

Gender Tutorial #1 Narration updated August 8, 2006

Total Time [19:08]

Slide 1 [00:17]

Welcome to Gender Tutorial number 1. I'm Virginia Valian and I'll be presenting data on sex disparities in rank and salary. Other tutorials present explanations for the disparities; this tutorial concentrates on the data.

Slide 2 [00:37]

The data we'll review come from a variety of fields. The point of showing data for areas outside of science in addition to the sciences is to demonstrate that science is not particularly bad for women and that other areas are not particularly good for women. There is variation from one field to another, but overall, we see the same pattern again and again: women do not advance at the same rate as men; even when they have the same credentials, men benefit from their accomplishments more than women do.

Slide 3 [00:24]

Some slides have a special feature called "Learn More". If you click on the magnifying glass icon, you'll get additional information about the material presented in that slide. You can also find full citations for all the references at the very end of the tutorial. Finally, I will say, "next slide" when each narration is finished.

Slide 4 [00:18]

We pose three questions:

"Are women underrepresented in science?" "Are women paid less than men?"

"Do women advance more slowly than men?"

The data show that, in all three cases, the answer is "Yes".

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The data show that there has been progress: especially at the beginning of their careers, men and women make very similar salaries and start at the same rank. However, a problem remains: advancement is slower for women than for men. Finally, the problem is general--it occurs in all the disciplines.

Slide 6 [01:05]

There are a number of common explanations for the under-representation of women in science. One common explanation is that the problem is a pipeline problem, that the gap between men's and women's salaries, rates of promotion, and rates of receiving prestigious awards is a result of too few women entering science and related fields. And it's true that there are too few women in the pipeline. But it's also true that the pipeline

selectively leaks women. From BA to MA, from MA to PhD, from PhD to post-doc, more women than men leave science. This is one of the few places that science is particularly bad for women: women drop out of science more often than they leave other fields. Do women "choose" to leave, or do colleges and universities fail to keep women? A later tutorial will address that question.

With this slide is a Learn More opportunity: to learn more about the pipeline by clicking on the magnifying glass in the lower left-hand corner. The next slide examines another common explanation.

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A difference in childcare responsibilities is a common explanation for women's under-representation. If women have heavier responsibilities than men (and they do), that could take time away from women's professional lives. Certainly working fathers do less than their fair share of childcare. Certainly institutions need to provide high-quality childcare facilities for all their faculty, and currently do not. But even women without children do not progress at the same rate as men. There is a cost of being a woman that is independent of whether that woman has children.

To learn more about the costs of childcare for women, click on the magnifying glass.

Slide 8 [00:17]

Maybe the problem is a values problem. If men and women have different values and preferences, those differences could produce the gender disparities. This is harder to evaluate but survey data suggest that men and women want the same things from their jobs.

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It's also probably true, however, that men are more willing than women to forgo a balanced life in order to have as successful a career as possible. The question is whether it's a wise policy decision to have those who forgo a balanced life be the people who dominate science and dominate scientific institutions. People who live a balanced life might make valuable scientific contributions that are insufficiently recognized and compensated.

Slide 10 [00:46]

A common explanation is that the problem is one of acculturation. That is, women don't get as much information as men do about how to be successful; they know less about the reward structure of their fields. Because they lack information and skills they're not as successful as men. And it's true: women receive much less information than men do about how to be successful, especially informal information. But some aspects of the

reward system should be changed rather than adjusted to. For example, speaking confidently is not the same as having something worth saying. We need to be able to see beyond confidence to content.

Slide 11 [00:]

Here are salary figures. Just after getting their PhD, as you can see on the left side of the graph, men and women in science make similar salaries. As years post-PhD increase, however, the differences between men and women also increase (with the exception of 39 years post-degree). An earlier analysis in a book called "From Scarcity to Visibility" showed that even when the figures were adjusted for specialty within science, primary work activity, type of school where the person works, and presence or absence of children – women made less money than men. do. Women have to meet a higher standard than men do in order to be paid the same amount of money.

Slide 12 []

Success in obtaining tenure is an important achievement, because tenure means that the faculty member has an appointment for life. A faculty member is usually considered for tenure in his or her sixth or seventh year. Tenure in academia is somewhat similar to partnership in law. Look at the first set of bars on the left, for faculty who are fewer than 10 years post-Ph.D. The large bottom portion of each bar shows the percentage of each sex who are not on a tenure track. That means that those people do not have a job that can lead to tenure, an undesirable position if one wants an academic career. Note that a larger percentage of women than men are in that position. The middle portion shows the percentages of men and women who are on a tenure track, which means that they have a job that *could* lead to tenure. And the top portion shows the percentages of people who have tenure. Still concentrating on that first set of bars, note that women are less likely to have tenure than men are. As you move to the right of the graph, you can see that the differences between men and women are more extreme when they are 10-19 years post-Ph.D. Women scientists are less likely to have a tenure-track job than men and less likely to achieve tenure than men. Having children is not a cost for women as far as achieving tenure goes, but having children increases the likelihood of having a part-time job or no job.

Slide 13 []

Here are data on the likelihood of being a full professor, the highest rank in academia. At the earliest data point, on the far left of the graph, 7 or fewer years post-PhD, women appear to have a slight advantage over men. But for all subsequent 3-year intervals, women are less likely to be full professors than men are, a difference that peaks at 19 years post-PhD. Overall, female scientists do not become full professor as quickly as male scientists do. Women with children are somewhat less likely than their unmarried peers to become full professor, while men with children are somewhat more likely. But

even women without children lag behind their male peers.

Slide 14 []

A fine-grained analysis of rank shows that differences between male and female scientists begin fairly early. Look at the first set of bars on the left, for faculty who are 10 or fewer years post-Ph.D. The large bottom portion of each bar shows the percentage of each sex who are assistant professors, the lowest tenure-track position in academia. The middle portion shows percentages of associate professors, a higher position that frequently includes tenure. And the top portion shows full professors, who almost always have tenure. Still concentrating on that first set of bars, note that women are slightly more likely to be at the assistant professor level compared to men. As you move to the bars to the right of the graph, you can see that the differences between men and women increase as time goes on. Women scientists advance through the ranks of academia at a slower rate than men do.

Slide 15 [01:51]

Although, in general, men and women start off on an equal footing, there are some data to suggest that early merit may be more difficult for women to achieve than for men. In 1995, 46% of the applicants for a post-doctoral fellowship from the Swedish Medical Research Council were women. But only 20% of the fellowships were awarded to women. What happened? Wenneras and Wold examined the data from the senior judges who were evaluating the applicants for the fellowships. They found that men received higher scientific competence ratings than women did, and the higher the competence rating the more likely the young scientist was to receive a fellowship, as would be perfectly reasonable. Wenneras and Wold then investigated what objective characteristics the senior scientists were attending to that contributed to their judgments of scientific competence. One model they developed that worked well they called "total impact points". This was a combination of the young scientists' productivity and the prestige of the journals that the applicant had published in. This model predicted the men's scientific competence ratings very well. But it did not predict women's ratings as well. Women had to receive 100 or more impact points to get the same rating from the judges that a man with 40 or fewer impact points got. Gender had a significant influence on the scientific competence ratings that the men and women received. As the data repeatedly suggest, women have to meet a higher standard in order to receive the same recognition that men do. In this case, women had to meet a standard that was 2 and a half times as high as the standard for men.

Slide 16 [00:22]

Here are salary data for the humanities. Look at men and women - the set of bars on the left - 0-5 years post-PhD: their median salaries are equal. But 6-15 years post-PhD, women's salary is 5 percentage points less than men's.

Slide 17 [00:44]

Here are tenure data for the humanities. Focus on the first set of bars at the far left, representing 0-5 years post-Ph.D. A very similar percentage of men and women are either not on a tenure track or in an "other" category - the least desirable positions to be in. And very similar percentages are either tenure-track or tenured. But the next set of bars, 6-15 years post-Ph.D., shows that more men are tenured than women are. Women achieve tenure more slowly than men do. The disparity increases with increasing years post-PhD.

Slide 18 [00:45]

Here are rank data for the humanities. Look at the first set of bars on the left, for humanists no more than 5 years post-PhD. They show that very similar percentages of men and women are in the lowest tenure-track rank of Assistant Professor, the middle rank of Associate Professor, and the highest rank of Full Professor. The slight imbalances in the bars are due to rounding errors. However, 6-15 years after the degree, a greater percentage of men than women are full professors. The differences in rank attainment continue as one gets further and further post-Ph.D. Women in the humanities advance through the ranks more slowly than men.

Slide 19 [01:31]

What about medicine? The gender gap in income between male and female physicians has improved over time. For young physicians, that is, physicians with 2 to 5 years of experience, shown in the first set of bars on the left, there is no difference between male and female incomes. But that equivalence only occurs after one adjusts incomes for a number of factors: the number of hours worked per week, because men work more hours a week than women do; specialty, because men work in more remunerative specialties than women do; practice setting, because men work in more remunerative settings than women do; and miscellaneous factors, such as AMA membership. That is an improvement over what was the case 10 years before, when, even after controlling for all those factors, there was still a gender gap. Now that gap is over. However, although parity is present for the least experienced group of physicians, disparity continues to exist among more experienced physicians, as you can see in the bars to the right, even when all the same factors are taken into account. Sex disparities are largest for the most experienced physicians. In another tutorial, we consider whether it is appropriate to control for all the variables we mentioned. For example, why do women practice in less remunerative specialties?

Slide 20 [00:53]

Women in medicine move through the ranks more slowly than men do. The pair of bars here shows data from a study from 1991 looking at men and women 11 years after their

first appointment in a medical school. The top portion of the bars, for full professors - the highest rank - shows that only 5 % of women were full professors compared to 23% of men. Women were less likely to be promoted than men were, even after controlling for publication rates, grants, and other factors. Women's advancement in rank is slower than men's. Women are required to meet a higher standard than men are. This is a recurring pattern. Women and men start off similarly, but as their experience increases, women drop further and further behind men.

Slide 21 [00:57]

Here are data on income differences for men and women in law, presented as a table. This table compares male and female earnings at three different time periods - 1969, 1979, and 1989. The first row of numbers shows the raw differences, when we do not take into account various factors that could influence earnings. Subsequent rows show the figures when they things like the number of hours that the lawyers worked per week and their age are taken into account. The bottom row of numbers shows that from 1969 to 1989 there was very little improvement in the percentage that a woman made of a man's income. The gap ranged from not quite 25% in 1969 to 20% in 1989. The gender gap in lawyers' earnings is decreasing slowly but is persistent.

Slide 22 [00:54]

Partnership in law is somewhat similar to tenure in academia. It carries large advantages in income and autonomy. Associates in law firms are usually considered for partner somewhere between seven and ten years post-law degree. A study of eight large NY law firms is one example of data showing that women are less successful than men in achieving partnership. This table tracks the success of men and women from 1973 to 1986. At all intervals except 1973-74, women became partner at a lower rate than men did. The differences could not be explained by prestige of law school, undergraduate school, or specialty. Women in law are required to meet a higher criterion for promotion than men are.

Slide 23 [01:34]

What do the data show? There has been progress: men and women are much more likely than in the past to make similar salaries at the earliest points of their careers and to start at the same rank. However, a problem remains: advancement is slower for women than for men. Even when men and women have the same credentials, or differences in credentials are controlled for, women do not advance as quickly as men do. Finally, the problem is general--it occurs in all the disciplines. Another tutorial offers an explanation for the persistent and consistent gender disparities. What we need to explain is why the disparities continue, even though most people sincerely believe that only merit should determine success and even though most people intend to treat people fairly. As a preview, gender schemas and the accumulation of advantage are the key concepts.

This ends the narrative portion of Gender Tutorial number 1. The remaining slides allow you to “Learn More”, by providing more detail on some of the topics that we covered; at the very end is the bibliography. We also invite you to visit the web sites that we provide links to.

We hope that you will complete the questionnaire and that you will e-mail us with any questions or comments that you might have.