

# THE STATISTICAL CONSULTANT



## Logo:

The Section is looking for a new logo. We'll use it in the newsletter, on letterheads, etc. See our next issue for more details.



Section on Statistical Consulting  
Murray K. Clayton, Editor  
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American Statistical Association

## IN THIS ISSUE

- Results of the Membership Survey
- Conference Announcement
- JSM Meeting and Mixer: Thanks!
- We're on the Web
- Notes from the Editor

## Results of the Membership Survey

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### Summary

A survey of the 1,466 members of the Section on Statistical Consulting of the American Statistical Association was conducted in order to find out the members' level of enthusiasm for a list of twenty-four proposed activities for the Section, to collect comments and suggestions, and to obtain volunteers for Section activities. There was a 25% response

rate. Most of the proposed activities received an average priority score that was in the "very high" or "high" range. Respondents were interested in sharing information and learning more about all aspects of consulting: consulting tips, business aspects of consulting, educational resources, book and literature reviews, and statistical methodology all had high priorities. Respondents were also enthusiastic about the suggestion to organize a "consultant's forum" at the Joint Statistical Meetings. The proposed outreach and education program for statisticians to deliver to their customers was also included among the top ten ranked activities.

Respondents also volunteered to participate in many activities. Lists of volunteers compiled for each proposed activity will help to broaden the participation of members in the Section activities. The comments and suggestions of the respondents will also provide a rich resource of ideas. *The Statistical Consultant* newsletter received a high priority score and many favorable comments. The suggestions for improvement, proposed topics, and volunteers should help the new editor revitalize this important service to the Section membership.

The members who responded to the survey have a diverse educational background and are employed at the doctorate (48%), master's (40%) and bachelor's (9%) level. They work in a wide range of professions and have on average 14 years of experience in statistical

consulting. The proportion of their working life given to statistical consulting also ranges widely, with an average of 48%. Forty-four percent of the respondents consult privately in addition to their regular job.

## Background

In early 1995, the Executive Committee of the Section on Statistical Consulting of the American Statistical Association decided to conduct a survey of its membership. The purposes of this survey were the following: (1) to find out the level of enthusiasm for a list of proposed activities for the Section in the years to come; (2) to broaden the participation in Section activities by soliciting volunteers; and (3) to solicit any additional comments and suggestions from the membership about the Section.

## Methods

### The questionnaire

A questionnaire was developed with input from the Section's Executive Committee, which developed a list of 24 proposed activities for the Section. The proposed activities were divided into five general areas:

- Communication among members of the Section;
- Resources for members of the Section;
- Special programs for members of the Section;
- Activities at the Joint Statistical Meetings;
- Outreach and education for our customers.

Respondents were asked to indicate the level of priority that they would give to each proposed activity. The priority scale had five levels: "very low," "low," "neutral," "high," and "very high." In addition to giving a

priority score for specific items, respondents could suggest other activities and topics. Respondents could also indicate which activities they would be willing to participate in, and could provide contact information on the form if they did not wish to remain anonymous. The questionnaire included some demographic questions about the respondent, and there was space on the form for additional comments.

### Survey Administration

The survey was administered by the Statistical Consulting Center at Penn State University. After the questionnaire and cover letter had received approval from the Office of Regulatory Compliance at Penn State University, it was sent by first class mail or airmail to all of the 1,466 members of the Section (1,315 from the U.S. and 151 outside the U.S.) on a set of mailing labels provided by the ASA central office. The questionnaires were sent out on 4/4/95. All forms received by 5/8/95 were entered into a data base for analysis.

For each proposed activity, the average priority was computed from the following scale:

- 1 = Very high priority
- 2 = High priority
- 3 = Neutral
- 4 = Low priority
- 5 = Very low priority

The averages of the 24 proposed activities were then ranked.

The written comments from all open fields were reviewed and grouped by general themes which emerged from the comments. The number of comments expressing a given general theme were then tallied (one comment could have more than one general theme).

## Results

### Response rate

362 of the 1,466 questionnaires sent out were received by 5/8/95, for a 25% response rate.

Six were returned marked “unable to deliver”; an additional 39 were received between 5/9/95 and 5/31/95 and were not used in the analysis.

### Proposed activities in rank order

Most of the proposed activities were greeted with enthusiasm by respondents. The average priorities, shown in Table 1 in rank order, were above the value of 3 for 23 out of the 24 items. Respondents were clearly interested in sharing information and learning

more about all aspects of consulting: consulting tips, business aspects of consulting, educational resources, book and literature reviews, and statistical methodology all had high priorities. Respondents were also enthusiastic about the suggestion to organize a “Consultant’s forum” at the Joint Statistical Meeting. The proposed outreach and education program for statisticians to deliver to their customers was also included among the top ten ranked activities.

Table 1. The Average Priority of Proposed Activities.

Rank Priority	Proposed Activity	Average Priority
1	Communicate to members about consulting tips	1.47
2	Organize a consultants’ forum at the Joint Statistical Meetings: Experts discussing specific consulting issues	1.95
3	Communicate to members about business aspects of consulting	2.04
4	Communicate to members with newsletter sent through the mail	2.06
5	Communicate to members about educational resources	2.24
6.5	Develop and deliver continuing education short courses and workshops	2.27*
6.5	Develop an outreach and education program for statisticians to deliver to their customers. The purpose of the program would be to improve the quality of interactions between statisticians and their customers.	2.27
8	Communicate to members with books and literature reviews	2.29
9	Develop resources for teaching statistical consulting	2.30
10	Communicate to members with articles on statistical methods	2.35
11.5	Establish and maintain an electronic directory of members willing to consult in specific technical fields	2.40
11.5	Establish a task force to develop contributions to customer journals on topics that would improve the quality of interactions between statisticians and their customers	2.40
13	Communicate to members about teaching tips	2.42
14	Organize roundtable discussions at the Joint Statistical Meetings	2.43
15.5	Communicate to members using space provided in <i>AmStat News</i>	2.54
15.5	Establish and maintain an electronic directory of statistical consulting units	2.54
17	Establish and maintain an electronic directory of members willing to serve as statistical reviewers for non-statistical journals	2.55
18	Organize and sponsor a topical conference	2.66*
19	Electronic newsletter on the Internet	2.69
20	Organize luncheon roundtables at the Joint Statistical Meetings	2.70
21	Establish and maintain an electronic directory of members willing to serve on review panels	2.71
22	Hold a Consulting Section Mixer at the Joint Statistical Meetings	2.92
23	Establish a fund for proposals submitted by members for projects that support the missions of the Section	2.99
24	Provide travel awards for students to attend professional society meetings	3.02

\*An accidental reversal of the response scale for this item (pointed out by approximately 80% of the respondents) may have caused some inaccuracy in determining the average priority.

## Comments and suggestions

The comments and suggestions made by the respondents will be a rich source of ideas for the Section. For example, the highly-rated proposal that the Section develop an outreach and education program for statisticians to deliver to their customers generated many suggestions. Issues of communication were mentioned most frequently. Examples are: “Questions for the non-statistician to ask; what value the non-statistician can offer to the project,” “What the statistician can NOT do for you,” and “How to work with your statistician, including what to expect and what not to expect.” Respondents also suggested specific statistical methodology that would be useful to teach to clients, such as research design and very basic issues in statistics. All comments and suggestions made by respondents were listed by item in a report notebook circulated to the Executive Committee and which is available on request.

## The Statistical Consultant newsletter

The majority of respondents, 71%, recalled having received at least one issue of *The Statistical Consultant* newsletter in the past year. The majority of comments about receiving the newsletter were positive. Examples of comments are: “Thoroughly enjoy the down to earth applied articles” “It was very interesting and represented situations which I could relate to very closely as a consultant” and “Most enjoy case studies that provide insights into challenging consulting problems – both statistical and other.” The newsletter sent through the mail received a high priority by respondents. The wealth of suggestions for topics, the comments about the newsletter, and a long list of volunteers who are willing to contribute to the newsletter should help the new editor revitalize this important service to the membership.

## Volunteers

Many respondents volunteered to participate in the Section activities, and divulged their names, addresses and telephone numbers in order to be contacted. These contact lists have been organized by activity, and are contained in the report notebook given to the Executive Committee.

## Description of respondents

The membership of ASA’s Section on Statistical Consulting, as reflected by the respondents, have a diverse educational background. They work in a wide range of professions, and the proportion of their working life given to statistical consulting also ranges widely. The respondents are about equally divided between the doctorate and the masters as the terminal degree (Figure 1).

Although mathematics was the bachelor’s degree for the largest percentage of respondents (Table 2), degrees in the life sciences and engineering were also reported, and a remaining 24% of bachelor’s degrees were distributed across a broad range of categories. Statistics was the degree reported most frequently at both the master’s and the doctorate level.

Respondents reported employment in a range of job types (Figure 2). The academic sector had the largest representation, followed by industry, self-employed, government, and non-profit organizations. Forty-four percent of respondents consulted privately in addition to their regular jobs.

Table 2. Academic degrees reported by respondents

	Bachelor’s	Master’s	Doctorate
Statistics	9%	62%	60%
Mathematics	45%	13%	4%
Life Sciences	13%	5%	12%
Engineering	9%	4%	1%
Biostatistics	—	7%	8%
Other	24%	9%	15%

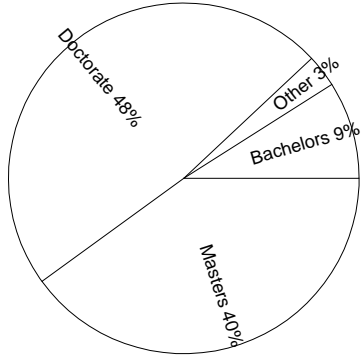


Figure 1. Terminal degrees reported by respondents

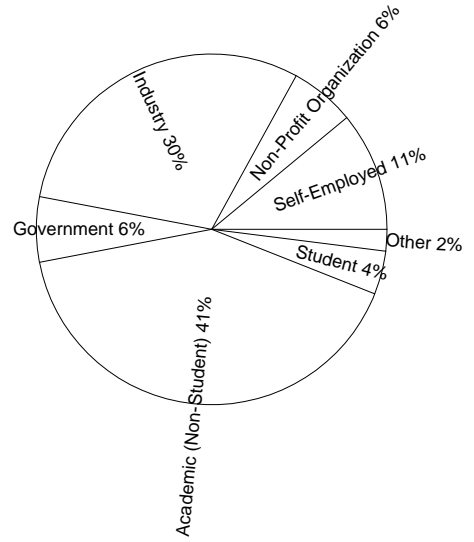


Figure 2. Types of employment reported by respondents

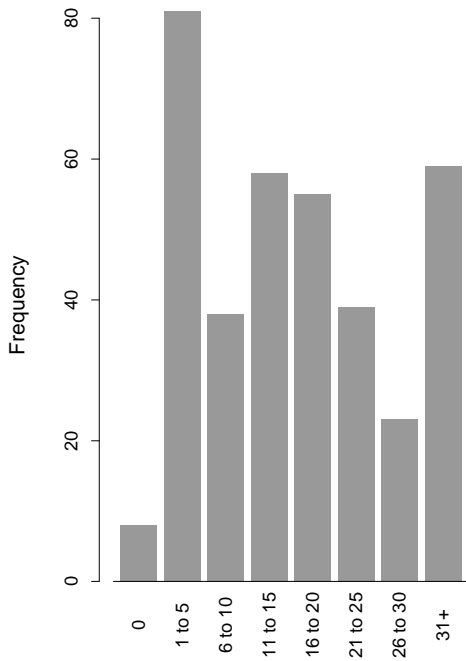


Figure 3. Number of years of experience in statistical consulting

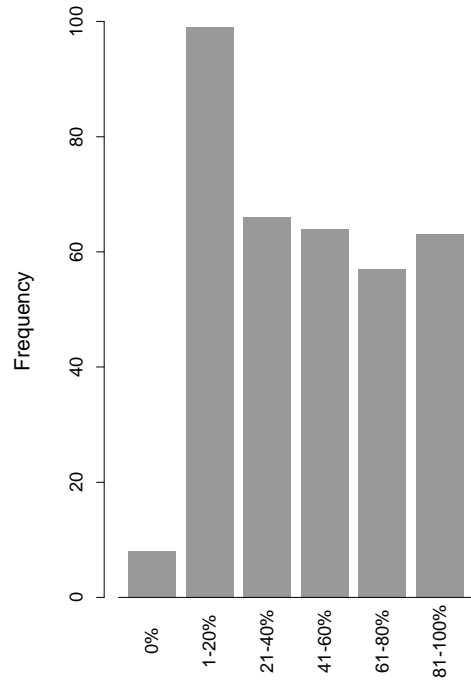


Figure 4. Percentage of time spent in statistical consulting

The number of years of experience in statistical consulting ranged widely among respondents (Figure 3) from 0 to 56 years, with an average of 14 years.

The percentage of time spent in statistical consulting also varied widely among respondents, with values from 0% to 100% reported (Figure 4). The average was 48%.

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## Conference Announcement

A conference on health policy sponsored by the Health Policy Statistics Section (HPSS), American Statistical Association will be held from December 2-3, 1995 at Burr/Wolcott Conference Facility, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts.

The conference is the section's first step to address the increasing needs for transferring existing statistical methodology and for developing new methods specific in the rapid growing multidisciplinary health care and outcome research. Topics include analysis of patterns in health care, cost-effectiveness and decision analysis, measurement of quality of life and patient satisfaction, quality assessment and assurance, health provider profiling, design and analysis of health promotion and education studies, health care surveys, long-term and geriatric care, mental health services and outcomes, medical technology assessment, meta-analysis for health care policy analysis, microsimulation for modeling alternative health reform programs, and analysis of health care expenditure data.

The conference contains invited, contributed paper sessions, as well as poster sessions. An overview of the health care environment and its application will be given in the evening of December 1. Three concurrent continuation education short courses in health economics will be held during the conference.

Michael Dukakis will be the Dinner

## Acknowledgements

Susan Rohner and Brian Snyder of Penn State University developed the data management programs and organized the processing of the questionnaires. Susan Rohner provided all of the data summaries, plots and charts, and printouts of open comments and lists of volunteers.

speaker, December 1, on "Health Care Reform: Where Do We Go From Here?" at the Harvard Faculty Club.

Detailed information will be sent to the section members in September.

For more information, contact Constantine Gatsonis (401) 863-1106 or Ralph D'Agostino, Sr. (617)353-2767.

## Thanks!

If you attended our Section's business meeting and mixer at the August Joint Statistics Meetings in Orlando then you know that several people in attendance won door prizes. A special thanks should be extended to those companies donating prizes: BMDP donated their *New System for Windows* and SAS donated three books: *SAS for Linear Models*, *SAS for Regression*, and the new book *Categorical Data Analysis*. Two computer packages were donated by Brooks/Cole: the student editions of *Scientific Workplace* and *Maple V*. Finally, Chapman and Hall donated Crowder and Hand's book *Analysis of Repeated Measures* and Academic Press donated Bock's book *Multilevel Analysis of Educational Data*.

Special thanks, too, to the Section's Program Chair-Elect, John Dixon, who worked with donors to arrange these prizes. And, finally, Sandra Stinnett, the Section's Chair, deserves a multitude of thanks for arranging the mixer — it was a great success!

## We're on the Web

Those of you who have access to the World Wide Web should note that the Section now has its own homepage. You can find it, and the homepages of other sections, by starting at the ASA's homepage: [www.amstat.org](http://www.amstat.org). Special thanks to Brian Yandell, next year's Secretary/Treasurer, for setting that up. (Note that our section was the second section to have its own homepage — Statistical Graphics was first.)

## Thanks in Advance! — Notes from the Editor

It is gratifying to see the interest held by the Section's membership in our newsletter *The Statistical Consultant*. I am planning a series of articles addressing some of the issues that were top-ranked in the survey. In particular, I want to start with the items ranked first and third on the survey: "Communicate to members about consulting tips" and "Communicate to members about business aspects of consulting." I welcome brief tips (or full-length articles) related to either of these items.

For example, a piece of advice that I like to pass along to beginning consultants is that it is important to take your time in working with a client to understand their problem, their needs, and their constraints. Too often, perhaps out of nervousness, a beginning consultant will try to rush to an answer before they fully understand the problem at hand. In my first meeting with a researcher, if it lasts an hour and a half, I expect to spend 45 to 60 minutes on the scientific aspects of the problem before tackling the statistical issues. Then I will use the remaining time to discuss preliminary exploratory analyses, plots, and so on. I expect to delve more deeply into more complex approaches in subsequent meetings. (This has to be modified, of course, if the client has a huge pressing deadline.) In a phrase, "take your time and ask a lot of questions" is a thing

that I advise students (and remind myself) to do when first starting on a project.

If you have similar tips or suggestions that we can share with each other, please drop me a line by mail or e-mail.

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In a similar vein, I would like to receive tips or articles related to the business aspects of consulting. In particular, a question has come up regarding consultant's fees: How much should you charge a client? It seems that many consultants undercharge, so a quick answer might be "more than you think!"

There has been some discussion of this issue on the Usenet group `misc.business.consulting` and it is clear that the answers are not simple. Fees might vary depending on locale, whether the client is a first time client or a continuing one, what services are rendered, and so on. Nonetheless, it can be very helpful to beginning consultants to get a rough idea of what to charge. Therefore, I would like you to send me suggestions regarding fees. How do you go about setting your fees? If you are willing to share your own fee structure, that would be great; or if you know the typical fee structure of other consultants in your area that would be equally helpful. I intend to publish only a summary of this information and I will publish it without names — I will treat individual responses as confidential.

One aspect of the survey that was particularly exciting was the willingness of people to volunteer to help. I am thrilled to see so many people volunteering to help with the newsletter — I will be contacting people in the months to come.

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