

# Job Inequality Between Genders in Computer Science and Teaching

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**Abstract.** With the development of society, people nowadays can find jobs with a tremendous variety of choices. However, it's surprising to know in certain occupations, there are still differences in hiring based on gender. This article, focusing on women, shows how the public perceives the stereotypes in the industry of computer science, drawing parallels to teaching, and illustrates the reason behind this condition and how industry insiders perceive this dangerous situation. Also, discussing the right way of hiring and why job inequality occurs will be included in this essay. This paper accounts for qualitative questionnaires, handed out online on social media like WeChat, and Weibo, without specific limitations. The results perfectly reflect the bias in public in the industry of computer science and teaching and people's stereotypes toward them, specifically gender stereotypes. However, hiring should be based on ability rather than gender.

## 1 Introduction

With the continuous progress of society, the application of computer science and technology is no longer limited to small fields such as scientific research, military and finance, gradually penetrating into all aspects of life and work. However, the disparity between gender in this field prevents it from progressing, meaning that hinders the development of the society. To be more specific, even though about half female students are accepted in the school of computer science in top-ranked universities, female participation rate of computer science is only 20 percent. Therefore, it's not hard to tell achieving equality in employment is urgent and primary problem waited to be dissolved. In a practical sense, it helps to correct the public's prejudice against specific professions, companies regain a proper perspective on the internal regulations of the industry, and men and women have the confidence to compete for various positions. Furthermore, achieving quality employment helps women to reach their potential, realize self-worth, and encourage others to dare to try and further promote the development of the economy. This paper aims to attenuate the condition of employment inequality, especially in computer science, and find out whether gender stereotypes exist in specific professions, and if so in what proportion.

## 2 Theoretical background

### 2.1 Foreign studies on genders

Foreign studies have shown that if more masculine terms such as leadership and dominance are used in job advertisements, more men than women apply for jobs,

vice versa [3]. Secondly, in the CS industry, researchers have found that women who participate in experiments are unfairly treated like isolated[4]. To deal with this phenomenon, researchers suggest that if computers are introduced into the curriculum early in education may enhance female computer participation rates dramatically [2]. There are also many statistics online about the unequal representation of men and women in other professions such as nursing where men make up only 10%, but in police and computing where they reach 80%. One point that is interesting to mention is according to the statistics from Carnegie Mellon University, women make up more than 48 percent of incoming first-year undergraduates this fall in Carnegie Mellon University's top-ranked School of Computer Science. However, the percentage of employment of women in CS is only 20 percent, which can further support the inequality in the CS industry [6].

### 2.2 Domestic studies on genders

Domestic studies believe that China's traditional gender cultural concept and traditional gender stereotypes of labor are the rudimentary cause of gender discrimination in employment [1]; and currently, China is lack an adequate legal system for equal employment between men and women, depriving women of an effective guarantee of equal employment. Besides, women's physiology and psychological reasons and employers' consideration of maximum economic benefits also become obstacles to reaching equality in the workplace for women [5]. To be more specific, this kind of employment discrimination is mainly manifested in gender. For example, if a company hires a female, she may ask for leave if she's pregnant, if she's on her period,

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she has to take care of her baby, and so on. However, if the company hires a male, he will spare no efforts to work for the company because his wife will take care of other things for him such as picking up children, doing chores and laundry, and cooking. At the same time, the provisions on explicit employment discrimination are too broad to be effective. Fortunately, the Law of the People's Republic of China on the Protection of Women's Rights and Interests (Revised Draft), which was first reviewed by the Standing Committee of the National People's Congress in 2021, put forward the goals of "implementing gender equality is the basic national policy of the state" and "eliminating all forms of discrimination against women"[7].

### 3 Method

The paper will use interviews and questionnaires to analyze. The author made a questionnaire in Chinese, which contains very straightforward questions such as do you think men are more suitable for teaching or women, do you think men are more suitable for computer science or women and do you think men are more dominant in the workplace or women, and so on. The sample will be collected by posting on the moment on WeChat and Weibo. According to the questionnaire, under the same circumstances, the public prone to choose male employees compared to female. This is because people have a strong stereotypes toward this position: they believe deeply that men are the dominance of this occupation so that if women apply for this job, they will be discriminated because the public think they are not qualified for it. Besides, the public thinks men are dominant of the workplace. In fact, it's true that employers are inclined to hire male employees because they are physically better than women and they take less leave just like the author mentioned before. To achieve maximum benefits, it's understandable for employers to choose to hire male employees. Therefore, if the economy develops at a constant speed, without recession, female may have the same dominance as male. However, even though the public believe that women have the same wage as men under the same position, to their surprise, according to the study by Kate Beckman, "Female software engineers receive 97% of the earnings of male software engineers; 98% of the earnings of male analysts; and 98% of the earnings of men that hold sales roles." The

author can tell clearly that men and women in the industry of computing, there is still inequality between salaries [8].

Also, by using interviews, questions like as an investor, will you consider the gender of the boss or do you value the ability most and when investing, do you always see a female boss or male boss are included in the interview, reflecting most investors choosing the direction and how they perceive this industry. According to a male investor in the computer science industry, he points out that he will pay attention to genders in some cases. To be more specific, examining whether the company has the ability to make ads attractive to their targeted population is a proper time to consider gender in this field. Otherwise, while investing, he insists that it's unfair to talk about genders instead of ability. For example, if their product is specific for female, they may use more feminine words such as skim, anti-aging and so on. What's more, he also suggests that in this industry male executives, such as CFO or CEO, are

### 4 Results

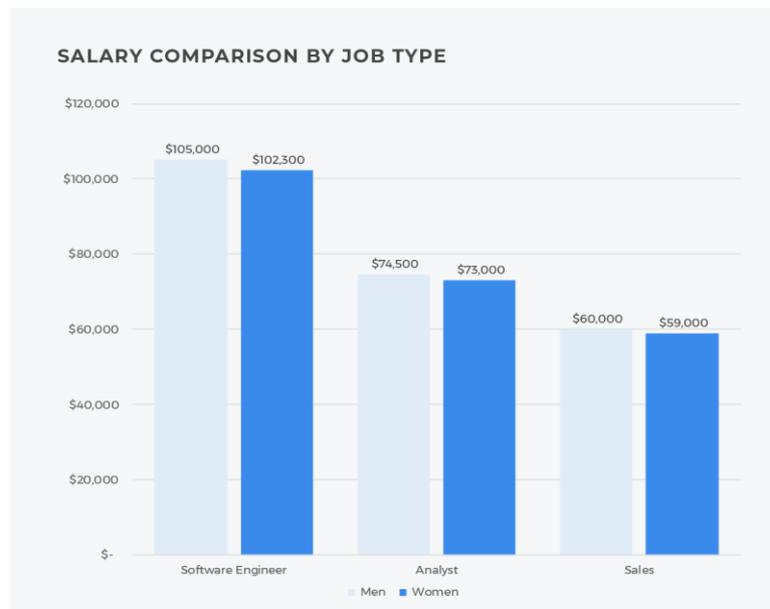
If you run a computer company and two people come to apply for a job. A Haihua Xue is a male who graduated from USC with a degree in computer science, and B Angie is a female who also graduated from USC with a degree in computer science. They both have similar work experience.

**Table 1.** Participants rates of the questionnaire (Edited by the author)

A	77.5%
B	22.5%

**Table 2.** The wages of men and women are the same under the same position. (Edited by the author)

Agree	73.75%
Disagree	26.25%



**Fig. 1.** Study by Kate Beckman, salary comparison (Edited by the author)

More than female executives. Fortunately, the number of female executives is generally increasing and the number of female programmers is also increasing at a greater speed. He thinks the salary differences are understandable in workplace in some cases because male employees usually use their spare time to work a lot, contacting clients, planing work for the next day and finishing the work they haven't done in the day. Therefore, it's inevitable to award male employees who work harder and more, achieving equity in the workplace. Besides, questions like: in teaching industry, do you think there are more men or women; what qualities do you think are necessary to be a teacher; what do you think of the ratio of teachers to men to women or the improvement of the whole industry and so on are included in the interview with teachers. According to a female English teacher in Qingdao, she suggests that in this industry, male teachers are fewer than female teachers because it's true that women are more suitable for learning language, while men are good at logical reasoning. She also mentions that the ability of language and teaching should be the priority of hiring a teacher and she believes that to improve this industry, women and men should learn from each other. Specifically, women are ought to be less sensitive, while men should be less aggressive. Therefore, with the characteristics of male and female, teaching skills and abilities will be enhanced dramatically. Another male English teacher points out that female teachers are more than male teachers almost in every filed even in computer science. He thinks to be a good teacher, one should have the ability first to ace the test and then deliver the knowledge and responsibility. He insists that there is only a little difference in job choosing influenced by genders so individual differences outweigh gender differences including cultural differences, teaching differences and so on.

## 5 Conclusion

Based on the analysis of the questionnaire and the interview, the author has the following conclusions: The public have strong bias and stereotypes toward two professions both teachers and computer science. Most of the people hasn't aware that the salaries between men and women have disparity even under the same position. The public mostly believe that men are the dominance in the workplace. To solve these problems above, the author has several targeted solutions: The government should encourage male and female workers in the industry, so that young people who interested in this field can set up their own goals or modals. Therefore, more and more talents will occur in this field. What's more, in order to have an equal working atmosphere, companies should punish the phenomenon of discrimination, encouraging every individual to exert their full potential.

This problem is the huge obstacle of achieving equality in not only the workplace but also the society. Even if the company wants to use salaries to encourage workers to work harder, employers should determine whether they have high or low salaries based on workers' ability or how much they have done within a month rather than their genders.

Even though it's true that men are dominant the workplace, to figure out this problem, developing economy is inevitable. Specifically, as the development the economy, employers will make enough money to think about achieving equality. In a practically sense, if a company doesn't make enough money, it's hard to employers to consider justice and they will put make money in the first place. Therefore, choosing men, who are physically better and do more work than women, seems to be the best choice for employers.

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