



SALARY SURVEY

1996 TAPPI SALARY SURVEY*

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*A DYNAMIC PROCESS SUCH AS PAPERMAKING
NEEDS DYNAMIC, NOT STATIC, LAB TOOLS TO MAINTAIN PRECISION.*

Sales and earnings were down for many companies in 1996. Last year's sluggish performance came in the wake of spectacular sales in late 1994 and much of 1995, when customers began stockpiling inventories as a hedge against rising prices and supply shortages. As the markets regained their balance, customers began liquidating their inventories, new orders tapered off, and prices dropped. Despite these difficulties, TAPPI members managed to eke out a modest increase of 3.6% in median income* to \$72,500, barely edging out last year's 3.3% rate of inflation.

*The full version of the 1996 TAPPI Salary Survey is available on TAPPI's web site—www.tappi.org

RESPONDENTS, %

Education

<i>Ph.D.</i>	11.7	9.4
<i>Master</i>	20.2	21.5
<i>Bachelor</i>	59.8	58.0
<i>[LESS THAN]Bachelor</i>	8.3	11.1

Industry experience

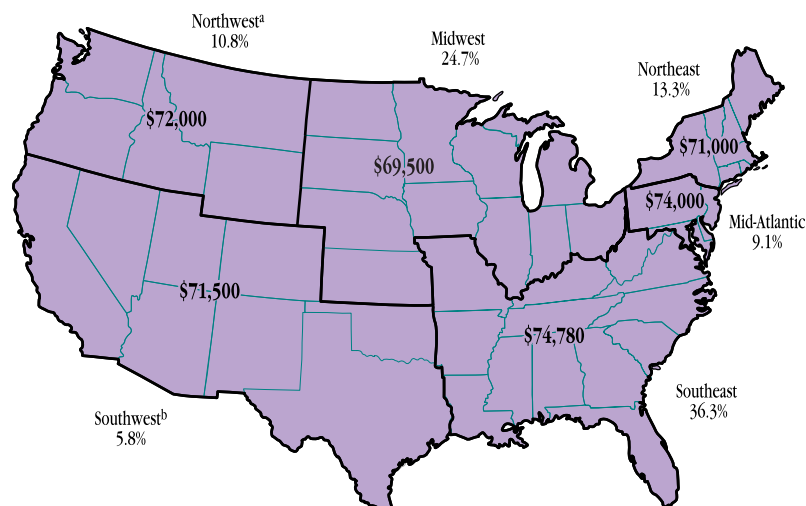
<i>[LESS THAN]10 years</i>	13.1	29.4
<i>10]14 years</i>	13.3	17.1
<i>15]19 years</i>	15.6	17.2
<i>20]24 years</i>	14.1	13.0
<i>25]29 years</i>	19.2	9.1
<i>[GREATER THAN]30 years</i>	24.6	14.2

Supervisory responsibility

<i>Middle management</i>	29.5	29.2
<i>Senior management</i>	11.3	14.6

I. TAPPI demographics, 1976 vs. 1996

Median income and percentage of respondents in six U.S. regions



^a Includes Alaska

^b Includes Hawaii

I. Median income and percentage of respondents in six U.S. regions

THEN AND NOW

This is the 22nd anniversary of TAPPI's salary survey. The first one was in 1974. A second survey in 1976 established the practice as a biennial event through 1980. Since then, the salary survey has been an annual tradition, except for 1984.

Much has changed in the past 20 years. The median income in 1976

was \$28,000. More than 99% of the membership was male, and the median age was 46. Most of us lived and worked in the Midwest or the Middle Atlantic states. Today, one in 10 TAPPI members is a woman, and their numbers continue to grow. Median income in 1996 was 260% higher than the median of 1976. However, the consumer price index

(CPI) advanced by 270%, so TAPPI members are earning a little less than they were 20 years ago. On the other hand, we're also a little younger—the median age has dropped from 46 to 42. And while the Midwest remains an important base of operations, the brunt of the membership has migrated from the Mid-Atlantic region to the southeastern pine belt.

Despite these demographic shifts, TAPPI remains an association of educated, experienced industry leaders. **Table I** shows that the main difference between 1976 and 1996 is youth. There are fewer respondents with 25 (or more) years of experience and more members with less than a decade of experience. However, the core group—those with 10–24 years of experience—has held steady. This mix of youth and experience reflects TAPPI's ongoing efforts to attract the young talent the industry will need if it is to continue to prosper in the next century.

THE SURVEY

A randomly selected set of 7470 U.S. TAPPI members received a copy of the survey questionnaire early this year. Close to 30% were completed and returned before the March 21 deadline. The survey that follows is based on the information generously provided by these respondents.

INCOME DISTRIBUTION

An analysis of income distribution curves for 1990 through 1996 shows some interesting trends. Income distribution was somewhat flatter for the last two years than during earlier years, which showed more people earning within a relatively narrow range of income. Beginning in 1995, the range of incomes for the middle 50% of the sample widened substantially from \$50,000–\$85,000 to about \$55,000–\$95,000.

At the same time, the 1996 distribution shows a reduction in the percentage of workers earning \$45,000–\$55,000 and a roughly equivalent increase in the proportion of those earning \$85,000–\$105,000 compared with the year before. At the high end of the pay scale (\$110,000 and above) the proportion remained the same.

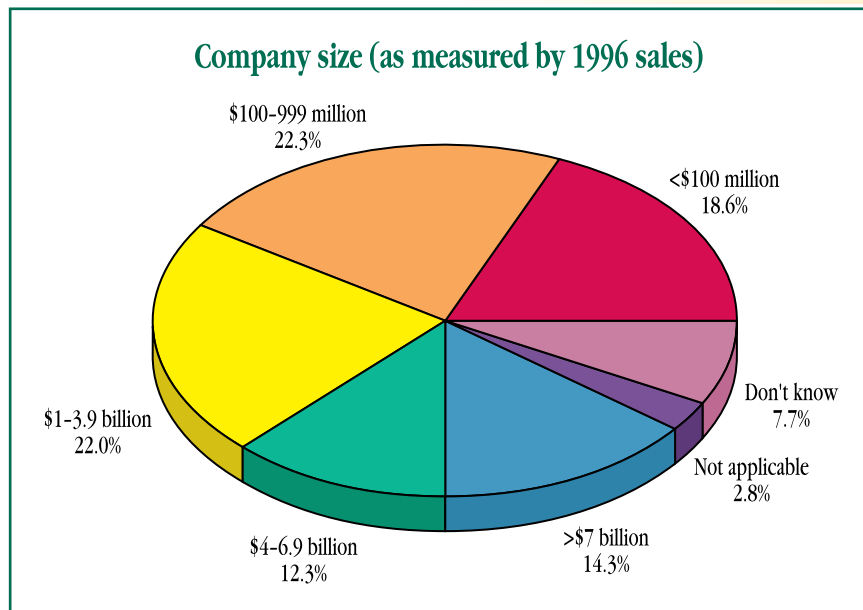
The presence of high salaries skews the results by inflating the mean or “average” salary. The relatively smaller effect of high salaries in 1996 is reflected in a negligible (0.7%) increase in the mean income despite an increase of 3.6% in median income.

REGIONAL INCOME

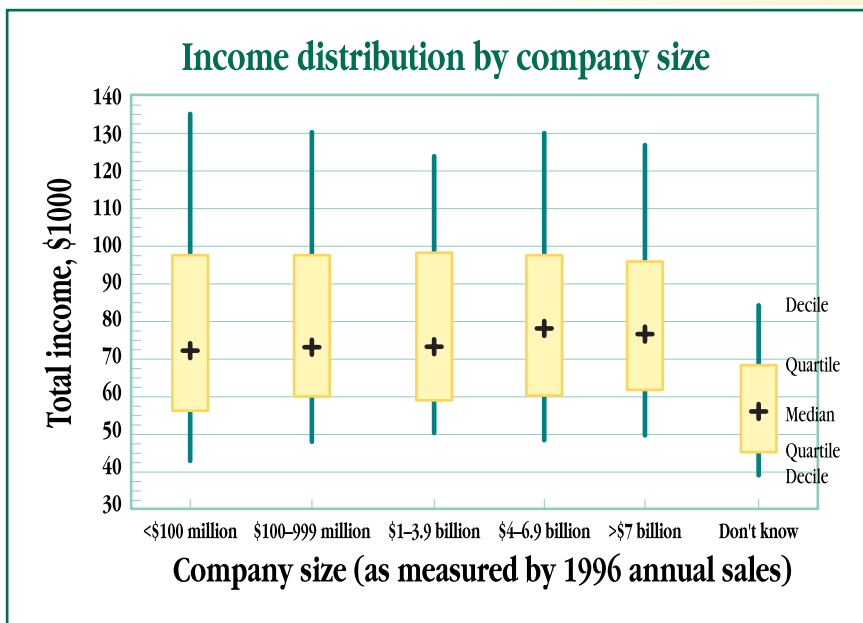
Median income was highest in the southeastern United States, where the \$74,780 median barely edged out the Mid-Atlantic region (\$74,000). **Figure 1** shows the median income for all six U.S. regions. Regional income showed a lot of volatility in 1996. In contrast to 1995, when median income rose in all regions, 1996 was a mixed bag, with three regions—the Northwest, Southwest, and Mid-Atlantic—showing a decline. This may reflect a correction for explosive growth in the median income in 1995, especially in the Southwest, where the median dropped 9% after jumping 13% the year before.

Income among the regions has reached greater parity than ever before. With robust gains in the Midwest (6.1%) and Northeast (9.4%) and a sharp drop in the Southwest, the gap between the highest and lowest medians shrank to 7.6%. The last time the regions were this close was in 1990, when the gap was 10.3%.

Of the four regions with the highest rates of growth in 1995, three saw a decline in median



2. Company size (as measured by 1996 sales)



3. Income distribution by company size

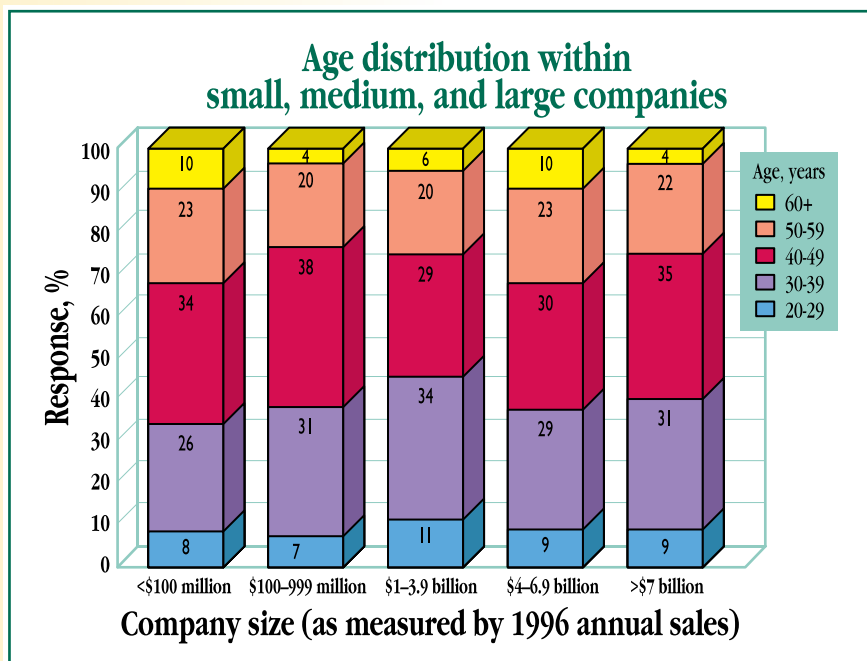
income. Only the Southeast bucked this trend, with the median increasing 2.6% in 1996 following a jump of 6.3% in 1995. The two regions with the lowest rate of growth in 1995—the Midwest and the Northeast—had the highest growth in 1996.

The Southeast emerged at the top position for the first time since 1990. However, the Southeast had the second slowest rate of growth over the past six years, trailed only by the Southwest, where median

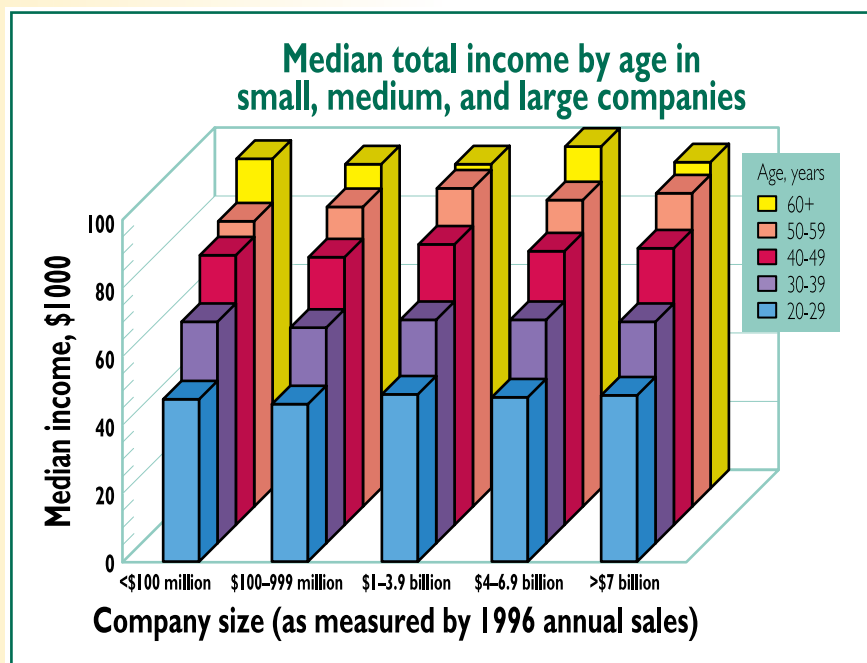
income was extremely volatile. This volatility is at least partly attributable to the smaller sample size for this region. Only about 6% of the TAPPI membership works in the Southwest.

The Midwest—perennially the lowest ranked of the six regions—is the only one that has shown steady growth since 1990, and its six-year rate of growth is exceeded only by the Mid-Atlantic region.

One of the interesting differences among the regions is the size



4. Age distribution within small, medium, and large companies



5. Median income by age in small, medium, and large companies

of the companies that predominate within each region. The Northwest, for example, has very high concentrations of workers in large companies and very low concentrations in medium-size companies. The Mid-Atlantic region, in contrast, had high concentrations of workers in medium-sized companies and fewer workers in large companies. The Northeast seems to favor smaller

companies, although the near-zero value for very large companies indicates that they are participating at the “expected” level given the overall response to the survey. The Midwest shows a decided predilection for medium-size companies. The Southeast region shows the greatest balance among the five categories for company size, with all values hovering close to zero deviation, i.e.,

the “expected” value. The Southwest also shows a good deal of balance given the inherent variability associated with such a small sample size.

Our interest in the mix of company sizes within a region is not a matter of idle curiosity. Company size has a statistically significant effect on base salary, pay incentives, and total income, and it helps explain at least some of the variability in regional income.

COMPANY SIZE

Most TAPPI members (63%) work for medium and small companies (annual sales of less than \$4 billion), as seen in **Fig. 2**. The rest work for the giants, some with sales exceeding \$7 billion. **Figure 3** is a quantile plot showing the distribution of income for the five categories of company size.

Judging solely on the basis of median total income (base salary plus bonuses and other incentives), the pay was better—much better—at the giants, where the median was \$78,000, compared with \$73,000 for workers in companies with less than \$4 billion in annual sales. So does this mean that you’re better off working for one of the industry’s giants? It depends.

For starters, consider the fact that the smallest companies—those with annual sales less than \$100 million—showed the *highest average* income but the *lowest median* income. This indicates that the payrolls at the smallest companies are top heavy. Indeed, if your goal is to be among the workers at the top 10% of the pay scale—those earning \$125,000 or more—the smaller companies are the place to be. The median income at this level was highest for workers in the smallest companies (\$180,000) and lowest for workers in the largest companies (\$137,500). Moreover, workers at the smallest companies had a higher probability of cracking the top 10%

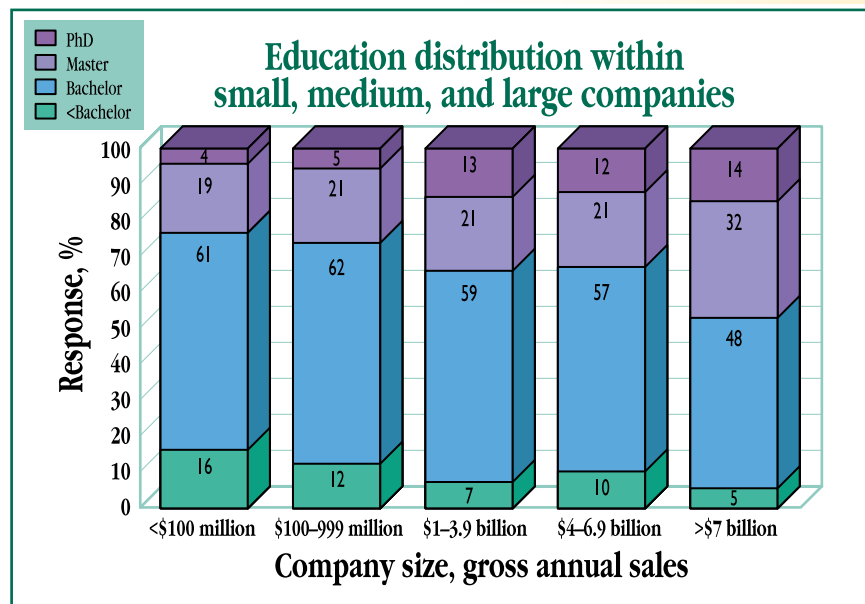
of wage earners than those working at the very largest companies (sales greater than \$7 billion). Interestingly, the probability of breaking into the upper decile was greatest for workers in companies with sales of \$4–6.9 billion and lowest for those at medium-size companies.

On the downside, the smallest companies had a much higher percentage of workers at the bottom 10% of the pay scale (\$46,500 or less), an interesting development given that small companies had the fewest young workers. The median age of workers at the bottom of the pay scale was 33 at the smallest companies, compared with 27 years for workers at medium and large companies.

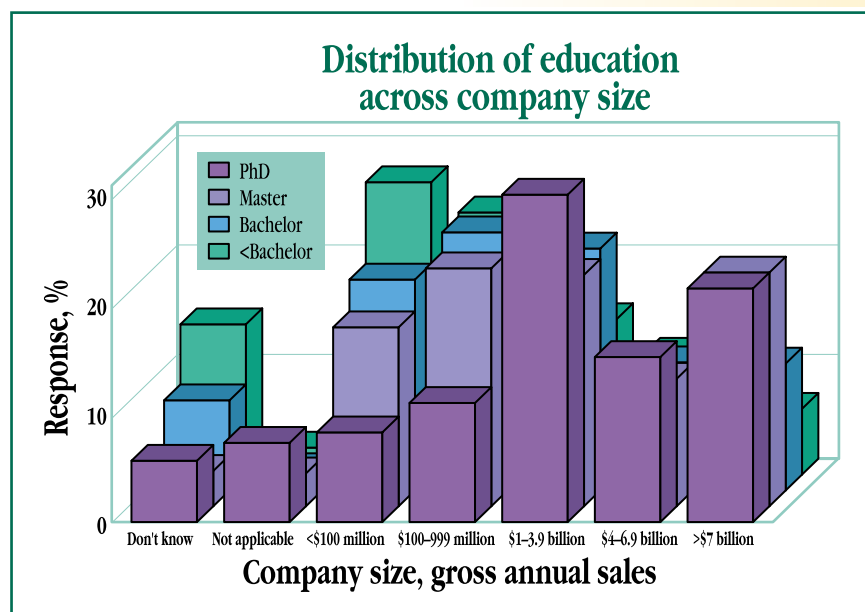
If you are not among the top 10% of wage earners, then the giants are clear winners in terms of median income. With the top 10% incomes eliminated from consideration, median income at the giants was \$74,000, \$4000 more than the median for the smaller companies.

But that is only part of the story. Workers at smaller companies rely much more on bonuses as part of their income package. Median base salary in the large companies (sales greater than \$4 billion) was \$74,000 compared with \$67,000 for the small companies.

Smaller companies made up for some of the shortfall by being more generous in awarding bonuses or other forms of supplemental income. The median award was \$3000 compared with \$1700 at the giants. Workers at smaller companies also were more likely to receive some sort of extra compensation. Almost two-thirds received supplemental income, compared with 56% of workers at the larger companies. However, this leaves workers at smaller companies more vulnerable to the ups and downs of the business cycle. The \$5000 gap in median total income between the two groups could widen in down mar-



6. Education distribution within small, medium, and large companies



7. Distribution of education across company size

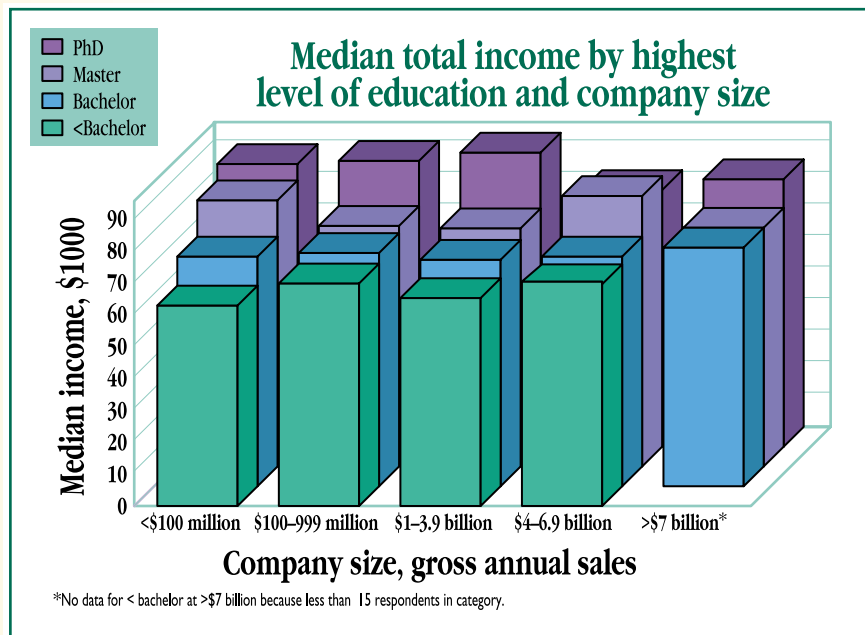
kets when, presumably, bonuses shrink or perhaps disappear entirely.

Given these clear differences in income at small and large companies, we wondered whether some other variable was at work here. Specifically, we wanted to test the common wisdom that younger workers tend to break into the field at smaller companies, migrating to larger companies once they have some experience under their belts. Similarly, we wanted to see whether workers with advanced

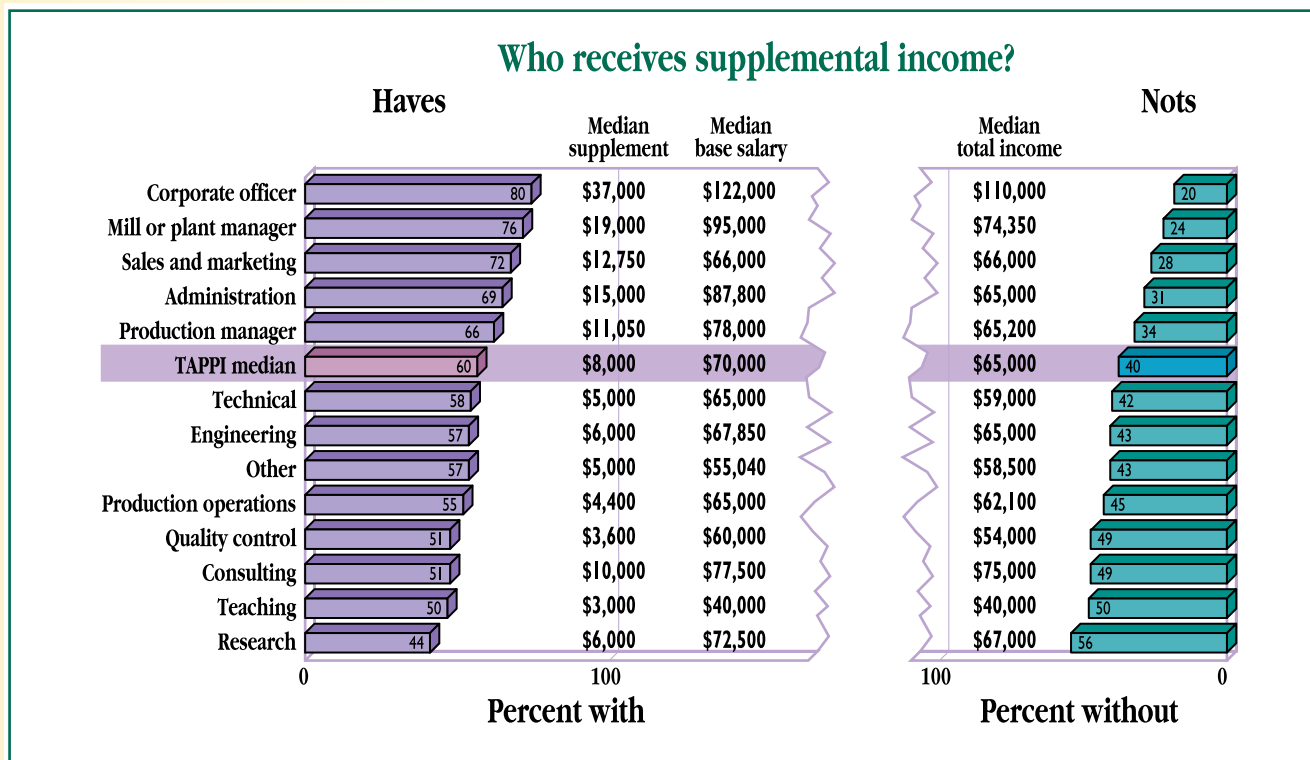
degrees migrated preferentially to the larger companies.

Age and company size

Figure 4 shows the age distribution within the five categories for company size. Each vertical bar represents a different category for company size, and the bands within each bar depict the percentages of workers within different age groups. The bars are all the same height—100%—because they represent the total number of workers in each size category. In essence, each bar is a



8. Median total income by highest level of education and company size



9. Who receives supplemental income?

vertical pie chart illustrating the age makeup within each category of company size.

It is clear from this figure that medium-size companies have the largest proportion of young workers and the smallest proportion of middle-aged workers. In contrast, the

smallest companies have the lowest proportion of young workers and the largest proportion of middle-aged and older workers. This challenges the conventional wisdom that smaller companies are where younger workers break into the industry. The results from this year's survey suggest that

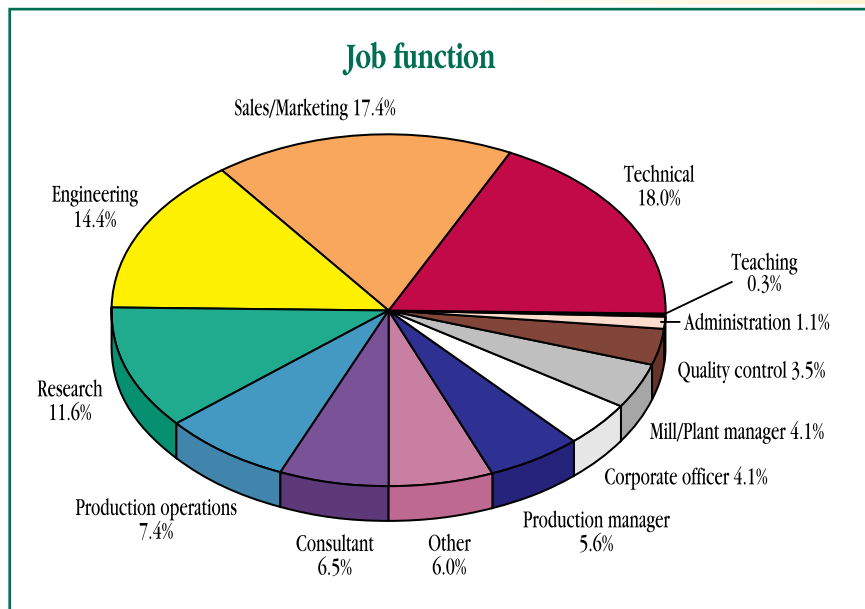
mid-size companies (\$1-3.9 billion) are the most likely point of entry for young workers.

In further examining the age makeup of various size companies, the numbers show that the very largest companies have the greatest balance in their age makeup, with

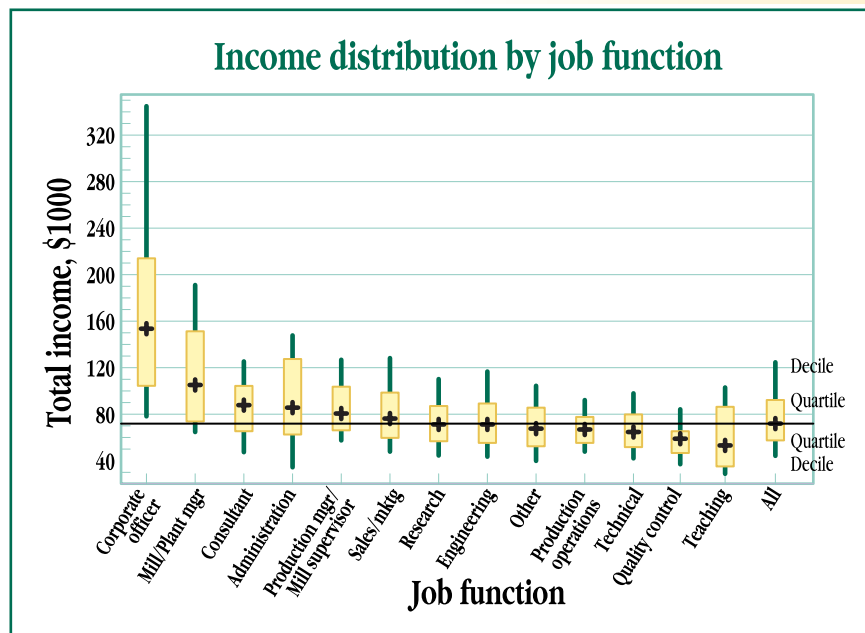
the exception of workers in their 60's, who are underrepresented by 40%. The youngest workers—20-29 years of age—are concentrated in medium-size companies (sales of \$1-3.9 billion). The smaller companies actually had the lowest concentration of young workers, while the larger companies had close to the expected numbers of youthful workers, as indicated by the stubby histogram bars with values near zero. Workers in their 30's are also underrepresented in the smallest companies.

The category with the greatest sensitivity to company size was workers aged 60 and above. This group was present in surprisingly high concentrations in very small companies and in companies with sales of \$4-6.9 billion. In contrast, the very largest corporations and companies with sales of \$100-999 billion had 40% fewer 60+-year-olds on their payrolls than expected based on the overall response to the survey. Workers in their 50's were dispersed fairly evenly over the five categories for company size. Workers in their 40's were slightly overrepresented in the \$100-999-million class and underrepresented in the \$1-3.9-billion class.

Figure 5 breaks down median income by age and company size. In general, it appears that medium-size companies had the highest median income for a given age group. The giants had the next-highest pay scales, and the smaller companies generally appear to pay slightly less. The higher medians for the medium-size companies might seem to contradict the finding that the overall median income is highest at the giant corporations. However, the giants employ a greater number of older and middle-aged workers with large incomes, while medium-size companies have higher concentrations of younger workers.



10. Job function

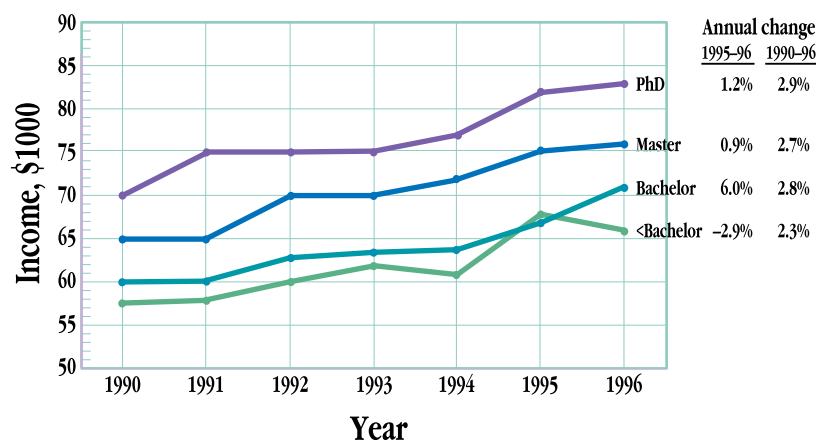


11. Income distribution by job function

PERCENT RESPONDENTS REPORTING A CHANGE IN INCOME			
	Increase	Same	Decrease
Base salary	86	11	3
Pay incentives			
Bonus	58	20	22
Commission	27	61	12
Other	38	53	9
Total income	84	7	9

12. Change in income from previous year

Median income at highest level of education, 1990–1996



12. Median income at highest level of education, 1990–1996

Education and company size

There are also interesting differences in the educational level of workers within the five categories of company size. **Figure 6** shows that the smallest companies have the highest proportion of workers with less than a bachelors degree, while the larger companies have higher proportions of PhDs. This helps explain why median income is higher at the giant corporations.

Figure 7 shows the distribution of education across company size. For example, the figure shows that 30% of the PhDs in the industry work for medium-size companies (\$1–3.9 billion in sales), while the largest companies (\$7+ billion in sales) employ only 22% of the PhDs. Two-thirds of the workers with a bachelors degree work for the small and medium-size companies. Only 25% work for the larger companies (\$4+ billion in sales).

While it's interesting to know that most PhDs are hired by the larger companies, we wondered how a PhD at a small company fares compared with peers at the giants. **Figure 8** breaks down the median income by company size and education. The results suggest that the PhDs working at the smaller and medium-sized companies earn more than their counterparts at the giants.

That may explain why medium-sized companies (\$1–3.9 billion in sales)—where median income for PhDs was highest (\$92,000)—captured 30% of the PhDs who responded to the survey, by far the highest percentage among the five categories for company size. In contrast, median income for those with less than a masters degree generally increased with company size.

Median income for the masters degree showed no clear pattern, with median income barely surpassing the median for bachelors degree in three of the categories for company size and exceeding the median for PhD in another. However, in general, there was an orderly increase in salary with the level of education across all size categories, as expected.

PAY INCENTIVES

With only three years of detailed data on bonus to work with, it's difficult to draw hard conclusions about trends. In 1994, 54% of the respondents reported some type of supplemental income (bonus, commission, or other). That figure increased to 61% in 1995 and held steady at 60% in 1996.

For the period 1994 through 1996, *base* salaries are higher for those who receive supplemental income, compared to those who

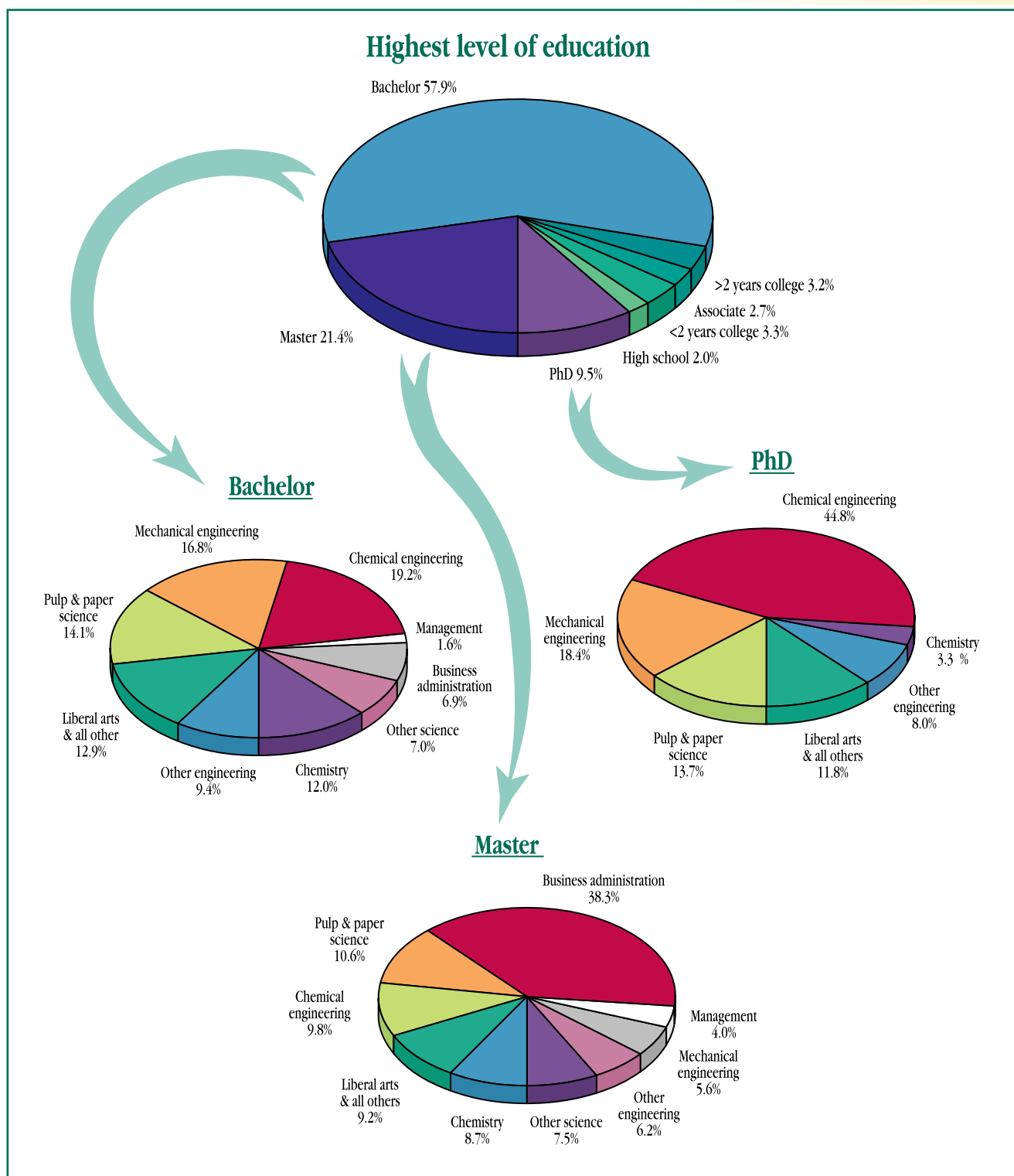
don't. The gap between base salaries for the two groups was about 9% in 1994, widening to 11% in 1995, and dropping to 8% in 1996.

Who receives these pay incentives? **Figure 9** shows that corporate officers, mill/plant managers, administrators, and production managers are the most likely recipients. Those in sales and marketing also rank high on the list, but their incentives are chiefly in the form of commissions rather than bonuses. The pie chart in **Fig. 10** breaks down the TAPPI membership in terms of job function.

The base salaries for those receiving pay incentives exceeded the base salaries of the have-nots across all job functions with three exceptions: sales/marketing and teaching, where base salaries for both the haves and have-nots was the same, and the "other" category, where base salary was lower for those who received pay incentives.

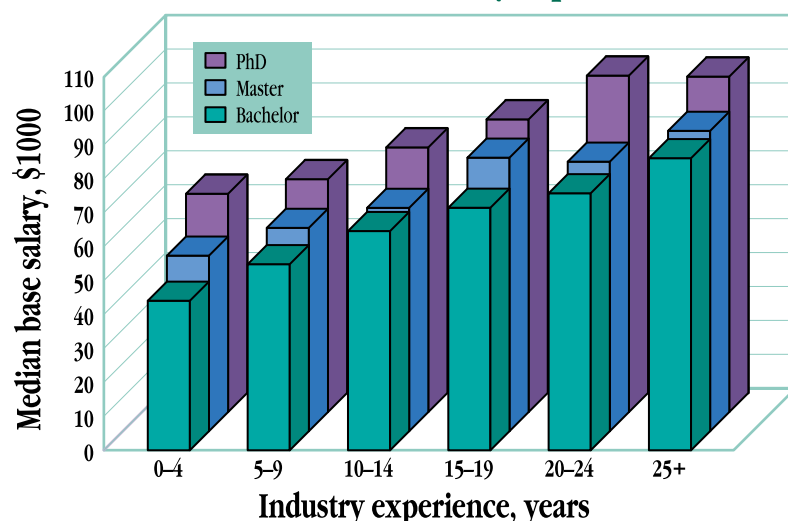
Corporate officers had the highest median ratio of supplemental income to base salary, 20%. The next closest competitor was mill/plant managers, whose other income was 14% of base salary. Sales/marketing and administration came in at 9%, and the median for production managers was 7% of base salary. Pay incentives made up 2% or less of total income for all other job functions.

Only 3% of the respondents reported a decrease in base salary, but three times as many reported a decline in total income, as seen in **Table II**. Shrinking bonuses played a role, with 22% reporting that their bonuses were less than the year before. The rates were slightly higher for consultants and workers in production operations, engineering, and administration. Of those who reported a drop in bonus, about one in four saw their bonus evaporate entirely. Nearly all of the workers who lost their bonuses worked for small and medium-size companies.



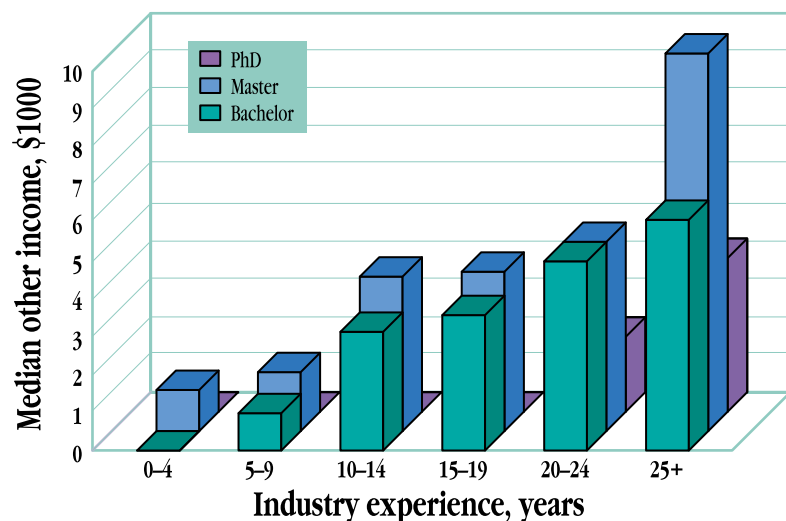
13. Highest level of education and fields of study at each level

Median base salary by highest level of education and industry experience



14. Median base salary by highest level of education and industry experience

Median total other income by highest level of education and industry experience



15. Median total other income (bonuses, commissions, etc.) by highest level of education and industry experience

Two-thirds of those reporting a drop in commissions work in sales/marketing. Those who reported a drop in "other" income were primarily corporate officers, consultants, and those working in the sales/marketing, technical, and engineering job functions.

Figure 11 is a quantile plot showing the distribution of total income within the various job functions. Median income for corporate officers soared to \$155,000, up 13% from 1995. In the meantime, median income for mill/plant managers fell 14% to \$107,000, while production managers suffered an 11% drop to

\$81,000. All other job functions showed an increase in 1996, with the exception of teaching

Pay incentives by education and experience

Life may not always be fair, but it consistently rewards education and experience. Figure 12 shows the median income for various levels of education since 1990. It's no surprise to see that PhDs make more money than those with lesser degrees. More importantly, data spanning the past seven years show that their incomes have grown at a higher rate. So if PhDs were doing well in 1990, they're doing even better in 1996. The masters degree, on the other hand, has suffered a slight devaluation since 1990. The gap between a masters degree and a PhD is slightly wider than it was six year ago, while the gap between masters and bachelors degrees is slightly narrower. The pie chart in Fig. 13 shows the overall educational makeup of the TAPPI membership and breaks down each of the three educational levels (PhD, master, bachelor) into the major fields of study.

Figures 14-16 show the effects of education and experience on median base salary, on bonus and "other" income, and on total median income, respectively. The results for median base salary (Fig. 14) and total income (Fig. 16) were as expected, with an orderly progression in income with increasing levels of education and experience. What is surprising is that PhDs maintain their superior income position without relying on bonuses or other forms of professional income. As seen in Fig. 15, the median "other" income for PhDs was zero through 20 years of experience, and thereafter the amount of "other" income remained well below the level of compensation for those at the bachelor and master levels.

SEX

Figure 17 shows that the gap in median income between men and women has hovered at about \$20,000 since 1990. However, with the steady rise in median income over the past six years, the percent difference in median income for men and women has shrunk substantially.

NEW HIRES

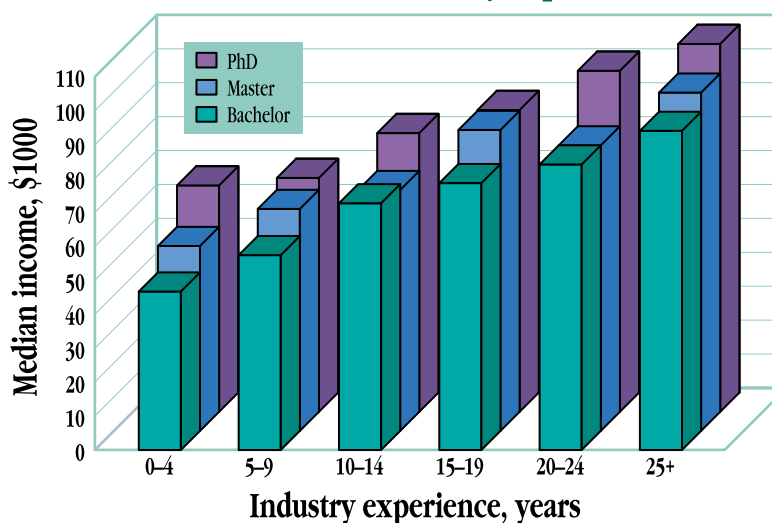
We estimate the going rate for new hires by shrinking the database to people in their 20s who have been with their current employer for less than one year and who report less than one year of industry experience and management experience. This left us with a sample of only 12 respondents—eight men and four women—with a median total income of \$42,000, the same as in 1995. Median income for new hires in 1994 was \$40,000.

INFLATION AND INCOME

Inflation resurfaced in 1996, growing for the first time since 1989. Median income grew by 3.6%, but inflation increased by 3.3%, eating up most of the gain. Still, this is the first time in a decade that the TAPPI membership has seen two consecutive years of real growth in income.

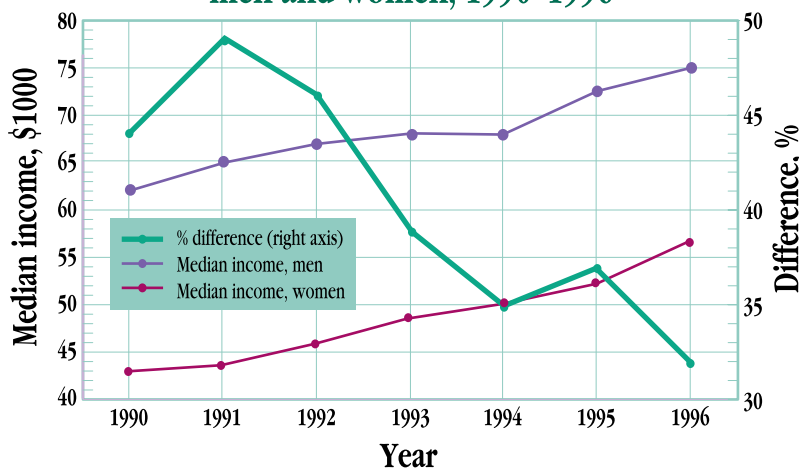
Figure 18 shows the growth in TAPPI members median income since 1980. Median income made substantial gains in the mid-1980s, lost ground in 1988, stayed in a holding pattern through 1992, and then touched down in 1994. Since then, income has rebounded to its strongest position vis-B-vis the CPI since 1987. The median income of \$38,000 in 1980 translates to \$69,844 in 1996 dollars after adjusting for inflation. This year's median of \$72,500 thus represents a "bonus" of 3.8% or \$2,656 in today's dollars, slightly ahead of last year, when the "bonus" was 3.7%.

Median total income by highest level of education and industry experience



16. Median total income by highest level of education and industry experience

Median income for men and women and percent difference in median income between men and women, 1990-1996



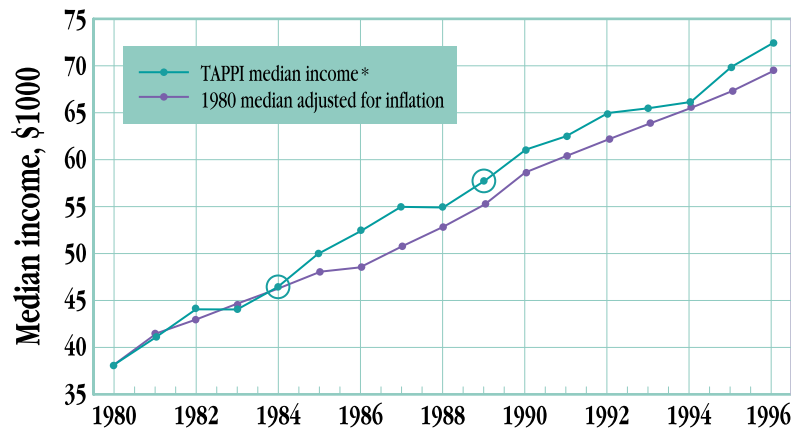
17. Median income and percent difference in median income for men and women, 1990-1996

Figure 19 shows the year-to-year change in the CPI and median income since 1981. In the 1990s, median income has failed to keep pace with inflation in four out of seven years. Contrast that with the 1980s, when the median grew faster than inflation in six out of nine years. Nevertheless, bear in mind that a low rate of inflation magnifies even mod-

est gains, and inflation in the 1990s is at its lowest rate in 30 years.

The best year in terms of growth was 1986, when inflation abruptly—and temporarily—dropped below 2% in the face of collapsing oil prices and the threat of recession. The next-best year of growth was 1995. With inflation at historic lows, the modest increase in 1996 isn't quite as mod-

Growth in median income, 1980–1996



*Circled data points are estimates of median income in 1984 and 1989.

18. Growth in median income, 1980–1996

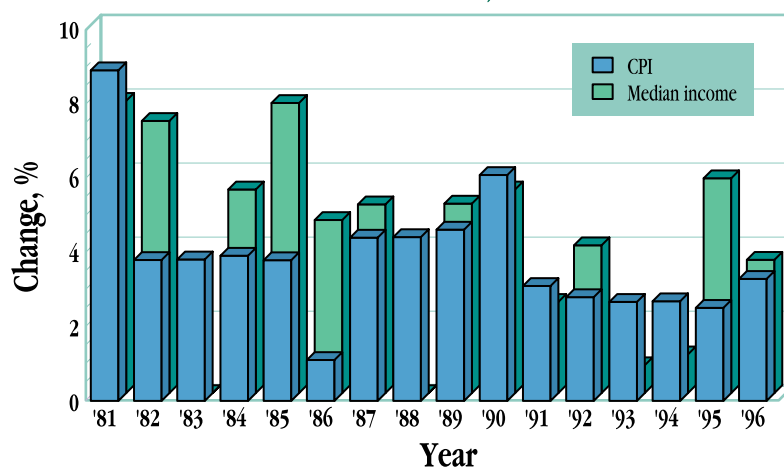
est as it seems. And with losses to inflation in 7 out of the last 16 years, it's nice to chalk up another win, no matter how narrow the margin.

TJ

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Year-to-year change in CPI and median income, 1981–1996



19. Year-to-year change in CPI and median income, 1981–1996