2000 SAGE System Administrator Salary Survey

Executive Summary and Complete Report

Prepared for

USENIX/SAGE

by

Human Resources Research Organization (HumRRO)
Alexandria, Virginia

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SUMMARY OF REPORT

SAGE, the System Administrators Guild, is a Special Technical Group of the USENIX Association. USENIX is the UNIX and advanced computing systems technical and professional association. SAGE is organized to advance the status of computer system administration as a profession, establish standards of professional excellence, recognize those who attain them, develop guidelines for improving the technical and managerial capabilities of members of the profession, and promote activities that advance the state of the art of the community. As part of its ongoing effort to gain recognition and advancement for system administrators, SAGE annually conducts a System Administrator Salary Survey. This report is based on results of the 2000 survey that was administered on the USENIX/SAGE website during November and December, 2000.

There were 5,238 respondents to the 2000 SAGE salary survey. This amount more than doubled last year's sample size (2,314). In 2000, respondents were from 68 different countries, compared to only 48 in 1999. The majority in both years worked in the U.S (83.3% in 2000 vs. 81.6% in 1999). The other most common countries were Canada (4.7% in 2000 vs. 5.0% in 1999), Australia (3.1% in 2000 vs. 3.8% in 1999), and the United Kingdom (1.9% in 2000 and 1999). Thus, the four most represented countries were similar in both years. The percentages of respondents in those countries were also similar in both years.

Many analyses on salary, bonuses, and total cash (total cash is salary, wages, bonuses, and other non-deferred cash payments) are presented for the the U.S. respondents because the large U.S. sample size allowed us to do more detailed analyses with acceptable accuracy. Several detailed analyses were also possible for the following areas because they each had over 100 respondents: Canada; Australia and New Zealand; the United Kingdom and Ireland; and Western Europe. Although the number of non-U.S. respondents increased this year, it was not yet possible to do accurate detailed analyses for many countries or areas because of small sample sizes. We hope that the number of respondents from outside the U.S. will continue to increase, so that in future years more detailed international analyses are possible.

It should be noted that all of the data presented in this report were based on information from those who responded to the survey. Although there were over 4,100 U.S. respondents, readers should not conclude that these results are necessarily representative for all U.S. system administrators. There is no way to verify how representative this sample is for all system administrators in the U.S.[1] The considerably smaller sample sizes for other countries makes it likely that sample respondents may differ in some significant ways from all system administrators in those countries. It should also be noted that most comparisons between 1999 and 2000 are done with somewhat different sets of respondents. Many analyses for 1999 were done with U.S. respondents who specified system administration as their primary line of work. In 2000, most analyses were done with all U.S. respondents. The reason for this change was to include a larger proportion of the sample in the analyses for 2000 by assuming a more general view of what system administration work is.

[1]See P. Freeman & W. Aspray, *The Supply of Information Technology Workers in the United States*, Washington, DC: Computing Research Association, 1999, for a discussion on difficulties of accurately estimating the numbers and types of information technology workers.

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Most respondents were salaried workers (87.6%), working for a single employer (88.4%), male (91.4%), and had a bachelor's degree (44.0%) or some college (23.1%) as their highest level of education. Most respondents worked with Solaris (69.7%), Windows NT (66.6%), Linux (62.8%), and/or Windows 95/98 (49.2%). On average, respondents worked with 4.9 operating systems. The majority did not supervise any subordinates (64.9%) and were not certified on any operating system (62.6%). They averaged 10.3 days of travel per year, 46.7 hours of work per week, 7.9 years of experience in the field, 3.0 different employers while in the field, and 35 years of age. The above values are similar to 1999. In 2000, the majority (78.7%) indicated that system administration was their primary line of work, but, in 1999, 89.1% did.

The 2000 survey included several new categories for industry. These were the result of separating the computer/software/internet industry into smaller categories because such a large proportion in 1999 said they worked in that category. The new categories are IT: consultant, IT: internet service/application service provider, IT: software development, and IT: other. The largest industry percentages were for IT: internet service/application service provider (11.6%), colleges and universities (11.5%), and IT: software development (8.0%).

For Canadian respondents, mean salary was 64,338 and median salary was 60,000; mean total cash was 71,392 and the median was 62,500 (all in Canadian dollars). For respondents in Australia and New Zealand, the mean salary was 64,663 and the median was 60,000; the mean total cash was 68,100 and median was 60,788 (all in Australian dollars). For those in the United Kingdom and Ireland, the mean salary was 41,642 and median was 35,000, while the mean total cash was 46,977 and the median was 37,500 (all in British pounds). Western European respondents had a mean salary of 50,300, median salary of 41,302, mean total cash of 58,586, and median total cash of 46,982 (all in euros). For U.S. respondents, mean salary was $70,417 and the median was $68,000; mean total cash was $74,810 and the median was $70,000 (all in U.S. dollars). Mean salaries were over $80,000 USD for two zip codes in New York (10 and 11), Arizona (85 & 86; these were combined to form one category because of small sample sizes), and California (94 & 95).

For all respondents in 2000, 60.0% had received an increase from the same employer for the same job, 17.3% an increase from changing employers, and 10.9% a promotional increase from the same employer. The mean 2000 pay raise for employees in the same job with the same employer was was 8.6% for the total sample, 8.1% in the U.S., 9.1% in Canada, 9.3% in Australia and New Zealand, 11.8% in the United Kingdom and Ireland, and 9.0% in Western Europe. This compares with an average pay increase from the same employer, same job of 7.9% for the total sample in 1999.

The mean promotional increase from the same employer was 15.6% in the total sample, 15.0% in the U.S., 21.9% in Canada, 15.1% in Australia and New Zealand, 17.8% in the United Kingdom and Ireland, and 16.9% in Western Europe. For those who received a pay increase by changing employers, the average for the total sample was 27.6%, U.S., 27.8%,Canada, 26.5%, Australia and New Zealand, 25.6%, United Kingdom and Ireland, 35.5%, and Western Europe, 18.8%.

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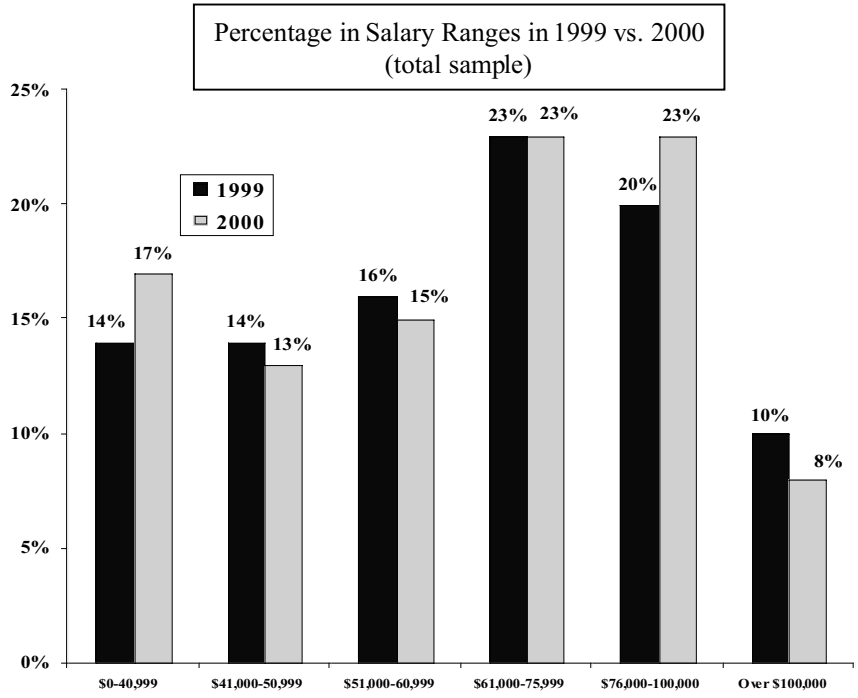
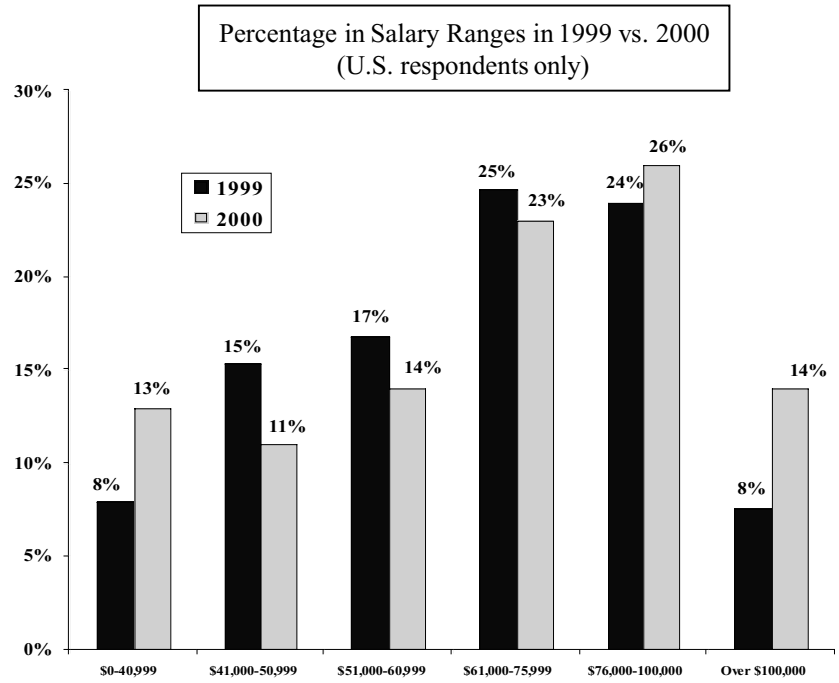
The graph on the left shows the percentage of respondents for each of the two years who had income in the ranges shown. The percentage with salaries less than $41,000 was greater in 2000 (17%) than in 1999 (15%). Percentages in the middle salary ranges decreased in 2000, while the percentages making $61,000 or more increased slightly in 2000 (54%) compared to 1999 (53%). The mix of respondents' countries may influence the pattern of change for these salary ranges. Even though the 1999 survey had a larger proportion of non-U.S. respondents (18.4% in 1999 vs. 16.7% in 2000), the 2000 survey had respondents from a larger proportion of different countries than the 1999 survey (68 in 2000 vs. 48 in 1999). The average salary from non-U.S. respondents was $43,240 in 2000 and $49,805 in 1999.

If one uses data from only U.S. respondents, the percentages in salary ranges change, as the chart on the right shows. In 2000, the percentage of respondents in the $0 to $40,999 range (13%) was larger than in 1999 (8%). However, there was a considerably smaller proportion of respondents with salaries from $41,000 to $75,999 (48% in 2000 vs. 57% in 1999), and a considerably larger proportion who made $76,000 to $100,000 in 2000 (32%) than in 1999 (40%).

In addition to differences in the mix of countries included, the 1999 survey did not give respondents the option to indicate the currency in which they were paid. We had not expected a large number of respondents from outside the U.S. It appeared that most respondents converted to U.S. dollars, but this was ambiguous. In 2000, an option asked respondents to indicate the currency used. Thus, the differences between the percentages of respondents in the salary ranges from 2000 to 1999 may have been due to ambiguity about the currency used to report 1999 figures. Only the differences between 1999 and 2000 for U.S. respondents could not be affected by the ambiguity about currency.





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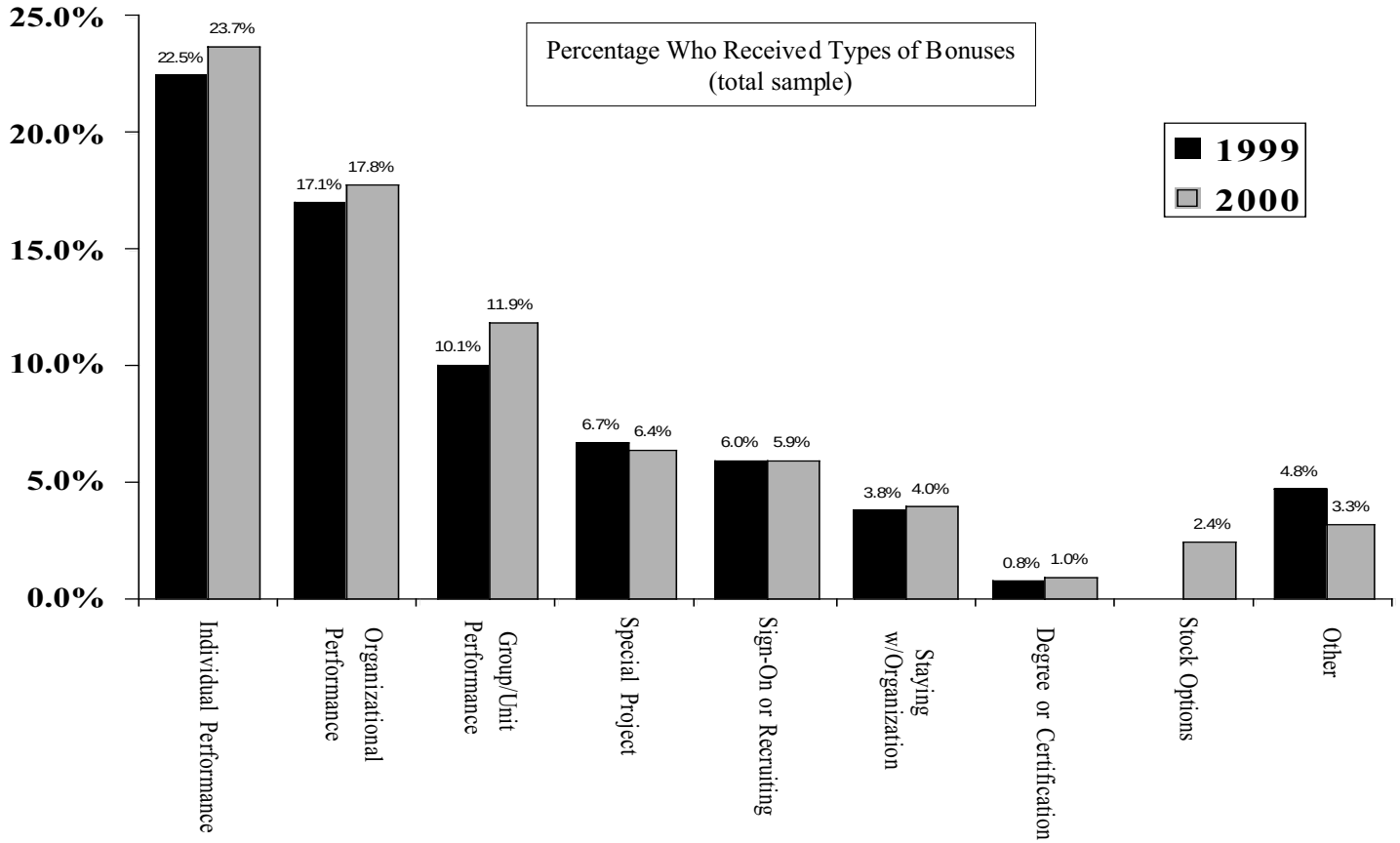
Over half (50.5%) of the total sample did not receive a bonus in 2000. Nearly half (46.4%) of U.S. respondents reported some type of bonus, while 34.0% of Canadian, 29.9% of Australian/New Zealand, 42.3% of United Kingdom/Irish, and 34.8% of Western European respondents reported some type of bonus.

The percentages who reported an individual, organizational, or group/unit performance bonus, a retention bonus (i.e., for staying with the organization), or degree/certificate bonus in 2000 were higher than the percentages in 1999. For other types of bonuses, the percentages who reported receiving them in 2000 were lower than in 1999. The median bonuses reported in 1999 and 2000 were the same for individual and organizational performance ($3,000), group/unit performance($2,000), and special projects ($1,500). Of the respondents who reported a bonus related to stock, the median was $10,500 in 2000. The percentage receiving a stock option is not shown for 1999 because the 1999 survey did not directly ask for it.



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For the total sample, 8.6% of respondents said they were salaried contractors/consultants, and 2.9% said they were self-employed consultants. Data from U.S., Canadian, Australian/New Zealand, United Kingdom/Irish, and Western European respondents showed that salaried employees made the lowest mean salary and total cash, and independent, self-employed consultants made the highest in all five of these areas. The table on the right shows mean total cash for U.S. respondents for the three different primary job types. In 1999, the pattern was similar. The major difference between 1999 and 2000 results for the U.S. was that mean salary increased 32.3% and total cash increased 30.0% over 1999 for self-employed consultants, while mean salary increased 9.0% for salaried and 3.2% for consulting employees, and mean total cash increased 4.9% for salaried and 3.6% for consulting employees.

In the U.S., mean total cash for those who "assist on consulting or engineering projects or the administration of a systems facility" and "perform routine tasks under the direct supervision of a more experienced system administrator" (Level 1) was $55,173. For those at Level 2, who "work under the general supervision of a computer system manager or senior consultant" and "carry out more complex tasks with some independence," the mean was $59,325. For those at Level 3, who "receive general instruction from managers" and "manage the work of junior system administrators, operators , engineers, or consultants," the mean was $69,458. And for those at Level 4, who "design and manage the computing infrastructure or manage the larger, more complex consulting or engineering projects," and "work under general direction from senior management," the mean was $87,304. The same pattern of relationship between increasing level and increasing pay was found for salary.

Total Cash in 2000 by Type of Primary Job
(U.S. respondents only)

Job Type	Number of Respondents	Mean Total Cash in U.S. Dollars
Salaried employee	3,774	$72,096
Contractor/Consulting organization employee	368	$81,184
Independent, self-employed consultant or contractor	85	$138,762

2000 Mean Total Cash by SAGE Job Description Level

Job Level	Canada (in CAD)	Austral/N.Zeal. (in AUD)	U.K./Ireland (in GBP)	W. Europe (in EUR)
Level 1	54,929	33,250	32,190	74,765
Level 2	57,020	54,594	40,973	63,160
Level 3	64,632	64,355	43,735	60,119
Level 4	83,976	86,178	52,256	52,474

For Canadian, Australian/New Zealand, and United Kingdom/Irish respondents, the clear relationship between increasing job level and increasing compensation was also found for both salary and total cash; however, the pattern was not found for salary or total cash data from Western European respondents. These results are shown in the bottom right table.

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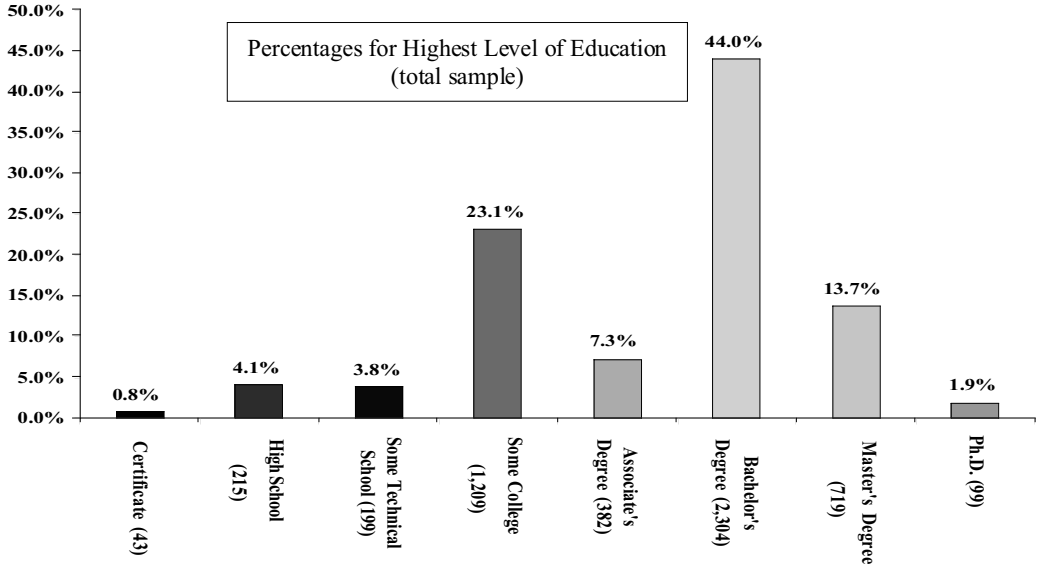
In the U.S., supervision of subordinates was related to the following average salaries: no subordinates, $67,258; 1 to 2, $66,899; 3 to 5, $76,749; 6 to 10, $83,341; and 11 or more, $88,759. The same clear pattern of increasing salary with increasing numbers of subordinates was not found for Canadian, Australian/New Zealand, United Kingdom/Irish, and Western European respondents.

In the U.S., number of operating systems supported was not related to amount of pay, but those who worked with Solaris, NetBSD, MacOS X (Unix), HP-UX, Windows 2000, and Free BSD tended to have higher salaries, while those who worked with MacOS (non-Unix) and DOS/Win 3.1tended to have lower salaries, on average.

A little over a third of all respondents (37.4%) had a certification for an operating system. The number of certifications one had earned did have some relationships to salary in the U.S. Those with certifications for Solaris, SunOS, and AIX tended to earn both more salary and total cash. Members of SAGE in the U.S. tended to make more salary ($76,144, on average) and total cash ($81,133, on average) than those who were not members of a professional organization (average $63,355 in salary and $66,375 in total cash).

As shown below, the biggest proportion of all respondents had a bachelor's degree. This was also true for the U.S. (44.6%), Canadian (45.4%), Australian/New Zealand (50%), United Kingdom/Irish (58.9%), and Western European (31.3%) respondents. Higher levels of education did tend to be associated with higher mean salary and total cash in the U.S. and Canada, but this pattern was not found for the other three geographical areas.



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As shown in the table below, male U.S. respondents reported higher average salary and total cash than the female respondents from the U.S. This was also true for respondents from Canada, Australia/New Zealand, and Western Europe. In contrast, the average salary and total cash was higher for female than male respondents from the United Kingdom/Ireland. However, in each of these latter four geographical areas, 15 or fewer females responded, so one cannot draw strong conclusions from these data.

The differences in the U.S. in 2000 were smaller than those in 1999. In 1999, females' salaries averaged $57,777 compared to $64,883 for males--a 13% difference. In 2000, the average for U.S. males' salaries was 4.2% higher than that for females. U.S. males' total cash was 7.4% higher than that of females in 2000, compared to a 13% difference in 1999. Regression analysis was used with gender as a predictor of base salary, total cash (primary employer), and bonus in 2000 and 1999. Holding all other variables constant (e.g. years experience, highest level of education, etc.), gender was not significantly related to differences in any of the three forms of compensation. However, in 1999, gender did account for a significant proportion of variance in compensation. Specifically, females made lower base salaries, but higher bonuses than males, on average.

2000 Salary and Total Cash by Gender for Five Areas

Country	Average Total Cash Males	Average Total Cash, Females	Average Salary Males	Average Salary Females
Canada (in CAD)	74,938	58,633	64,730	55,033
Australia & New Zealand (in AUD)	68,783	60,865	65,247	58,342
United Kingdom & Ireland (in GBP)	46,683	51,595	41,137	49,896
Western Europe (in EUR)	59,102	44,662	50,615	43,186
United States (in USD)	74,643	69,514	70,224	67,400

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Years of experience as a system administrator (or in similar work) were positively related to higher salaries and total cash in the U.S. (see the table on the bottom left), but years with one's current employer were not related to higher compensation. Age was also positively related to compensation, although the relationship was not as strong as that between years of experience and compensation.

The table on the bottom right illustrates how U.S. system administrators' compensation was positively related to the number of employers they had during their career. This was not because those who had more employers also had more experience; nor was it due to the fact that those with more employers were more likely to be contractors or consultants. In addition, those who worked for more than one employer at the time of the survey averaged about $1,400 more salary ($71,199 vs. $69,803) and about $450 less total cash ($73,783 vs. $74,218) than those with one employer. This result was different from the 1999 survey. Those with more than one employer in 1999 averaged about $5,000 more salary ($68,570 vs. $63,463) and $6,000 more total cash ($75,622 vs $69,589).

2000 Salary by Years of Experience
(U.S. respondents only)

Years of Experience	Number of Respondents	Mean Salary in U.S. Dollars
1 or less	238	$50,352
2	268	$52,419
3	397	$55,757
4	394	$61,479
5	524	$66,796
6	331	$69,239
7-8	546	$74,930
9-10	507	$78,326
11-12	264	$80,456
13-14	199	$79,739
15-16	308	$81,689
17-20	222	$84,602
21-25	94	$82,494
26 or more	39	$83,706

2000 Salary and Total Cash by Number of Employers
(U.S. respondents only)

Number of Employers	Number of Respondents	Mean Salary in U.S. Dollars	Mean Total Cash in U.S. Dollars
1	819	$58,946	$61,423
2	1,049	$63,680	$68,476
3	1,005	$70,500	$73,635
4	611	$76,922	$82,546
5	355	$81,618	$87,364
6	165	$82,707	$86,401
7	83	$88,619	$89,434
8 or more	184	$90,677	$99,415

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Compensation varied considerably by industry for U.S. respondents. The median salary was lowest in elementary or secondary education ($45,500) and state or local government ($52,000) and highest in finance/securities/stock exchange ($85,000) and IT: consulting ($80,000). These were also the industries with the lowest and highest median total cash, respectively. State and local government, IT: software development, and IT: consulting, were among the most generous in providing fully paid insurance, although this varied somewhat by type of insurance.

The number of employees in one's entire organization was related to salary in the U.S. (see table at right). Salary tended to go up with the number of employees, with the exception of the category containing one employee. However, one should not put too much faith in the average salary in this category because it included only 19 respondents. The mean number of paid holidays, vacation days, training days, percentage with a retirement plan, childcare assistance, tuition assistance, flextime, or those who were able to telecommute also tended to increase with the number of employees in an organization. The 1999 survey yielded the same pattern except for the single employee category. The average salary for the U.S. respondents in this category was was greater than the category of 2-10 employees, but not any other category.

2000 Salary by Organization Size
(U.S. respondents only)

Number of Employees	Percent of Responses	Mean Salary in U.S. Dollars
1	0.5%	$105,545
2-10	2.4%	$64,985
11-50	9.8%	$64,942
51-500	23.4%	$69,600
501-10,000	37.8%	$68,442
10,001 or more	25.3%	$74,204

U.S. respondents averaged 15.7 days of paid vacation, while Canadian respondents averaged 16.5, Australian and New Zealand respondents, 20.2, United Kingdom and Irish respondents, 23.2, and Western European respondents, 25.4. U.S. respondents had a similar number of average paid sick leave days (9.6) as Canadian (9.9) and Australian/New Zealand respondents (9.3), but fewer than respondents from the United Kingdom/Ireland (18.8) or Western Europe (14.5). All four areas had a similar average number of paid holidays (i.e., individual days off for special events like New Year's Day or religious celebrations like Christmas): 8.7 in the U.S., 9.1 in Canada, 8.0 in Australia and New Zealand, 8.4 in the United Kingdom and Ireland, and 8.6 in Western Europe. Average days of paid training were highest in Western Europe (8.1), followed by the U.S. (7.6), Canada (6.9), United Kingdom/Ireland (6.3), and Australia/New Zealand (5.9).

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Analyses by industry for U.S. respondents indicated that paid time off tended to be highest in colleges/universities and the federal government (non-military) (50.2 and 49.1 total days, respectively).

The only industry in which a higher percentage of U.S. respondents reported a defined benefit (i.e., pension) than a defined contribution (e.g., 401k, 403b) retirement plan was state/local government; in all other industries there were more with a defined contribution plan. Nearly five times as many U.S. respondents for 2000 said they had a defined contribution retirement plan as those who said they had a defined benefit retirement plan. For the other geographical areas of focus, it was also true that more respondents had defined contribution plans than defined benefit plans. The table below shows this information.

Retirement Plans by Area
(full-time respondents only)

Country	Percentage with a Defined Benefit or Pension Plan	Percentage with a Defined Contribution Plan (e.g., 401k, 403b)	Mean Percent of Salary Employer Contributes to a Defined Contribution Plan
Canada	19.7%	32.2%	6.7%
Australia & New Zealand	2.3%	52.9%	7.9%
United Kingdom & Ireland	6.7%	44.2%	6.8%
Western Europe	18.9%	42.3%	9.9%
United States	13.7%	66.6%	7.4%

The majority (65.9%) of U.S. respondents responded "yes," their organization does have difficulty filling all of the system administrator positions it would like to fill. This percentage was higher for the United Kingdom/Ireland (72.6%) and Western Europe (74.2%) and lower for Canada (61.9%) and Australia/New Zealand (52.5%). The U.S. industries with percentages above or equal to 75% were federal government (non-military), telecommunications, finance, and colleges or universities. U.S. cities with the highest percentages of difficulty filling all positions were the Boston, San Francisco, and Washington D.C. areas. In 1999, the cities with the highest percentages of difficulty filling all positions were San Diego, Research Triangle of North Carolina, and San Francisco.

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Over half of all respondents said the factors that would be most important in making them think seriously about switching jobs were pay (81.9%), location (74.5%), type of work (64.0%) and benefits (57.4%). Over one-third said atmosphere/culture (48.3%), stability (38.8%), and hours (35.4%)(respondents could mark more than one category). Respondents were asked to note any special benefits or working conditions they particularly liked and the most problematic or bothersome aspects of their jobs. The following are ranked according to the number of responses (e.g., number 1 had the most respondents):

Benefits/Working Conditions That Were Liked	***Most Problematic/Bothersome Aspects of Jobs***
1. Flexible work schedules	1. Poor management
2. Relaxed, casual atmosphere/culture	2. Office politics, bureaucracy, inflexibility, little guidance or policies
3. Flexibility and telecommuting	3. Work overload, long hours, being on-call, overtime
4. Benefits	4. Low pay, inadequate benefits, lack of overtime and on-call pay
5. Casual dress	5. Boring and repetitive jobs; lengthy administrative tasks
6. Free beverages and snacks	6. Shortage of qualified staff, high turnover rates
7. Catered meals and socials	7. Unreasonable and demanding users/clients
8. Challenging, autonomous, important, interesting work; variety	8. Lazy, adversarial, egotistical, unmotivated co-workers
9. Fitness facilities	9. Lack of funding or budget problems/inferior equipment and technology
10. Good management	10. Long commutes

Regression analysis was used to determine which of the various job, organizational, and personal background characteristics on the survey were most highly related to compensation for U.S. respondents. (Sample sizes for other areas were too small for regression analysis with the number of variables to be considered.) Close to half (44.1%) of the variance in salary, 24.0% of the variance in total cash, and 5.9% of the variance in bonuses were accounted for by the equations. The percentages in 1999 were 52.0%, 23.4%, and 8.8%, respectively. Thus, there were more systematic relationships between survey topics and salary than between survey topics and total cash or bonuses in both years. The most significant factors associated with salary were being a consultant or contractor, location, industry, hierarchical level of employee, operating systems supported, major job responsibilities, number of employees employed in one's organization, and years of experience as a system administrator.

More detailed analyses are described in the complete report which follows.

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2000 SAGE System Administrator Salary Survey

Full Report

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ANALYSES BY COUNTRIES, REGIONS, CITIES, AND ZIP/POSTAL CODES

The 5,238 respondents to the 2000 survey worked in 68 different countries. The majority (83.3%) worked in the U.S. The other most common countries were Canada (4.7%), Australia (3.1%), and the United Kingdom (1.8%). These percentages were similar to 1999, although the total who responded was more than double the 1999 total (2,314). For many individual countries, there were too few respondents to allow meaningful analyses of compensation levels and practices. Combining all countries in analyses examining factors that affect pay would not be useful, because pay levels and standards of living vary considerably in different countries and regions. Many detailed analyses had to be restricted to the U.S. sample because of sample size. Several detailed analyses are also provided for Canada; Australia and New Zealand combined; the United Kingdom and Ireland combined; and Western Europe (countries included in "Western Europe" are listed on the next page).

Country	Number of Respondents	Percent of Respondents
Afghanistan	5	.2
Albania	4	.2
Algeria	3	.1
Andorra	2	.1
Anguilla	1	.0
Argentina	2	.0
Australia	164	3.1
Austria	3	.1
Azerbaijan	1	.0
Bahamas	1	.0
Belgium	11	.2
Brazil	5	.1
Bulgaria	1	.0
Cameroon	1	.0
Canada	247	4.7
Cape Verde	3	.1
Croatia	2	.0
Denmark	7	.1
Ecuador	1	.0
Estonia	3	.1
Finland	9	.2
France	2	.0
France, Metropolitan	2	.0
Germany	29	.6
Greece	3	.1
Hungary	1	.0
Iceland	1	.0
India	9	.2
Ireland	13	.2
Israel	6	.1
Italy	8	.2
Jamaica	2	.0
Japan	9	.2
Luxembourg	1	.0
Malaysia	3	.1
Mexico	7	.1
Netherlands	29	.6
New Zealand	15	.3
Norway	16	.3
Oman	1	.0
Pakistan	1	.0
Philippines	3	.1
Poland	3	.1
Portugal	4	.1
Puerto Rico	3	.1
Qatar	1	.0
Romania	3	.1
Russia	3	.1
Saudi Arabia	1	.0
Singapore	6	.1
Slovenia	1	.0
South Africa	10	.2
Spain	3	.1
Sudan	1	.0
Sweden	30	.6
Switzerland	19	.4
Taiwan	1	.0
Thailand	1	.0
Togo	1	.0
Turkey	1	.0
United Arab Emirates	1	.0
United Kingdom	93	1.8
United States	4,362	83.3
Uruguay	4	.1
U.S. Outlying Islands	1	.0
Uzbekistan	1	.0
Vietnam	1	.0
Western Sahara	1	.0
Missing Country	28	.5
Total	5,238	100.0

Benefit laws and practices also vary considerably in different countries. The items on the 1999 survey were based on laws and practices typical in the U.S. We tried to modify the 2000 survey to make items more appropriate for an international sample of respondents.

The 2000 Sage Salary Survey allowed for respondents to specify currency. Non-U.S. currency values for salary, total cash, and bonuses have been converted to U.S. dollars (USD) for a few tables on the following pages. Some other analyses have been conducted in other currencies. USD conversion rates were obtained on January 1, 2001. Conversion rates change daily, and may change significantly from year to year. Thus,values for non-U.S. respondents should be interpreted with that consideration. Converting all values to a single currency allows for easier comparisons across countries.

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2000 Salary by Country or World Region
(All salary figures in U.S. Dollars, Full-time employees only)

Country/ Region	Number of Respondents	Mean Salary	10th Percentile	25th Percentile	Median (50th Percentile)	75th Percentile	90th Percentile
United States	4,178	$70,417	$42,000	$54,000	$68,000	$84,000	$100,000
Canada	239	$43,213	$24,678	$33,349	$40,019	$48,022	$62,696
Australia & New Zealand	170	$36,926	$21,716	$25,702	$34,288	$44,860	$57,146
United Kingdom (incl. Ireland)	103	$62,580	$29,553	$36,047	$52,568	$73,596	$105,137
Western Europe	109	$47,193	$17,082	$25,840	$41,104	$58,720	$78,293
Northern Europe	56	$36,973	$13,631	$29,363	$38,046	$46,180	$54,806
Eastern Europe & Western Asia	34	$51,128	$1,058	$8,766	$61,021	$80,625	$96,500

The median is the 50th percentile; 10% of the sample have a value equal to or less than the 10th percentile; 25% of the sample have a value equal to or less than the 25th percentile value, and so forth.

Northern Europe: Denmark, Finland, Norway, and Sweden.
W*estern Europe*: Andorra, Austria, Belgium, Cape Verde, France, Germany, Greece, Italy, Luxembourg, Netherlands, Portugal, Spain, and Switzerland.
Eastern Europe/Western Asia: Afghanistan, Albania, Croatia, Kazakhstan, Lithuania, Poland, Romania, Russia, and Yugoslavia.

The maximum salary reported in the survey for a full-time employee was $672,000 (U.S. respondent) and the maximum total cash was $1,350,000 (U.S. respondent). Compensation from stock options as high as $1,000,000 (respondent in Spain) was reported. In the U.S., 1% of the sample reported salaries of $150,000 or more and total cash of $200,000 or more (i.e., these were the 99th percentile values).

There were several differences between the 2000 and 1999 surveys in terms of the base salaries by countries. Respondents in the the United States had a mean salary 9.6% higher in 2000 ($70,417) than 1999 ($64,271). In 2000, respondents from Canada averaged $43,213 in base salary, which was substantially lower than the average salary in 1999 ($53,587). Australians' and New Zealanders' mean salary in 2000 was significantly lower ($36,926) than in 1999 ($52,181). Respondents from the United Kingdom made $62,580 in 2000, but made only $52,809 in 1999. There was little difference between mean salaries in 2000 compared to 1999 in Western Europe ($47,139 vs. $51,841, respectively); however, large differences occurred for Northern Europe ($36,937 in 2000 vs. $50,120 in 1999), and Eastern Europe/Western Asia ($51,128 in 2000 vs. $8,364 in 1999).

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Marked differences in total cash from primary employer by country are demonstrated between the 2000 and 1999 surveys (see table on next page). The exceptions here are the United States and Western Europe. In 2000, total cash averaged $74,810, compared to $70,565 in 1999 in the United States. In Western Europe, total cash averaged $50,037 in 2000, compared to $54,628 in 1999. Canadians' average total cash in 2000 was significantly lower than in 1999 ($45,283 vs. $64,896, respectively). Compared to 2000 ($38,682), respondents from Australia and New Zealand averaged much more total cash in 1999 ($53,283). Respondents from the United Kingdom averaged $66,605 in 2000, but only $59,376 in 1999. Other differences in total cash by country included Northern Europe ($37,855 in 2000 vs. $53,760 in 1999) and a substantial difference for Eastern Europe/Western Asia ($52,438 in 2000 vs. $9,215 in 1999).

There were also differences between 2000 and 1999 with respect to bonus by country. Mean bonus in the United States was $4,570 in 2000 vs. $3,464 in 1999, Canada: $5,120 in 2000 vs. $2,497 in 1999, Australia and New Zealand: $1,937 in 2000 vs. $1,145 in 1999, United Kingdom: $6,035 in 2000 vs. $3,464 in 1999, Western Europe: $17,726 in 2000 vs. $2,215 in 1999, Northern Europe: $6,829 in 2000 vs. $1,623 in 1999, and Eastern Europe/Western Asia: $5,109 in 2000 vs. $250 in 1999.

As demonstrated above, there were numerous large differences between mean compensation data by country in 2000 compared to 1999. There are several explanations for this. First of all, the 1999 survey did not give the respondents the option to choose the currency in which they were paid. It appeared most respondents converted into U.S. dollars, but it was ambiguous. In 2000, an option allowed respondents to indicate currency reported. Thus, the differences between the compensation amounts from 2000 to 1999 may have been due to ambiguity about the currency used to report 1999 figures.

Second, sample sizes are a factor. As was discussed above, respondents from the United States had somewhat higher average salary, total cash, and bonuses in 2000 than in 1999, as one might have predicted. Over 80% of respondents were in the United States. This large sample size provides a more accurate picture of the true average income. Other countries and regions had far fewer respondents in both 2000 and 1999. Thus, the picture of those groups' true average income is not as clear. The mean values for these countries and regions will fluctuate more from year to year until there are many more respondents from these areas.

A third explanation for the differences in means from 1999 to 2000, is that the survey asks, "In what country do you work?" but does not ask for details on whether one is a native or expatriate of the country or details on one's employer's country of ownership. Income levels for individuals of different nationalities or those working for employers headquartered in different countries can vary dramatically even though they work in the same country.

Means were used as a comparison between 2000 and 1999 above. However, because some individual respondents have extremely low or high values, medians are also an important indicator of the typical income for a country or region.

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Total Cash in 2000 by Country or World Region
(All salary figures in U.S. Dollars, Full-time employees only)

Country/ Region	Number of Respondents	Mean Total Cash	10th Percentile	25th Percentile	Median (50th Percentile)	75th Percentile	90th Percentile
United States	4,087	$74,810	$39,460	$52,134	$70,000	$89,000	$110,000
Canada	223	$45,283	$20,543	$31,071	$41,353	$53,358	$66,698
Australia & New Zealand	162	$38,682	$22,036	$26,187	$34,288	$47,717	$61,204
United Kingdom (incl. Ireland)	98	$66,605	$27,035	$37,511	$55,197	$82,607	$120,457
Western Europe	104	$50,037	$10,923	$26,103	$40,323	$70,563	$97,383
Northern Europe	54	$37,855	$9,634	$23,415	$37,521	$49,493	$64,549
Eastern Europe & Western Asia	34	$52,438	$1,010	$4,503	$64,023	$90,000	$107,036

Total cash is salary, wages, bonuses, incentives, and other cash payments from all employers or clients, not including deferred payments, such as those paid by an employer into retirement accounts that one would not ordinarily be able to access now.

2000 Bonus by Country or World Region
(All salary figures in U.S. Dollars, Full-time employees only)

Country/ Region	Number of Respondents	Mean Bonus	% Not Reporting A Bonus	75th Percentile	90th Percentile
United States	4,195	$4,570	48.7%	$3,500	$10,000
Canada	239	$5,120	63.2%	$1,500	$7,000
Australia & New Zealand	170	$1,937	66.3%	$1,000	$6,000
United Kingdom (incl. Ireland)	105	$6,035	56.7%	$2,000	$6,700
Western Europe	111	$17,726	62.2%	$2,750	$20,000
Northern Europe	58	$6,829	70.7%	$9,250	$25,500
Eastern Europe & Western Asia	34	$5,109	44.1%	$5,000	$16,500

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Analyses for Selected Areas in Other Currencies

Several detailed analyses were conducted for the four largest groups of respondents outside the U.S. These were for: (1) Canada, (2) Australia and New Zealand, (3) United Kingdom and Ireland, and (4) Western Europe. The currency used for Canada was Canadian dollars (CAD); for Australia and New Zealand, Australian dollars (AUD); for the United Kingdom and Ireland, British pounds (GBP); and for Western Europe, euros (EUR). The sample sizes for these analyses are considerably smaller than analyses for U.S. respondents. The smaller the sample size, the less reliable the information. As a result, one should not consider the results of these analyses to be a good representation for the population of system administrators as a whole in these countries and areas. In fact, lack of information about all system administrators in the U.S.[1] also makes it impossible to verify that the results for this survey are representative for all U.S. system administrators.

The Canadian sample consisted of 247 respondents, 96% of whom were male. They averaged 32.2 years of age, 8.2 days of travel per year, and 7.4 years of experience in system administration or highly similar work. Most indicated that system administration was their primary line of work (82.6%) and that a bachelor's degree (48.1%) or some college (16.2%) was their highest level of education. The respondents also averaged 45.1 hours per week on their primary jobs and worked with an average of 5.2 different operating systems.

The Australian and New Zealand sample consisted of 179 respondents, 91.6% of whom were male. The respondents averaged 31.3 years of age, 10.5 days of travel per year, and 6.9 years of experience in system administration or highly similar work. Most indicated that system administration was their primary line of work (84.9%) and that a bachelor's degree (44.1%) or some college (24.3%) was their highest level of education. They also averaged 45.0 hours per week on their primary jobs and worked with an average of 4.9 different operating systems.

The United Kingdom and Irish sample consisted of 106 respondents, 94.3% of whom were male. The respondents averaged 29.1 years of age, 16.2 days of travel per year, and 6.5 years of experience in system administration or highly similar work. Most indicated that system administration was their primary line of work (81.1%) and that a bachelor's degree (53.8%), some college (13.2%), or a master's degree (13.2%) was their highest level of education. They also averaged 46.9 hours per week on their primary jobs and worked with an average of 4.8 different operating systems.

The Western European sample consisted of 120 respondents, 95.8% of whom were male. The respondents averaged 31.5 years of age, 11.5 days of travel per year, and 6.4 years of experience in system administration or highly similar work. Most indicated that system administration was their primary line of work (74.2%) and that a bachelor's degree (29.2%) or a master's degree (23.3%) was their highest level of education. They also averaged 44.1 hours per week on their primary jobs and worked with an average of 4.5 different operating systems.

Mean and median salary and total cash for these four geographical areas are shown on the next page.

[1]See P. Freeman & W. Aspray, *The Supply of Information Technology Workers in the United States*, Washington, DC: Computing Research Association, 1999, for a discussion on difficulties of accurately estimating the numbers and types of information technology workers.

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Salary and Total Cash in 2000 by SAGE Job Description Level
(Canada respondents only - CAD)

Mean Salary	Mean Total Cash	Mean Bonus
64,338	71,392	9,026

Median Salary	Median Total Cash	Median Bonus
60,000	62,500	3,450

Salary and Total Cash in 2000 by SAGE Job Description Level
(Australia & New Zealand respondents only - AUD)

Mean Salary	Mean Total Cash	Mean Bonus
64,663	68,100	6,333

Median Salary	Median Total Cash	Median Bonus
60,000	60,788	4,000

Salary and Total Cash in 2000 by SAGE Job Description Level
(United Kingdom & Ireland respondents only - GBP)

Mean Salary	Mean Total Cash	Mean Bonus
41,642	46,977	6,539

Median Salary	Median Total Cash	Median Bonus
35,000	37,500	3,148

Salary and Total Cash in 2000 by SAGE Job Description Level
(Western Europe respondents only - EUR)

Mean Salary	Mean Total Cash	Mean Bonus
50,300	58,586	4,527

Median Salary	Median Total Cash	Median Bonus
41,302	46,982	3,377

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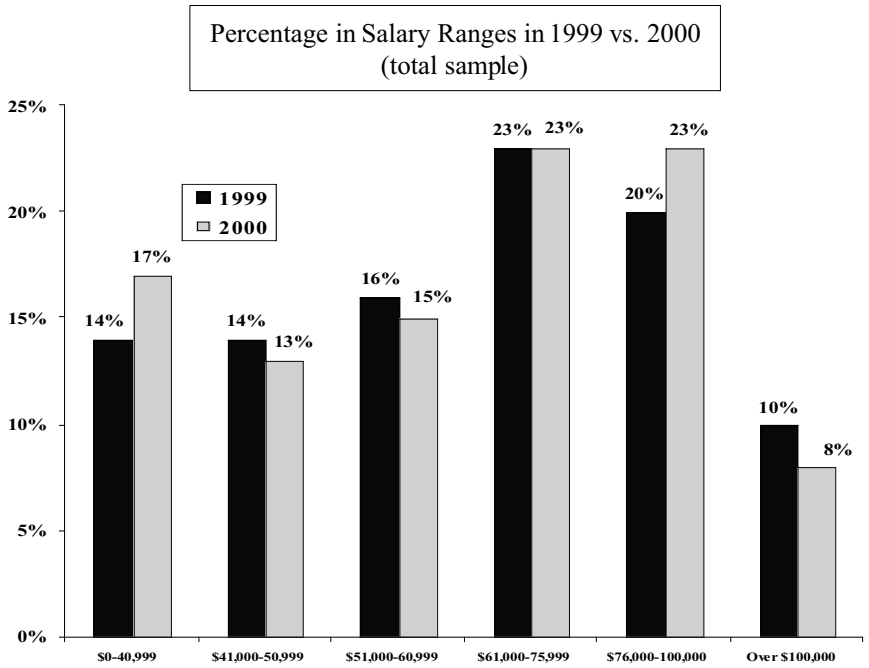
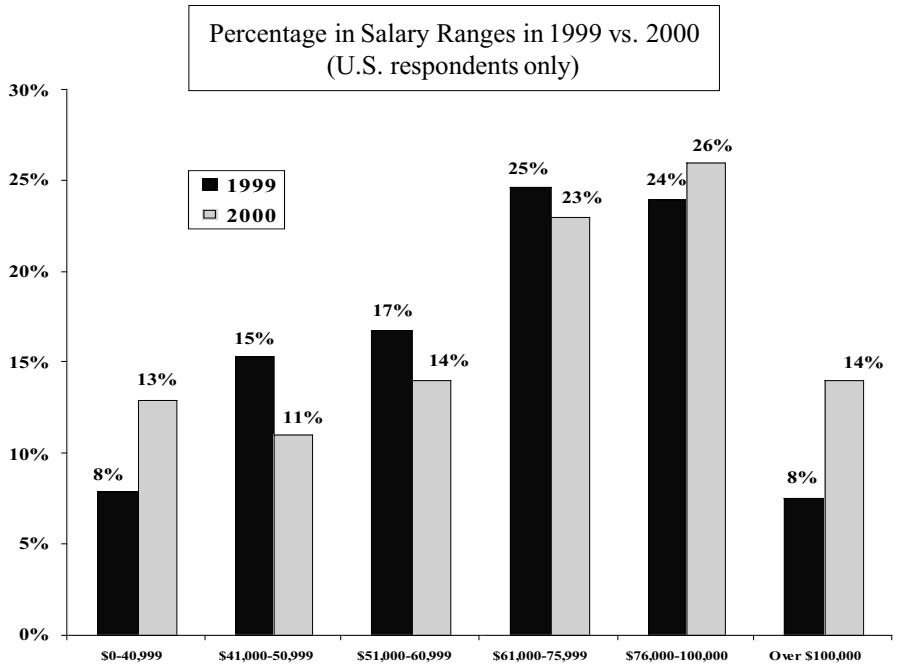
Total Cash from 2000 and 1999 Surveys for the Total Sample and Selected Areas

The 1999 and 2000 surveys were based on both U.S. and non-U.S. responses. The bar graph shows the percentage of the respondents for each of the two years who had income in the ranges shown at the bottom of the graph. The percentage with salary less than $41,000 USD in 2000 (17%) was greater than 1999 (14%). Respondents making $41,000 to $75,999 USD stayed about the same in the two years. There were differences in the top two total cash ranges, though. More respondents fell into the category $76,000 to $100,000 USD in 2000 (23% vs 20%), but more respondents in 1999 (10% vs 8%) reported they made over $100,000 USD in total cash.

If only U.S. respondents were included in the analysis, the percentages in total cash ranges change as seen in the chart on the right. In 2000, the percentage of respondents in the $0 to $40,999 USD range (13%) was much larger than in 1999 (8%). However, from $41,000 to $75,999 USD, there was a smaller proportion of respondents, and there was a higher proportion of respondents in the $76,000 to over $100,000 USD range.

There are two explanations that may account for the differences between 2000 and 1999 for total sample. First, the ambiguity regarding the currency in 1999 may have created differences between 2000 and 1999, as discussed previously. Second, even though the 1999 survey had a larger proportion of non-U.S. respondents (18.4% in 1999 vs. 16.7% in 2000), the 2000 survey had respondents from a greater number of different countries than 1999 (68 in 2000 vs. 48 in 1999). The average total cash from non-U.S. respondents was $45,484 in 2000 and $55,435 in 1999 in USD.





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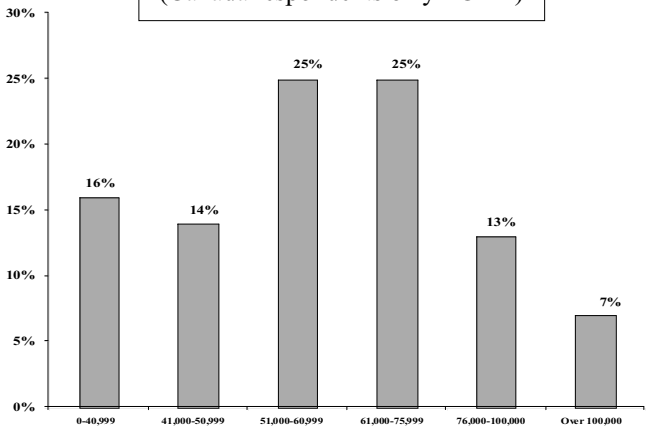
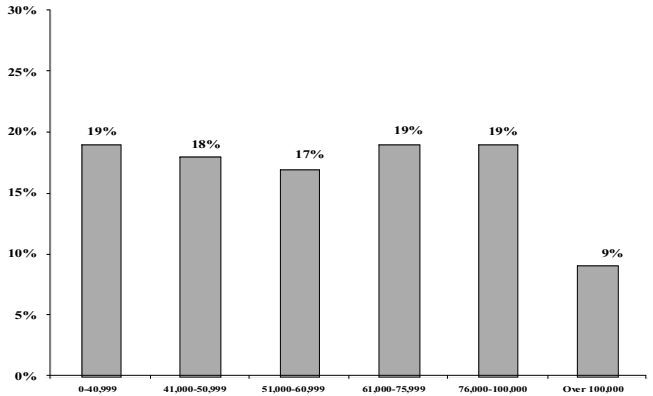
When expressed for some other geographical areas in their own currencies, most respondents from Canada (50%) fell into the middle salary ranges (51,000 to 75,999 CAD). Respondents from Australia and New Zealand were almost equally distributed among the salary ranges. A larger percentage of respondents from the United Kingdom and Ireland made 0-40,999 GBP (66%) than those who made 41,000 or more GBP (35%). For Western European respondents, the largest percentage (47%) made 0-40,999 EUR.

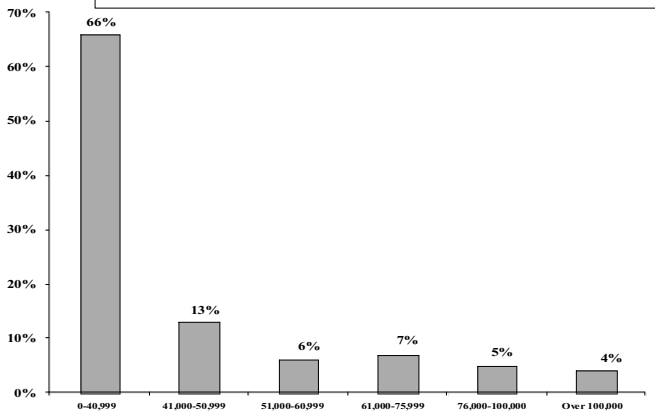
Percentage in Salary Ranges
(Canada respondents only - CAD)



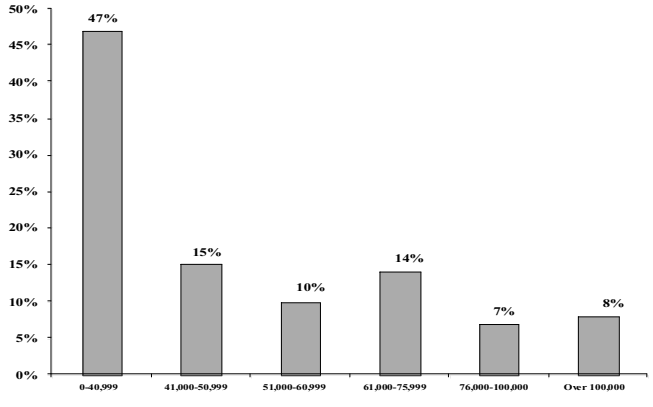
Percentage in Salary Ranges
(Australia & New Zealand respondents only - AUD)



Percentage in Salary Ranges
(United Kingdom & Ireland respondents only - GBP)



Percentage in Salary Ranges
(Western Europe respondents only - EUR)



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Compensation Differences in Major U.S. Cities

Certain cities in the U.S. typically have higher compensation levels or have higher concentrations of respondents than other areas of the U.S. Salaries and total cash were highest in the New York City, San Francisco, and Los Angeles areas (similar to 1999). The mean 2000 bonus was higher in Manhattan, San Francisco, and Washington D.C. than in other cities. In 1999, Manhattan and Austin had mean bonuses significantly higher than other cities.

2000 Salary by Selected U.S. City
(full-time employees only)

City	Number of Respondents	Mean Salary in U.S. Dollars
Manhattan, NY	137	$91,028
Other NY Metro Area	106	$80,927
San Francisco/San Jose /Silicon Valley, CA Area	415	$90,111
Los Angeles/Orange Co., CA Metro Area	179	$75,651
Washington, DC Metro Area	266	$72,111
Boston, MA Metro Area	250	$69,858
Philadelphia, PA Metro Area	84	$71,462
San Diego, CA Metro Area	76	$71,979
Research Triangle, NC	79	$70,093
Austin, TX Metro Area	75	$68,619
Denver, CO	139	$75,142
Office is in U.S., But Not in One of Above Areas	2,237	$63,892
All U.S. Locations	4,043	$70,285

2000 Total Cash by Selected U.S. City
(full-time employees only)

City	Number of Respondents	Mean Total Cash in U.S. Dollars
Manhattan, NY	134	$98,651
Other NY Metro Area	103	$85,244
San Francisco/San Jose /Silicon Valley, CA Area	402	$98,952
Los Angeles/Orange Co., CA Metro Area	174	$84,143
Washington, DC Metro Area	257	$77,017
Boston, MA Metro Area	243	$71,953
Philadelphia, PA Metro Area	83	$74,386
San Diego, CA Metro Area	75	$88,706
Research Triangle, NC	79	$72,219
Austin, TX Metro Area	72	$72,467
Denver, CO	137	$76,313
Office is in U.S., But Not in One of Above Areas	2,194	$67,001
All U.S. Locations	3,953	$74,602

2000 Bonus by Selected U.S. City
(full-time employees only)

City	Number of Respondents	Mean Bonus in U.S. Dollars
Manhattan, NY	138	$9,864
Other NY Metro Area	107	$6,413
San Francisco/San Jose /Silicon Valley, CA Area	418	$8,530
Los Angeles/Orange Co., CA Metro Area	181	$2,726
Washington, DC Metro Area	267	$7,679
Boston, MA Metro Area	252	$4,356
Philadelphia, PA Metro Area	84	$4,113
San Diego, CA Metro Area	77	$4,762
Research Triangle, NC	79	$2,286
Austin, TX Metro Area	76	$5,616
Denver, CO	139	$4,408
Office is in U.S., But Not in One of Above Areas	2,242	$3,154
All U.S. Locations	4,060	$4,485

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Salary by Zip Code Area

U.S. zip codes also provide a way to analyze 2000 U.S. salaries by geographical area. Some zip codes had few respondents and had to be combined with other adjacent zip code areas. A few zip codes had no respondents. The state(s) in which the zip codes are used are shown in parentheses. Mean salaries over $80,000 were reported in two New York (10 and 11), one Arizona (85 & 86 combined), and two California (94 & 95) zip code areas. These were the zip codes with the highest mean salaries.

First 2 Digits U.S. Zip Code	Number of Respondents	Mean 1999 Salary
01 (MA)	96	$72,904
02 (MA & RI)	177	$64,926
03 & 05 (NH, VT & ME)	17	$71,188
04 (ME)	13	$44,477
06 (CT)	41	$73,984
07 (NJ)	53	$78,229
08 & 09 (NJ & NY)	62	$77,574
10 (NY)	138	$90,353
11 (NY)	36	$82,961
12 (NY)	15	$65,180
13 (NY)	10	$52,645
14 (NY)	49	$61,520
15 (PA)	34	$58,316
16 (PA)	16	$60,115
17 & 18 (PA)	26	$55,840
19 (PA & DE)	86	$71,106
20 (DC, MD & VA)	167	$73,870
21 (MD)	42	$73,101
22 (VA)	89	$68,499
23 (VA)	48	$60,472
24 & 25 (VA & WV)	13	$51,789
27 (NC)	86	$68,117
28 (NC)	25	$65,845
29 (SC)	23	$60,884
30 (GA)	96	$72,512
31 (GA)	6	$58,900
32 (FL)	53	$55,381

First 2 Digits U.S. Zip Code	Number of Respondents	Mean 1999 Salary
33 (FL)	74	$65,197
34 & 35 (FL & AL)	26	$53,135
36 (AL)	7	$57,022
37 (TN)	27	$61,623
38 & 39 (TN & MS)	31	$57,005
40 & 41 (KY)	14	$61,750
43 (OH)	44	$70,628
44 (OH)	52	$60,154
45 (OH)	30	$65,804
46 (IN)	37	$55,867
47 (IN)	19	$52,668
48 (MI)	67	$61,791
49 & 50 (MI & IA)	38	$52,121
51 (IA)	2	$62,500
52 (IA)	20	$63,857
53 (WI)	65	$58,349
54 (WI)	15	$64,500
55 (MN)	86	$65,406
56, 57, 58, 59 (MN, MT, ND & SD)	27	$42,240
60 (IL)	147	$74,343
61 & 62 (IL)	30	$55,608
63, 64, 65 (MO)	57	$67,162
66 & 67 (KS)	31	$76,914
68 (NE)	17	$68,083
70 (LA)	9	$72,621
71 & 72 (LA & AR)	10	$56,368

First 2 Digits U.S. Zip Code	Number of Respondents	Mean 1999 Salary
73 & 74 (OK)	26	$50,267
75 (TX)	131	$73,628
76 (TX)	23	$67,104
77 (TX)	74	$67,354
78 & 79 (TX)	101	$64,247
80 (CO)	163	$73,538
81 & 82 (CO & WY)	6	$52,687
83 (ID)	9	$48,309
84 (UT)	40	$62,089
85 & 86 (AZ)	87	$88,753
87 & 88 (NM & NV)	50	$63,223
89 (NV)	15	$50,393
90 (CA)	70	$74,953
91 (CA)	63	$77,438
92 (CA)	134	$72,466
93 (CA)	17	$66,257
94 (CA)	313	$89,645
95 (CA)	164	$81,930
96 (CA, HI & Guam)	10	$48,260
97 (OR)	91	$57,780
98 (WA)	136	$66,376
99 (WA & AK)	27	$53,966

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The tables below show the percentage of respondents to the 2000 survey in each zip code area and city who make more or less than the average salary of all U.S. respondents ($69,974). For example, over 29% of respondents in the New York City area (zip codes starting with 10) and 28% of respondents in the San Francisco area (zip code 94) make more than the average salary for all U.S. survey respondents. The two zip code areas with the largest percent salary below the overall U.S. average salary were 04 (in Maine) and 57, 58, and 59 (in South Dakota, North Dakota, and Montana). The area with the biggest percentage above average is Manhattan, NY, and the area with the biggest percentage below average includes Austin, TX.

City	Zipcode	State/Province	% Higher or Lower than the Overall U.S. Average
Amherst	01	MA	4.19%
Boston & Providence	02	MA & RI	-7.21%
	03	NH	1.73%
	04	ME	-36.44%
	05	VT	1.73%
	06	CT	5.73%
Hoboken	07	NJ	11.80%
Princeton	08 & 09	NJ	10.86%
New York City	10	NY	29.12%
Great Neck	11	NY	18.56%
Albany	12	NY	-6.85%
	13	NY	-24.76%
Ithaca & Buffalo	14	NY	-12.08%
Pittsburgh	15	PA	-16.66%
State College	16	PA	-14.09%
Carlisle	17	PA	-20.20%
Holland	18	PA	-20.20%
Philly & Wilmington	19	PA & DE	1.62%
College Park	20	Washington D.C. & MD	5.57%
Baltimore	21	MD	4.47%
Nova	22	VA	-2.11%
Richmond & Norfolk	23	VA	-13.58%
Blacksburg	24	VA	-25.99%
Charleston	25	WVA	-25.99%
Research Triangle	27	NC	-2.65%
Charlotte	28	NC	-5.90%
	29	SC	-12.99%
Atlanta	30	GA	3.63%
	31	GA	-15.83%
Jacksonville	32	FL	-20.85%
South-Miami	33	FL	-6.83%
West-Sarasota	34	FL	-24.06%
Birmingham	35	AL	-24.06%
Auburn	36	AL	-18.51%
Nashville	37	TN	-11.93%
Memphis	38	TN	-18.53%
Jackson	39	MS	-18.53%
Lexington	40	KY	-11.75%
	41	KY	-11.75%
Columbus	43	OH	0.93%

City	Zipcode	State/Province	% Higher or Lower than the Overall U.S. Average
Cleveland	44	OH	-14.03%
Cincinnati	45	OH	-5.96%
Indianapolis	46	IN	-20.16%
	47	IN	-24.73%
Detroit	48	MI	-11.69%
Benton Harbor	49 & 50	MI	-25.51%
	51	IA	-10.68%
`	52	IA	-8.74%
Milwaukee	53	WI	-16.61%
Ellison Bay	54	WI	-7.82%
Minneapolis	55 & 56	MN	-6.53%
	57	SD	-39.63%
	58	ND	-39.63%
	59	MT	-39.63%
Chicago	60	IL	6.24%
Champaign	61	IL	-20.53%
Decatur	62	IL	-20.53%
St. Louis	63	MO	-4.02%
Kansas City	64	MO	-4.02%
	65	MO	-4.02%
East	66	KS	9.92%
West	67	LS	9.92%
Omaha & East	68	NE	-2.70%
New Orleans	70	LA	3.78%
Ruston	71	LA	-19.44%
	72	AR	-19.44%
Oklahoma City	73	OK	-28.16%
Tulsa	74	OK	-28.16%
Dallas	75	TX	5.22%
Waco	76	TX	-4.10%
Houston	77	TX	-3.74%
San Antonio	78	TX	-8.18%
Amarillo	79	TX	-8.18%
Denver & Co. Springs	80	CO	5.09%
Durango	81	CO	-24.70%
Laramie	82	WY	-24.70%
Moscow	83	ID	-30.96%
	84	UT	-11.27%
Phoenix & Tempe	85	AZ	26.84%
Flagstaff	86	AZ	26.84%
Albuquerque	87	NM	-9.65%

City	Zipcode	State/Province	% Higher or Lower than the Overall U.S. Average
Las Cruces	88	NM	-9.65%
Las Vegas	89	CA & NV	-27.98%
Los Angeles	90	CA	7.12%
Pasadena	91	CA	10.67%
San Diego	92	CA	3.56%
Monterey	93	CA	-5.31%
San Francisco	94	CA	28.11%
Sacramento	95	CA	17.09%
Honolulu & Guam	96	HI & Guam	-31.03%
	97	OR	-17.43%
Seattle	98	WA	-5.14%
Pullman & Juneau	99	WA & AK	-22.88%
		Average Salary for All U.S. Locations	$69,974

City	% Higher or Lower than the Overall U.S. Average Salary
Manhattan, NY	30.09%
Other NY Metro Area	15.65%
San Francisco/San Jose/Silicon Valley, CA Area	28.78%
Los Angeles/Orange Co.,CA Metro Area	8.11%
Washington, DC Metro Area	3.05%
Boston, MA Metro Area	-0.17%
Philadelphia, PA Metro Area	2.13%
San Diego, CA Metro Area	2.87%
Research Triangle, NC	0.17%
Austin, TX Metro Area	-1.94%
Denver, CO	7.39%
Office is in U.S., But Not in One of Above Areas	-8.69%
Average Salary for All U.S. Locations	$69,974

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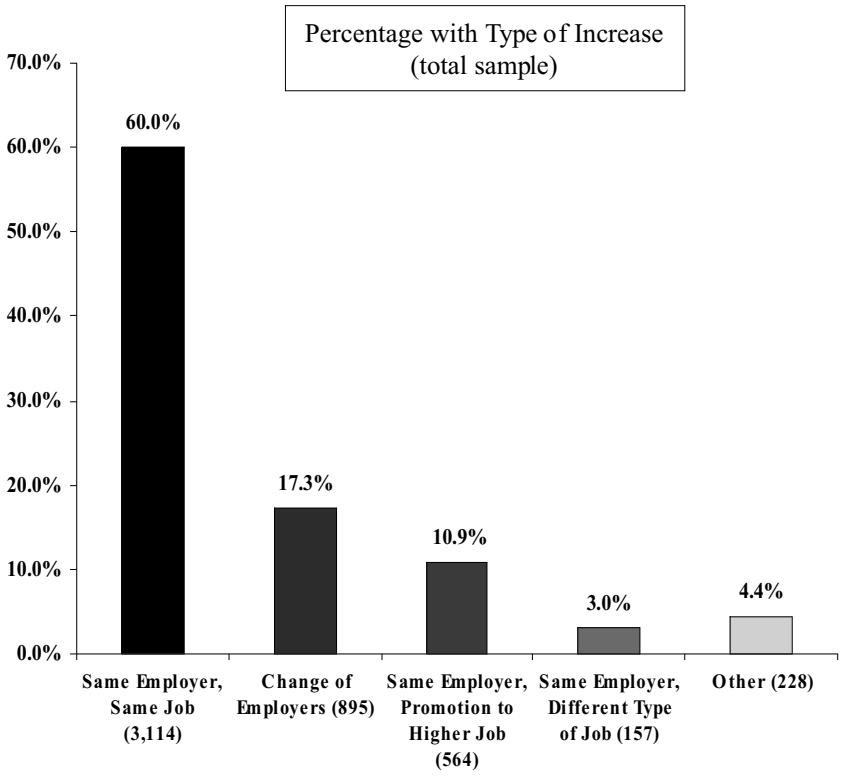
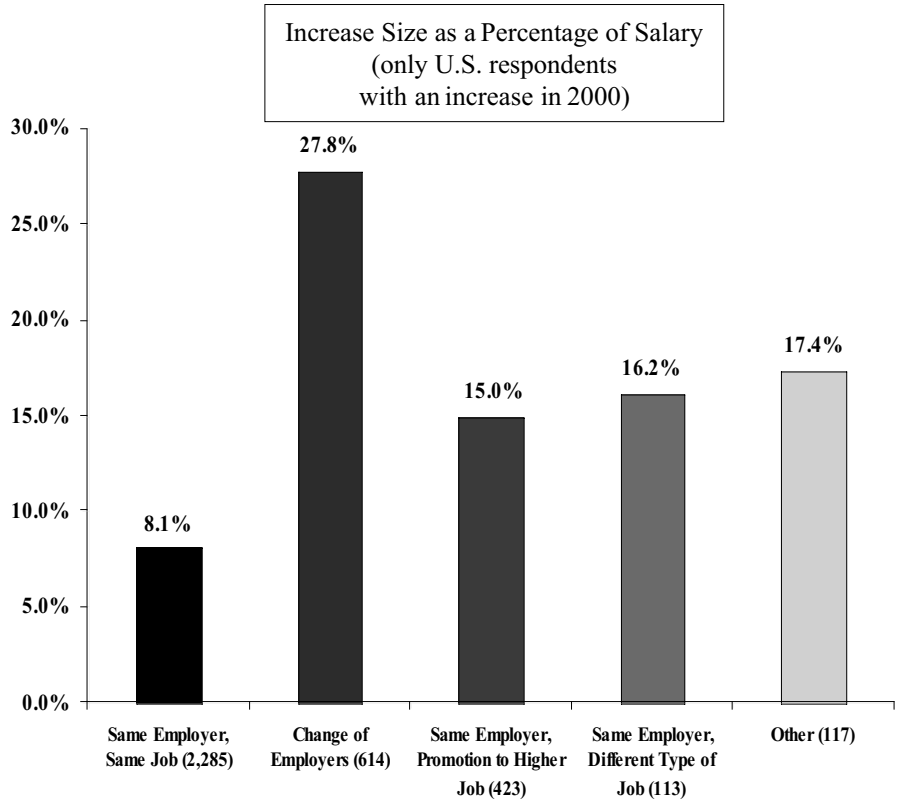
SIZES AND TYPES OF PAY INCREASES AND BONUSES

Sizes and Types of Pay Increases

As of the date when respondents answered the survey, during the 4th quarter of 2000, 4,405 (87.3% of respondents) indicated that they had received a 2000 pay increase. One respondent indicated he had received a 2001 pay increase and, 529 (10.5%) indicated that their most recent pay increase, as of the date they answered the survey, had been in 1999. Most increases (60.0%) had been from the same employer for the same job as currently held. For those in the U.S., the average 2000 pay increase from the same employer for the same job was 8.1%, from the same employer for a promotion 15.0%, and from changing employers 27.8%. The averages were 8.6%, 15.6%, and 27.6%, respectively, for respondents from all countries.





Number of respondents per category is in parentheses after category label on bottom axis.

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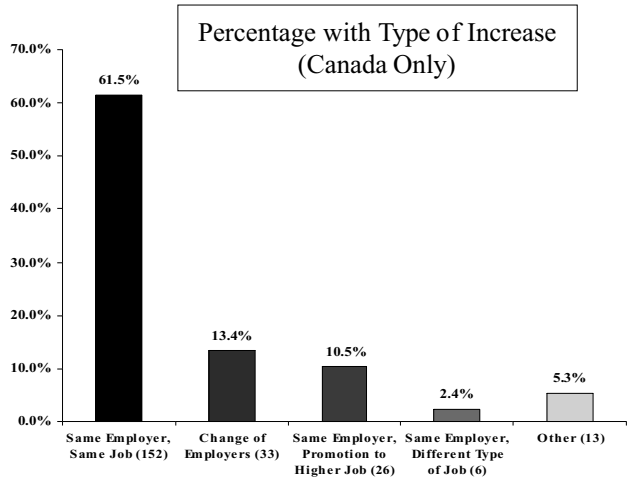
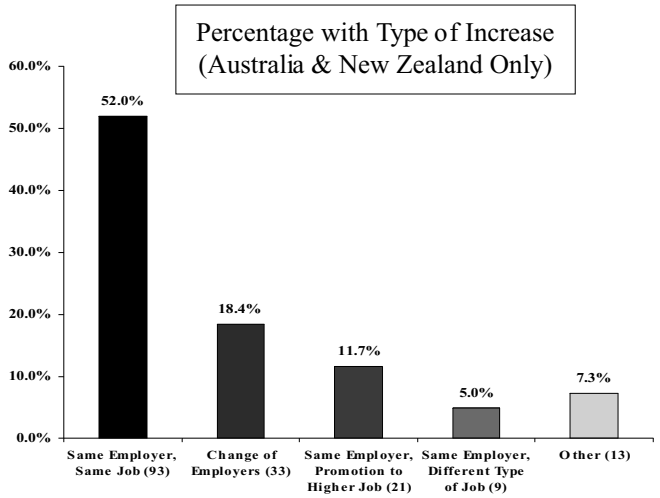
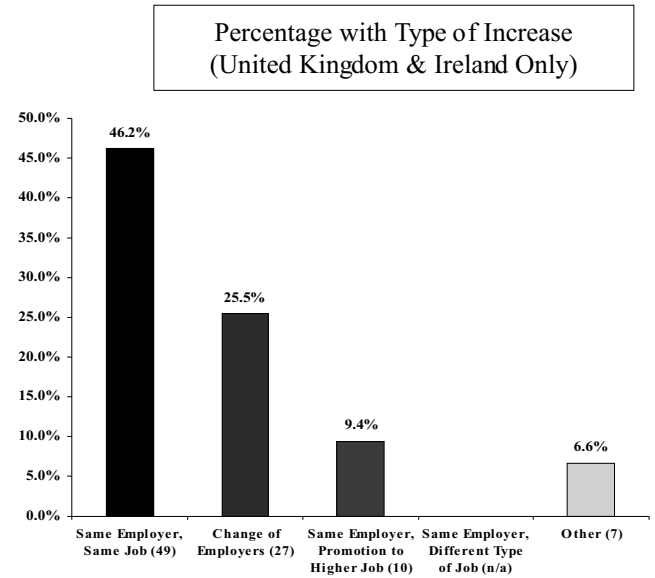
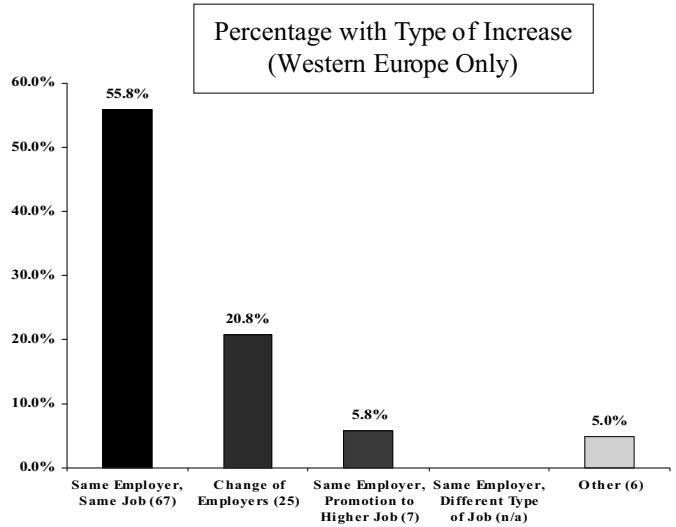
Respondents from other geographical areas also reported that the largest proportion of raises came from their same employer and same job, followed by the percentages who received raises for changing employers. The smallest proportion of raises came from their same employer, but for a change to a different job.









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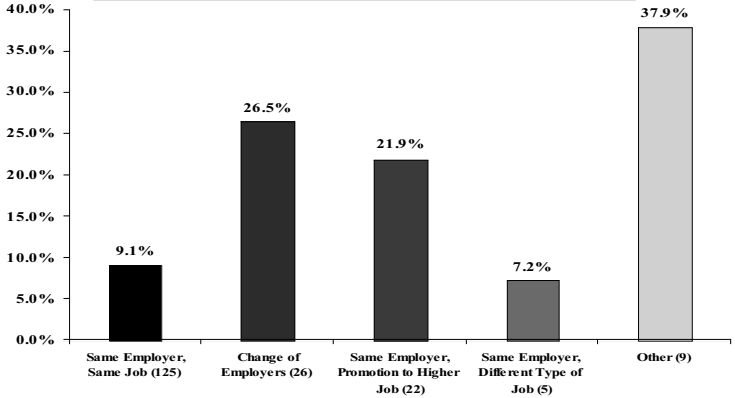
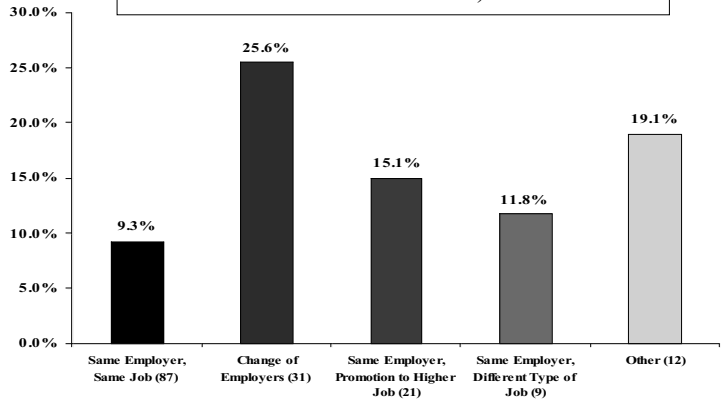
Respondents from Canada, Australia/New Zealand, United Kingdom/Ireland, and Western Europe had mean pay increases in the same job, for the same employer, that were slightly higher than those for the U.S. sample. Promotional increases from the same employer were also slightly higher for these four areas of the world than for the U.S. (15.0%) respondents. There was greater variation in raises that came with changing employers. For all five areas considered, they ranged from 18.8% to 35.5%.

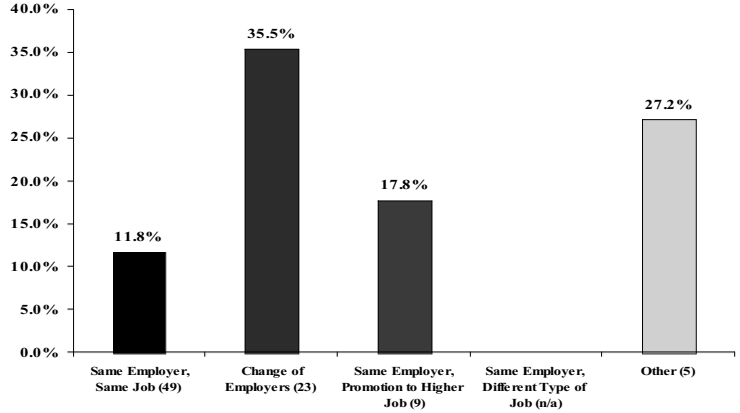
Mean Increase Size as a Percentage of Salary
(Canada respondents with an increase in 2000)



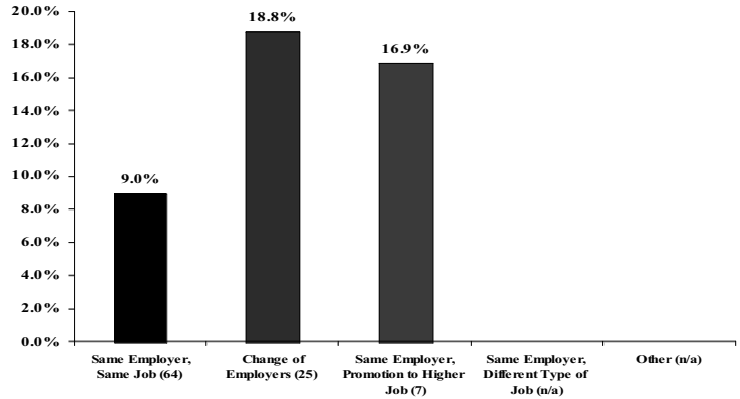
Mean Increase Size as a Percentage of Salary
(Australia & New Zealand respondents with an increase in 2000)



Mean Increase Size as a Percentage of Salary
(United Kingdom & Ireland respondents with an increase in 2000)



Mean Increase Size as a Percentage of Salary
(Western Europe respondents with an increase in 2000)



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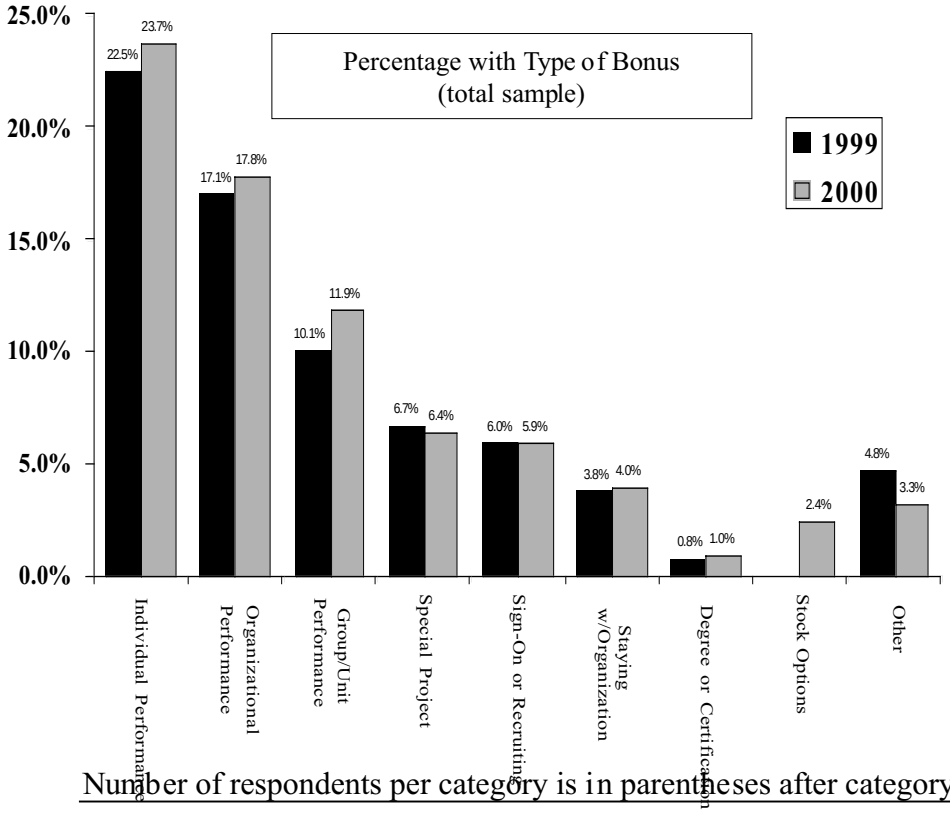
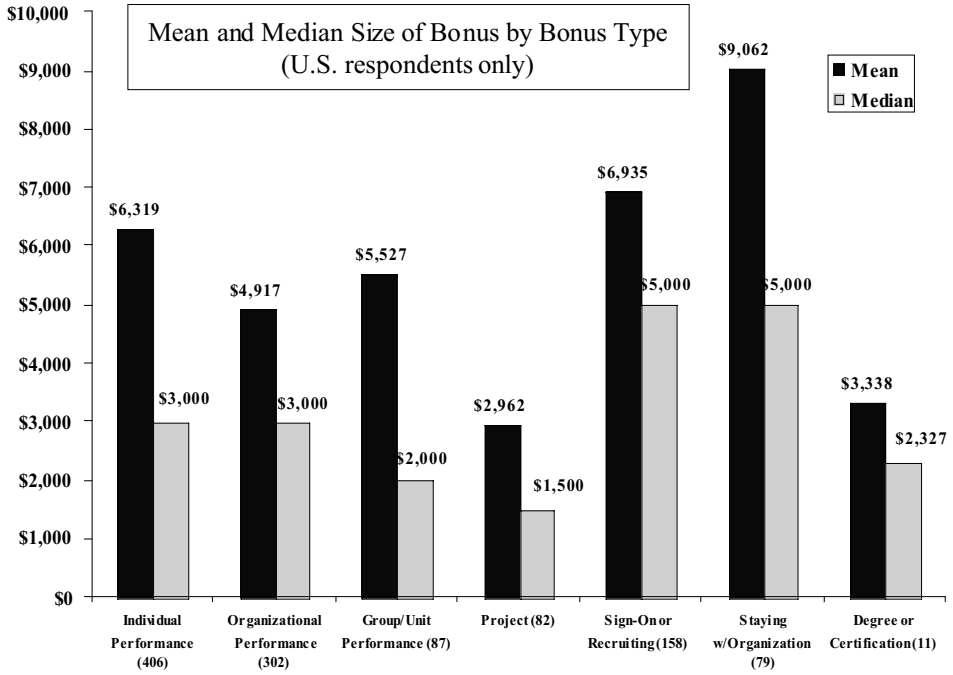
Sizes and Types of Bonuses

Over half (50.5%) of respondents from all countries reported no bonus in the twelve months prior to the survey. The left-hand chart shows percentages who reported various types of bonuses. Of U.S respondents, 46.4% (2,025) received some type of bonus. In other areas, 34.0% of Canadian, 29.9% of Australian/New Zealander, 42.3% of United Kingdom/Irish, and 34.8% of Western European respondents reported receipt of a bonus. To determine typical bonus size by bonus type, we could only use data from those who had reported a single type of bonus. Since this decreases sample sizes, we only had enough respondents from the U.S. for analyses. About 67% (1,364) of those in the U.S. who reported a bonus, reported only one type of bonus. Based on these 1,364 bonuses, we found bonus size varied considerably by type. Mean bonus is in the darker bar, and median bonus is in the lighter bar in each pair of bars on the chart on the right. (Mean bonus in USD for other countries and U.S. locations for all bonus types combined are shown in the earlier section on countries, cities, regions, and zip/postal codes). Median bonuses by type were virtually identical in 1999 in the U.S. Means were also similar, except for staying with the organization ($9,062 in 2000 vs. $6,512 in 1999) and receiving a degree or certification ($3,338 in 2000 vs.$ 2,550 in 1999). Of the respondents who reported a bonus related to stock, the median was $10,500 in 2000. The percentage receiving a stock option is not shown for 1999 because the 1999 survey did not directly ask for it.





Number of respondents per category is in parentheses after category label on bottom axis.

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OVERTIME, SHIFT, ON-CALL PAY, AND TRAVEL

For U.S. respondents, 15.6% reported receiving overtime pay, 6.7% shift pay, and 12.6% on-call/pager pay. In 1999, the percentages were 15.4, 10.1, and 15.9, respectively. Based on responses, overtime pay for U.S. respondents is most prevalent in aerospace, military, and federal government (non-military). Shift pay is most prevalent in state or local government and aerospace industries. About one-quarter of U.S. respondents in health care and IT: consulting organizations reported they get paid for being on call or wearing a pager. These were similar to 1999 results.

Percentage of Respondents who Receive Overtime, Shift, and On-Call Pay by Industry
(U.S. respondents only)

Industry	Overtime Pay	Shift Pay	On-Call/Pager Pay
Advertising, Public Relations, Communication, or Marketing	4.7%	9.4%	10.9%
Aerospace	53.6%	17.9%	9.8%
Agriculture, Environmental Services, Mining, or Energy Production	14.3%	2.9%	8.6%
Banking, Insurance, and Real Estate	10.2%	8.5%	7.3%
Biotechnology	9.7%	3.2%	11.5%
Consulting and Business Services	27.8%	9.6%	20.9%
Education - College or University	6.8%	2.7%	4.5%
Education – Elementary or Secondary	36.0%	4.0%	4.0%
Engineering	25.2%	8.4%	19.1%
Entertainment	9.2%	4.6%	9.2%
Federal Government, Non-military	36.7%	13.3%	11.7%
Finance, Securities, or Stock Exchange	5.8%	7.4%	8.3%
Health Care/Medicine	10.1%	5.8%	25.9%
IT: Consulting	36.0%	12.1%	24.8%
IT: Internet Service Provider/Internet Applications Service Provider	6.1%	5.8%	8.8%
IT: Software Development	8.6%	2.5%	10.1%
IT: Other	13.0%	6.5%	21.0%
Manufacturing	11.3%	6.3%	12.6%
Military	43.6%	10.9%	12.7%
Not-for-Profit	7.0%	2.3%	7.0%
Pharmaceuticals	17.1%	4.9%	9.8%
Publishing	5.1%	5.1%	8.5%
Research	15.1%	5.5%	5.5%
Retail and Wholesale Trade	5.7%	3.8%	5.7%
State or Local Government	33.3%	21.0%	13.6%
Transportation	25.5%	6.4%	8.5%
Utility	25.0%	10.7%	21.4%

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In the other geographical areas with significant numbers of respondents, overtime pay was the most prevalent premium pay offered by employers in three of the areas. Second most prevalent was on-call/pager pay. The largest proportion of respondents who indicated they received overtime pay, shift pay, and on-call/pager pay were in Western Europe. Canadian respondents had the second highest set of percentages. A smaller proportion of respondents from the U.S. indicated they received overtime pay, shift pay, and on-call/pager pay (15.5%, 6.7%, 12.5%, respectively) than any of these four areas.

Percentage of Respondents who Receive Overtime, Shift, and On-Call Pay by Country

Country	Overtime Pay	Shift Pay	On-Call/Pager Pay
Canada	33.6%	19.0%	32.8%
Australia & New Zealand	22.9%	15.6%	21.8%
United Kingdom & Ireland	19.0%	19.0%	24.5%
Western Europe	44.5%	40.3%	37.8%

For all respondents, 48.6% did not spend any days on out-of-town work-related travel. The average was 10.3 days in out-of-town work-related travel (11.3 in 1999). The number of days of travel had significant relationships with the level of salary and total cash from primary employers. That is, as number of days of travel increased, so did annual salary and total cash.

U.S. respondents reported an average of 10.1 days of out-of-town work-related travel per year, Canadian respondents 8.2, Australian/New Zealand respondents 10.5, United Kingdom/Ireland respondents 16.2, and Western European respondents 11.5.

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RELATIONSHIPS BETWEEN JOB CONTENT AND COMPENSATION

The majority of respondents were salaried employees. The relationships between salary and total cash with primary job type are significant, but not for bonus with primary job. One difference in 2000 was that self-employed consultants made substantially more salary ($127,176 in 2000 vs. $96,121 in 1999) and total cash ($138,762 in 2000 vs. $106,746 in 1999). Similar relationships were found in 1999.

Type of Primary Job
(total sample)

Job Type	Number of Respondents	Percent of Respondents
Salaried employee	4,590	87.6%
Contractor/Consulting organization employee	183	8.6%
Independent, self-employed consultant or contractor	48	2.9%

2000 Salary by Type of Primary Job
(U.S. respondents only)

Job Type	Number of Respondents	Mean Salary in U.S. Dollars
Salaried employee	3,855	$67,722
Contractor/Consulting organizational employee	378	$79,755
Independent, self-employed consultant or contractor	89	$127,176

2000 Total Cash by Type of Primary Job
(U.S. respondents only)

Job Type	Number of Respondents	Mean Total Cash in U.S. Dollars
Salaried employee	3,774	$72,096
Contractor/Consulting organization employee	368	$81,184
Independent, self-employed consultant	85	$138,762

2000 Bonus by Type of Primary Job
(U.S. respondents only)

Job Type	Number of Respondents	Mean Bonus in U.S. Dollars
Salaried employee	3,870	$4,581
Contractor/Consulting organization employee	381	$3,946
Independent, self-employed consultant	92	$4,145

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Results are also similar for other geographical areas. For all five areas considered, salaried employees made the lowest mean salary and total cash, whereas independent-self employed consultants made the highest. In contrast, the majority of respondents were salaried employees, while relatively few were independent, self-employed consultants or employees of contractor/consulting firms (11.3% from Canada; 15.9% from Australian & New Zealand; 22.3% from the United Kingdom & Ireland; 25.0% from Western Europe). These patterns are very similar to that exhibited by U.S. respondents, where 10.8% of respondents were independent, self-employed consultants or employees of contractor/consulting firms.

Salary and Total Cash in 2000 by Type of Primary Job
(Canada respondents only - CAD)

Job Type	Number of Respondents	Mean Salary	Mean Total Cash
Salaried employee	219	60,702	68,489
Contractor/Consulting organization employee	11	68,864	72,500
Independent, self-employed consultant or contractor	17	108,247	110,006

Salary and Total Cash in 2000 by Type of Primary Job
(Australia & New Zealand respondents only - AUD)

Job Type	Number of Respondents	Mean Salary	Mean Total Cash
Salaried employee	148	59,980	63,689
Contractor/Consulting organization employee	15	76,528	80,647
Independent, self-employed consultant or contractor	13	106,174	108,372

Salary and Total Cash in 2000 by Type of Primary Job
(United Kingdom & Ireland respondents only - GBP)

Job Type	Number of Respondents	Mean Salary	Mean Total Cash
Salaried employee	80	33,976	38,790
Contractor/Consulting organization employee	6	36,000	44,000
Independent, self-employed consultant or contractor	17	77,337	82,572

Salary and Total Cash in 2000 by Type of Primary Job
(Western Europe respondents only - EUR)

Job Type	Number of Respondents	Mean Salary	Mean Total Cash
Salaried employee	93	42,942	47,769
Contractor/Consulting organization employee	14	69,228	77,588
Independent, self-employed consultant or contractor	17	98,070	128,569

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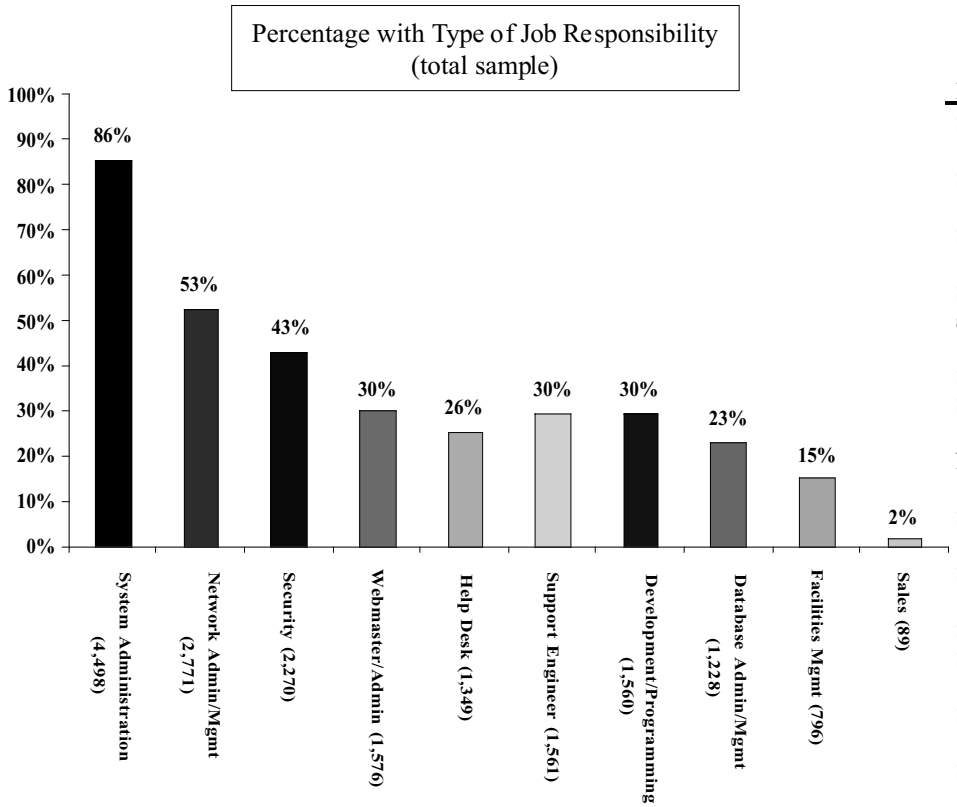
How would you characterize your major job responsibilities?

Respondents could use more than one category to characterize their major job responsibilities, and many combinations of the 10 categories were possible. Percentages of respondents in each category are in the left chart. U.S. pay levels for some of the most common combinations of responsibilities are presented on the right. For several major job responsibilities, or combinations thereof, incomes increased between 1999 and 2000. Two major changes were compensation for system and network administration only ($73,884 salary, $78,170 total cash, and $3,558 bonus in 2000, compared to $62,701 salary, $67,614 total cash, and $2,986 bonus in 1999) and system administration and support engineers only ($77,293 salary, $79,534 total cash, and $7,585 bonus in 2000, compared to $65,059 salary, $68,404 total cash, and $2,269 bonus in 1999).



Salary by Major Job Responsibilities
(U.S. respondents only)

Major Job Responsibilities	Number of Respondents	Mean Salary	Mean Total Cash	Mean Bonus
System Administration Only	685	$71,870	$75,287	$3,445
System & Network Administration Only	132	$73,884	$78,170	$3,558
System & Network Administration and Security	177	$74,479	$75,274	$3,008
System Administration, Security, and Web Administration	101	$73,122	$76,076	$2,693
System & Network Administration, Security, and Web Administration	80	$68,229	$70,037	$4,020
Network Administration	86	$68,069	$84,325	$15,359
System Administration and Support Engineer	84	$77,293	$79,534	$7,585
System Administration and Help Desk	38	$62,682	$55,856	$3,635
System & Network Administration, Security, and Help Desk	34	$53,932	$56,093	$2,344
Security Only	49	$76,539	$86,489	$24,059
Support Engineer Only	46	$76,484	$102,833	$9,977
Programmer Only	112	$78,474	$80,061	$4,759

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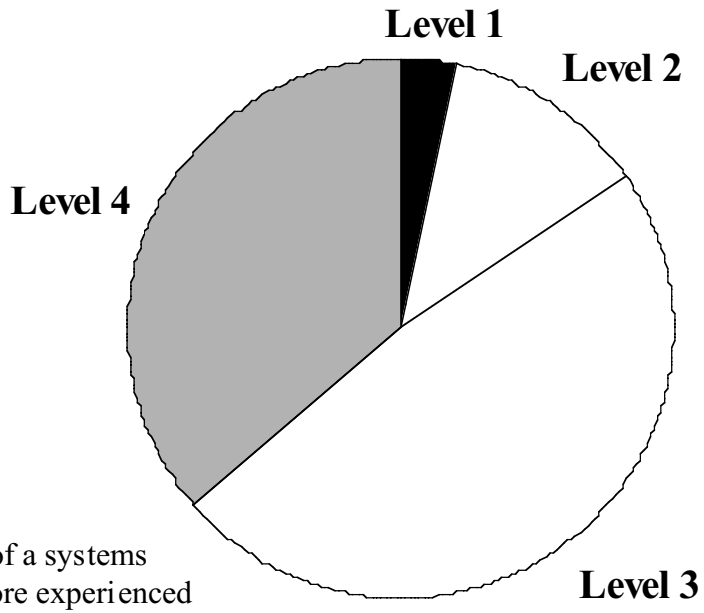
Which statement best describes your responsibilities on your primary job?

SAGE Job Description Level for Primary Job
(total sample)

Level	Number of Respondents	Percent of Respondents
Level 1	161	3.1%
Level 2	606	11.6%
Level 3	2,372	45.4%
Level 4	1,793	34.3%



Level 1 Assist on consulting or engineering projects or the administration of a systems facility. Perform routine tasks under the direct supervision of a more experienced system administrator or consultant. May act as a front-line interface to users and senior system administrators.

Level 2 Assist on consulting or engineering projects or the administration of a systems facility. Work under the general supervision of a computer system manager or senior consultant. Carry out more complex tasks with some independence and discretion.

Level 3 Receive general instructions for assignments from manager and work with independence and discretion. Initiate some new responsibilities and help to plan for the future of a facility. Manage the work of junior system administrators, operators, engineers, or consultants. Evaluate and/or recommend purchases and have a strong influence on the purchasing process.

Level 4 Design and manage the computing infrastructure or manage the larger, more complex consulting or engineering projects. Work under general direction from senior management. Establish or recommend policies on system use and services. Provide technical lead and/or supervise system administrators, system programmers, engineers, consultants, or others of equivalent seniority. Have purchasing authority and responsibility for purchase decisions and budget.

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Relationship between SAGE Job Description Level and Compensation

2000 Salary by SAGE Job Description Level
(U.S. respondents only)

Job Level	Number of Respondents	Mean Salary in U.S. Dollars
Level 1	127	$53,436
Level 2	497	$59,938
Level 3	1,975	$67,363
Level 4	1,529	$78,623
Not Applicable to My Job	208	$65,265
Mean for All Levels	4,336	$69,974

2000 Bonus by SAGE Job Description Level
(U.S. respondents only)

Job Level	Number of Respondents	Mean Bonus in U.S. Dollars
Level 1	130	$2,282
Level 2	501	$2,023
Level 3	1,979	$3,483
Level 4	1,535	$6,953
Not Applicable to My Job	216	$3,442
Mean for All Levels	4,361	$4,499

Total Cash in 2000 by SAGE Job Description Level
(U.S. respondents only)

Job Level	Number of Respondents	Mean Total Cash in U.S. Dollars
Level 1	121	$55,173
Level 2	477	$59,325
Level 3	1,933	$69,458
Level 4	1,507	$87,304
Not Applicable to My Job	202	$67,684
Mean for All Levels	4240	$74,169

Salary, total cash, and bonuses are significantly different for the different job description levels. All three tend to be higher for those with higher reported job levels.

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For Canadian respondents, there is also a clear relationship between job level and mean salary and total cash. Specifically, as job level increases, so do salary and total cash. A similar pattern is found for respondents from both Australia/New Zealand and the United Kingdom/Ireland. However, the opposite seems true for those from Western Europe. As the job level increases, salary and total cash decrease. This result is quite unexpected since the more complex a job's duties and responsibilities, the more one is usually paid. The small number of respondents in each job level may account for this, although expatriate compensation may also influence these results.

Salary and Total Cash in 2000 by SAGE Job Description Level
(Canada respondents only - CAD)

Job Level	Number of Respondents	Mean Salary	Mean Total Cash
Level 1	7	53,714	54,929
Level 2	20	53,225	57,020
Level 3	119	60,794	64,632
Level 4	81	70,629	83,976
Not Applicable to My Job	19	77,968	82,711
Mean for All Levels	246	64,337	71,392

Salary and Total Cash in 2000 by SAGE Job Description Level
(Australia & New Zealand respondents only - AUD)

Job Level	Number of Respondents	Mean Salary	Mean Total Cash
Level 1	4	33,250	33,250
Level 2	25	51,854	54,594
Level 3	84	60,484	64,355
Level 4	48	79,686	86,178
Not Applicable to My Job	16	69,396	62,390
Mean for All Levels	177	64,663	68,100

Salary and Total Cash in 2000 by SAGE Job Description Level
(United Kingdom & Ireland respondents only - GBP)

Job Level	Number of Respondents	Mean Salary	Mean Total Cash
Level 1	4	25,931	32,190
Level 2	11	36,073	40,973
Level 3	49	40,574	43,735
Level 4	31	46,143	52,256
Not Applicable to My Job	9	45,744	61,500
Mean for All Levels	104	41,642	46,977

Salary and Total Cash in 2000 by SAGE Job Description Level
(Western Europe respondents only - EUR)

Job Level	Number of Respondents	Mean Salary	Mean Total Cash
Level 1	4	66,848	74,765
Level 2	16	54,772	63,160
Level 3	57	48,378	60,119
Level 4	34	48,244	52,474
Not Applicable to My Job	7	56,260	57,744
Mean for All Levels	118	50,300	58,586

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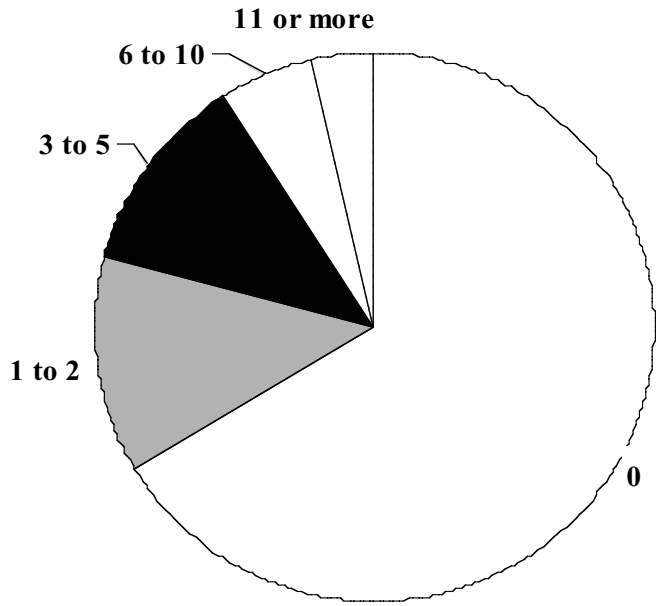
For how many employees do you have direct, formal supervisory or management responsibility?

Number of Subordinates
(total sample)

Response	Number of Respondents	Percent of Respondents
0	3,401	64.9%
1 to 2	661	12.6%
3 to 5	586	11.2%
6 to 10	295	5.6%
11 or more	182	3.5%

2000 Salary by Number of Subordinates
(U.S. respondents only)

Number of Subordinates	Number of Respondents	Mean Salary in U.S. Dollars
0	2,852	$67,258
1 to 2	535	$66,899
3 to 5	479	$76,749
6 to 10	248	$83,341
11 or more	157	$88,759



The mean number of subordinates was 2.5 for the total sample. The majority (64.9%) had no subordinates.

In 2000, the relationship between number of subordinates supervised and salary was statistically significant, as it was in 1999, for U.S. respondents. Also in 2000, mean salaries for the U.S. respondents who reported they supervised 3 to 5, 6 to 10, or 11 or more subordinates were substantially higher compared to 1999 salaries for these numbers of subordinates ($67,779, $70,044, and $78,168, respectively).

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For respondents from the four geographical areas in tables below, the relationship between number of subordinates and mean salaries was not as clear. Smaller samples may be behind the less linear relationships. Respondents from these four areas, as well as from the U.S. and in the total sample, most frequently indicated that they do not directly supervise any subordinates. The smallest percentages reported that they supervise six or more subordinates.

2000 Salary by Number of Subordinates
(Canada respondents only - CAD)

Number of Subordinates	Number of Respondents	Mean Salary
0	163	57,568
1 to 2	33	67,083
3 to 5	31	84,565
6 or more	19	82,764

2000 Salary by Number of Subordinates
(Australia & New Zealand respondents only - AUD)

Number of Subordinates	Number of Respondents	Mean Salary
0	114	56,415
1 to 2	24	59,456
3 to 5	19	96,363
6 or more	13	87,231

2000 Salary by Number of Subordinates
(United Kingdom & Ireland respondents only - GBP)

Number of Subordinates	Number of Respondents	Mean Salary
0	62	42,726
1 to 2	16	31,237
3 to 5	18	41,858
6 or more	7	58,364

2000 Salary by Number of Subordinates
(Western Europe respondents only - EUR)

Number of Subordinates	Number of Respondents	Mean Salary
0	72	52,048
1 to 2	18	34,629
3 to 5	16	49,940
6 or more	9	64,172

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Hours Worked Per Week

The majority of system administrator respondents worked full-time (35 hours or more per week) on their primary job. The total sample of 2000 respondents averaged 46.7 hours per week, compared to 47.0 for 1999 respondents. In 2000, U.S. respondents averaged 46.4 hours per week, Canadian, 45.1, Australian and New Zealand, 45.0, United Kingdom and Irish, 46.9, and Western European, 44.1 hours per week on their primary jobs.

For U.S. respondents, compensation tended to go up with number of hours worked per week on primary job in 2000. A similar pattern was observed for 1999 work hours and salary.

2000 Salary on Primary Job by Hours per Week on Primary Job (U.S. respondents only)

Hours	Number of Respondents	Mean Salary in U.S. Dollars
0-19	53	$65,834
20-34	103	$54,645
35-40	1,140	$66,453
41-45	1,135	$68,446
46-50	1,124	$71,396
51-60	636	$75,899
61 or more	143	$85,592

2000 Bonus on Primary Job by Hours per Week on Primary Job (U.S. respondents only)

Hours	Number of Respondents	Mean Bonus in U.S. Dollars
0-19	53	$1,496
20-34	106	$3,492
35-40	1,149	$2,746
41-45	1,138	$3,716
46-50	1,125	$4,850
51-60	639	$8,292
61 or more	144	$7,177

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The left table shows hours per week *on primary job* by average total cash *on primary job*. The right table shows hours per week *for all jobs* by average total cash *for all jobs*. Mean total cash is higher for respondents who said they worked between 0 and 19 hours per week than those who reported working 20-34 hours per week in both the hours per week/primary employer and hours per week/all employers analyses.

Total Cash on Primary Job in 2000 by Hours per Week on Primary Job (U.S. respondents only)

Hours	Number of Respondents	Mean Total Cash in U.S. Dollars
0-19	49	$66,369
20-34	103	$53,469
35-40	1,108	$67,432
41-45	1,114	$71,437
46-50	1,105	$77,048
51-60	619	$84,416
61 or more	141	$99,722

Total Cash on All Jobs in 2000 by Hours per Week on All Jobs (U.S. respondents only)

Hours	Number of Respondents	Mean Total Cash in U.S. Dollars
0-19	22	$78,256
20-34	40	$56,600
35-40	984	$69,812
41-45	1,034	$70,593
46-50	1,053	$78,776
51-60	729	$87,473
61 or more	277	$94,666

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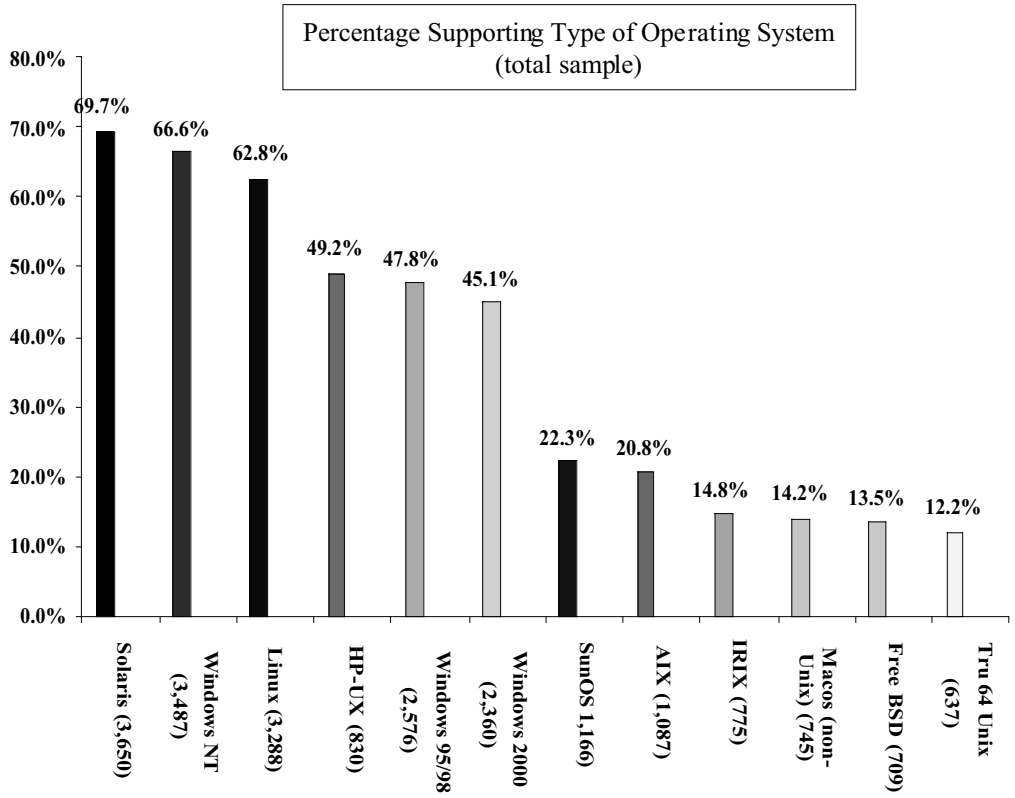
Operating Systems

On average, respondents indicated that they worked with or supported 4.9 operating systems on their primary job. The bar graph on the left shows operating systems supported by 10% or more of the respondents. In the U.S., number of operating systems supported was not related to amount of pay. Types of operating systems respondents supported were more strongly related to salary levels than to levels of total cash or bonuses. Regression analyses in which all types of operating systems mentioned on the survey were included simultaneously indicated that certain operating systems were significantly related to differences in salary and total cash for U.S. respondents. Results from both 2000 and 1999 are presented in the list on the right. [Operating systems which were not significantly related to salary or total cash in 2000 and 1999 are not shown. The letters "ns" signify that an operating system was not significantly related in one of the two years.]



Note: Number of respondents per category is in parentheses after category label on bottom axis. Results in the bar graph are based on both U.S. and non-U.S. respondents; only U.S. respondents were used in the regression equations with salary and total cash.

Operating System	Positive or Negative Relationship to Salary	
	2000	1999
Solaris	+ $12,575	+ $3,047
NetBSD	+ $ 7,206	ns
MacOS X (Unix)	+ $ 5,355	ns
HP-UX	+ $ 4,630	+ $2,517
Windows 2000	+ $ 3,302	ns
FreeBSD	+ $ 2,710	- $1,796
Windows 95/98	- $ 2,253	ns
MacOS (non-Unix)	- $ 5,761	- $1,914
DOS/Win 3.1	- $ 7,793	- $3,670
BSDI	ns	+ $2,550
Open BSD	ns	- $2,696

Operating System	Positive or Negative Relationship to Total Cash	
	2000	1999
Solaris	+ $14,673	+ $4,962
NetBSD	+ $11,877	ns
FreeBSD	+ $ 5,183	ns
HP-UX	+ $ 5,154	ns
Windows 2000	+ $ 4,462	ns
AIX	+ $ 4,351	ns
Linux	- $ 3,588	ns
MacOS (non-Unix)	- $ 5,303	ns
DOS/Win 3.1	- $10,167	ns
BSDI	ns	+ $ 9,846
Windows NT	ns	- $ 3,213

Note: Only U.S. respondents were used in the regression equations with salary and total cash.

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RELATIONSHIPS BETWEEN PERSONAL BACKGROUND AND COMPENSATION

What is your highest level of education?

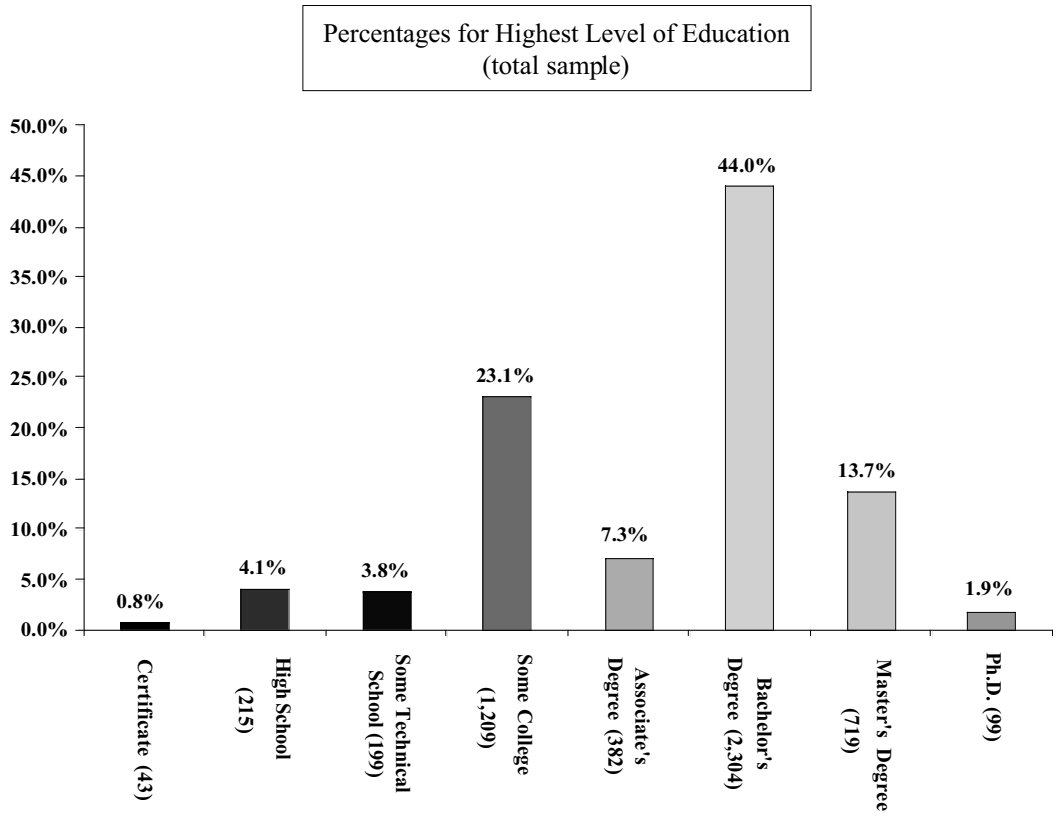
The most common education level for respondents was a bachelor's degree. More than half (54.1%) said their education or degree was computer related, while 44.6% indicated it was not. Whether one's education was computer related was not significantly associated with the level of salary, total cash, or bonus for U.S. respondents. In the U.S., level of education was related to higher salaries and total cash, but not to higher bonuses. The relationship between education level and salary was stronger and more uniform than the relationship between education level and total cash. This pattern was similar in 1999. However, the relationship of salary and total cash with education level was stronger in 1999 than in 2000.

2000 Salary by Level of Education
(U.S. respondents only)

Level of Education	Number of Respondents	Mean Salary in U.S. Dollars
Certificate	27	$64,802
High School	155	$62,998
Some Technical School	131	$67,241
Some College	1,042	$65,163
Associate's Degree	334	$65,691
Bachelor's Degree	1,923	$71,667
Master's Degree	615	$76,637
Ph.D.	80	$78,048

Total Cash in 1999 by Level of Education
(U.S. respondents only)

Level of Education	Number of Respondents	Mean Total Cash in U.S. Dollars
Certificate	27	$69,441
High School	146	$65,223
Some Technical School	126	$70,282
Some College	1,018	$68,680
Associate's Degree	328	$68,821
Bachelor's Degree	1,892	$76,125
Master's Degree	595	$80,785
Ph.D.	80	$81,647



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In Canada and the United Kingdom/Ireland, respondents with master's degrees as their highest level of education made the highest mean salary and total cash. In the U.S., the level of education with the highest mean salary and total cash was the Ph.D. Also, in Canada, those with some technical school had the lowest mean salary and total cash. For the other two areas, there was no clear association between higher education levels and higher compensation.

2000 Salary and Total Cash by Level of Education
(Canada respondents only - CAD)

Level of Education	Number of Respondents	Mean Salary	Mean Total Cash
Certificate	n/a		
High School	15	54,167	56,967
Some Technical School	20	53,354	55,310
Some College	60	61,356	67,305
Associate's Degree	14	55,279	70,077
Bachelor's Degree	109	67,340	76,667
Master's Degree	22	80,636	83,273
Ph.D.	n/a		

2000 Salary and Total Cash by Level of Education
(Australia & New Zealand respondents only - AUD)

Level of Education	Number of Respondents	Mean Salary	Mean Total Cash
Certificate	6	50,401	52,901
High School	12	70,314	76,045
Some Technical School	9	59,889	65,178
Some College	29	63,793	68,528
Associate's Degree	16	59,046	62,271
Bachelor's Degree	85	67,219	70,076
Master's Degree	13	64,366	65,799
Ph.D.	n/a		

2000 Salary and Total Cash by Level of Education
(United Kingdom & Ireland respondents only - GBP)

Level of Education	Number of Respondents	Mean Salary	Mean Total Cash
Certificate	n/a		
High School	6	47,400	48,067
Some Technical School	6	49,217	50,500
Some College	13	41,528	46,384
Associate's Degree	n/a		
Bachelor's Degree	56	39,342	43,296
Master's Degree	14	51,529	65,744
Ph.D.	n/a		

2000 Salary and Total Cash by Level of Education
(Western Europe respondents only - EUR)

Level of Education	Number of Respondents	Mean Salary	Mean Total Cash
Certificate	n/a		
High School	7	53,240	68,795
Some Technical School	14	59,465	65,475
Some College	20	34,702	39,872
Associate's Degree	n/a		
Bachelor's Degree	35	58,748	67,165
Master's Degree	28	50,719	58,535
Ph.D.	8	57,551	63,027

Note. "n/a' indicates that the sample size was too small

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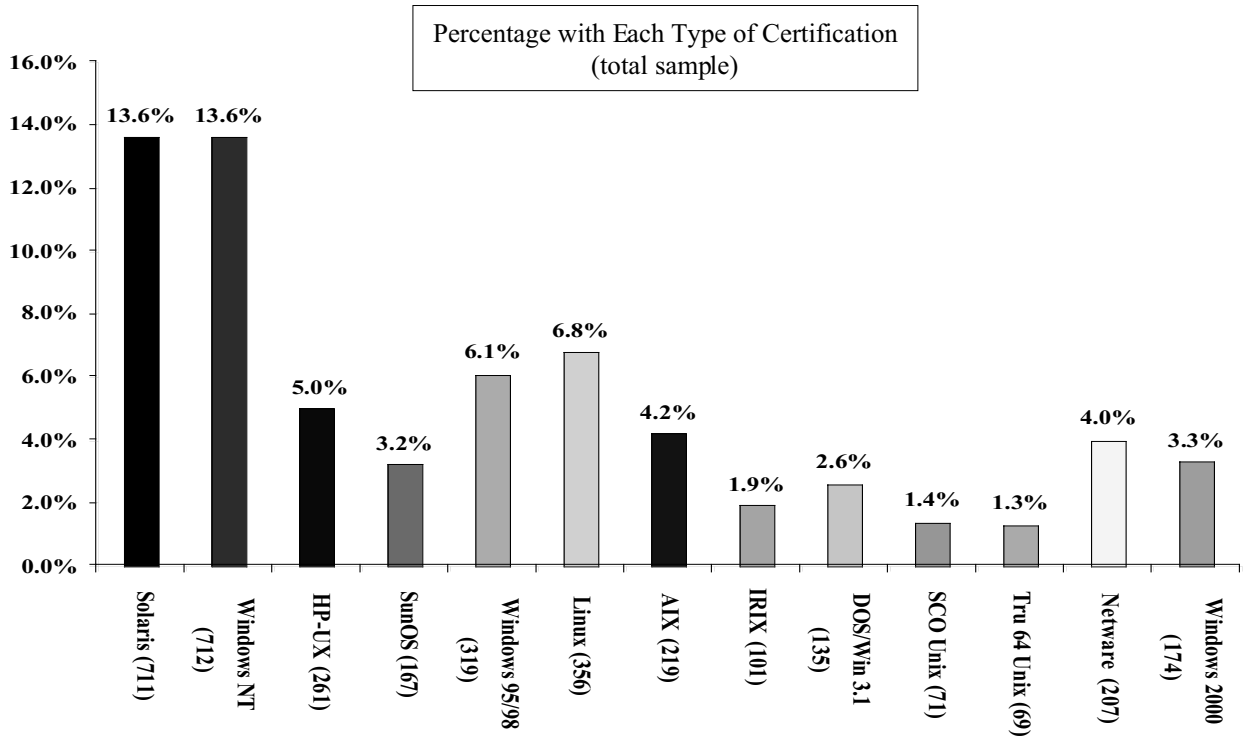
Certifications

For respondents in all countries, 62.6% indicated that they were not certified on any operating system in 2000. This is somewhat lower than the 65.4% who said they were not certified in 1999). Those who were certified had a mean of 2.0 certifications in both 2000 and 1999. The following certifications were those reported most frequently by respondents in 2000:



Note: Number of respondents per category is in parentheses after category label on bottom axis.

In 1999, more respondents reported certification for Solaris (16.3%), Windows NT (6.3%), and SunOS (5.7%), while fewer respondents in 1999 reported certifications on Linux (4.9%), Windows 2000 (<1.5%), and Netware (<1.5%)

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In 1999 and 2000, the number of certifications respondents reported had a relatively positively relationship to salary and total cash.

2000 Salary by Number of Certifications
(U.S. respondents only)

Number of Certifications	Number of Respondents	Mean Salary in U.S. Dollars
0	2,730	$69,405
1	880	$68,871
2	361	$73,104
3	156	$69,582
4	80	$78,901
5	54	$73,926
6 or more	76	$76,921

Total Cash in 2000 by Number of Certifications
(U.S. respondents only)

Number of Certifications	Number of Respondents	Mean Total Cash in U.S. Dollars
0	2,679	$72,071
1	854	$72,924
2	353	$83,188
3	150	$81,209
4	78	$84,852
5	54	$92,611
6 or more	73	$82,526

A regression analysis in which all types of certifications mentioned on the survey were included simultaneously indicated that types of certifications are more highly related than number of certifications to differences in salary levels and total cash for U.S. respondents. The certifications listed below were related to the following additional amounts of salary and total cash compensation, on average. Other types of certification had no significant relationship with salary or total cash.

Certification	Positive or Negative Relationship to Salary	
	2000	1999
Solaris	+ $11,494	+ $2,749
SunOS	+ $ 7,788	ns
AIX	+ $ 5,939	ns
Windows 95/98	- $ 7,615	ns
HP-UX	ns	+ $ 2,778

Certification	Positive or Negative Relationship to Total Cash	
	2000	1999
FreeBSD	+ $53,744	ns
SunOS	+ $15,930	+ $9,946
Solaris	+ $14,524	+ $3,342
AIX	+ $14,138	ns
DOS/Win 3.1	- $13,002	ns
OpenBSD	- $46,390	ns
HP-UX	ns	+ $9,081

Note: "ns" indicates that the operating system in question was not a significant predictor.

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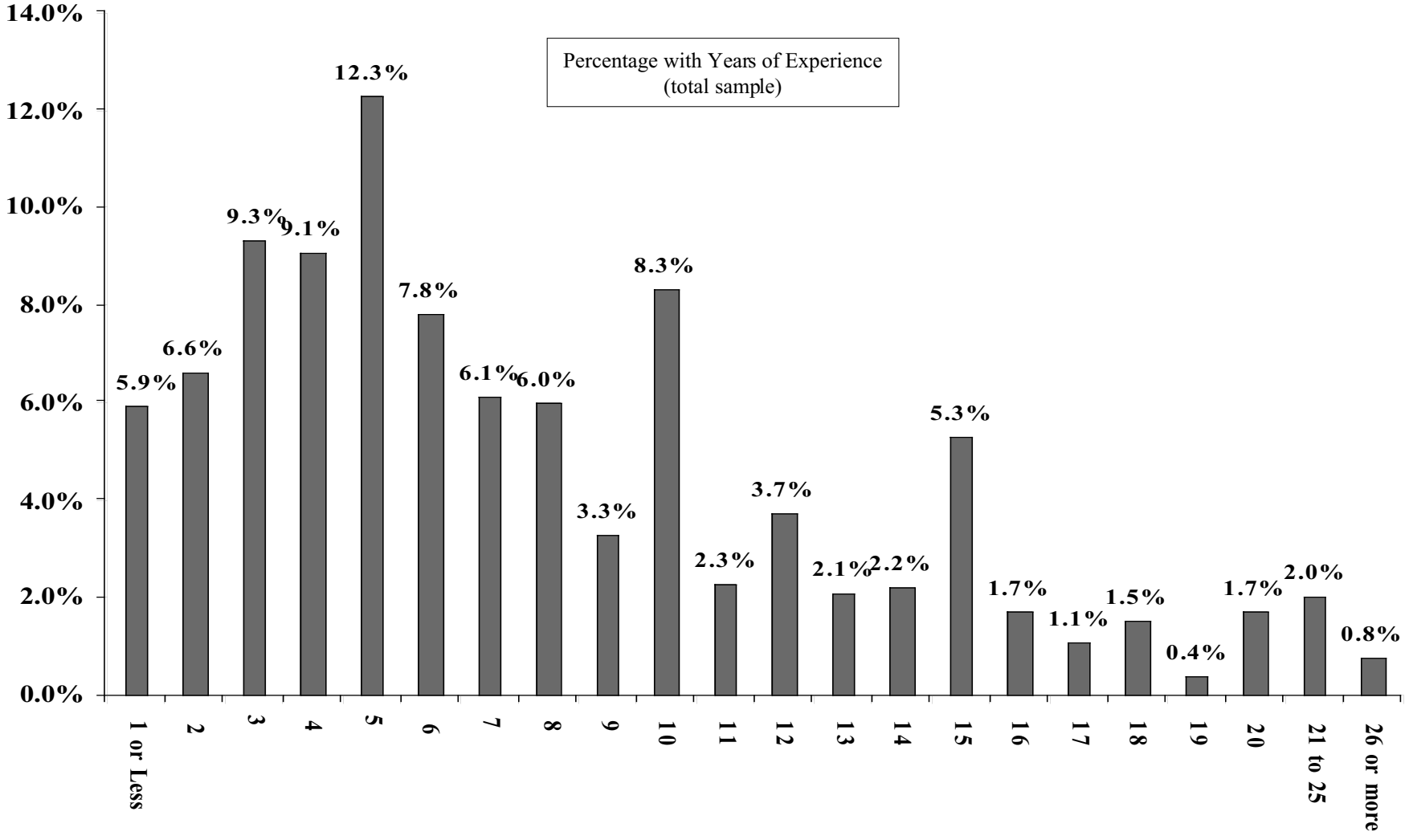
Years of Experience

The mean number of years reported for experience in system administration or highly similar work was 7.9 in both 2000 and 1999. It ranged from less than 1 year to 45 years in 2000. These results are based on all respondents. Spikes in percentages at 5, 10, and 15 years suggest that people often round their experience to the nearest 5-year increment when they report it.



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Years of experience in system administration or very similar work had a stronger relationship with salary and total cash than either education level or certification in both 2000 and 1999 for U.S. respondents. In 2000, the correlation between experience and salary was .32, so it accounted for 10.2% of the variation among the U.S. respondents. The correlation in 1999 was .40, so 16.0% of the variation in salaries was accounted for by experience in the 1999 data.

2000 Salary by Years of Experience
(U.S. respondents only)

Years of Experience	Number of Respondents	Mean Salary in U.S. Dollars
1 or less	238	$50,352
2	268	$52,419
3	397	$55,757
4	394	$61,479
5	524	$66,796
6	331	$69,239
7-8	546	$74,930
9-10	507	$78,326
11-12	264	$80,456
13-14	199	$79,739
15-16	308	$81,689
17-20	222	$84,602
21-25	94	$82,494
26 or more	39	$83,706

Total Cash in 2000 by Years of Experience
(U.S. respondents only)

Years of Experience	Number of Respondents	Mean Total Cash in U.S. Dollars
1 or less	230	$50,510
2	259	$50,743
3	384	$55,875
4	387	$60,991
5	509	$71,743
6	322	$75,335
7-8	537	$79,208
9-10	498	$85,529
11-12	253	$85,852
13-14	197	$88,923
15-16	307	$88,325
17-20	220	$92,956
21-25	94	$87,847
26 or more	39	$86,018

The mean number of years respondents had worked for their current primary employer was 4.0 years (total sample). This is nearly identical to 1999 (4.2 years). The number of years respondents had worked for their current primary employer ranged from less than 1 to 39 in 2000 and less than 1 to 36 in 1999. Over half of respondents had worked for their current employer 2 years or less in both 2000 and 1999. There was no clear or significant pattern of relationship between years with one's current employer and compensation levels.

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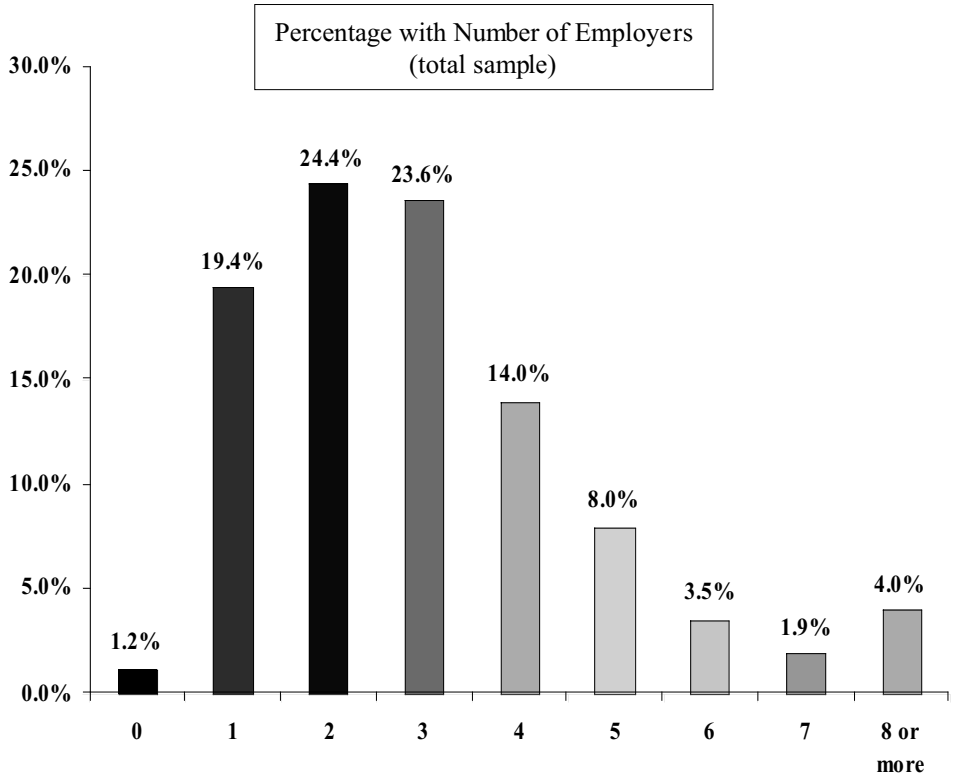
Number of Employers During Career

The number of employers 2000 respondents have worked for was 3.0, on average, compared to 2.8 for 1999 respondents. The average number of years that respondents worked for each employer was 3.3. For U.S. respondents, the number of employers respondents have had while working in system administration or very similar work was more highly related to compensation level than education or certifications, though not as highly related as years of experience. (It was correlated .30 with salary, so it accounted for 9% of the variation in salaries for U.S. respondents.) The relationship between the number of employers in one's career and salary could not be explained away by years of experience.



2000 Salary and Total Cash by Number of Employers
(U.S. respondents only)

Number of Employers	Number of Respondents	Mean Salary in U.S. Dollars	Mean Total Cash in U.S. Dollars
1	819	$58,946	$61,423
2	1,049	$63,680	$68,476
3	1,005	$70,500	$73,635
4	611	$76,922	$82,546
5	355	$81,618	$87,364
6	165	$82,707	$86,401
7	83	$88,619	$89,434
8 or more	184	$90,677	$99,415

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Gender and Age

In 2000, 91.4% of respondents in the total sample were male, compared to 83.7% in 1999. For U.S. respondents, 90.8% and 86.8% were male in 2000 and 1999, respectively. Salary and total cash compensation were not significantly correlated with gender at the probability level ($p < .05$) that is normally used as the standard for determining statistical significance. (Given the large sample size in this analysis, there is considerable statistical power to detect a significant difference, and no reason to use a higher probability level.) In addition, with differences in years of experience, hours worked, level of education, and other factors included in the regression analysis discussed later in this report, gender clearly was not significantly related to salary for U.S. respondents in 2000. In contrast, it was significant, with males making higher salaries in 1999. Gender was not significantly related to total cash for either 2000 or 1999. Gender was significantly related to bonus size in 1999, with females making higher bonuses, but not in 2000

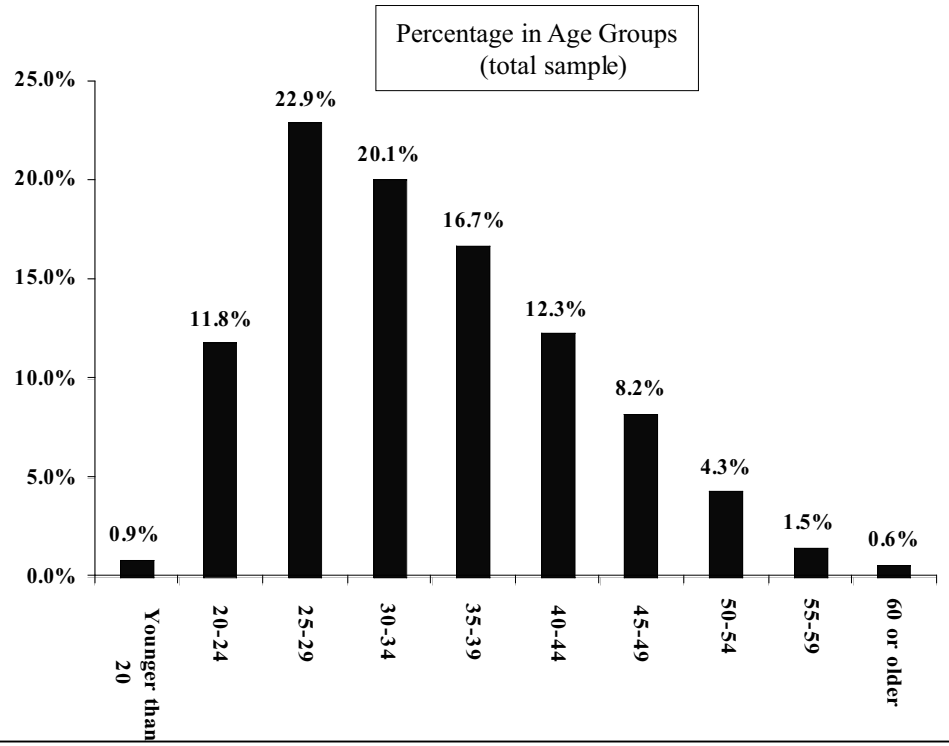
The mean age of all respondents was 35 years in 2000 and 34 years in 1999. Age ranged from 15 to 69 in 2000 and 17 to 75 in 1999. Nearly three-fourths were in their 20s or 30s in both years. Analysis using partial correlations indicated that the relationship between years of experience and compensation level was stronger than the relationship between age and compensation level in both years.

Gender of Respondents
(total sample)

Response	Number of Respondents	Percent of Respondents
Male	4,767	91.4%
Female	446	8.6%

2000 Salary and Total Cash by Gender
(U.S. respondents only)

Sex of Respondent	Number of Respondents	Mean Salary in U.S. Dollars	Mean Total Cash in U.S. Dollars
Male	3,941	$70,224	$74,643
Female	392	$67,400	$69,514



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For the four other areas of the world that could be focused on in this report, male respondents made significantly more salary and total cash than female respondents, with the exception of the United Kingdom and Ireland. For the United Kingdom/Ireland respondents, females had a mean salary and total cash exceeding that of males. However, strong conclusions should not be drawn from any of these results because of the small sample sizes and low number of female respondents in each area. Differences in average years of experience, education level, and other factors for male and female respondents may account for some or all of the difference in compensation for male and female respondents. One should not conclude from these data that there is or is not a pattern of gender bias in system administrator compensation in these areas of the world.

2000 Salary and Total Cash by Sex
(Canada respondents only - CAD)

Sex of Respondent	Number of Respondents	Mean Salary	Mean Total Cash
Male	237	64,730	74,938
Female	10	55,033	58,633

2000 Salary and Total Cash by Sex
(Australia & New Zealand respondents only - AUD)

Sex of Respondent	Number of Respondents	Mean Salary	Mean Total Cash
Male	162	65,247	68,782
Female	15	58,342	60,865

2000 Salary and Total Cash by Sex
(United Kingdom & Ireland respondents only - GBP)

Sex of Respondent	Number of Respondents	Mean Salary	Mean Total Cash
Male	98	41,137	46,683
Female	6	49,896	51,595

2000 Salary and Total Cash by Sex
(Western Europe respondents only - EUR)

Sex of Respondent	Number of Respondents	Mean Salary	Mean Total Cash
Male	113	50,615	59,102
Female	5	43,186	44,662

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Membership in Professional Organizations and Working for More Than One Employer

In 2000, over a third of respondents were members in USENIX/SAGE. This percentage dropped from 1999, when over half (54.8%) of respondents were members. This may be the result of increased marketing and distribution of the survey. Those who reported no membership in professional organizations had significantly lower salaries and total cash compensation in both years.

The vast majority of respondents indicated that they work for only one employer. Those who do work for more than one employer have similar average salary and total cash compensation as those who work for only one employer. This is in contrast to the result in 1999. In 1999, those with more than one employer had significantly greater salary ($68,573 for more than one employer vs. $63,463 for only one employer) and total cash ($75,622 for more than one employer vs. $69,589 for only one employer).

Membership in Professional Organizations
(total sample)

Organization	Number of Respondents	Percent of Respondents
None	1,841	53.5%
USENIX/SAGE	1,335	38.8%
ACM	219	6.4%
IEEE	188	5.5%

Relationship of Memberships to 2000
Salary and Total Cash
(U.S. respondents only)

Organization	Mean Salary in U.S. Dollars	Total Cash in U.S. Dollars
None	$63,355	$66,375
USENIX/SAGE	$76,144	$81,133
ACM	$77,240	$79,543
IEEE	$83,599	$88,190

Do you work for more than one employer?
(total sample)

Response	Number of Respondents	Percent of Respondents
No	3,039	88.4%
Yes	400	11.6%

Relationship of Multiple Employers to
2000 Salary and Total Cash
(U.S. respondents only)

More Than One Employer	Mean Salary in U.S. Dollars	Total Cash in U.S. Dollars
No	$69,803	$74,218
Yes	$71,199	$73,783

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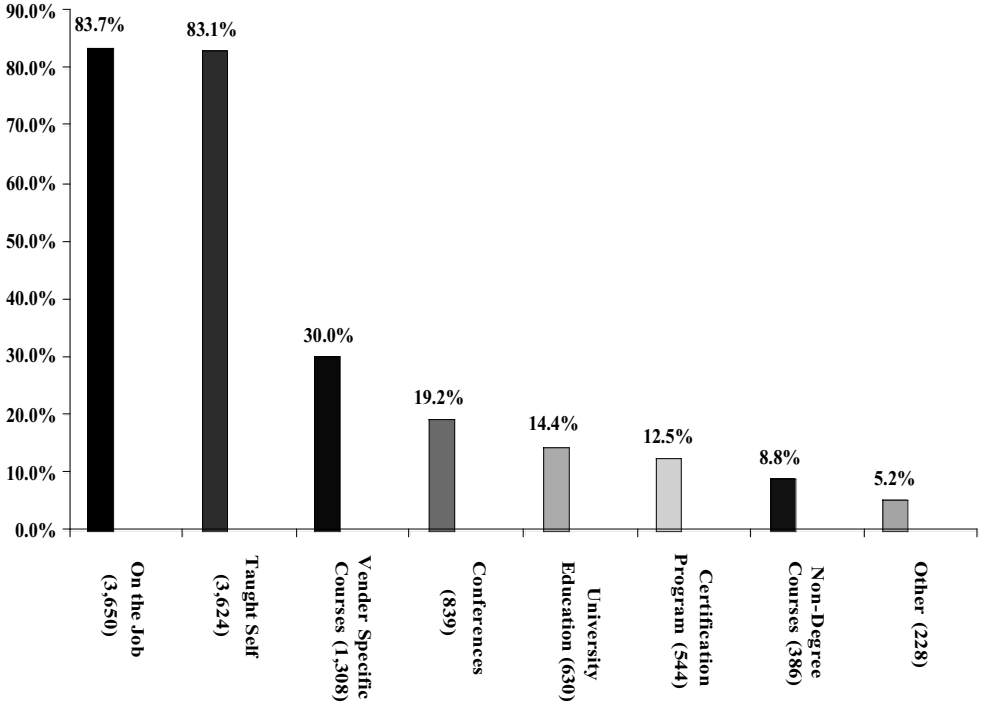
How Did You Learn System Administration?

In 2000, well over three fourths of respondents from the U.S. indicated that they learned system administration on the job (83.7%) or by teaching themselves (83.1%). Surprisingly, only 14.4% of respondents indicated that they learned system administration through a formal university program (14.4%) and less than that from non-degree university courses (8.8%). It should be noted that respondents were able to choose one or more of the options that applied to them.

Respondents who learned system administration from either vendor-specific courses or conferences reported the highest mean salary and total cash. Those who learned from certification programs reported the lowest mean salary and those who learned from other sources reported the lowest mean total cash.

Percentage with Source of Learning System Administration
(U.S. Respondents Only)



2000 Salary by Source of System Administration Learning
(U.S. respondents only)

Level of Education	Number of Respondents	Mean Salary in U.S. Dollars
Certification Program	541	$67,464
Vendor-Specific Courses	1,305	$74,336
Conferences	838	$76,162
Taught Self	3,610	$69,770
Non Degree Courses	384	$70,459
University Education	626	$69,403
On the Job	3,635	$70,080
Other	224	$69,143

Total Cash in 1999 by Type of System Administration Learning
(U.S. respondents only)

Level of Education	Number of Respondents	Mean Total Cash in U.S. Dollars
Certification Programs	529	$70,584
Vender-Specific Courses	1,287	$78,003
Conferences	825	$79,802
Taught Self	3,528	$74,059
Non Degree Courses	381	$77,865
University Education	616	$71,096
On the Job	3,560	$73,714
Other.	219	$70,357

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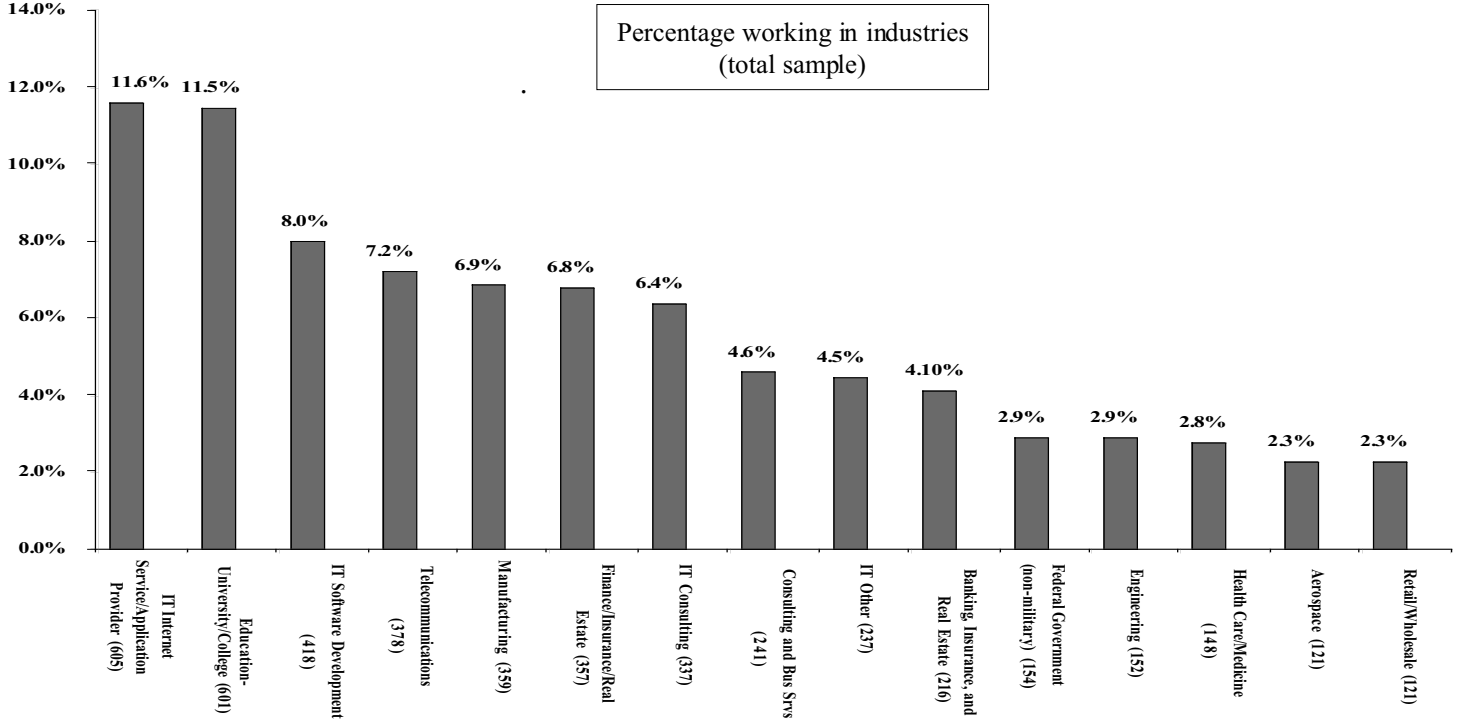
RELATIONSHIPS BETWEEN ORGANIZATIONAL CHARACTERISTICS AND COMPENSATION

Industry

This chart shows percentages of respondents by industries (includes only industries with 2% or more respondents from the total sample). Over one-fourth of respondents were in the computer/software/internet industry in 1999. On the 2000 survey, this industry was changed into four separate categories to gather more detailed information from this sizeable proportion of respondents. Thus, the percentages for it are distributed among IT: consulting, IT: internet service/application service provider, IT: software development, and IT: other, this year. Together, they represent roughly 30% of the respondents. The biggest difference between 1999 and 2000 was for Telecommunications. In 2000, 7.2% of respondents said they worked in the telecommunications industry, and, in 1999, less than 2% said they did.



Number of respondents per category is in parentheses after category label on bottom axis.

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Compensation varied considerably by industry for U.S. respondents in both 2000 and 1999. The median salary was lowest in elementary/secondary education and state or local government in 2000. In 1999, the medians were lowest for state/local government and colleges/ universities. The industries with the highest median salaries were finance/securities/stock exchange and IT: consulting, in 2000, and finance/insurance/real estate and entertainment in 1999.

2000 Salary by Industry
(U.S. respondents only)

Industry	Number of Respondents	Mean Salary	10th Percentile	25th Percentile	50th Percentile (Median)	75th Percentile	90th Percentile
Advertising, Public Relations, Communication, or Marketing	64	$66,088	$42,500	$50,000	$65,000	$80,000	$92,000
Aerospace	112	$71,020	$48,810	$56,813	$70,000	$85,000	$95,982
Agriculture, Environmental Services, Mining, or Energy Production	35	$68,516	$44,152	$52,500	$67,000	$83,500	$94,760
Banking, Insurance, and Real Estate	178	$79,721	$45,900	$60,000	$74,025	$90,500	$115,000
Biotechnology	31	$70,965	$35,600	$46,000	$70,000	$77,000	$110,000
Consulting and Business Services	207	$76,721	$46,800	$62,400	$75,000	$90,000	$105,200
Education - College or University	513	$54,709	$35,000	$44,000	$53,000	$65,000	$76,720
Education – Elementary or Secondary	25	$41,520	$13,080	$30,800	$45,500	$51,567	$63,800
Engineering	131	$71,553	$41,200	$58,000	$70,000	$87,000	$100,000
Entertainment	64	$75,106	$40,500	$55,000	$78,000	$90,750	$110,000
Federal Government, Non-military	127	$70,536	$50,160	$60,500	$69,500	$80,000	$89,800
Finance, Securities, and Stock Exchange	120	$90,009	$50,000	$66,750	$85,000	$100,000	$124,500
Health Care/Medicine	137	$63,530	$39,600	$50,000	$62,400	$77,500	$89,200
IT: Consulting	263	$82,725	$50,000	$65,000	$80,000	$92,000	$120,000
IT: Internet Service/Application Service Provider	478	$69,209	$37,800	$50,000	$70,000	$86,625	$103,100
IT: Software Development	327	$71,891	$44,900	$55,000	$70,000	$85,000	$100,002
IT: Other	185	$72,176	$40,600	$56,000	$72,000	$86,443	$105,000
Manufacturing	316	$70,449	$42,000	$56,000	$67,500	$82,000	$98,930
Military	54	$65,042	$37,950	$54,750	$64,079	$75,250	$85,500
Not-for-Profit	43	$62,002	$34,200	$48,000	$60,000	$77,500	$93,750
Pharmaceuticals	41	$83,515	$50,200	$61,500	$76,000	$85,000	$119,200
Publishing	59	$70,838	$38,000	$55,000	$65,000	$83,000	$106,000
Research	73	$68,632	$33,220	$51,000	$67,000	$80,500	$105,200
Retail and Wholesale Trade	106	$65,673	$41,840	$50,750	$64,000	$79,063	$90,300
State or Local Government	81	$61,485	$37,000	$43,000	$52,000	$63,850	$75,000
Transportation	47	$63,569	$43,800	$52,000	$64,000	$75,000	$85,200
Utility	56	$69,014	$47,450	$60,500	$72,000	$77,250	$88,600

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The same industries with the highest median salary also had the highest median total cash in both 1999 and 2000. That is, the industries with the highest median total cash in 2000 were finance/securities/stock exchange and IT: consulting. In 1999, the industries with the highest median total cash were finance/insurance/real estate and entertainment.

2000 Total Cash by Industry
(U.S. respondents only)

Industry	Number of Respondents	Mean Salary	10th Percentile	25th Percentile	50th Percentile (Median)	75th Percentile	90th Percentile
Advertising, Public Relations, Communication, or Marketing	62	$73,712	$39,300	$53,962	$65,000	$85,250	$100,000
Aerospace	111	$73,226	$49,200	$57,304	$71,000	$89,000	$100,000
Agriculture, Environmental Services, Mining, or Energy Production	34	$73,792	$40,000	$56,625	$72,500	$90,125	$109,000
Banking, Insurance, and Real Estate	176	$92,165	$35,700	$60,000	$79,527	$100,000	$135,000
Biotechnology	28	$69,316	$8,630	$42,750	$67,000	$93,775	$116,350
Consulting and Business Services	203	$80,188	$40,400	$62,000	$77,000	$94,500	$120,000
Education - College or University	496	$55,716	$34,895	$43,755	$54,000	$65,000	$76,000
Education – Elementary or Secondary	24	$43,914	$13,250	$37,063	$45,750	$55,250	$63,781
Engineering	127	$74,906	$43,060	$58,00	$72,000	$92,500	$110,592
Entertainment	64	$75,614	$27,325	$47,200	$80,400	$96,500	$114,500
Federal Government, Non-military	124	$70,013	$48,550	$60,537	$70,000	$80,000	$97,500
Finance, Securities, and Stock Exchange	119	$104,138	$48,500	$67,000	$95,000	$125,000	$192,000
Health Care/Medicine	133	$67,227	$42,400	$52,250	$65,000	$81,650	$95,180
IT: Consulting	255	$88,026	$45,600	$64,00	$83,000	$100,000	$130,000
IT: Internet Service/Application Service Provider	468	$73,858	$28,927	$48,000	$68,000	$90,000	$114,100
IT: Software Development	320	$75,943	$38,640	$54,000	$72,250	$86,750	$110,000
IT: Other	179	$74,494	$35,000	$50,000	$74,000	$95,000	$115,000
Manufacturing	315	$76,090	$40,480	$56,000	$69,000	$90,000	$110,000
Military	53	$65,639	$40,040	$56,500	$65,000	$76,300	$86,000
Not-for-Profit	42	$60,749	$33,384	$45,375	$60,950	$75,625	$88,500
Pharmaceuticals	39	$93,265	$48,600	$65,000	$84,000	$100,000	$183,000
Publishing	58	$71,413	$34,700	$49,616	$66,000	$83,00	$110,500
Research	70	$67,873	$17,500	$52,000	$66,000	$81,250	$112,324
Retail and Wholesale Trade	104	$70,389	$40,000	$51,400	$65,500	$82,375	$111,000
State or Local Government	80	$62,154	$35,100	$41,250	$53,500	$65,320	$79,900
Transportation	47	$63,358	$39,440	$50,000	$65,000	$78,000	$90,000
Utility	54	$73,133	$34,250	$62,750	$75,000	$86,125	$103,500

Total cash may be lower than salary at some percentiles because respondents were reporting base salary as of the 4th quarter of 2000, while total cash can represent an average of the 4th quarter salary and a lower salary from earlier in 2000, before a pay increase was received.

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In both 2000 and 1999, less than half of employees in most industries received bonuses. The industries with the highest median bonuses were utilities and finance/securities/stock exchange in 2000. The industries with the highest median bonuses in 1999 were agriculture/environmental services/mining/energy production, and transportation.

2000 Bonus by Industry
(U.S. respondents only)

Industry	Number of Respondents	Mean Salary	10th Percentile	25th Percentile	50th Percentile (Median)	75th Percentile	90th Percentile
Advertising, Public Relations, Communication, or Marketing	64	$4,047	$0	$0	$13	$3,750	$10,000
Aerospace	112	$730	$0	$0	$0	$675	$2,710
Agriculture, Environmental Services, Mining, or Energy Production	35	$4,219	$0	$0	$750	$5,000	$15,000
Banking, Insurance, and Real Estate	179	$7,139	$0	$0	$2,000	$9,000	$20,000
Biotechnology	31	$2,287	$0	$0	$0	$1,500	$9,000
Consulting and Business Services	212	$3,578	$0	$0	$450	$4,000	$10,000
Education - College or University	513	$420	$0	$0	$0	$0	$470
Education – Elementary or Secondary	25	$208	$0	$0	$0	$0	$1,400
Engineering	131	$4,490	$0	$0	$1,000	$5,000	$10,000
Entertainment	65	$3,904	$0	$0	$0	$5,000	$13,400
Federal Government, Non-military	128	$848	$0	$0	$0	$950	$2,000
Finance, Securities, and Stock Exchange	121	$15,065	$0	$0	$5,000	$20,000	$38,600
Health Care/Medicine	139	$2,177	$0	$0	$0	$1,823	$7,000
IT: Consulting	266	$5,547	$0	$0	$500	$5,000	$13,650
IT: Internet Service/Application Service Provider	480	$9,005	$0	$0	$14	$5,000	$10,000
IT: Software Development	328	$2,683	$0	$0	$0	$3,000	$8,000
IT: Other	186	$3,701	$0	$0	$0	$5,000	$12,000
Manufacturing	318	$6,658	$0	$0	$1,000	$5,000	$14,020
Military	55	$1,932	$0	$0	$800	$1,500	$4,400
Not-for-Profit	43	$1,195	$0	$0	$0	$1,500	$3,680
Pharmaceuticals	41	$8,633	$0	$0	$1,000	$4,750	$34,000
Publishing	59	$3,323	$0	$0	$10	$4,500	$10,000
Research	73	$1,994	$0	$0	$0	$1,500	$5,600
Retail and Wholesale Trade	106	$4,678	$0	$0	$63	$4,250	$11,600
State or Local Government	81	$424	$0	$0	$0	$0	$435
Transportation	47	$3,890	$0	$0	$1,500	$4,000	$12,000
Utility	56	$5,281	$0	$0	$2,500	$6,000	$11,450

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Organizational Size

Respondents reported that their employers had anywhere from 1 to 2,000,000 employees in 2000, worldwide. In 1999, the number of employees ranged from 1 to 1,000,000. The mean was 23,348 in 2000 and 21,628 in 1999. Half of the sample in 2000 reported 2,000 or fewer employees in their organization compared to 2,400 in 1999.

Often, in compensation research, one finds a positive relationship between organizational size and pay level. For both the 2000 and 1999 surveys, the relationship was positive but relatively weak. In 2000, those in organizations with one employee made higher salaries, on average, than those in organizations with more than one employee. Those in organizations from 501 to 10,000 employees averaged less salary than those in organizations with 51 to 500 employees. In 1999, those with one employee made higher salaries, on average, than those with 2 to 10 employees, and those with 51 to 500 employees made average salaries greater than those with 501 to 10,000 employees.

Organizational size was not significantly related to total cash compensation or size of bonus for either 2000 or 1999. In organizations with 1 to 10 employees, 31.7% received a bonus in 2000 compared to 37.1% in 1999. In 2000, 44.6% of respondents received a bonus if they worked for an organization with 11 to 10,000 employees, compared to 47.5% in 1999. In organizations with 10,000 or more employees, 54.2% of respondents reported a bonus in 2000 versus 62.8% in 1999.

2000 Salary by Organization Size
(U.S. respondents only)

Number of Employees	Percent of Responses	Mean Salary in U.S. Dollars
1	0.5%	$105,545
2-10	2.4%	$64,985
11-50	9.8%	$64,942
51-500	23.4%	$69,600
501-10,000	37.8%	$68,441
10,001 or more	25.3%	$74,204

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Respondents from the United Kingdom and Ireland displayed the only clear pattern for both mean salary and total cash with number of employees in an organization. Specifically, the larger the employer in terms of the number of persons employed, the larger the mean and total cash of the respondents. For Canada, a weaker relationship, was found for total cash, but not for salary. There is no discernable pattern between salary and size of organization for areas other than United Kingdom/Ireland.

2000 Salary and Total Cash by Organization Size
(Canada respondents only - CAD)

Number of Employees	Number of Responses	Mean Salary	Mean Total Cash
1-50	46	66,263	67,089
51-500	69	63,642	68,070
501-10,000	90	63,104	72,455
10,001 or more	39	66,444	71,529

2000 Salary and Total Cash by Organization Size
(United Kingdom & Ireland respondents only - GBP)

Number of Employees	Number of Responses	Mean Salary	Mean Total Cash
1-50	23	29,396	31,828
51-500	25	41,076	44,079
501-10,000	36	43,633	53,270
10,001 or more	18	54,468	58,022

2000 Salary and Total Cash by Organization Size
(Australia & New Zealand respondents only - AUD)

Number of Employees	Number of Responses	Mean Salary	Mean Total Cash
1-50	42	65,949	66,295
51-500	54	64,418	67,823
501-10,000	55	59,397	61,707
10,001 or more	24	73,751	84,960

2000 Salary and Total Cash by Organization Size
(Western Europe respondents only - EUR)

Number of Employees	Number of Responses	Mean Salary	Mean Total Cash
1-50	25	33,708	40,779
51-500	26	55,161	62,455
501-10,000	41	55,331	65,049
10,001 or more	24	51,064	56,905

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Difficulty Filling System Administrator Positions

The majority of U.S. respondents in 2000 (65.9%) and in 1999 (71.9%) said that their organization has difficulty filling all of the system administrator positions it would like to fill; 20.8% in 2000 and 17.9% in 1999 answered "no," that their organization did not have difficulty; 13.4% in 2000 and 10.2% in 1999 answered that they were "not sure." This differed by industry and by city. Respondents from the federal government (non-military) had the most difficult time filling all of their system administrator positions in 2000, while the retail and wholesale trade had the most difficult time in 1999. In 2000, respondents working in Boston reported their organizations as having the most difficulty, whereas in 1999, those in the San Diego area reported the most difficulty. In 2000, the mean percentage who responded that there was difficulty filling system administrator positions was 66.8. In 1999, the percentage was 71.9.

The 2000 percentages for Western Europe and the United Kingdom and Ireland indicated almost three-fourths of respondents in these areas thought their organizations had difficulty filling all positions. The percentages for Australia, New Zealand, and Canada were lower than for those two areas or the U.S.

Difficulty Filling System Administrator Positions by Industry
(U.S. respondents only)

Industry	Percentage of Respondents Who Say Their Organization Has Difficulty
Federal Government, Non-military	80.5%
Telecommunications	78.1%
Finance, Securities, and Stock Exchange	75.2%
Education - College or University	75.0%
Aerospace	74.1%
Pharmaceuticals	73.2%
Entertainment	72.3%
State or Local Government	69.1%
Research	68.5%
Utility	67.9%
Banking, Insurance, and Real Estate	67.6%
Military	65.5%
IT: Internet Service/Application Service Provider	65.4%
Engineering	64.9%
Biotechnology	64.5%
IT: Other	64.5%
Retail and Wholesale Trade	64.2%
Publishing	62.7%
Consulting and Business Services	61.9%
IT: Consulting	61.7%
Manufacturing	59.1%
Health Care/Medicine	57.6%
Transportation	57.4%
Agriculture, Environmental Services, Mining, or Energy Production	57.1%
IT: Software Development	57.0%
Not-for-Profit	53.5%
Education – Elementary or Secondary	52.0%
Advertising, Public Relations, Communication, or Marketing	51.6%
Mean Across Industries	65.9%

Difficulty Filling System Administrator Positions by Selected U.S. Cities
(U.S. respondents only)

City	Percentage of Respondents Who Say Their Organization Has Difficulty
Boston, MA Metro Area	72.0%
San Francisco/San Jose/Silicon Valley, CA Area	71.8%
Washington, DC Metro Area	69.6%
San Diego, CA Metro Area	67.5%
Los Angeles/Orange Co., CA Metro Area	67.4%
Research Triangle, NC	64.6%
Other NY Metro Area	62.3%
Manhattan, NY	59.7%
Austin, TX Metro Area	53.2%
Office is in U.S., But Not in One of Above Areas	63.9%
Mean for All U.S. Locations	65.9%

Difficulty Filling System Administrator Positions by Industry

Country	Percentage of Respondents Who Say Their Organization Has Difficulty
Canada	61.9%
Australia & New Zealand	52.5%
United Kingdom & Ireland	72.6%
Western Europe	74.2%

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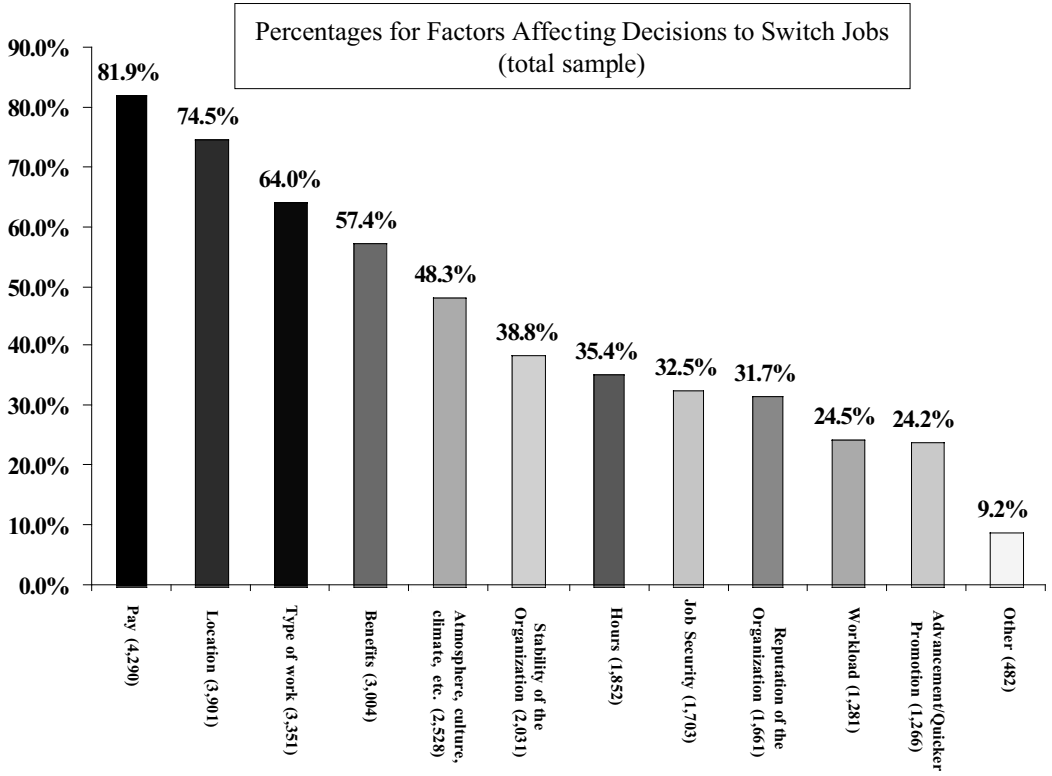
RESPONDENTS' FEELINGS ABOUT THEIR JOBS, ORGANIZATIONS AND THE FUTURE OF THE FIELD

The following chart displays the responses from all respondents to the question: "If another organization offered you employment, what factors would be most important in making you think seriously about switching jobs?" Pay, location, type of work, and benefits were the top four choices in 2000. In 1999, type of work and better atmosphere/culture or management were not options on the survey, but were popular types in choices for those who answered, "other."

For the 482 individuals in the total sample who answered "other" to the question about what would make them think about seriously switching jobs, the following types of write-in answers were most common:



Note: Number of respondents per category is in parentheses after category label on bottom axis.
These results are based on all respondents

Working Conditions - 156 respondents: flexible hours; ability to telecommute; positive staff relations; travel; high standards for ethics and morals; higher minority sensitivity; family friendly workplace; less time commuting; less stress.

Benefits - 123 respondents: training/educational opportunities: opportunity to learn new and different technologies/systems and have it paid for and/or encouraged by employers; more vacation time; other perks such as cars, paid housing, and food.

The Organization - 73 respondents: better culture/environment; working with cutting-edge technology; quality hardware and other equipment; management style; team-based organization.

The Job - 22 respondents: variety of work; fun and interesting work; opportunity for advancement.

Compensation -20 respondents: opportunity for stock options; getting paid overtime; IPO potential.

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Expectation About Being a System Administrator in Five Years

In 2000, over three-fourths (75.6%) of respondents who said system administration was their primary line of work also indicated that they expect to be a system administrator in five years. The percentage was much lower for the total sample (68.3%) because those who did not indicate system administration as their primary line of work probably do not expect to be system administrators in the future unless they aspire the change career tracks or their career track is headed toward system administration. The percent of respondents in 1999 who indicated they expect to be a system administrator in five years was 80.1% for those who said their primary line of work is system administration. We can compare this result to that of those who also indicated that system administration was their primary line of work in 2000 (75.6%), which is quite similar. It should be noted, however, that further comparisons between 1999 and 2000 are made between the total sample in 2000 and only those who said their primary line of work is system administration in 1999.

In 2000, the percentage of female respondents (67.6%) who said that they expect to be a system administrator in five years was the same for males (67.5%). However, the percentage was lower for females in 1999 than for males (73.2% for females vs. 81.6% for males).

In both 2000 and 1999, the higher the hierarchical level of respondents, the less likely respondents were to say they expect to be a system administrator in five years. Of those at the first hierarchical level, 73% in 2000 said they do expect to be a system administrator in five years. For those at the fifth or higher level, 59% in 2000 said they expect to be a system administrator in five years.

Expect to be a System Administrator in Five Years
(total sample)

Response	Number of Respondents	Percent of Respondents
Yes	3,516	68.3%
No	1,631	31.7%

Hierarchical Level by Percent who Expect to be A System Administrator in Five Years
(total sample)

Response	Number of Respondents	Percent Who Say Yes
1st level	1,083	73%
2nd level	1,140	70%
3rd level	667	64%
4th level	228	61%
5th level or higher	93	59%

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In the U.S., 68.3% expect to be a system administrator in five years, which is the same for the total sample. The percentages of respondents who expect to be a system administrator in five years is similar in the other areas represented in the tables below--about two-thirds in all areas analyzed expect to be a system administrator in five years.

Expect to be a System Administrator in Five Years (Canada)

Response	Number of Respondents	Percent of Respondents
Yes	163	66.3%
No	82	33.3%

Expect to be a System Administrator in Five Years (Australia & New Zealand)

Response	Number of Respondents	Percent of Respondents
Yes	118	65.9%
No	60	33.5%

Expect to be a System Administrator in Five Years (United Kingdom & Ireland)

Response	Number of Respondents	Percent of Respondents
Yes	72	67.9%
No	30	28.3%

Expect to be a System Administrator in Five Years (Western Europe)

Response	Number of Respondents	Percent of Respondents
Yes	81	68.1%
No	37	31.1%

In 2000 responses, 65.1% of self-employed consultants, 65.9% of U.S. contractors/consultants, and 67.8% of salaried employees said they expect to be a system administrator in five years.

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Special Benefits or Working Conditions that Respondents Particularly Like

Almost half of all respondents (47.4%) wrote in a response to the question, "Does your organization provide any special benefits or working conditions that you particularly like?" Of the 2,485 responses, 15.5% (386) mentioned work schedules and hours. The most common categories included:

386 - Work Schedules - flexible hours; several described flexibility for familial issues and some mentioned avoidance of traffic; other comments mentioned attending training/university classes, convenience, and a compressed work week (4 days, 10 hrs per day and others)

376 - Atmosphere/Culture or Climate - many respondents mentioned a casual or laid back atmosphere; several mentioned pool tables, table tennis, and foosball; some respondents liked an academic environment; others thought that an abundance of resources in their organization was great; team-oriented culture was mentioned; some said they liked working on cutting edge projects and having cutting edge goals

285 - Working Conditions - flexibility in general (travel arrangements, deadlines, conditions of work, and other); location; workplace or office appearance; amount of stress

174 - Telecommuting - fewer distractions; no commute time; perks at home that used to be available only at the office (DSL line, computers, printers, software, and others); more autonomy on projects that are respondents' responsibilities

172 - Benefits - tuition assistance or book funds; paid training; paid leave; 401k and 403b retirement plans; paid health care; opportunities for professional development

151 - Casual Dress or Lack of Dress Code

130 - Free Beverages and Snacks - respondents mentioned coffee, soda, snacks, fruit, bagels, and others

122 - Catered Meals and Socials

106 - Characteristics of Work - work that is challenging; a great deal of autonomy; opportunity for advancement; being a part of the decision-making process; the feeling that the job that is being completed is important; opportunity for growth; working on a variety of different projects/assignments; chance to travel

78 - Fitness Facilities

64 - Management - lack of micromanagement; managers who are reasonable to work with and talk to; open door policies

52 - Personal/Diversity Issues - family policies; pet-friendly work places; minority sensitivity; religious issues

235 - Other Perks - company cars; boats; vacations; free or discounted merchandise; housing; and others

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Most Problematic/Bothersome Aspects of the Job

Over half (59.2%), or 3,101, respondents in the total sample provided some answer for the question, "What aspect of your job do you find most bothersome or problematic?"

715 - Management - lack of enforcement of policies; micromanagement; lack of leadership skills; lack of support for employees and initiatives; lack of communication skills, not enough communication of information; technical ignorance; no access to management, too busy, not around, not important enough; lack of coordination, lack of vision or strategic planning; lack of project management skills; indecision, no direction for employees; incompetence; problems dealing with employer policies; lack of appreciation and respect for employees, especially their hard work

452 - Culture/Atmosphere - office politics and bureaucracy; inflexibility; constant change and chaos; conflict between departments; limited or no procedures and guidance; the production mentality; instability; the environment is hard to work in: noisy, crowded, smelly, dirty, unsafe, and unhealthy; frequent interruptions

402 - Work Schedules and Workload - long hours, being on call constantly, excessive travel, inflexibility in schedules; heavy workloads become very stressful, there is not enough time to get everything done; conflicts with family time, excessive overtime and working on weekends; the difficulties of getting other job tasks done

259 - Pay and Benefits - not competitive; raises are few and far between; no system of rating workers to determine types of pay raises, etc.; lack of feedback on pay decisions; reduced benefits; inadequate compensation packages for the work accomplished; limited professional development opportunities; overtime and on-call pay is non-existent

255 - Characteristics of the Work - jobs that are boring, uninteresting, unchallenging and/or do not require creativity; lack of direction; exclusion from the decision-making process; jobs are not well defined, expectations are unclear; administrative tasks: too many meetings, report writing, and filing; having to fix others' work; inability to plan properly, follow up, and focus on what one is doing

213 - Staffing Problems - shortage of staff to accomplish work properly, high turnover rates, lack of backup personnel; unqualified employees, problems with keeping the skills of employees current, improperly trained employees

142 - Clients/Users - unreasonable expectations; ignorance; demand of immediate results; lack of respect or appreciation

137 - Problems with Coworkers - egotistical, temperamental, lack the competence to do the work properly, lack of seeing teamwork as a good thing, competitive, personality conflicts, taking advantage of business equipment and personnel, lazy, not motivated

101 - Technology and Resources - lack of funding or budget problems, use of inferior equipment, inadequate software and hardware, complicated buying procedures

79 - Commute - takes up too much time

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Thoughts on the Future of System Administration

Fewer respondents (195, or 3.7% of the total sample) commented about the future of system administration than about positive or negative aspects of their jobs. The following list describes the types of comments respondents provided on the subject of the future of system administration.

67 - Demand/Career Growth for System Administrators - some people said: in the future, there will be a growing need for system administrators; a few said: competent system administrators will be hard to find; despite certifications, good personnel are hard to find; more computers, technology, and software and less people to deal with it at organizations; there will be higher salaries because of higher demands for system administrators

46 - Broader Knowledge/Skills Needed - several respondents wrote something like the following: application knowledge will be important; because of changing systems and software, broader knowledge is needed; future will be demanding and need for more education and newer ideas is needed; knowledge of more systems and software needed; difficulty in finding the knowledgeable/skilled employees needed; there will be a greater demand for training, academic, and experience requirements in the future

19 - Optimism About the Field - comments expressed belief in a bright and/or long future for the field. Some said they think the security for system administrators in the future is set; others said that co-workers will show more respect for system administrators in the future

13 - Expect Simplification of the Field - there will be less challenging and downgraded jobs in the future; the pace of system administration will be slower; chance for problem-solving due to simplification of programs or systems will be reduced; because of outsourcing, not much challenging work is left

12 - Pessimism About the Field - several people expressed concern over whether or not their jobs would be needed in the future; some said: the future of system administration looks bleak; career opportunities will be limited; there is no future for system administration; the salary for system administrators will be dropping in the coming years due to a high population of them

6 - Fear of Increased Stress/Burnout - several people expressed concern that they were already stressed out, and the future looks like it is moving into more complicated technology and design; some said: we get the good talent and in no time at all, they are burnt out; the 24/7 mentality means increased pressure on system administrators to be constantly on call, this stress factor is huge and will remain

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FACTORS WITH THE STRONGEST RELATIONSHIP TO COMPENSATION

Regression analyses were used to determine which of the various job, organizational, and personal background characteristics measured on the SAGE System Administrator Salary Survey were most strongly related to salary, total cash, and bonuses. In regression equations all of the characteristics could be included simultaneously in the same analysis for each of these three forms of compensation.

In 2000, the regression equation for salary indicated that 44.1% of the variation in salary levels among U.S. respondents to the survey could be accounted for by characteristics measured on the SAGE survey. In 1999, the percentage accounted for was 52.0. The regression equation for total cash indicated that 24.0% of the variation in amounts of total cash and 5.9% of the variation in bonuses of U.S. respondents could be accounted for by the same set of characteristics in 2000 as were included in 1999. The regression equation for total cash and bonus in 1999 indicated that 23.4% and 8.0% of variation, respectively could be accounted for by these variables. Thus, results for both years suggest that it is easier to account for variations in system administrators' salaries with the types of information measured on the survey than it is to account for variations in total cash or bonuses. Results should not be interpreted to mean that these factors necessarily *cause* higher or lower salaries, but that they are *related* to higher or lower salaries.

Salary

In the regression equation for salary, these variables or factors had a statistically significant relationship with the amount of salary U.S. respondents earned in 2000. On average, these factors were related to making this much more (+) or less (-) annual salary:

Being a consultant, rather than being salaried	+ $47,202
Being a temporary employee working through a temporary agency	+ $23,157
Being a contractor, rather than being salaried	+ $ 7,747
Each higher hierarchical level one is at in one's organization	+ $ 3,446
Sales as a major job responsibility	+ $ 7,693
Development/Programming as a major job responsibility	+ $ 2,677
Security as a major job responsibility	+ $ 2,132
Help Desk as a major job responsibility	- $ 5,125
Each additional year of experience as a system administrator or in very similar work	+ $ 633
Each additional hour per week worked	+ $ 205
Each additional day per year of travel	+ $ 52
Each additional operating system worked with on a job	- $ 496
Each additional employer worked for during one's career	+ $ 1,813
Each additional year of age	+ $ 286

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Having completed some college compared to having a bachelor's degree	- $ 3,429
Having an associate's degree compared to having a bachelor's degree	- $ 4,486
Having a high school degree compared to having a bachelor's degree	- $ 6,155
Being a member of IEEE	+ $ 3,225
Being a member of USENIX/SAGE	+ $ 2,755
Being employed with an organization that has trouble filling all of the system administrator positions	+ $ 2,080
Being paid a higher rate for working outside one's regular shift	- $ 3,883
Working in Manhattan, NY, compared to other areas of the U.S.	+ $24,604
Working in the San Francisco, CA, metro area compared to others in the U.S.	+ $22,005
Working in other New York, NY, metro areas compared to others in the U.S.	+ $13,855
Working in the Los Angeles, CA, metro area compared to others in the U.S.	+ $12,054
Working in the Washington, DC, metro area compared to others in the U.S.	+ $ 8,538
Working in the Boston, MA, metro area compared to others in the U.S.	+ $ 6,928
Working in the Denver, CO, metro area compared to others in the U.S.	+ $ 5,364
Working with Solaris	+ $ 6,022
Working with MacOSX (Unix)	+ $ 3,583
Working with Windows 2000	+ $ 2,275
Working with DOS	- $ 4,470
Working in the securities, stock exchange, or finance industries	+ $ 7,380
Working in the banking or insurance industries	+ $ 5,721
Working for an elementary or secondary school	- $12,258
Working for a college or university	- $12,311

Factors not significantly related to salary in the regression equation were: other major job responsibilities besides the ones listed, job levels, number employees supervised, number of certifications, number years working at primary employer, gender, whether or not one works for more than one employer at the same time, belonging to ACM, number of employees the organization employs, whether or not one is paid for overtime, whether or not one is paid for being on call, one's U.S. region, other operating systems supported besides the ones listed, having a certification, and being in another industry besides those listed.

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Total Cash

In the regression equation for total cash, fewer factors had a statistically significant relationship than in the results for salary:

Being a consultant, rather than being salaried	+ $52,125
Working in Manhattan, NY, compared to other areas of the U.S.	+ $23,576
Working in the San Francisco, CA, metro area compared to others in the U.S.	+ $24,548
Working in the securities, stock exchange, or finance industries	+ $17,832
Working in the San Diego, CA, metro area	+ $16,465
Working in the banking or insurance industry	+ $15,673
Working in the Los Angeles, CA, metro area	+ $15,623
Having a certification in SunOS	+ $13,106
Having a certification in AIX	+ $11,006
Working in the New York, NY, metro area	+ $10,783
Working in the Washington, DC, metro area	+ $ 8,893
Working with Solaris	+ $ 7,163
Each higher hierarchical level out of the number of levels for system administrators in their organization	+ $ 5,350
Each additional employer worked for	+ $ 1,674
Each additional year of experience as a system administrator or in a highly related field	+ $ 814
Each additional hour worked per week	+ $ 363
Each additional day of travel per year	+ $ 144
Working with DOS	- $ 5,697
System Administration as a major job responsibility	- $ 6,128
Help Desk as a major job responsibility	- $ 6,474
Having an associate's degree compared to having a bachelor's degree	- $ 7,024
Having had time off during 2000 (not working/unemployed)	- $ 9,987
Working for a college or university	- $13,133

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Bonus

Only eight factors were significantly related to the size of bonus in the regression equation which considered all factors simultaneously:

Having a certification in SunOS	+ $10,395
Working in the securities, stock exchange, or financial industries	+ $ 7,064
Working in the San Francisco, CA, metro area	+ $ 4,762
Working with IRIX	+ $ 2,745
Each higher hierarchical level out of the number of levels for system administrators in their organization	+ $ 701
Each additional day of travel per year	+ $ 52
Having system administration as a major job responsibility	- $ 4,814
Having a certification in IRIX	- $ 7,491

None of the other factors significantly accounted for differences in the size of total cash or bonus when included in the regression with the above factors. All of the same factors that were included in the equation for salary were included in these equations.

Many of the characteristics that were positively or negatively related to salary, total cash, or bonus in 2000 were also positively or negatively related to salary, total cash, or bonus in 1999. For example, being a consultant rather than being salaried, being a contractor rather than being salaried, age, and number of employers, were positively related to salary in 1999 and 2000. Working in Manhattan rather than other U.S. cities, number of employers, and years of experience as a system administrator were positively related to total cash in both years. For bonuses, an organization's hierarchical level was the only predictor that was significant in both 2000 and 1999; however, bonus did not have many significant predictors in either year.

There were several variables that were positively or negatively related to salary, total cash, or bonus in 2000, but not in 1999, and vice versa. For example, in 2000, travel was positively related to salary, but not in 1999. However, in 1999, gender was a significant predictor of salary, while it was not in 2000. Number of hours worked was positively related to total cash in 2000, but not in 1999, and working with FreeBSD was negatively related to total cash in 1999, but not in 2000. In 2000, having a certification in IRIX was positively related to bonus, but it was not in 1999. In 1999, working for a college/university was negatively related to bonus size, but it was not in 2000.

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BENEFITS

Paid Training and Time Off

In 2000, half of U.S. respondents received 15 or fewer days vacation, 9 or fewer days sick leave, 9 or fewer paid holidays, and 5 or fewer days of paid training; half of respondents received this number of paid days or more for each type of paid time off. This was similar to 1999 when half received 15 or fewer days of vacation, 6 or fewer days of paid sick leave, 9 or fewer paid holidays, and 7 or fewer days of paid training.

Distribution of Days of Paid Training and Time Off in the U.S.
(full-time U.S. respondents only)

Item	Mean	10th Percentile	25th Percentile	50th Percentile (Median)	75th Percentile	90th Percentile
Number of Days of Paid Vacation Per Year	15.7	10.0	10.0	15.0	20.0	24.0
Number of Days of Paid Sick Leave Per Year	9.6	5.0	5.0	9.0	12.0	15.0
Number of Paid Holidays Per Year	8.7	5.0	7.0	9.0	11.0	12.0
Number of Days of Paid Training Per Year	7.6	0.0	3.0	5.0	10.0	15.0

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In 2000 and 1999, there was greater variation among U.S. industries for mean paid vacation days and sick leave days than for paid holidays and paid training days. Mean paid vacation days ranged from 13.3 to 19.6 in 2000, compared to 10.5 and 19.2 in 1999; mean holidays ranged from 7.3 to 10.5 in 2000 and 6.7 to 11.1 in 1999; mean sick leave ranged from 6.4 to 13.5 in 2000 and 4.7 to 15.5 in 1999. Lastly, mean paid training days ranged from 4.6 to 9.2 in 2000 and 5.6 to 19.7 in 1999. In 2000, colleges/universities and the federal government (non-military) were the most generous with paid time off (50.2 and 49.1 total days, respectively). However, in 1999 the most generous industries were not-for-profit, the military, and agriculture/environmental services/mining/energy production.

Paid Training and Time Off by Industry
(full-time U.S. respondents only)

Industry	Mean Number of Paid Vacation Days	Mean Number of Paid Holidays	Mean Number of Sick Leave Days	Mean Number of Paid Training Days
Advertising, Public Relations, Communication, or Marketing	13.3	9.0	6.4	6.5
Aerospace	15.7	10.2	9.2	8.8
Agriculture, Environmental Services, Mining, or Energy Production	16.3	9.3	13.3	7.8
Banking, Insurance, and Real Estate	16.6	8.3	9.8	9.8
Biotechnology	13.5	8.7	9.0	4.6
Consulting and Business Services	14.8	7.7	7.5	7.5
Education - College or University	19.6	10.5	13.5	6.6
Education – Elementary or Secondary	14.9	8.7	8.9	7.2
Engineering	14.5	8.9	9.1	7.4
Entertainment	14.2	7.7	8.7	4.9
Federal Government, Non-military	19.0	9.8	12.6	7.7
Finance, Securities, and Stock Exchange	16.3	8.3	9.1	8.0
Health Care/Medicine	18.0	7.3	10.2	7.0
IT: Consulting	13.9	7.8	7.1	7.2
IT: Internet Service/Application Pro	13.9	7.7	7.2	6.8
IT: Software Development	14.5	8.6	7.8	6.6
IT: Other	13.9	8.6	7.1	8.5
Manufacturing	15.3	9.2	8.6	8.9
Military	18.1	10.3	10.2	6.9
Not-for-Profit	17.0	9.6	11.5	6.7
Pharmaceuticals	14.6	8.8	10.2	8.4
Publishing	14.6	8.0	8.5	7.1
Research	18.9	9.6	10.9	8.6
Retail and Wholesale Trade	13.8	6.9	6.7	7.4
State or Local Government	15.7	10.2	12.9	8.3
Transportation	14.9	7.7	9.5	7.7
Utility	17.2	10.4	11.3	9.2

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In other geographical areas, Western Europe tended to be the most generous in terms of paid time off with the highest number of paid vacation days (25.4) and paid training days (8.1), although the United Kingdom/Ireland respondents had the highest average number of sick leave days (18.8), and Canadian respondents had the highest average number of paid holidays (9.1).

If one considers the total of all days of paid time off or paid training, respondents from the United Kingdom/Ireland had the highest average (56.7), followed by Western European respondents (56.6). Respondents from Australia/New Zealand, Canada, and the U.S. had similar, lower average total days (43.4, 42.4, and 41.6, respectively).

Paid Training and Time Off by Area
(full-time respondents only)

Country	Mean Number of Paid Vacation Days	Mean Number of Paid Holidays	Mean Number of Sick Leave Days	Mean Number of Paid Training Days
Canada	16.5	9.1	9.9	6.9
Australia & New Zealand	20.2	8.0	9.3	5.9
United Kingdom & Ireland	23.2	8.4	18.8	6.3
Western Europe	25.4	8.6	14.5	8.1

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Retirement Plans

Two types of plans employers use to fund retirement systems are "defined contribution" and "defined benefit" plans. In defined contribution plans, employers contribute a particular amount of money or percent of salary into a plan during a year, and it is invested until an employee retires. The amount the employee receives when he/she is retired depends on how much it has increased over the years from the way it was invested. In some countries, like Switzerland, a specified rate of investment return is required, but this is not true in other countries, like the U.S.[2] In the U.S., 401k and 403b plans are defined contribution plans, and employees can have the funds in these plans placed in such investments as mutual and money market funds. A defined benefit plan is what is commonly known as a pension. With a defined benefit plan, an employer agrees to pay a certain amount of salary once the employee is retired. In the U.S., this amount is not based on how it was invested over the years before retirement but on the rate the employer has pre-specified.

Defined contribution plans have been on the increase and defined benefit plans on the decrease in the U.S. in recent years. Some companies provide both. For all five areas of the world analyzed, there was a higher percentage who received defined contribution retirement plans (e.g. 401K, 403b) than defined benefit (pension) plans. The largest proportion of respondents who reported having a defined contribution plan were from the U.S. (66.1%), while the largest proportion of respondents who reported a defined benefit plan were from Canada (19.7%).

The highest mean percent of salary contributed by the employer to defined contribution plans was reported by those from Western Europe (9.9%).

Retirement Plans by Area
(full-time respondents only)

Country	Percentage with a Defined Benefit or Pension Plan	Percentage with a Defined Contribution Plan (e.g., 401k, 403b)	Mean Percent of Salary Employer Contributes to a Defined Contribution Plan
Canada	19.7%	32.2%	6.7%
Australia & New Zealand	2.3%	52.9%	7.9%
United Kingdom & Ireland	6.7%	44.2%	6.8%
Western Europe	18.9%	42.3%	9.9%
United States	13.7%	66.6%	7.4%

[2]See C. Reynolds (Ed.), *2000 Guide to Global Compensation and Benefits*, San Diego, CA: Harcourt Professional Publishing, 2000.

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In the U.S., the mean contributed by employers to defined contribution plans was 7.4% in 2000 and 9.5% in 1999. Ten percent of U.S. respondents in 2000 received 2.5% or less; 25% received 3% or less; 50% received 5% or less; and 75% received 7% or less. In 1999, ten percent of respondents received 2% or less; 25% received 3% or less; 50% received 5% or less; and 75% received 7% or less. The top 10% reported 10% or more of salary in 2000 and 17% or more in 1999 in employer contributions to their retirement plan.

There was considerable variation by industry in percentages who received defined benefit and defined contribution plans and in the percentage contributed by employers to defined contribution plans for U.S. respondents, as the following table shows. The only industry in which a higher percentage of U.S. respondents reported a defined benefit than a defined contribution plan was state/local government.

Retirement Plans by Industry
(full-time U.S. respondents only)

Industry	Percentage with a Defined Benefit or Pension Plan	Percentage with a Defined Contribution Plan (e.g., 401k, 403b)	Mean Percent of Salary Employer Contributes to a Defined Contribution Plan
Advertising, P. Relations, Communication, Marketing	4.9%	67.3%	8.2%
Aerospace	31.2%	83.5%	7.1%
Agriculture, Environmental Services, Mining, Energy	36.4%	90.9%	6.2%
Banking, Insurance, and Real Estate	19.4%	73.7%	5.8%
Biotechnology	3.4%	72.4%	5.8%
Consulting and Business Services	3.0%	65.0%	5.8%
Education - College or University	22.9%	69.4%	8.3%
Education – Elementary or Secondary	10.5%	52.6%	6.4%
Engineering	8.5%	64.3%	7.1%
Entertainment	6.5%	58.1%	9.0%
Federal Government, Non-military	25.0%	76.6%	6.5%
Finance, Securities, and Stock Exchange	12.5%	69.2%	8.0%
Health Care/Medicine	20.5%	71.0%	7.6%
IT: Consulting	3.6%	64.7%	8.7%
IT: Internet Service/Application Prov.	1.7%	46.6%	7.4%
IT: Software Development	2.2%	58.1%	7.8%
IT: Other	7.1%	61.0%	8.3%
Manufacturing	18.0%	78.5%	7.0%
Military	28.3%	64.2%	8.1%
Not-for-Profit	19.5%	85.4%	6.2%
Pharmaceuticals	17.5%	80.0%	5.1%
Publishing	14.0%	68.4%	4.5%
Research	22.1%	77.9%	7.9%
Retail and Wholesale Trade	8.9%	67.3%	6.2%
State or Local Government	53.8%	50.0%	5.5%
Transportation	23.9%	71.7%	8.8%
Utility	37.7%	86.8%	11.3%

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Insurance Benefits

The majority of full-time U.S. system administrators had at least part of their health, dental, vision care, life, and disability insurance paid by employers in 2000 and 1999. The U.S. government does not provide health care or health insurance for those who are not disabled or below the "poverty line," and employers are a major source of insurance benefits for those who are employed full time. The proportion who received insurance paid in full by their employer varied by industry. State/local government, the IT industries, engineering, and biotechnology were among the most generous in providing fully paid insurance in 2000. State and local government, entertainment, and utilities were among the most generous in 1999. However, this varied by type of insurance for both years. (Percentages who said partly paid by employer for industry can be found by subtracting "not paid" and "full paid" from 100%.)

Insurance Benefits by Industry (full-time U.S. respondents only)

Industry	Health Insurance	Dental Insurance	Vision Care Insurance	Disability Insurance	Life Insurance
Advertising, PR, Communication, Marketing					
Not paid by employer	3.3%	16.4%	34.4%	19.7%	27.9%
Fully paid by employer	34.4%	24.6%	14.8%	37.7%	32.8%
Aerospace					
Not paid by employer	7.3%	7.3%	15.6%	17.4%	9.2%
Fully paid by employer	21.1%	25.7%	22.9%	23.9%	31.2%
Agriculture, Environ. Svcs, Mining, Energy					
Not paid by employer	3.0%	9.1%	42.4%	15.2%	6.1%
Fully paid by employer	12.1%	15.2%	6.1%	30.3%	39.4%
Banking, Insurance, and Real Estate					
Not paid by employer	8.6%	18.4%	32.2%	14.4%	14.4%
Fully paid by employer	22.4%	16.1%	14.4%	33.9%	35.6%
Biotechnology					
Not paid by employer	3.4%	10.3%	24.1%	10.3%	20.7%
Fully paid by employer	37.9%	31.0%	20.7%	41.4%	48.3%
Consulting and Business Services					
Not paid by employer	10.9%	19.9%	37.8%	22.2%	27.1%
Fully paid by employer	30.2%	20.9%	16.9%	41.4%	33.0%
Education - College or University					
Not paid by employer	3.5%	16.7%	33.8%	22.7%	20.8%
Fully paid by employer	28.5%	21.2%%	15.3%	30.5%	26.2%
Education – Elementary or Secondary					
Not paid by employer	5.3%	15.8%	42.1%	31.6%	21.1%
Fully paid by employer	36.8%	21.1%	15.8%	26.3%	36.8%
Engineering					
Not paid by employer	3.1%	8.5%	25.6%	16.3%	22.5%
Fully paid by employer	38.0%	30.2%	24.0%	38.8%	34.9%
Entertainment					
Not paid by employer	8.1%	9.7%	24.2%	19.4%	27.4%
Fully paid by employer	32.3%	32.3%	25.8%	29.0%	32.3%
Federal Government, Non-military					
Not paid by employer	6.5%	16.1%	29.8%	20.3%	21.0%
Fully paid by employer	10.5%	16.1%	15.3%	21.1%	20.2%
Finance, Securities, and Stock Exchange					
Not paid by employer	5.8%	12.5%	36.7%	15.0%	18.3%
Fully paid by employer	20.8%	19.2%	16.7%	37.5%	32.5%
Health Care/Medicine					
Not paid by employer	6.9%	17.3%	31.1%	20.3%	21.2%
Fully paid by employer	15.3%	14.3%	14.4%	29.3%	28.0%

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Insurance Benefits by Industry (full-time U.S. respondents only)					
Industry	Health Insurance	Dental Insurance	Vision Care Insurance	Disability Insurance	Life Insurance
IT: Consulting					
Not paid by employer	7.5%	14.7%	34.7%	18.7%	24.7%
Fully paid by employer	42.9%	33.1%	26.3%	47.6%	42.2%
IT: Internet Service/Application Provider					
Not paid by employer	5.5%	11.8%	22.4%	21.7%	25.9%
Fully paid by employer	35.5%	33.1%	26.1%	43.2%	38.4%
IT: Software Development					
Not paid by employer	4.7%	9.2%	21.9%	20.5%	20.5%
Fully paid by employer	44.7%	39.5%	33.7%	43.5%	37.2%
IT: Other					
Not paid by employer	3.8%	9.3%	23.1%	16.9%	23.5%
Fully paid by employer	32.8%	28.0%	23.6%	39.9%	34.4%
Manufacturing					
Not paid by employer	4.5%	10.3%	28.9%	15.4%	13.5%
Fully paid by employer	27.3%	22.8%	16.7%	30.7%	37.0%
Military					
Not paid by employer	5.7%	22.6%	34.0%	24.5%	24.5%
Fully paid by employer	17.0%	15.1%	13.2%	35.8%	26.4%
Not-for-Profit					
Not paid by employer	4.9%	9.8%	31.7%	29.3%	26.8%
Fully paid by employer	34.1%	29.3%	19.5%	31.7%	34.1%
Pharmaceuticals					
Not paid by employer	5.0%	5.0%	27.5%	17.5%	7.5%
Fully paid by employer	32.5%	32.5%	10.0%	40.0%	37.5%
Publishing					
Not paid by employer	3.5%	7.0%	17.5%	14.0%	10.5%
Fully paid by employer	35.1%	22.8%	22.8%	43.9%	36.8%
Research					
Not paid by employer	5.9%	8.8%	38.2%	19.1%	14.7%
Fully paid by employer	14.7%	25.0%	22.1%	50.0%	42.6%
Retail and Wholesale Trade					
Not paid by employer	9.9%	16.8%	33.7%	21.8%	20.8%
Fully paid by employer	16.8%	16.8%	10.9%	26.7%	29.7%
State or Local Government					
Not paid by employer	2.5%	12.5%	30.0%	25.0%	13.8%
Fully paid by employer	45.0%	38.8%	32.5%	33.8%	33.8%
Transportation					
Not paid by employer	4.3%	8.7%	20.0%	21.7%	19.6%
Fully paid by employer	23.9%	23.9%	15.6%	32.6%	30.4%
Utility					
Not paid by employer	3.8%	5.7%	22.6%	17.0%	11.3%
Fully paid by employer	18.9%	17.0%	18.9%	35.8%	30.2%

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Other Benefits

The most prevalent of the additional benefits, in the five areas of the world for which they were analyzed, were tuition assistance, ability to use flextime, and employee stock ownership plans. More than one-in-five of respondents from the U.S., Canada, and Australia/New Zealand reported paid association memberships and tuition assistance from their employers. Over 30 percent of those from the U.S., Canada, and United Kingdom/Ireland reported an employee stock ownership plan, while over 20% in the U.S., Canada and Australia/New Zealand reported being able to telecommute. Very small percentages in all five geographical areas reported receiving childcare assistance from their employers. (All of these analyses are for full-time respondents only.)

Other Benefits by Area
(full-time respondents only)

Country	Percentage with Association Memberships Paid by Employer	Percentage who Receive Tuition Assistance from Employer	Percentage in an Organization with an Employee Stock Ownership Plan	Percentage Who Receive Child-Care Assistance	Percentage Who May Telecommute	Percentage Who May Use Flextime
Canada	29.8%	42.3%	30.5%	1.3%	25.9%	48.1%
Australia & New Zealand	22.7%	25.0%	11.6%	1.2%	22.7%	37.8%
United Kingdom & Ireland	7.7%	12.4%	33.7%	1.9%	14.3%	28.6%
Western Europe	7.2%	15.3%	19.8%	6.3%	18.9%	42.3%
United States	19.6%	59.2%	35.0%	6.2%	32.7%	51.8%

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Other Benefits by Industry, U.S.

The most generous U.S. industries in terms of paying for system administrators' association memberships were pharmaceuticals, agriculture/ environmental services/mining/energy production, not-for-profit, and manufacturing. The utility and aerospace industries and colleges/universities were the most generous with providing tuition assistance. The highest percentages of respondents who said their organization provided an employee stock ownership plan (ESOP) were in engineering, IT: other, and IT: internet service/application. Respondents who worked in the pharmaceuticals, and finance/securities/stock exchange reported the highest incidence of child care assistance. Percentages who could telecommute were highest in IT: internet/application service provider and IT: other and percentages who said they could use flextime were highest in engineering and utilities.

Other Benefits by Industry
(full-time U.S. respondents only)

Industry	Percentage with Association Memberships Paid by Employer	Percentage who Receive Tuition Assistance from Employer	Percentage in an Organization with an Employee Stock Ownership Plan	Percentage who Receive Child-care Assistance	Percentage who May Telecommute	Percentage who May Use Flextime
Advertising, Public Relations, Communication, or Marketing	14.8%	44.3%	31.1%	3.3%	39.3%	54.1%
Aerospace	10.1%	82.6%	35.8%	5.5%	22.9%	65.1%
Agriculture, Environmental Services, Mining, or Energy Production	36.4%	69.7%	36.4%	3.0%	36.4%	57.6%
Banking, Insurance, and Real Estate	21.7%	65.1%	38.9%	10.3%	29.1%	47.4%
Biotechnology	17.2%	58.6%	44.8%	6.9%	17.2%	41.4%
Consulting and Business Services	19.1%	48.5%	31.4%	4.9%	27.9%	44.6%
Education - College or University	21.4%	78.1%	1.4%	4.5%	28.5%	58.6%
Education – Elementary or Secondary	26.3%	63.2%	10.5%	0%	0%	31.6%
Engineering	20.2%	56.6%	60.5%	7.0%	38.0%	69.8%
Entertainment	21.0%	33.9%	24.2%	4.8%	29.0%	45.2%
Federal Government, Non-military	22.6%	66.1%	9.7%	6.5%	18.5%	58.1%
Finance, Securities, and Stock Exchange	15.8%	59.2%	35.8%	14.2%	35.8%	40.0%
Health Care/Medicine	13.5%	62.4%	15.9%	9.0%	23.3%	46.6%
IT: Consulting	20.6%	47.6%	39.5%	3.6%	30.4%	44.3%
IT: Internet Service/Application Provider	16.1%	44.0%	51.2%	3.5%	43.8%	46.8%
IT: Software Development	17.9%	45.4%	50.9%	6.9%	36.5%	53.8%
IT: Other	12.0%	51.1%	56.8%	9.3%	39.9%	46.4%
Manufacturing	26.4%	70.7%	45.7%	6.4%	31.2%	53.1%
Military	11.3%	66.0%	13.2%	1.9%	9.4%	54.7%
Not-for-Profit	29.3%	56.1%	0%	0%	29.3%	51.2%
Pharmaceuticals	42.5%	77.5%	35.0%	25.0%	35.0%	65.0%
Publishing	29.8%	43.9%	24.6%	10.5%	38.6%	49.1%
Research	22.1%	72.1%	16.2%	7.4%	35.3%	64.7%
Retail and Wholesale Trade	14.9%	47.5%	32.7%	6.9%	31.7%	44.6%
State or Local Government	16.3%	61.3%	0%	3.8%	27.5%	55.0%
Transportation	8.7%	60.9%	21.7%	2.2%	21.7%	45.7%
Utility	24.5%	83.0%	24.5%	1.9%	35.8%	67.9%
Mean across all industries	19.6%	59.2%	35.0%	6.2%	32.7%	51.8%

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Benefits and Organizational Size

Larger U.S. organizations often provide more generous benefit packages than smaller ones. For those with 2 or more employees, the number of paid vacation days, holidays, and training days tended to be higher for larger organizations in both 2000 and 1999. However, no clear pattern was observed for paid sick days either year. In both 2000 and 1999, the percentage of U.S. respondents who reported that they have defined benefit or contribution retirement plans also increased with size for organizations with more than 2 employees. The mean percent of salary contributed by the employer to a defined contribution plan did not show a clear pattern with organizational size. The percentage of U.S. respondents who received paid association memberships was highest for 1 employee, but increased steadily from 11 to 100,000 employees in 2000. There was some pattern of increasing percentages by organization size for those who received tuition assistance in 2000, but not in 1999. The percent who said they received stock ownership and childcare assistance increased with organization size in both 2000 and 1999; however, percentages for those who could telecommute or use flextime showed no clear relationship with organization size in 2000. In 1999, flextime tended to increase with organization size above 50 employees, but the percent who said they could telecommute showed no clear pattern. Thus, the relationships between organizational size and benefit availability is not stable in the 1999 and 2000 results.

Paid Training and Time Off by Organizational Size
(full-time U.S. respondents only)

Number of Employees	Mean Number of Paid Vacation Days	Mean Number of Paid Holidays	Mean Number of Sick Leave Days	Mean Number of Paid Training Days
1	14.7	2.2	7.5	5.9
2 to 10	13.8	5.3	6.8	3.7
11 to 50	13.6	7.7	7.1	5.2
51 to 100	13.7	8.5	8.0	6.8
101 to 500	14.9	8.3	9.0	6.5
501 to 2,500	16.2	8.9	9.8	7.3
2,501 to 10,000	16.4	9.2	11.0	8.4
10,001 to 50,000	16.9	9.1	10.2	8.7
50,001 to 100,000	16.4	9.0	10.3	10.4
100,001 or more	16.2	9.8	9.1	9.8

Retirement Plans by Organizational Size
(full-time U.S. respondents only)

Number of Employees	Percentage with a Defined Benefit or Pension Plan	Percentage with a Defined Contribution Plan (e.g., 401k, 403b)	Mean Percent of Salary Employer Contributes to a Defined Contribution Plan
1	6.7%	20.0%	7.3%
2 to 10	2.2%	25.3%	11.9%
11 to 50	2.5%	37.6%	7.5%
51 to 100	2.9%	50.0%	8.1%
101 to 500	6.0%	60.2%	7.0%
501 to 2,500	13.5%	72.6%	7.4%
2,501 to 10,000	17.9%	76.3%	8.0%
10,001 to 50,000	18.4%	77.2%	7.2%
50,001 to 100,000	25.4%	82.5%	6.0%
100,001 or more	34.4%	78.4%	7.9%

Other Benefits by Organizational Size
(full-time U.S. respondents only)

Number of Employees	Percentage with Association Memberships Paid by Employer	Percentage who Receive Tuition Assistance from Employer	Percentage in an Organization with an Employee Stock Ownership Plan	Percentage Who Receive Child-Care Assistance	Percentage Who May Telecommute	Percentage May Use Flextime
1	46.7%	26.7%	13.3%	0.0%	40.0%	46.7%
2 to 10	16.7%	26.4%	14.3%	0.0%	36.3%	41.8%
11 to 50	12.6%	27.8%	28.6%	1.0%	35.7%	48.2%
51 to 100	13.9%	38.8%	31.0%	1.6%	31.4%	49.4%
101 to 500	18.6%	49.6%	34.4%	2.3%	28.0%	46.7%
501 to 2,500	22.6%	64.9%	28.5%	4.7%	24.7%	45.9%
2,501 to 10,000	21.2%	69.9%	33.2%	8.7%	32.0%	53.5%
10,001 to 50,000	22.1%	73.8%	40.7%	10.2%	40.2%	60.1%
50,001 to 100,000	23.8%	75.0%	53.3%	11.3%	40.0%	56.7%
100,001 or more	13.2%	71.4%	56.8%	11.6%	42.7%	61.7%

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