What is the gender pay gap in technology jobs in the U.S.?

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Introduction

Technology is becoming omnipresent in many aspects of our lives (Terzimehić et al., 2021). The job market responds with an increased number of technology-related vacancies and ever growing salaries (Sadler, 2023). As the world is heading towards equality in all aspects of life, it is only natural to ask if these high salaries are available to both female and male employees equally.

In this review, I focused on the U.S. market. I looked at the technology jobs regardless of the business profile of a company they find themselves in. By technology jobs I assumed any and all jobs “[...] that deal with computer programs, hardware, software, networking, and maintaining systems” (Embry, 2023) as well as other jobs falling under the definition of STEM (Lowe-MacAuley, 2023). This field of study lacks a consistent standard of reporting numbers on the pay gap. There are various definitions of adjusted vs non-adjusted pay gap (Blau and Kahn, 2017) (‘adjusting’ is a statistical technique used to introduce additional factors into the calculations which aim to reduce bias and allow the result to be as close to the true value as possible). Because of this I focused primarily on the qualitative research into the reasons behind the gender pay gap, as the literature clearly establishes that the gap exists.

I looked at the past decade of publications, with an increased focus on the past five years. The reason being, that the technology sector is not only growing at a fast pace, but also that it can be seen as the one allowing people to live lives, during COVID-19 pandemic, at least resembling the way they looked prior to the outbreak

(Evans, 2020). As such, it is seen as a huge digital transformation (Amankwah-Amoah et al., 2021) which could have a large impact on the pay in this sector. Taking into account the rapid rate of growth and the magnitude of change caused by the COVID-19 pandemic, the topic of the gender pay gap should be discussed on the newest and freshest data.

While many companies have attempted to close the pay gap (OECD, 2021), the understanding of this topic as well as reliable reporting remains a challenge. There exists few recent studies focusing specifically on the US tech job market gender wage gap. Therefore it is crucial to enhance our understanding of the issue with the most recent data, given the pace at which this industry is developing and expanding.

Methodology

For this literature review, I have first looked in Google Scholar (Google Scholar, 2023) search bar, scanning for terms related to the gender wage gap in the US. I found the following limitations to this method:

1. Many articles and books were behind a paywall.
2. The time constraints as to the date of the publication and the time of the data collection for the publication limit the results set significantly.
3. Very few publications focus solely on the US tech market, with a vast majority discussing the general wage gap across other or simply all industries and/or countries.

Subsequently I attempted to check the references used in the publications matching the topic of search. I encountered similar issues as described above. Issues 2 and 3 apply to the search that was conducted in the Essex Online Library.

The output of the aforementioned process is a list of publications, which discuss the topic at hand. For the synthesis of the literature a Thematic Analysis Framework (Braun and Clarke, 2006) was applied in order to provide a clear and concise overview of the topics, trends, findings and discrepancies in the analysed studies.

U.S. legislation

The U.S. Congress passed a bill in 1963 (The Equal Pay Act of 1963) which aimed to abolish the gender pay disparity. The Act prohibits employers from paying employees of one gender less than employees of the other gender for the same work. Violators can face both civil and criminal repercussions. According to EPA (The Equal Pay Act of 1963), the only permissible unequal pay for equal work can take place when the wage was set pursuant to seniority, merit, quantity or quality of output or any other factor than sex.

The pay parity has been a topic of numerous Congress sittings ever since, with the famous Ledbetter v. Goodyear Tire & Rubber Co. (Ledbetter v. Goodyear Tire & Rubber Co., [2007]) case which led to a new Act passed by the U.S. congress.

The Lilly Ledbetter Fair Pay Act of 2009 (Lilly Ledbetter Fair Pay Act of 2009) was enacted to address pay discrimination in the U.S. It restored the protection against pay discrimination by resetting the 180-day period to file a claim with each new discriminatory paycheck, making it easier for individuals to challenge unequal pay. This act, named after Lilly Ledbetter who faced gender-based pay discrimination, underscores a legislative stride towards mitigating gender pay discrepancies, setting a legal precedent for addressing pay equity.

The U.S. Congress is currently working on the Paycheck Fairness Act (Paycheck Fairness Act), which shall expand and improve the EPA (The Equal Pay Act of 1963), however it has not been passed into law at the time of this review, but only recently introduced in the Senate.

Theoretical Frameworks

Human Capital Theory (Becker, 1964) posits that individual differences in education, experience, and skills significantly contribute to their employment and earnings. In the tech sector, proponents argue that gender pay gaps reflect variances in human capital, suggesting that investments in education and training can potentially mitigate these disparities.

On the other hand, Discrimination Theory (Fibbi, Midtbøen and Simon, 2021) emphasises the role of societal and organisational biases in perpetuating gender pay disparities. It suggests that, irrespective of human capital, women in tech might be paid less due to discriminatory practices, stereotypes, or biassed organisational structures. This theory highlights the importance of addressing systemic and organisational biases to close the gender pay gap, beyond merely focusing on individual qualifications or achievements.

In analysing the gender pay gap in the U.S. tech sector, considering both Human Capital Theory (Becker, 1964) and Discrimination Theory (Fibbi, Midtbøen and Simon, 2021) enhances our understanding of the multifaceted nature of pay disparities. While HCT focuses on individual attributes, Discrimination Theory draws attention to broader societal and organisational biases, offering a comprehensive lens through which to explore and address gender pay discrepancies in the tech realm.

Findings

Strengths and limitations in the literature

The biggest limitation of the literature is that there are very few studies concerning the specific topic of tech gender pay gap in the U.S. given the introduced time constraints. This has prompted me for this review to look at a broader range of topics which contribute to the subject at hand.

Another important impediment is the lack of consistency in reporting of the pay gap. Adjusting statistically the reports can make a significant change to the results (Blau and Kahn, 2017) yet it seems that the researchers are not all speaking a common language when studying this topic. This makes it harder to use apples-to-apples comparisons for any quantitative analysis. Credit must be given though, that many researchers acknowledge this fact and describe their study-specific approach for transparency.

It is definitely a strength of the existing literature that it attempts to look at the explanation of the gender wage gap from a variety of different angles: teenage employment (Yasemin Besen-Cassino, 2018), workplace setup (Seron et al., 2015), public policy (Caughell, 2016), competitiveness traits (Boudreau and Kaushik, 2020), age (Flory et al., 2018) and many others.

Identified themes

I was able to identify three main themes, across the literature, following an inductive approach.

Gender Wage and Employment Disparities is, as one may expect, the most common theme across the literature. It describes and defines the issue of gender pay gap. It introduces the topics of transparency and accountability (Castilla, 2015) and wage decomposition (Meara, Pastore and Webster, 2019). It claims the pay gap issue starts already during first-time jobs taken often by teenage girls (Yasemin Besen-Cassino, 2018). 'Ask gap' offers a simple explanation to some of the gender pay gap, where women tend to ask for a lower salary than men, when negotiating, and this is what they receive (Roussille, 2020). Interestingly, there is no clear evidence of a gender-based pay gap in the executive positions (Handschumacher-Knors, 2022).

Organisational and Societal Gender Dynamics looks at sexism, initiation rituals and daily habits within the field of engineering (Seron et al., 2015) which can make it simply unpleasant for women to work amongst men (White, 2023). This theme also covers public policy issues (Caughell, 2016) and examines initiatives undertaken by

companies in order to bring down pay inequalities (Sherf, Tangirala and Weber, 2017). It discusses cultural beliefs related to gender pay gap as well (Sterling et al., 2020). The 'offspring effect' (Cukrowska-Torzewska and Lovasz, 2019) where women put their careers on pause when they take care of the newborns often stops them from going after higher ranks in organisation - hence lower pay. New trend of 'trophy husband' emerges (Polachek, 2004) contrary to the existing 'trophy wife' stereotype (McClintock, 2014). Increasingly more women become the sole breadwinners, especially when they hold high corporate positions with large paychecks. Lastly, STEM fields are regarded as vying and women's lower levels of competitive traits make it harder for them to stay in the field (González-Pérez et al., 2022).

Last but not least, the *Gendered Performance and Response to Competitive Environments* theme sheds more light on some of the root causes which explain part of the gender pay gap. It opens for discussion the topic of competitiveness and male domination in the STEM fields (Boudreau and Kaushik, 2020). It suggests that women are performing worse under pressure than men (Nagore Iriberri and Rey-Biel, 2019) which could explain another part of the pay gap. There is, however, an opposing view as well, that competition preferences change (or even disappear) with age (Flory et al., 2018), suggesting that age might need to be included in pay disparity discussions.

Discrepancies in the literature

The literature is rather coherent, with one major inconsistency worth noting. While the topic of competitiveness in the workplace and competitive traits comparisons between women and men are discussed as an axiom, one study finds that propensity to engage in competition in women increases with age (Flory et al., 2018). This topic seems in need of further study. If competitive workplace was to prevent women from earning the same as men, there seems to be an opportunity to make changes to the education system or to the workplace itself that would allow for more inclusive approach of women and in turn could lower significantly the gender pay gap.

Conclusion

The literature on the topic of gender pay gap in the tech sector presents a rather coherent description of the issues and potential root causes. This field of study is lacking a clear definition of how to measure the gender pay gap. It is clear that the pay gap exists, but not entirely clear how big it is. This is why I avoided citing any specific numbers in this review and rather focused on qualitative studies.

It is worth noting, that there are reported differences in the pay of top executives between women and men, but that these differences are not gender-based, but rather related to merit, seniority and other factors. The ‘offspring effect’ plays an important role in the gender pay gap, as women who choose to take time off work to care for their children, tend to progress slower with promotions into higher corporate ranks. Interestingly, there is an increased trend of men choosing to stay at home in order to allow their wives to focus on progressing their career.

Sexism, competitiveness and workplace organisation in the male-dominated tech jobs causes women to have a harder time working around mostly men as well as to perform in a highly competitive environment, which results in many women leaving the STEM careers. U.S. Equal Employment Opportunity Commission reports, that only 29.3% of the STEM federal workers are women (U.S. Equal Employment Opportunity Commission, 2019).

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