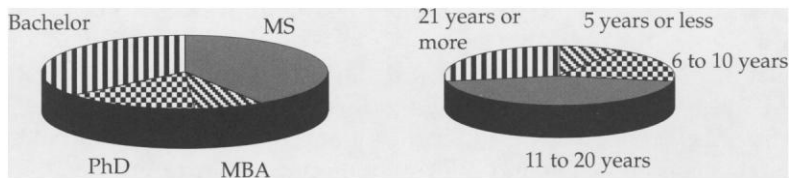
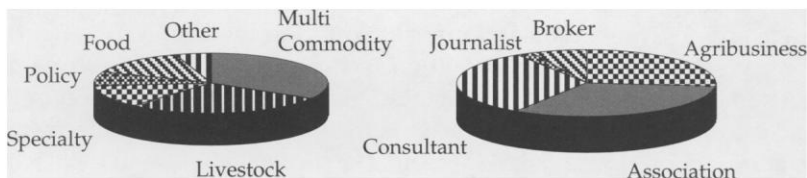
These relationships were statistically robust although not particularly large. The marginal contribution of a year of education to the probability of using USDA information services was around 0.045. The marginal contribution of a year of experience was approximately -0.02 .

Data were analyzed to estimate the extent to which the respondent's subject matter responsibility was associated with the use of USDA information services. Although not all respondents were responsible for a single commodity area, they could be grouped into those who analyze livestock, specialty crops, and in grain and feed crops (multi-commodity). Commodity categories and the distribution of the sample among these categories are shown in figure 2.

Analysts responsible for the livestock sector are significantly more likely to use the USDA than their counterparts in other industries. The marginal contribution of livestock affiliation was 0.27 for material used to keep up-to-date and 0.19 for information used to conduct analysis. The livestock category was comprised of analysts working in several meat product sectors and the dairy industry. Dairy industry analysts were not more likely to use USDA information than analysts serving other livestock subsectors. It may be that because the price and yield information important to grain and specialty crop markets responds to local events and climatic factors, the national level information provided by USDA is not as important to crop analysts.

More research is needed to understand the reasons driving the differences in demand for public sector information observed in this small sample. What researchers learn—for example, regarding areas where the private sector provides region-specific information that replaces national level data—will suggest ways that scarce funding for public sector information might be reallocated.

The type of organization at which the analyst was employed was the final factor considered in the statistical analysis. Organizations were classified as agribusinesses, trade associations, consulting firms, brokerages, and journalism (figure 2). Each of these organization types has a somewhat different mission, and uses information differently. For example, consultants and journalists are information providers themselves. Their demand for USDA services is affected by their role as re-packagers and interpreters of public information. The data indicate that consultants find the USDA an important resource (almost one-half (46%) of the information sources cited by consultants were from the USDA) and their use focuses on statistical data. Two-thirds of the sources valued for statistics and 38% of the sources valued for both statistics and interpretation were from the USDA. However, using a probability

Figure 1. Experience and education of respondents**Figure 2. Commodity categories and employment organizations of respondents**

model, no statistically significant connection between the probability of using USDA information and occupations as consultants or journalists was found, as compared with other types of employment.

Trade association employment was negatively related to the probability of using USDA information. This may be explained by the role of trade associations in collecting and analyzing data from their membership. The industry- and firm-specific information is more relevant for these analysts than USDA information.

Agribusinesses and brokerages are interested in information as an aid to business decision making, and not primarily as an output. Strong demand for USDA information services among these groups (44% of the total number of sources cited by analysts working for agribusinesses) could indicate the usefulness of public information in business decision making. However, agribusinesses rely relatively more on private sources for the information that they value or interpret. Estimates from the probability model indicate that agribusiness employees were slightly less likely than the remaining sample to use USDA as a source for keeping up-to-date.³ Agribusiness employees did not differ significantly from the aggregate remaining sample in the probability of using the USDA as a resource in conducting market analysis.

Significance and Implications

The public sector's role in providing information is changing. According to these survey results, frontline analysts understand their stake in these changes, and they

can contribute substantially to a reordering of public sector priorities. Their willingness to discuss these issues in depth, and to refer the interviewer to colleagues, suggests that they appreciate the importance of future policy choices about the public sector's roles in providing information. They understand that the nature and availability of public information will play an integral role in shaping what they do in the future, and how they will get it done.

Historically, the funding and institutional support for government agencies that generate economic data and information on agricultural production and markets has been justified on grounds that such services are a public good. Interviews with frontline analysts confirmed that historical data series collected and maintained by the USDA and other government agencies are vital in private sector analysis and decision making. At the same time, frontline analysts said that the value of information depends on the task being undertaken, the sector being analyzed, and the nature of the decision.

The majority of these 100 analysts identified reliable and consistent historical data series as the most valued product from the USDA. Often, private sector analysts repackage and reprocess data and information from the USDA. It is worth asking, therefore, which government information services are most cost effective, as well as whether some services could be eliminated. For example, as more and more USDA data and information are disseminated via the Internet and other electronic media, some traditional publications and information outlets likely will be discontinued. Users' preferences as to the forms and formats of data and other information will evolve with changing computer technologies. An on-going dialogue with frontline analysts will help public sector economists make wise decisions about how to tailor future information services.

If public information simply replicates what is known and disseminated in the private sector, then the public sources are superfluous and might be eliminated. As proprietary data play an increasingly central role in agricultural decision making, the public sector niche in the market for agricultural information must be reconsidered. This means reassessing which information services are public goods, strictly speaking. Public goods are characterized by their indivisibility and nonexcludability. Accordingly, public sector analysts recognize that they need to know more about the exact roles and importance of nonexcludable data in making pivotal decisions or in on-going planning. The strongest argument in favor of public information and data services is still indivisibility. If a particular USDA data set is used by many analysts, over time, and its use is not coordinated by existing institutions or market organizations, then several beneficiaries share the value of the access to such information.

As a case in point, consider how the industrialization of agriculture and the evolution of information technology have reduced the role of the public sector in providing market data, and simultaneously heightened the need for public information in new areas. Market news services assisted in price discovery in an era when there were more individual farmers, many of whom were geographically isolated, and communication was difficult. Today's large scale commercial agricultural enterprises have the resources to monitor markets themselves and are using longer term strategic relationships with other firms along the marketing chain, so that public sector information for price discovery is less vital.

New issues will arise, however, many related to the reliability of information available about the agriculture sector. For example, research examining the effects on consumers' and producers' welfare of changing balances of market power depends on proprietary information. Can researchers depend on firms to release business information to test whether their business strategies adversely affect producers or consumers? Truly independent evaluation of markets may be impossible without an arms length relationship between information providers and those who have special interests in the outcome of the analysis.

The advent of the information age has changed the market for agricultural information and the government's role in providing it. This research has highlighted the importance of balance between the public and private dissemination of agricultural information. Further debate on this issue will position us for the next century of public-private cooperation in an efficient and productive agricultural sector.

Disclaimer

Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the U.S. Department of Agriculture.

Endnotes

¹ U.S. international trade statistics are collected by the Customs Service and published by the Commerce Department.

² Further detail on the probit estimation and results may be found in Salin, Thurow, and Elmer.

³ The marginal contribution of agribusiness employment to the probability of using the USDA was – 0.02 and the statistical significance was just above the 90% level.

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