

Business, Industry, & Government 1999 Salary Survey

One initiative resulting from the SPAIG workshop held in Raleigh, NC, in May 1997 was to conduct a salary survey of statisticians employed in Business, Industry, & Government (B/I/G). The survey objectives were to:

- provide current salary information on statisticians employed in B/I/G
- provide students with better information on starting salaries by academic degree achieved
- provide students and employed statisticians with information on future salary potential
- provide employers with salary reference points for statisticians
- characterize statisticians by type of employer and geographic region
- provide information on current and future demand for statisticians

At the conclusion of the SPAIG workshop a task force was formed to develop and conduct the survey. Its membership included Phil Pichotta (chair), Rich Allen, Alan Hopkins, Boris Iglewicz, Bob Starbuck, and Ray Waller.

In January 1999 a survey questionnaire was sent to 1,264 randomly selected organizations out of 3,710 B/I/G organizations identified in the ASA membership directory. Each organization was asked to provide information on statistician employees and on current and near-term future demand for statisticians. The operational definition of “statistician” used in this survey was:

- University or college degree (BS, MS, PhD) in Statistics, Biostatistics, or Mathematical Statistics, *or*
- Equivalent of one-year graduate coursework of academic statistics courses (including those in Federal Government who meet the educational requirements for a Mathematical Statistician)
- *and* is using statistical reasoning or performing statistical analyses (including supervision of statisticians) as part of their job.

A total of 111 B/I/G organizations responded to the survey, for an overall response rate of 8.8%. Of those organizations responding, 23 were from the Federal Government, 11 were from Pharmaceutical/Medical Device/Diagnostics (“Pharma”), and 77 were from a variety of other types of organizations (“Other”). Data were provided on 944 individual statisticians, of whom:

- 32% were Federal Government, 23% were Pharma, and 45% were Other employees.
- 43% had PhDs, 46% had Masters, and 12% had bachelor degrees.
- 63% were male and 37% were female.

Salary statistics were categorized by organization type (Fed. Gov., Pharma, Other), managerial status, highest academic degree attained (BS, MS, PhD), and total years of experience. Some conclusions from the data include:

- The majority of statisticians (77%) were on the east coast.
- Compared to females, males had a higher percentage of PhDs (45% vs 33%), had more total years of experience (median of 10 vs 7 years), and were more likely to be managers (27% vs 19%).

- Management status was positively correlated with academic degree (37% of PhD, 18% of MS, 9% of BS were managers).

Salary Statistics

Salary data shown in the following tables are based on base salaries excluding bonuses, stock awards, stock options, and other forms of incentives. The statistics shown are based on adjusting for the stratified nature of the sampling scheme used in the survey. To preserve confidentiality, no statistics are presented if the number of observations, N, is 1 or 2, the median is presented if N is 3 or greater, and the 1st and 3rd quartiles (Q1 and Q3) are presented if N is 5 or greater.

The following table provides information on the starting salaries of statisticians.

Table 1. Annual Starting Salaries (\$000) of Statisticians

Type of Employer	Highest Degree	N	Q1	Median	Q3
All	BS	54	27.0	32.0	38.0
	MS	87	34.0	40.0	45.0
	PhD	70	40.0	52.0	60.0
Federal Government	BS	12	23.0	28.0	32.0
	MS	17	34.0	38.0	40.0
	PhD	17	42.0	50.0	54.0
Pharmaceutical/ Medical Devices/ Diagnostics	BS	3		44.0	
	MS	8	45.0	50.0	55.0
	PhD	7	56.0	63.0	68.0
Other	BS	39	28.0	32.0	37.0
	MS	62	32.0	40.0	45.0
	PhD	46	40.0	56.0	60.0

The next two tables provide information on annual salaries by years of experience based on managerial status.

**Table 2. Annual Salaries (\$000) of Statisticians –
No Managerial Responsibility
All Survey Respondents (n = 110 organizations)**

Years Experience	Highest Degree	N	Q1	Median	Q3
0 - 1.9	BS	9	27.0	28.0	30.0
	MS	53	38.5	44.2	49.0
	PhD	44	59.0	62.3	65.0
2 - 3.9	BS	18	32.0	38.0	40.0
	MS	66	39.0	43.0	50.0
	PhD	56	52.0	65.5	77.5
4 - 7.9	BS	13	26.0	45.0	54.0
	MS	81	44.8	51.0	60.0
	PhD	70	50.0	66.0	80.0
8 - 11.9	BS	19	53.0	62.0	64.0
	MS	54	54.0	58.0	68.0
	PhD	32	60.0	70.0	82.0
12 +	BS	42	54.0	59.0	70.0
	MS	100	62.0	70.0	79.0
	PhD	70	70.0	80.0	93.0

**Table 3. Annual Salaries (\$000) of Statisticians –
Managerial Responsibility
All Survey Respondents (110 organizations)**

Years Experience	Highest Degree	N	Q1	Median	Q3
4 - 7.9	MS	9	48.8	54.0	55.0
	PhD	16	82.0	89.0	92.1
8 -11.9	MS	9	60.0	71.0	87.0
	PhD	19	60.0	70.0	85.0
12 +	BS	7	30.0	49.0	75.0
	MS	54	60.0	82.0	94.0
	PhD	85	89.0	100.5	125.0

The next two tables provide information on annual salaries for Federal Government statisticians by years of experience based on managerial status.

**Table 4. Annual Salaries (\$000) of Statisticians –
No Managerial Responsibility
Federal Government Respondents (23 organizations)**

Years Experience	Highest Degree	N	Q1	Median	Q3
0 - 1.9	BS	6	21.0	27.5	30.0
	MS	14	36.0	39.0	77.0
	PhD	4	60.0	61.0	61.0
2 - 3.9	BS	4		39.5	
	MS	13	37.0	43.0	50.0
	PhD	5	42.0	50.0	60.0
4 - 7.9	BS	6	50.0	52.0	60.0
	MS	21	44.0	50.0	58.0
	PhD	7	62.0	80.0	84.0
8 - 11.9	BS	17	53.0	63.0	64.0
	MS	26	55.0	58.0	61.0
	PhD	5	73.0	75.0	75.0
12 +	BS	35	57.0	63.0	72.0
	MS	54	64.0	70.0	75.0
	PhD	27	70.0	74.0	83.0

**Table 5. Annual Salaries (\$000) of Statisticians –
Managerial Responsibility
Federal Government Respondents (23 organizations)**

Years Experience	Highest Degree	N	Q1	Median	Q3
4 - 7.9	PhD	3		89.0	
8 - 11.9	MS	3		78.0	
	PhD	3		73.0	
12 +	BS	4		75.0	
	MS	27	78.0	85.0	94.0
	PhD	15	89.0	99.0	125.0

The next two tables provide information on annual salaries for Pharma statisticians by years of experience based on managerial status. One of the 11 Pharma organizations did not provide employee salary information.

**Table 6. Annual Salaries (\$000) of Statisticians –
No Managerial Responsibility
Pharmaceutical/Medical Devices/Diagnostics Respondents
(10 organizations)**

Years Experience	Highest Degree	N	Q1	Median	Q3
0 - 1.9	MS	7	46.0	55.0	59.0
	PhD	20	63.0	65.0	70.0
2 - 3.9	MS	15	52.0	54.0	65.0
	PhD	37	65.0	69.0	84.0
4 - 7.9	MS	21	58.5	64.0	67.0
	PhD	23	70.0	75.0	84.0
8 - 11.9	MS	13	74.0	82.0	84.0
	PhD	10	82.0	96.0	100.0
12 +	MS	19	69.5	76.0	85.0
	PhD	13	86.0	92.0	115.0

**Table 7. Annual Salaries (\$000) of Statisticians –
Managerial Responsibility
Pharmaceutical/Medical Devices/Diagnostics Respondents
(10 organizations)**

Years Employed	Highest Degree	N	Q1	Median	Q3
4 - 7.9	PhD	4		86.0	
8 - 11.9	PhD	3		95.0	
12 +	MS	10	89.0	100.0	105.0
	PhD	17	112.0	123.0	135.0

The next two tables provide information on annual salaries for Other statisticians by years of experience based on managerial status.

**Table 8. Annual Salaries (\$000) of Statisticians –
No Managerial Responsibility**

Other Respondents (77 organizations)

Years Experience	Highest Degree	N	Q1	Median	Q3
0 - 1.9	BS	3		28.0	
	MS	32	40.0	44.0	48.0
	PhD	20	42.8	44.3	62.8
2 - 3.9	BS	14	32.0	38.0	40.0
	MS	38	38.0	42.0	48.0
	PhD	14	32.0	47.4	55.0
4 - 7.9	BS	5	26.0	26.0	44.0
	MS	39	40.9	48.0	54.0
	PhD	40	47.6	52.6	69.0
8 - 11.9	MS	15	43.4	55.0	58.0
	PhD	17	56.0	60.0	66.0
12 +	BS	6	38.0	38.0	70.0
	MS	27	59.0	64.0	82.0
	PhD	30	62.5	84.0	110.0

**Table 9. Annual Salaries (\$000) of Statisticians –
Managerial Responsibility**

Other Respondents (77 organizations)

Years Employed	Highest Degree	N	Q1	Median	Q3
4 - 7.9	MS	8	46.6	54.0	55.0
	PhD	9	77.6	83.0	135.0
8 - 11.9	MS	6	60.0	70.0	87.0
	PhD	13	60.0	70.0	83.0
12 +	BS	3		49.0	
	MS	17	51.0	60.0	82.0
	PhD	53	79.8	100.0	120.0

Future Surveys

It is hoped that B/I/G salary surveys will be conducted and reported on every 1-2 years, and that future surveys will achieve a much higher response rate. A new survey letter or sampling approach may be needed to increase the response rates. Valid, current salary information is critical to understanding the value placed on statisticians by our society, and to recruiting future students into the profession of statistics.