

IS THE APPARENT GENDER PAY GAP REAL OR MIS-LEADING?

Based on data collected by the Bureau of Labor Statistics shows that the median earnings of all working women is about 75 % of that for men's earnings.

During his last year as president, President Clinton declared that "It's as if [women] were only picking up three paychecks, instead of four, in four pay periods." He also said "The average women has to work, therefore, an extra 17 weeks a year to earn what a similarly qualified man in the same kind of job makes." He wanted to allocate millions of dollars to set guidelines for occupations. However, the president and his advisors misinterpreted the results on this issue.

Numerous studies have shown women with the same qualifications and experience as men do earn similar amounts. This mistake here is that women in social work are compared with men in sciences and high tech fields. The wage survey is over all workers in all occupations and men predominate in the high paying technical, medical and legal areas.

To illustrate why the apparent gender gap comparison is not based on sound statistical reasoning, we consider average earnings in a simple situation with only two professions. Profession A is higher paying and has proportionally more males than Profession B.

Table 2.6 Average Salary by Profession and Gender

	Profession A	Profession B
Average Male Salary	65,000	38,000
Average Female Salary	67,000	41,000
Number of Males	200	40
Number of Females	40	200

From this salary information, the total of male salaries for profession A is $200(65,000) = 13,000,000$ and the total of male salaries for profession B is $40(38,000) = 1,520,000$. Hence,

total male salary of the two professions = $13,000,000 + 1,520,000 = 14,520,000$

and the

mean salary for males in the two professions = $14,520,000/240 = 60,500$.

Similarly, we obtain

total female salary of the two professions = $40(67,000) + 200(41,000) = 2,680,000 + 8,200,000 = 10,880,000$

and the

mean salary for females in the two professions = $10,880,000/240 = 45,333.33$.

Notice that the ratio of the average female salary of the two professions and the average male salary of the two professions, $45,333.33/60,500$, is approximately 75%. However, in this instance, we cannot use this figure to conclude that a woman only earns about 75% of what a man earns. Although the average female salary over the two professions is lower than the average male salary, the average female salary is higher than the average male salary in each profession. In this example, females do not suffer a gender pay gap. Of course, it is not the situation that women in the United States make more than men. Several current salaries studies, within professions, suggest that the average salary for females is about 95 % of their male counterparts, after adjusting for experience and other relevant factors.

When averages are taken across very different professions, and the proportions of females in each are quite different, it is a mistake to conclude men and women in comparable positions are paid differently. You need to compare profession by profession in order to make a fair comparison.

Exercises

1. Refer to the statistical reasoning example on the gender pay gap. Perform the same analysis for the salary data

	Profession A	Profession B
Average Male Salary	65,000	38,000
Average Female Salary	67,000	41,000
Number of Males	200	150
Number of Females	180	200

- Determine the mean salary for males over both professions.
- Determine the mean salary for females over both professions.
- Find the ratio of mean salaries from Parts (a) and (b).
- Do these data imply a real gender pay gap? Explain.

2. Refer to the statistical reasoning example on the gender pay gap. Perform the same analysis for the salary data

	Profession A	Profession B
Average Male Salary	70,000	40,000
Average Female Salary	66,500	38,000
Number of Males	150	55
Number of Females	60	140

- (a) Determine the mean salary for males over both professions.
- (b) Determine the mean salary for females over both professions
- (c) Find the ratio of mean salaries from Parts (a) and (b).
- (d) From data above, what do you conclude about the size of salary gap within professions. Explain.