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THE AUSTRALIAN AGRICULTURAL ECONOMICS PROFESSION: AN APPRAISAL OF CURRENT TRENDS

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THE AUSTRALIAN AGRICULTURAL ECONOMICS PROFESSION: AN APPRAISAL OF CURRENT TRENDS

Using the results of the first part of their 1994 AAES membership survey, Ahmadi-Esfahani and Brakey (1995) examined the structure, conduct and performance of the society qualitatively. This paper extends that analysis by appraising the current trends in the Australian agricultural economics profession quantitatively. While still utilising some anecdotal evidence, the paper concentrates on the second part of the survey to address a number of more fundamental questions. These include constraints impinging upon alternative research philosophies and methodologies, environments required for the creation of useful knowledge and mechanisms necessary for fostering innovative thinking and scientific debate. Comparison of current trends in the Australian and American agricultural economics professions is made. The implications of the analysis for the product mix of the Society (eg. publications) and the balance between inputs and outputs of the profession are explored.

Keywords: profession, Society, agricultural economics

I. INTRODUCTION

The questions in the first part of Ahmadi-Esfahani and Brakey's 1994 AAES membership survey required respondents to qualitatively comment on the structure, conduct and performance of the Society (Ahmadi-Esfahani & Brakey 1995). This paper extends on the preliminary findings of that analysis by examining the questions in the second part of the survey which elicited quantitative responses. Specifically, the second part of the survey asked members to describe : how they devote their time across various activities; the degree of influence in their position and number of people they supervised; how the basis, type and length of analyses performed has changed over the course of their careers; different sources of conceptual thinking; sources of reports and forecasts, and outlets for completed analyses and how they have changed with career length; the difference between actual and ideal coursework

emphasis at university; sources of effectiveness; the perceived current allocation of emphasis and desired emphasis by the *AJAE, RMAE* and AAES Annual Conferences[1]. Most questions required respondents to answer in percentages to facilitate empirical analysis.

A database was formed using responses from a sample of 106 (out of 535) surveys obtained by mail from a cross section of members. While the questions described above did not have a uniform response rate, follow-up responses were sought to reduce potential bias. Ordinary least squares (OLS) regressions using the database were used to form five tables explaining the desired percentage changes in emphasis by the AAES media, changing approaches with professional maturity, ideal coursework emphasis, determinants of power and influence in government, and linkages among professional groups through professional media. The results reported are based on different numbers of observations within and across tables, with different degrees of freedom. The limited available data, most notably from industry members, mean that we cannot fully replicate the fourth table in Just and Rausser(1989) explaining the degree of influence and power in industry and government. Similarly, given that the study by Just and Rausser(1989) was based on 963 first responses, the comparisons made between the AAES and American Agricultural Economics Association AAEA member surveys should be made acknowledging the greater accuracy of the American results, and the way our limited results may not truly reflect the views of the AAES member population.

The structure of this paper is as follows. First, the results of the survey are analysed. Then, the trends in the Australian agricultural economics profession are compared with their counterparts in the United States. Policy implications of the analysis are explored prior to concluding comments.

[1] The *Australian Journal of Agricultural Economics*, the *Review of Marketing and Agricultural Economics*, and the Australian Agricultural Economics Society, respectively. Note that the latter changed its name to the Australian Agricultural and Resource Economics Society subsequent to this survey.

II. ANALYSIS OF RESULTS

Table 1 looks at members' ideal distribution of the three major forms of professional media sponsored by the AAES - the *AJAE, RMAE* and AAES Conferences. The areas of emphasis analysed being application of an existing model, development of a new model, definition of a problem, discussion and assessment of current events, descriptive analysis of problems and individual viewpoints. The difference between members' ideal distributions and their perceived actual distributions across these categories were regressed by OLS against the extent to which each member's job responsibilities are academic research, extension research, other extension, teaching, industry, government research and other government activities. The coefficients reported are percentages. A negative coefficient suggests that the members would prefer less emphasis than at present. The rows labelled "all respondents" show the average percentage difference between ideal and actual distributions for the sample.

The results for the *AJAE* suggested all respondents as a group would prefer more current events assessment, problem definition, application of existing models and slightly more individual viewpoint, with less new model development and descriptive analysis of problems. All groups wanted more current event assessment, while only academic and extension researchers wanted more development of new models.

The results for the *RMAE* suggested the membership would prefer less application of existing models, development of new models, and problem definition, while they would prefer more current event assessment, descriptive problem analysis and individual viewpoint. This would suggest that the membership of the Australian Society would like the *RMAE* to be even more applied and less focused on modelling than at present.

For the AAES Annual Conferences, all respondents as a group wanted more new model development, problem definition, current event assessment, descriptive analysis of problems, and less individual viewpoint and application of existing models. However, it should be noted that the only professional groups that wanted more new model development were those

involved in academic research and other extension, more groups would prefer less.

The independent variables that have the most impact on the dependent variables are extension research, other extension, industry and teaching. These professions not only have the greatest impact on the areas of emphasis by AAES media, many of the coefficients are statistically significant (see Table 1). Industry professionals want the greatest increase in emphasis on current events in the *AJAE, RMAE* and AAES Conferences, while extension research and other extension professionals want an increase in emphasis on new model development more than any other profession. The main conclusions from Table 1 are the membership feel that the *AJAE* is too focused on modelling and should include more current events, individual viewpoint and problem definition; the *RMAE* should be more applied, the AAES Annual Conference should have wider appeal with more new model development, current events and descriptive problems.

Table 2 shows how the basis for analyses, type of analyses, and the perceived quality of the types of analyses change with career length. The table consists of the coefficients of 13 OLS regressions multiplied by 100 so that they are quoted as percentages. The different bases for analyses, types of analyses, and sources of effectiveness were regressed against the extent to which each member's time is devoted to academic research, extension research, other extension, teaching, industry, government research, and other government. Respondents gave their answers as percentages over the first and second five years of their careers, and for their careers beyond ten years. The associated dependent variables were the averages of the different time frames. Therefore, positive percentages imply that members migrate towards that base for analyses or type of analyses over their careers, while negative values imply that members move away from that base for analyses or type of analyses over their careers. The "all respondents" column is the average across the sample.

For the AAES membership survey the values are all positive for basis of analyses. Thus, in terms of basis for analyses, we must examine the magnitudes for interpretation - all respondents on average tend to rely more on collected and internal primary data sources than on understanding and experience over the course of their careers. This trend is most apparent in extension research, teaching, and other government. In contrast, those involved in other extension and industry tend to rely more on understanding and experience over the course of their careers than on collected and internal primary data sources and published secondary data sources. Academic research professionals use more secondary data analyses over time than any other profession, teaching professionals use more primary data analyses over time than any other group, and other extension professionals use more understanding and experience over time than other professionals. Academic research, teaching and other extension professionals have the greatest impact on the basis for analyses and their impact is statistically significant (see Table 2).

For the type of analyses, over time all respondents on average rely mostly on descriptive problem definition, formal original frameworks, and heuristic application, and far less on gut intuition and formal other frameworks. The use of formal original frameworks is particularly important over time for those in teaching, while heuristic application of principles grows particularly important for those in other extension, other government, academic research and industry. Teaching, extension research and other extension professionals have the greatest impact on type of analyses. Extension research and other extension professionals conduct more analysis using heuristic application, gut intuition and descriptive problem definition over time that any other professional group. Teaching professionals use more formal original frameworks over time than any other professional group. Other extension professionals use formal other frameworks less over time; however this impact is not statistically significant. Several of the coefficients with the greatest impact on the dependent variable are insignificant (see Table 2).

For sources of effectiveness, what is particularly noticeable from the results is the increased importance of descriptive problem definition for those involved in other extension, industry, government research and other government activities. Also evident is the comparatively lower reliance on gut instinct for those involved in academic research and extension research. Teaching professionals find formal original and other frameworks more effective over time

than any other group, other extension professionals find gut intuition and descriptive problem definition more effective over time than other professionals, and extension research professionals find heuristic application more effective over time than other professionals. The coefficients with the largest effect on sources of effectiveness are statistically significant (see Table 2).

The collective results for Table 2 reveal that the membership rely the most on descriptive problem definition and the least on gut intuition as career length increases for type of analyses and sources of effectiveness. Collected and internal primary data sources are a more important basis for analyses than understanding and experience over time.

Table 3 shows the ideal coursework emphasis at university desired for new recruits. Also shown is the difference between these ideal levels from the actual coursework emphasis experienced. The table reports the coefficients of OLS regressions in percentages. The ideal percentages for each of economic theory, econometrics/statistics, operations research, applications, and case studies were regressed against the extent to which each member's time is devoted to academic research, extension research, other extension, teaching, industry, government research, and other government activities. Similarly the difference between ideal and actual coursework emphasis percentages were regressed against the independent variables just mentioned. The "all respondents" row gives the average values across the sample.

The results for ideal coursework emphasis are not uniform across professional groups. Those involved in industry and other extension activities would clearly prefer to be taught less economic theory, econometrics/statistics and operations research relative to applications and case studies. Members of the Society involved in government research and academic research would prefer graduates with greater exposure to economic theory and applications relative to other skills. Those involved in extension research would prefer graduates with more exposure to economic theory and case studies relative to other subjects. Those involved in teaching would prefer recruits with more exposure to economic theory, econometrics/statistics, and applications than other subjects. Members of the Society involved in other government

activities would prefer graduates with more training in economic theory, applications and case studies relative to other skills. Thus the majority of professional groups would prefer more economic theory, applications and case studies relative to econometrics/statistics and operations research.

Extension research professionals demand the greatest emphasis on economic theory, teaching professional demand the greatest emphasis on econometrics and operations research, other extension professionals have the greatest impact on applications, while industry professionals desire the greatest emphasis on case studies. This shows that the more applied professions value case studies and applications highly. These coefficients are statistically significant (see Table 3).

The results for the difference between ideal and actual emphasis are non-uniform across professional groups. Those in academic research and other government activities want more emphasis on economic theory, econometrics/statistics, applications, case studies, and less operations research than they were taught. Members of the Society involved in teaching and government research would prefer more economic theory, econometrics, operations research, and less applications and case studies than they were taught. Respondents involved in extension research and industry would prefer more operations research and case studies than actually taught, while those working in industry would also prefer more applications and case studies. Respondents in other extension activities would like more applications, case studies and operations research than actually taught. Other government professionals demand the greatest increase in economic theory, industry professionals have the greatest impact on econometrics and case studies - demanding less econometrics and more case studies, extension researchers have the greatest demand for more operations research, other extension professionals demand more applications than any other group. What is interesting is that the only significant coefficients in the difference between the ideal and actual emphasis sections are those for industry. The strong desire of industry professionals to be taught less econometrics and more case studies is statistically significant.

Table 3 reveals the current trend within the more theoretical professions such as academic

research, teaching, government research, and other government activities is to demand more training in economic theory and econometrics and less training in either/or operations research, applications, and case studies. In contrast the more applied industry professionals would prefer to see less economic theory and econometrics taught along with more case studies, applications and operations research. Any apparent contradiction between the results for ideal coursework emphasis and the difference between ideal and actual coursework emphasis should not be of grave concern due to the insignificance of nearly all coefficients for the difference between ideal and actual emphasis (see Table 3).

Table 4 displays the determinants of power and influence in government. Determinants of power and influence in government were evaluated by regressing the number of employees supervised or level of influence in the organisation against the respondents actual coursework emphasis, basis for analyses, type of analyses, years since the last degree, and an intercept. Unfortunately we could not find the determinants of power and influence in industry because there were only 10 observations where the dependent variable was the number supervised, and only 12 observations where the dependent variable was the level of influence - thus meaningful regressions could not be run.

The explanations of the number supervised and the level of influence are quite different in terms of sign and magnitude. While both regressions have negative coursework coefficients and positive basis for analyses coefficients, the explanation of the number supervised has positive type of analysis coefficients and the level of influence has negative type of analyses coefficients. The magnitudes of the estimated coefficients are far greater for the regression with the number supervised as the dependent variable. The years since the last degree have little impact on either the number supervised or the level of influence compared to the other variables. The greatest positive impact on power and influence is the basis for analyses - collected and internal primary data analyses obtain the most reward for both the number supervised and the level of influence. Operations research is least beneficial to government power and influence. Econometrics has the most benefits for increasing the number supervised and applications are the most beneficial for achieving high levels of influence. Formal other frameworks are the most beneficial for improving the level of influence and the number supervised. These results are consistent with the nature of government sector positions, such as the requirement for *ex post* analysis in many government sector positions (Just & Rausser (1989). While this requires good theoretical and mathematical skills, many government professionals are involved in policy formulation, so experience in analysing case studies can prove invaluable. Thus, Table 4 demonstrates how different skills bring different rewards in government. Econometrics is the most beneficial for increasing the number supervised, while experience in applications is beneficial for achieving high levels of influence.

Table 5 reports the linkages among various professions in terms of sources of conceptual thinking, sources of reports and forecasts, and outlets for completed analyses. The table was formed by regressing the percentage of activity associated with each of: trade journals, AAES conferences, *AJAE*, *RMAE*, other economic journals, other agricultural economic journals, personal experience, and lay interchange for sources of conceptual thinking, sources of reports and forecasts, and outlets for completed analyses against the percentage of time devoted to various professional activities. Thus, the table comprises 24 least squares regressions not containing intercepts. The coefficients were multiplied by 100, so the table is reported in percentages.

For sources of conceptual thinking, personal experience and discussion with colleagues is the most important input for five out of seven professional groups. Extension professionals also rely heavily on lay interchange. The importance of personal experience, lay interchange, and other economic journals suggests that the Society publications and conferences have not given the members all they require for conceptual ideas. Teaching professionals rely more on the *AJAE*, *RMAE*, AAES conferences and personal experience as sources of conceptual thinking than any other profession. Industry professionals rely more on trade journals as a source of ideas than any other profession. Academic and extension researchers rely more on other economic and other agricultural economics/agribusiness journals than any other professional group. Other extension professionals use lay interchange as a source of reports and forecasts more than any other professionals. The coefficients having the largest impact are also

statistically significant (see Table 5)

The results for sources of reports and forecasts are quite different from those obtained from sources of conceptual thought. What stands out is the near equivalence on average of the importance of trade journals/newspapers/trade association meetings, and personal experience/discussion with colleagues. On average, the most important source is trade journals/newspapers/association meetings. Also striking is how much smaller the remaining six categories are in importance compared to the most important two. Extension research, other extension, and teaching professionals rely most heavily on trade journals, while industry, and government professionals rely most heavily on personal experience. Other extension professionals rely more heavily on trade journals and lay interchange as sources of reports and forecasts than any other professional group. Academic researchers and teaching professionals rely more on the *AJAE*, *RMAE* and AAES conferences than any other profession. As for sources of conceptual thinking, academic and extension researchers rely more on other economic journals and other agricultural economics/agribusiness journals than any other professional group. Industry professionals rely more on personal experience as a source of reports and forecasts than any other profession. All but one of the coefficients having the greatest impact on the sources of reports and forecasts are also statistically significant. The greatest significant impact is government research on other agricultural economics/agribusiness journals (see Table 5).

The results for outlets for completed analyses are not uniform across professional groups. Other extension professionals rely most heavily on trade journals, academic researchers and teachers rely most heavily on other economic journals, government professionals rely mostly on other agricultural economics/agribusiness journals, while most of the analyses of industry professionals and extension researchers is reported to other colleagues. Other extension professionals use trade journals, personal experience and lay interchange as outlets for finished analyses more than any other profession. Academic and government researchers and teaching professions use the AAES's publications and conferences more than any other group of professionals, while teachers also use other economic journals and other agricultural economics/agribusiness journals as outlets more than any other profession. All but two of the coefficients having the largest impact on the outlets for analyses are statistically significant. The largest significant impact on the *AJAE* is other government professionals, while the largest significant impact on other agricultural economics/agribusiness journals is government research professionals. No professional group finds its top outlet for completed analysis is either AAES publications or AAES Conferences.

Table 5 shows the relative unimportance of the Society publications and conferences as sources of conceptual thinking, reports and forecasts and outlets for analyses. The AAES is clearly not providing the membership what they can obtain from rival societies and publications. The table indicates that the Society should address improving the *AJAE*, *RMAE*, and AAES Annual Conferences. The reforms should respond to the needs and wants of the members as described in Table 1.

III. COMPARISON OF TRENDS IN THE AMERICAN AND AUSTRALIAN PROFESSIONS

The results for the *American Journal of Agricultural Economics* (*AmJAE*) suggested that all respondents as a group wanted more problem definition and descriptive analysis published and less individual viewpoint and assessment of current events. Academic researchers preferred more individual viewpoint while all other groups want less, academic researchers also want fewer applications of existing models, while industry would prefer more new model development (Just and Rausser,1989). The Australian results are quite different. All professional groups wanted more current events assessment - not less. On average, the Australian Society membership also wants more individual viewpoint - not less as the American membership desires.

For the American *CHOICES* the results were uniform across professions, all wanted more application of existing models, new model development, problem definition and current event assessment, and less descriptive analysis and individual viewpoint. The coefficients were

highly significant compared to those for the *AmJAE* and AAEA Annual Meetings. The conclusion was drawn that the membership wanted *CHOICES* to move more towards an academic journal (Just and Rausser, 1989). This is a complete contrast to the current trends in the Australian Society. The AAES results reported above clearly indicated that the members want the *RSAE* (the applied AAES journal) to become even less theoretical with more current events analysis, descriptive problem definition, and individual viewpoints.

For the AAEA Meetings "all respondents" would prefer more application of existing models, new model development, problem definition, descriptive analysis of problems, and less individual viewpoints. The preference for less individual viewpoint is uniform across the major professional groups (Just and Rausser,1989). While the Australian Society members would also prefer less individual viewpoint, they would prefer less application of existing models and not more. The results reported for the American Association were largely insignificant, not unlike those from the Australian Society s survey.

Table 2 of Just and Rausser (1989) reports the changing approaches with professional maturity. For the American survey, in terms of basis for analysis, all professional groups moved away from using published secondary data sources toward using understanding and experience over the course of their career. There is a stark contrast between these results and those of the Australian survey in terms of the signs of the coefficients. The Australian results in terms of basis of analyses were all positive, the AAEA had many that were negative. There are likely to be fewer members involved in industry and other extension activities in the Australian Society compared to the American Association. The difference in sample size may explain the difference between the American and Australian results.

For the types of analyses conducted, the AAEA membership survey found that for all respondents on average original formal frameworks and gut intuition receive less emphasis over time, while formal other frameworks, heuristic application and descriptive problem definition receive more. This trend is most apparent in teaching and other extension activities (Just and Rausser, 1989). Again the Australian results are very different from the American results as the former are mostly positive.

For sources of effectiveness, the American results were largely insignificant, while Australian results were highly significant with many coefficients significant at 1%. However, Just and Rausser(1989) found the collective results of their Table 2 showed that professional maturity wasassociated with declining formal analysis with secondary data and increased reliance on heuristic application of principles. The results support emphasis on case studies and problem definition.

For the American Association membership survey, the results of their Table 3 clearly indicated all respondents would prefer less economic theory, less econometrics/statistics, less applications, and more case studies. The greatest changes were desired by those involved in industry, government, and extension activities (Just and Rausser,1989). The magnitudes of the percentages in the American table are similar to those results from the Australian Society. For the American Association the signs of the percentages were uniformly negative for economic theory and econometrics for the difference between ideal and actual coursework emphasis. Unlike the American Association, the Australian Society results were not uniform across professional groups. The more theoretical groups would prefer more emphasis on economic theory and econometrics, and less emphasis on applications, case studies, and operations research. While the more applied groups desire the opposite.

Table 4 in the Just and Rausser (1989) study shows the determinants of power and influence in industry and government. Due to the larger sample size, the American Association study was able to compare the determinants of power and influence in government and industry. For industry, all types of coursework were superior to econometrics/statistics, while for government, studying econometrics/statistics is beneficial for improving power and influence. Just and Rausser (1989) thus concluded that different skills are rewarded in industry and government. This is consistent with the trends in the Australian Society - for members involved in government theoretical and statistical skills enhance the number supervised more than any other skills. Just and Rausser (1989) concluded that the table supported the

replacement of economic theory and econometrics/statistics with case studies in both government and industry. This is not consistent with the results for the Australian Society. In Australia, there appears to be a role for both theoretical subjects such as econometrics/statistics and economic theory as well as applications of these.

For members of the AAEA, analysis using secondary data is the least beneficial in both industry and government. Understanding and experience are the most beneficial in three out of four cases. This is partly consistent with the results for the Australian Society - while secondary data analysis is not the most beneficial for power and influence in government, the greatest reward comes from primary data analysis and not understanding and experience. Both the American Association and the Australian Society can conclude that customised frameworks, and not kit solution frameworks, are important.

For the types of analysis, those involved in industry find gut intuition most important, while government professionals are rewarded most for descriptive analysis and formal frameworks developed by others. This is consistent with the results of the Australian Society survey which show the importance of formal frameworks developed by others for achieving power and influence in the government sector. Also similar are the coefficients for years since the last degree. In both studies years since the last degree appear to have little effect on the degree of power and influence in the workplace compared to the other regressors.

Given the extent of the collinearity problems associated with the Australian Society data (see Appendix A), it is reasonable to assume that similar problems were faced with the AAEA data although no mention of them was made in the Just and Rausser (1989) study. One would expect that there is a strong association between the different coursework regressors, the different bases and types of analyses in the American data. Given this and the fact that there were few significant coefficients in the table, multicollinearity could render the conclusions drawn from the study imprecise.

Table 5 in Just and Rausser (1989), shows the linkages among professional groups through professional media. For sources of conceptual thinking, professional meetings are the main input media for all professional groups. Personal experience, lay interchange, and discussion with colleagues are important sources of conceptual thinking for the AAEA membership, however they are far more important sources for the membership of the Australian Society. The AAEA appears to make better use of its resources than the Australian Society - providing meetings and journals that the membership finds more useful. For the AAEA, the results for sources of reports and forecasts are very close to those obtained for sources of conceptual thinking - professional meetings are the primary input media, *CHOICES* is the second most important medium on average, and personal experience and discussion with colleagues appears important (Just and Rausser,1989). In contrast, the Australian results for sources of reports and forecasts were quite different from the results obtained for sources of conceptual thinking.

For the AAEA the results for outlets for completed analyses indicated that most professional groups relied heavily on the AAEA Meetings and the *AmJAE*. The professional media are not effective outlets for industry professionals. The importance of trade journals as an outlet for academic research, and basic economic journals as outlets for industry and government was surprising. It was surprising to Just and Rausser (1989) that *CHOICES* was not a very important outlet for the applied professions because *CHOICES* is the AAEA's applied medium. In contrast, for the Australian Society no professional group relies most heavily on AAES meetings or publications as the most important outlet for analyses. What is surprising about the Australian results is how unimportant the *AJAE* and *RMAE* are to all professional groups as outlets for analyses.

IV. POLICY IMPLICATIONS

The AAES must not resort to kit solutions to problems. It must not isolate groups of professionals by implementing uniform solutions. This is because the results of the AAES member survey clearly show that different professions have different wants. The current

trend within the Society is for the academic research, government research, other government, and teaching professionals to demand more training in economic theory and econometrics/statistics and less training in case studies, operations research, and applications. In contrast, the more applied professionals in industry would prefer less emphasis on economic theory, econometrics/statistics, and demand more training in case studies and applications. Similarly, those members involved in extension research would also prefer to see less training in economic theory/econometrics/statistics. The implication for the Society's recruitment policy is that no one set of graduates should be targeted. To increase membership at the graduate level, the Society should target economics/agricultural economics graduates from a wide variety of backgrounds. This is consistent with the results from the first part of the AAES membership survey analysed by Ahmadi-Esfahani and Brakey (1995). Their analysis found that the agricultural economics field is so diverse the Society must address recruiting new blood from several areas and must broaden its media to keep those involved in industry and resources interested.

A further implication of the different requirements of different Society professionals is the need for both the *AJAE* and *RMAE*. Alternatively, the Society must provide a single journal that gives equal weight to theory and modelling, applications, current event assessment, and individual viewpoint. This is consistent with the findings of Ahmadi-Esfahani and Brakey (1995). The qualitative results from the first part of the membership survey showed that many members felt both the *RMAE* and *AJAE* be retained with the distinction between the two more defined, while others felt that one publication should be sufficient for the Society. However, part two of the survey seems to indicate that any move toward amalgamating the *AJAE* and *RMAE* would leave large sections of the journal redundant for many professionals. This could enhance the popularity of rival societies and publications.

Part two of the survey indicates how the Society has not used its resources effectively to give the membership adequate sources of conceptual ideas, sources of reports and forecasts, and outlets for finished analyses. The results of Table 5 show how important personal experience, fax interchange, other journals, trade journals and association meetings are to the members for

ideas, sources of reports/forecasts, and for outlets for analyses. The membership are not happy with the current state of the *AJAE*, *RMAE*, and AAES Conferences. A major problem facing the AAES today is competition from other societies. The Society must address this by improving its publications and conferences by listening to what its members want.

Our results indicate the desired distinction between the *AJAE* and *RMAE*. Clearly the membership feel that the *AJAE* is too theoretical and that it would benefit from greater variety. Although the *AJAE* is seen as the more theoretical journal and the *RMAE* as the more applied, the Society members would like to see the *AJAE* contain more assessment of current events and individual viewpoint as well as more application of existing models. This suggests a perception that the *AJAE* is out of touch with the real world, that it focuses too heavily on new model development, and could improve by containing at least one current event article every issue. The results of the survey indicate that the Society should also endeavour to make the *RMAE* more applied - with even more emphasis on current events, individual viewpoints, and descriptive problem analysis. This coincides with the qualitative results from the first part of the AAES membership survey discussed by Ahmadi-Esfahani and Brakey (1995). The most popular qualitative responses being that the *AJAE* is too good and ignores non-perfect articles which could be of interest to members, the *AJAE* is too mathematical and too distant from agriculture, the *AJAE* fails to address current issues in a timely fashion, the *RMAE* is becoming more academic and theoretical, the *RMAE* needs to be less theoretical, the *RMAE* could be more topical and readable, and the *RMAE* is not sufficiently different from the *AJAE*.

To make the AAES Annual Conferences relevant to more members, we suggest that they should contain not only first class theoretical presentations, but should also address current events. As noted by Ahmadi-Esfahani and Brakey (1995), private industry is an untapped market. To attract industry, participants may require special sections at the AAES Annual Conference. Guest speakers at the AAES Annual Conferences and forums to discuss current issues in agriculture and the economy would foster debate - an essential part of professional growth.

The heavy emphasis on econometrics and modelling in the AAES media isolates members involved in areas where these skills are not required or rewarded, forcing them to seek inspiration from other societies and journals. It has been argued by Just and Rausser (1989) that the weight given to mathematical modelling and economics in the agricultural economics profession has stifled creativity. The results of the second part of the membership survey reveal that descriptive problem definition, formal original frameworks and heuristic application of economic principles become more frequently used types of analyses over time than use of frameworks devised by others and gut intuition. Therefore, the importance of original frameworks suggeststhat creativity does not appear to have been as stifled as it has been for American Association members. However, the importance of descriptive problem definition and heuristic application does suggest many members would find the Society's focus on mathematical or quantitive economics restrictive, providing further evidence of the need to overhaul the *AJAE*, *RMAE*, and AAES Annual Conferences.

Apart from addressing the AAES media, the importance of rival societies and their publications and meetings indicates the need to improve the public profile of the Society. One way of tying this in with the direction for the Society suggested above is to have spokespersons commenting on current events and current issues in the press. Promotion of Society activities and benefits, publishing the *AJAE* to a broader audience, publicity at economics and ABARE Outlook Conferences are member suggestions from the initial analysis in this regard (Ahmadi-Esfahani and Brakey, 1995).

V. CONCLUDING COMMENTS

Using the results of the first part of their 1994 AAES membership survey, Ahmadi-Esfahani and Brakey (1995) examined the performance of the Society. This paper has used the second part of the survey to examine thecurrent trends in the Australian agricultural economics profession performance quantitatively. The results of this quantitative analysis are consistent with the qualitative views expressed by the members as reported in Ahmadi-Esfahani and Brakey (1995).

The agricultural economics profession has a proud tradition of theoretical and mathematical rigour. It has been the Society's tendency to focus on providing services targeted at members involved in professions where economic theory and statistical modelling are rewarded. The quantitative results analysed in this paper indicate the degree of diversity in the profession. Different professional groups have different wants and demands on the AAES. For example, those in the theoretical professions such as research would prefer to see new graduates more experienced in economic theory and econometrics, while those in industry and the applied professions place more value on learning applications, case studies and descriptive problem analysis.

What is apparent from both the quantitative and qualitative analyses of the membership surveys is that the members feel the *AJAE* and *RMAE* place too much emphasis on mathematical economics and too little emphasis on applications, current events and individual viewpoint. The membership presently find the *AJAE*, *RMAE*, and AAES Annual Conferences are not important as sources of conceptual ideas, sources of reports and forecasts, and outlets for analyses. The AAEA media are more important to the American Association membership as sources of ideas, reports and forecasts, and outlets for analyses than the AAES publications are to the Society membership. The AAES does not appear to have done as good a job as the AAEA in providing for the different needs of its members. The membership of the Society would like to see the *RMAE* become more applied like the American *CHOICES*.

The failure of the Society to provide for the different requirements of its members appears to have led to an exodus to alternative societies and publications. The results of the membership survey indicates that many members feel the two Society publications should remain, but be more differentiated. The decision to cease publishing the two journals and replace them with one must be driven largely by financial pressures.

The AAES Publications Review Committee has a difficult task ahead in amalgamating the two journals because the new journal will have to keep a diverse population interested. The results of the survey should indicate to the Committee the need to provide a journal with rigorous

economic and econometric theory, descriptive analyses, current events and individual viewpoints. The proposed policy forum section has been proposed to appear once a year (see AAES Publications Review Committee 1995), therefore the timeliness of current policy discussion is not likely to improve. Furthermore, it means that those members interested in policy discussion will have to look elsewhere for material the remainder of the year.

The most important tasks for the Society at present are not only to listen to the needs of a diverse professional body when planning the format and content of the new publication, but also to woo back discontented members from rival societies and to increase the profile of the AAES. It is hoped that the Society can use the findings of the 1994 membership survey to achieve these goals.

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APPENDIX A. STATISTICAL TESTS

The results reported for Table 1 were from simple OLS regressions containing no intercepts. For the *AJAE* regressions, the degrees of freedom for the estimated coefficients are 55, for the *RMAE* the degrees of freedom are 49, and for the AAES conferences the degrees of freedom are 44. The results for the AAES survey are largely insignificant. Raw moment R^2 values vary from 6.1 to 59.43 percent. The raw moment R^2 is the more appropriate statistic to compare goodness of fit for this table because the omission of intercepts meant several negative R^2 values. It is theoretically possible to obtain negative R^2 values where there are no intercepts, because the partition - $S(Y_i - Y)^2 = S(Y_i - Y)^2 + Se_i^2$, or TSS = RSS + ESS, is not valid (For more information see Stewart,1991 pp34-39). While these values may appear to be low, very high R^2 values are unlikely to be obtained from cross-sectional data. The most significant results were for the *AJAE*. More t-statistics were significant for these coefficients than for the coefficients corresponding to regressions with intercepts. The Durbin-Watson tests for the 18 regressions associated with table one found no problems with autocorrelation in 15 cases and only 3 Durbin- Watson tests were inconclusive.

Heteroscedastic errors are more likely to be present in cross-sectional data studies than in those using time series data. Breusch-Pagan statistics did not detect heteroscedasticity at either 5 or 1 percent significance levels for the *AJAE*. For those regressions with negative Breusch-Pagan statistics, regressions of the squared residuals on the fitted values, and the squared residuals on the squared fitted values were run. The NR^2 statistic (chi-squared with one degree of freedom) from these auxiliary regressions did not detect heteroscedasticity at either the 5 or 2.5 percent significance levels for the *AJAE*. The Breusch-Pagan statistics for the *RMAE* did not detect heteroscedasticity at the 5 % significance level. The auxiliary regressions described above were run for the "development of a new model" category for the *RMAE*. They did not detect heteroscedasticity at the 5 % significance level and 1 degree of freedom. Two regressions within the AAES conferences section have heteroscedastic errors. the coefficients reported for application of an existing model and current events assessment are not minimum variance and their significance can not be determined (see Appendix A- Table

for the table. In particular, there were very strong correlations between different types of coursework. This means there are very large standard errors for the least squares estimators so the t-statistics were very small. Thus, the multicollinearity in the data explains the insignificance of the coefficient estimates and the high R^2 (values over 55 are high for cross sectional data). Multicollinearity is not a violation of the OLS model and may not be a great problem if prediction is the aim of a study. The problem that exists for Table 4 is the inability to separate the effects of the collinear variables on the dependent variables with any precision. The coefficients and conclusions drawn from the initial regressions would be imprecise.

We attempted to correct for multicollinearity using restricted least squares(RLS). RLS on the number supervised still left the standard errors large and the coefficients insignificant and imprecise. However, for the level of influence the standard errors of the estimated coefficients declined greatly and their significance improved. Thus, the revised Table 4 reported was corrected only for the level of influence. The restrictions imposed linearly related economic theory to econometrics, primary to secondary data sources, formal original frameworks to formal other frameworks, and econometrics to operations research. The restrictions were valid - the F test on restrictions did not reject the null hypothesis at the 5 percent significance level.[3] The revised R^2 value for level of influence is 40.45 percent. Six estimated coefficients are statistically significant having corrected for multicollinearity compared to the one that was significant prior the correction. It should be noted that the results reported for the number supervised are still troubled by multicollinearity, therefore any comparisons made between the number supervised and level of influence are still dubious.

For Table 5, the degrees of freedom for the estimated coefficients are 81 for sources of conceptual thinking, 71 for sources of reports and forecasts, and 72 for outlets for completed analyses. The majority of estimated coefficients for sources of conceptual thinking are significant - some highly so. The raw moment R^2 (appropriate because of the absence of constants) values range from 43.21 to 67.49 percent. Only two regressions had Durbin-Watson statistics which led to the rejection of order one autoregressive processes, the

[3] F for test of restrictions = 1.4827. $F_{4,71}$ = 3.06 at 5 % significance.

remaining six regressions had inconclusive Durbin-Watson tests for autocorrelation. However, Box-Pierce statistics for tests that the residual autocorrelations are jointly zero all rejected the presence of autocorrelation.

Breusch-Pagan tests for heteroscedasticity were run. Where the statistic was positive (that is, where there is a positive R^2) the test rejected the presence of heteroscedasticity at either the 5 or 10 percent significance levels. Where there were negative R^2 and B-P statistics, regressions of the residuals squared on the fitted values and the residuals squared on the squared fitted values were run. The NR^2 statistics from these auxiliary regressions are chi-squared distributed with one degree of freedom[4]. All statistics except for personal experience as a source of conceptual thinking concluded errors were homoscedastic. Therefore, the coefficients for personal experience as a source of conceptual thinking are no longer minimum variance, hence the significance of the coefficients is dubious. It should be noted that the main conclusion made, that the AAES media are relatively unimportant sources of conceptual thinking, is not jeopardised by violation of OLS assumptions. (see Appendix A - Tables A4 and A5 for results of the tests)

Just under half of the estimated coefficients are significant for sources of reports and forecasts. The raw moment R^2 values range from 21.19 to 58.38 percent. Three out of the eight regressions for sources of reports and forecasts had Durbin-Watson statistics which led to the rejection of order one autoregressive processes. However, Box-Pierce statistics for tests that the residual autocorrelations are jointly zero all rejected the presence of autocorrelated errors. Breusch-Pagan tests for heteroscedasticity rejected the presence of heteroscedasticity at the 5 percent significance level. Where the R^2 and Breusch-Pagan statistics were negative, the NR^2 statistics from the auxiliary regressions of the squared residuals on the fitted values and the squared residuals on the squared fitted values concluded errors were homoscedastic. The estimated coefficients appear to be best linear unbiased.(see Appendix A- Tables A4 & A5 for the test results)

[4] Note that the residuals and fitted values used in the auxiliary regressions came from the Original OLS regressions - the NR^2 statistic uses the R^2 from the auxiliary regression.

Less than half of the estimated coefficients are significant for outlets for completed analyses. The raw moment R^2 values range from 17.08 to 38.55 percent. Five out of the eight regressions explaining outlets for completed analyses had Durbin-Watson statistics that rejected the presence of autocorrelated errors. For those regressions where the Durbin-Watson test was inconclusive, Box-Pierce statistics for tests that the residual autocorrelations are jointly zero rejected the presence of autocorrelated errors. Breusch-Pagan tests rejected the presence of heteroscedasticity at either the 2.5 or 5 percent levels of significance. For those regressions with negative R^2 and B-P statistics the NR^2 statistics from the auxiliary regressions (described above for sources of conceptual thinking and sources of reports and forecasts) rejected the presence of heteroscedastic errors (see Appendix A - Tables A4 and A5 for the results of the tests).

TABLE 1
Desired Percentage Changes in Emphasis by AAES Media

Group	Application of Existing Model	α=	Development of New Model	α=	Definition of Problem	α=	Current Events Assessment	α=	Descriptive Analysis of Problems	α=	Individual Viewpoint	α=
AJAE												
All respondents	1.95		-1.456		2.59		14.07		-1.47		0.32	
Academic research	-10.444		8.7387		5.9448		4.2794		-2.3333		0.25198	
Extension research	55.724	5%	49.732		5.8941		13.884		-33.85	1%	8.6117	
Other extension	9.5335		-26.34		-5.3352		32.563	5%	-0.1363		-11.057	10%
Teaching	-12.378		-8.3566		-5.1819		2.1246		11.031		-0.7278	
Industry	-23.284	5%	-11.202		8.0732	10%	37.668	1%	3.8835		5.3894	10%
Govt. research	5.8595		-11.645	10%	6.2577	5%	4.9435		7.9618	1%	0.05073	
Other govt	0.36945		-11.116		2.4724		5.0936		3.14		-0.267	
Degrees of Freedom	55		55		55		55		55		55	
Raw Moment R-sqrd	0.2939		0.2166		0.1998		0.4281		0.5943		0.1304	
RMAE												
All respondents	-7.81		-1.44		-1.62		8.65		0.53		2.53	
Academic research	9.4418		-0.71865		-0.99137		3.0338		6.8086		-4.1499	
Extension research	6.9781		5.1799		-2.0407		-8.1527		1.0096		-1.9302	
Other extension	-1.8595		1.1428		-10.759		19.537		-3.0593		-1.4129	
Teaching	-32.007	5%	-3.7406		-1.3646		12.727		-6.117		16.197	1%
Industry	-18.53	5%	-1.6025		1.861		28.265	1%	-1.7834		2.5595	
Govt. research	-13.461		-7.9718		3.8594		5.3033		7.6473	5%	1.7629	
Other govt	-5.232		2.3838		-1.9012		-0.16126		-0.7905		4.718	
Degrees of Freedom	49		49		49		49		49		49	
Raw Moment R-sqrd	0.2537		0.0919		0.061		0.3145		0.1413		0.2063	
AAES Conferences												
All respondents	-14.04		3.07		4.64		6.85		4.503		-0.0038	
Academic research	-6.5286		4.6292		2.3262		11.828		-1.9475		-0.6441	
Extension research	40.595		-3.8357		-32.916		-27.655		0.68711		33.605	
Other extension	-54.189		36.201		38.607		10.342		29.397		-50.986	
Teaching	-50.186	1%	-1.2308		13.594	5%	11.894		7.0814		10.839	
Industry	-19.573	5%	-3.6161		4.925		35.194	1%	1.0655		2.7988	
Govt. research	-4.585		-6.5483		2.0863		3.879		1.5549		-2.6093	
Other govt	3.8442		-4.1356		3.8444		2.4518		-6.3143		0.9701	
Degrees of Freedom	44		44		44		44		44		44	
Raw Moment R-sqrd	0.327		0.0798		0.2673		0.419		0.0647		0.1497	

TABLE 2
Changing Approaches with Professional Maturity
(Effects of Years since Last Degree on Percentage of Effort and Emphasis)

ependent riable	Academic Research	Extension Research	Other Extension	Teaching	Industry	Govt Research	Other Govt	All Respo ndents	d.f.	Raw Moment R sqrd
sis For Analyses										
condary data	55 454***	40 425**	25 025	23 213	22 495**	47 433***	38 717***	34 68	52	0 7537
mary data	13 667	47 886***	17 589	80 58***	35 048***	30 392***	34 375***	37 08	51	0 7342
derstanding	31 798***	14 619	54 509***	13 535	45 513***	34 747***	29 101***	31 97	51	0 7263
pe of Analyses										
rmal original framework	34 053**	14 517	25 934	60 542***	25 155**	28 755***	27 681***	23 54	45	0 6595
rmal other framework	29 077**	29 556	58 59	37 265**	6 6264	19 186***	27 181***	12 9	45	0 5872
ristic application	19 641	6 1005	55 626	2 6053	19 287**	16 478***	19 9***	19 95	45	0 389
t intuition	9 7585	28 039**	17 606	-0 65514	0 26848***	16 132***	8 0768	11 35	45	0 5167
scriptive problem finition	13 941	30 936	67 094	16 792	25 115***	22 141***	18 945**	27 852	45	0 5235
urces of Effectiveness										
rmal original framework	26 695***	28 714	5 702	44 748***	22 345***	28 47***	24 878***	25 898	77	0 5918
rmal other framework	25 603***	12 296	-6 1044	32 312***	3 665	12 19***	9 4133**	12 77	77	0 5954
ristic application	15 623***	25 95**	25 523*	16 801*	9 9593*	8 8497**	10 533***	17 03	77	0 4495
t intuition	7 9274	11 935	26 215**	9 9658	22 796***	11 816***	18 964***	15 66	77	0 5144
scriptive problem finition	23 428***	16 923	44 924*	11 634	38 264***	40 605***	28 072***	29 12	77	0 6006

*=10% SIGNIFICANCE
**=5% SIGNIFICANCE
***=1% SIGNIFICANCE

TABLE 3
Ideal Coursework Emphasis (Percentages)

Professional Group	Economic Theory	Econometrics Statistics	Operations Research	Applications	Case Studies
All respondents	29.03	15.495	6.67	30.01	16.06
Academic research	31.033***	16.957**	4.2095	38.6***	11.63
Extension research	49.392**	13.187	13.744*	1.8295	30.112
Other extension	11.428	9.6871	8.0844	56.962**	9.9907
Teaching	36.867***	28.383***	8.5294*	25.969	-2.1441
Industry	10.599	6.4053	4.1232*	29.593***	32.677***
Government research	24.737***	20.713***	6.4821***	36.479***	9.9702**
Other government	39.128***	13.136***	1.5459	20.656**	20.192***
Degrees of Freedom	62	62	62	62	62
Raw Moment R-sqrd	0.7168	0.6645	0.4485	0.607	0.4558
Difference Between Ideal & Actual Emphasis					
All respondents	2.76953	0.06196285 7	3.57245714 3	3.28	7.23
Academic research	6.5196	3.5909	-4.225	16.616	8.1474
Extension research	-3.0653	-5.7247	14.362	-42.512	16.018
Other extension	9.4686	-0.83696	7.8138	49.562**	12.286
Teaching	0.44801	2.5698	8.1371	-13.114	-3.2571
Industry	-10.856	-6.3542	2.408	7.6492	18.47**
Government research	5.3558	3.9238	2.203	-4.5413	-4.2749
Other government	11.516	3.2651	-5.6917	9.3253	3.1954
Degrees of Freedom	64	64	64	64	64
Raw Moment R-sqrd	0.1209	0.0754	0.0939	0.129	0.879

*=10% SIGNIFICANCE
**=5% SIGNIFICANCE
***=1% SIGNIFICANCE

TABLE 4
Determinants of Power and Influence in Industry and Government

Independent Variable	Dependent Variable: Industry** No Supervised	Industry** Level of Influence	Government No Supervised	Government Level of Influence*	α=
% of Coursework					
Economic Theory	-	-	-128.8	-0.23526	
Econometrics	-	-	-81.27	-0.47051	
Operations Research	-	-	-150.19	-0.94102	
Applications	-	-	-111.33	-0.004057	
Case Studies	-	-	-144.88	-0.4455	
Other	-	-	117.68	0.696037	
Basis for Analyses					
Published Data	-	-	6593.9	0.39609	
Collected & Internal Data	-	-	6641	0.79219	
Understanding/Experience	-	-	6621.3	0.76043	
Type of Analyses					
Formal Original framework	-	-	159.19	1.0299	5%
Formal other Framework	-	-	162.41	2.0599	5%
Heuristic application	-	-	148.54	2.1919	5%
Gut intuition	-	-	125.62	-1.8794	10%
Descriptive problem definition	-	-	158.11	-1.6917	10%
Years Since Last degree	-	-	0.42681	0.018558	5%
Intercept	-	-	6651.2	1.5045	
Degrees of Freedom			20	19	
R-sqrd			0.5564	0.4045	

* Corrected for Multicollinearity
** Too few observations

TABLE 5
Linkages among Professional Groups through Professional Media
(Percentage of Activity Associated with Each)

	Trade Journals	AAES Conferences	AJAE	RMAE	Other Economic Journals	Other Ag.Econ. and Agribusiness Journals	Personal Experience	Lay Interchange
Sources of Conceptual Thinking								
Academic Research	7.5257*	1.0906	6.9595***	2.9439***	30.448***	14.525**	25.475***	5.3608
Extension Research	2.3741	-0.64056	-0.0003134	-1.1944	14.061	41.283***	12.845	18.686*
Other Extension	24.604**	0.42501	-0.23752	1.4185	-1.369	0.53137	25.649	37.962***
Teaching	-2.6374	9.6571***	8.438**	7.2195**	18.732*	16.552*	36.028***	5.1838
Industry	28.872***	0.94185	1.5514	0.4099	3.6148	11.243*	32.546***	17.638***
Government Research	4.4262	6.5167***	7.4037***	6.4071***	11.399***	14.117***	32.985***	13.266***
Other Government	11.965***	7.9974***	5.5573***	4.1513***	13.591**	8.4466	32.795***	13.294***
Degrees of Freedom	81	81	81	81	81	81	81	81
Raw Moment R-Sqrd	0.462	0.5154	0.4388	0.437	0.4791	0.4321	0.6749	0.4709
Sources of Reports & Forecasts								
Academic Research	20.539**	3.5297*	4.1759**	4.3848***	15.341***	9.0962	23.059**	2.4408
Extension Research	26.912	2.025	2.0662	1.4235	12.454	23.431	21.217	-0.83543
Other Extension	41.326*	-0.89572	-0.96587	2.2551	-3.4786	8.9784	22.723	25.703***
Teaching	32.6045*	0.21304	8.0498*	1.7608	12.917	21.445	31.578*	8.1933
Industry	26.897***	0.54395	-0.16398	0.019435	0.91453	10.217	40.108***	8.8508***
Government Research	25.658***	2.9048**	0.68453	0.59933	6.1764*	22.138***	27.472***	9.1544***
Other Government	23.231***	3.4453*	2.1553	3.1912***	3.0979	12.578*	25.438***	0.80404**
Degrees of Freedom	71	71	71	71	71	71	71	71
Raw Moment R-sqrd	0.5164	0.2262	0.2119	0.3396	0.3266	0.4082	0.5838	0.4743
Outlets for Completed Analysis								
Academic Research	1.4007	18.666***	4.9543*	4.136	27.174***	17.224	16.34	7.3439
Extension Research	-4.9593	-1.4762	-0.82296	-1.1508	4.0729	5.6498	40.082	2.4562
Other Extension	54.772***	-0.7837	-1.4468	-0.26115	-7.1259	18.115	65.93**	84.35***
Teaching	8.4471	-3.6812	7.1773	4.3592	39.28**	29.468	6.6094	6.5393
Industry	18.623***	9.2589	-0.37333	0.87199	9.9308	11.663	23.052*	14.346*
Government Research	2.1108	14.853***	3.782*	5.7349**	11.155*	27.189***	27.159***	9.7654*
Other Government	10.473**	15.801**	5.952**	2.7298	3.2069	28.317***	17.375	15.046**
Degrees of Freedom	72	72	72	72	72	72	72	72
Raw Moment R-sqrd	0.3855	0.3328	0.2453	0.1708	0.3509	0.3682	0.3481	0.1833

* = 10% SIGNIFICANCE
** = 5% SIGNIFICANCE
*** = 1% SIGNIFICANCE

TABLE A1
Desired Percentage Changes in Emphasis by AAES Media
Tests for Heteroscedasticity

Group	Application of Existing Model	Development of a New Model	Definition of a Problem	Current Events Assessment	Descriptive Analysis of Problems	Individual Viewpoint
AJAE						
B-P stat 6df	-1.446	-4.397	0.342	15.656	3.251	0.361
e-sqrd on YHAT 1df	4.195	0.216				
e-sqrd on YHAT-sqrd 1df	1.984	0.408				
RMAE						
B-P stat 6df	6.446	-2.272	1.694	10.559	5.758	11.077
e-sqrd on YHAT 1df		0.034				
e-sqrd on YHAT-sqrd 1df		0.349				
AAES Conferences						
B-P stat 6df	23.684	-2.103	-2.366	17.442	3.847	2.927
e-sqrd on YHAT 1df		0.007	0.007			
e-sqrd on YHAT-sqrd 1df		0.331	0.061			

TABLE A2
Changing Approaches with Professional Maturity
(Effects of Years Since Last Degree on % of Effort & Emphasis)
Tests for Heteroscedasticity

	B-P stat 6df	e-sqrd on YHAT 1df	e-sqrd on YHAT-sqrd 1df
Basis for Analyses			
Secondary data	-12.569	11.176	6.26
Primary data	-7.909	1.908	1.107
Understanding	-9.689	7.402	2.002
Type of Analyses			
Formal original framework	11.071		
Formal other framework	9.626		
Heuristic Application	-0.643	0.249	0.544
Gut intuition	8.712		
Descriptive Prob. Definition	-10.414	5.399	2.036
Sources of Effectiveness			
Formal original framework	1.466		
Formal other framework	10.271		
Heuristic Application	-3.82	0.046	0.092
Gut intuition	-5.673	2.407	0.327
Descriptive Prob. Definition	-9.502	1.628	5.954

TABLE A3
Ideal Coursework Emphasis (percentages)
Tests for Heteroscedasticity

	Economic Theory	Econometrics Statistics	Operations Research	Applications	Case Studies
Ideal Coursework Emphasis					
B-P stat 6df	8.866	4.893	3.026	9.05	8.877
e-sqrd on YHAT 1df	1.837	0.087		5.956	
e-sqrd on YHAT sqrd 1df	0.758	0.328		2.702	
Difference Between Ideal & Actual Emphasis					
B-P stat 6df	5.579	8.246	6.64	3.863	14.784
e-sqrd on YHAT 1df	1.086	0.027	1.156	0	
e-sqrd on YHAT sqrd 1df	0	0.466	0.984	0.749	

TABLE A4
Results of Tests for Autocorrelation

	Trade Journals	AAES Conferences	AJAE	RMAE	Other Economic Journals	Other Ag Econ and Agribusiness Journals	Personal Experience	Lay Interchange
Sources of Conceptual Thinking								
Box-Pierce stat 23df	16.475	10.915	16.444	16.444	22.787	13.506	40.898	13.598
Sources of Reports and Forecasts								
Box-Pierce stat 23df	11.814	9.974	4.059	24.058	17.604	13.725	21.448	14.357
Outlets for Completed Analysis								
Box-Pierce stat 23df	26.757	30.845	17.36	15.067	27.389	11.818	10.651	21.603

TABLE A5
Results of Tests for Heteroscedasticity

	Trade Journals	AAEA Conferences	AJAE	RMAE	Other Economics Journals	Other Ag Econ and Agribusiness Journals	Personal Experience	Last Issue Change
Sources of Conceptual Thinking								
B-P-G stat 6df	6.121	2.538	1.883	2.384	6.655	6.602	13.749	13.354
e-sqrd on YHAT 1df				0.023		2.214	12.699	
e-sqrd on YHAT-sqrd 1df				0		0.217	12.38	
Sources of Reports and Forecasts								
B-P-G stat 6df	5.636	1.255	6.409	6.101	2.43	4.629	9.358	4.401
e-sqrd on YHAT 1df	3.306	0.015				1.197	6.591	1.458
e-sqrd on YHAT-sqrd 1df	1.954	0.144				0.931	0.015	0.28
Outlets for Completed Analyses								
B-P-G stat 6df	14.166	5.971	4.216	1.825	11.125	4.612	1.167	1.75
e-sqrd on YHAT 1df						0.352		0.541
e-sqrd on YHAT-sqrd 1df						0.151		0.11