
Understanding Inequalities in Pay and Peer Support for Freelancers in Online Work Platforms

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Abstract

Freelancers in the online gig economy are often studied as ungendered users who have the additional financial, informational, and emotional support of a professional support network. Yet, emerging research in computer-supported cooperative work (CSCW) suggests that workers must develop their own support networks to learn about clients, develop skills, and become successful workers. Further, their success using online work platforms can differ by gender. In this paper, we review our recent work studying gender inequalities in bill rate on one of the world's largest online labor marketplaces. We conclude with our plans for future work, including studying rate-setting processes of online freelancers and peer support for freelancers in an online portfolio community. We hope that by engaging in discussions around solidarity with workshop participants, we can strengthen our understanding of equity and inclusion and further align our research with the goals of feminist human-computer interaction (HCI) scholars.

Author Keywords

Gig economy, freelancing, professional support, bill rate, pay, equality, gender

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction and Background

More and more, men and women in the United States (US) are freelancing or working as independent contractors [18,24]. The online gig economy, which includes tens of millions of independent contractors exchanging labor through digital means across the globe, increasingly provides job opportunities for this population [17]. To tackle some of the tough challenges of coordinating online work at scale (e.g., [19]), many researchers of the gig economy study its participants as ungendered users [2] who have the additional financial, informational, and emotional support of a professional support network (e.g., [13]). This has allowed for vast improvements in the effectiveness of different methods for motivating and selecting workers to provide high-quality output (e.g., [5,19]).

Yet, not all workers who participate in online work platforms are the same. It is no longer sufficient to continue studying workers without understanding the unique challenges of online work, specifically those connected to dimensions of social identity such as gender and age. Several initiatives have helped workers learn about potential clients to avoid exploitation (e.g., TurkoOpticon [16]), develop useful skills to increase their job prospects (Atelier [22]), form coalitions to shape online labor regulations [21], and share knowledge and emotional support to sustain their livelihood (e.g., TurkerNation [14,20,27]). Moreover, female workers earn and receive reviews at different rates than male workers [6,15]. In online communities that support creative freelancers, women receive less

attention from the community than men, which could impact their employability [26]. Moreover, older adults doing paid crowdwork face unique challenges accessing tasks and understanding the purpose of crowdwork [4]. Researchers need to understand the experiences of these more marginalized users in online work platforms.

If researchers studied online work platforms from the perspective of marginalized users, we could refine our understanding of the motivations and challenges faced by workers. This could also be useful to researchers of other socio-technical systems, as online workers often rely on multiple systems to support their work, including online marketplaces, portfolio communities, and conferencing tools. As design researchers, this understanding could help us design pluralistic work platforms for various groups of people that can increase the satisfaction and productivity of both workers and clients. Therefore, our goal as researchers is to design more inclusive online work platforms and tools given the different kinds of support that online workers need and broader gender differences in society.

Following Bardzell's [2] call for more systematic integrations of feminist concepts in HCI research, we will discuss our recent work studying gender differences in hourly bill rate in an online labor marketplace. Then, we discuss our plans to build on this research by interviewing and observing how female and male workers decide on their online bill rates. As CSCW researchers expand the capabilities of crowdwork to support creative tasks (e.g., [25]), it becomes crucial to understand how online work platforms and tools can specifically support freelancers in creative industries. Hence, we extend our research agenda by examining

how online portfolio communities can be designed to support more helpful, career-focused discussions for freelancers in the domain of visual design. Our recent and upcoming work will help scholars better understand the challenges of online work for creative freelancers to develop more helpful online support tools.

Our Work: Understanding Gender Inequalities in Bill Rate in the Gig Economy

In the traditional labor market, women employed in the US have consistently earned less than men owing to differences in hours spent working for pay, penalties for having flexible work arrangements, and pay expectations (e.g., [11,23]). While online labor marketplaces, such as Upwork [28], Uber [29], TaskRabbit [30], and Freelancer [31] have the potential to mitigate the gender pay gap by providing more flexible workplaces where labor can be provided on the worker's schedule, gender inequalities remain with regard to pay in fixed-context platforms (i.e., driving for Uber [6,29]) and reviews in platforms that offer various services (i.e., Fiverr [15,32]). However, researchers still have little understanding of how gender differences can influence rate-setting in platforms that more closely resemble the traditional market, offer a variety of services, and allow workers to set their own rates, such as Upwork [28] and Freelancer [31].

To close this knowledge gap, we analyzed the hourly bill rates of 48,018 US workers on Upwork [28], one of the largest online labor marketplaces in the world by earnings [1,9]. On Upwork [28], workers create profiles that include their offline work experience and education, and their acquired online work experience (e.g., client reviews, skill tests). Workers then bid on

projects in a variety of job categories, such as IT and Networking, and Design and Creative, that pay on a fixed-rate or hourly basis. Following prior work [10,15], we inferred workers' gender as male or female using their first names as input for the genderComputer Python package.

Controlling for online and offline work experience, highest level of education, and job category, we discovered that female workers (median = \$26.00) asked for just 74% of male workers' median hourly bill rate (median = \$35.00); through a causal inference analysis, we further determined that women earned \$6.28 less on average than men with similar characteristics. Nonetheless, women worked more median hours in certain job categories than men, which meant they matched or surpassed men in estimated total earnings on the platform. While our findings start an important conversation about gender and earnings in the online gig economy, our study's limitations (e.g., lack of insight into rate-setting decisions and focus on binary genders) need to be addressed with additional qualitative research.

Discussion and Future Work

Understanding Female Worker Motivations for Setting Lower Bill Rates

We will build on our findings by examining male and female workers' rate-setting processes in online labor marketplaces. We will conduct in-depth interviews and surveys with workers to understand the information they consider when setting rates, including if and what strategies they use to become more successful with clients. Surveys with samples of workers in different marketplaces will allow us to collect valuable self-reported data we would not otherwise have access to.

For example, participants would be able to identify as non-binary genders, which are outside of the current capabilities of gender inferencing software packages. We would also gain access to participants' actual earnings data and their bill rates over time, not only for projects that were billed hourly, but also fixed-rate projects. We hypothesize that women may be setting lower bill rates as a way to underbid other workers and gain employment [12]. However, they may also be setting lower rates to avoid negative evaluations from clients (e.g., [3]). Interviews and surveys with workers in online labor marketplaces could significantly improve our understanding of these gender differences in bill rate in the gig economy.

Online Peer Support for Male and Female Creative Freelancers

In addition to equal pay, freelancers in online work platforms need a professional network to share knowledge and emotional support to sustain their livelihood (e.g., [14,20]). Given the CSCW and HCI communities' growing interest in crowdsourcing creative tasks (e.g., [8,19,25]), we are expanding our research agenda to understand the needs of freelancers in creative domains, such as visual design, who especially rely on social networks to earn a living [7]. Through 22 formative interviews with visual design freelancers, we learned that this community rarely receives helpful peer support in online portfolio communities, such as Dribbble [33] and Behance [34]. Instead of learning why some projects receive more or less attention than others, freelancers often receive shallow praise in peer comments. We developed a visualization to encourage peers to provide helpful comments comparing a designer's project with their body of work. The visualization explicitly prompts

commenters to compare projects and displays thumbnails of other projects in the portfolio, with overlaid graphs of social metrics such as 'views' and 'appreciations.' We will test our visualization in an experiment and compare the experiences of male and female designers in both writing and receiving comments. Because men and women form connections differently in online design communities [26], we hypothesize that they will write comments that are received differently by the original owners of the design projects.

Conclusion

Understanding and supporting the needs of freelancers who rely on online labor marketplaces and other platforms to sustain their livelihood is a critical goal for HCI and CSCW researchers today. Our recent work suggests that gender differences, workers' earnings, and peer support must stand more prominently in this research agenda if we are to truly make online freelancing and the gig economy more inclusive. We hope that through discussions with other workshop participants, we will exchange helpful feedback to strengthen scholarship focused on equity and inclusion.

About the Authors

Eureka Foong is a fourth-year PhD student and Design Cluster Senior Fellow in the Delta Lab at Northwestern University studying crowdsourcing applications that support design education. She has spoken at TEDx about user research and problem solving at civic hackathons.

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References

1. Ajay Agrawal, John Horton, Nicola Lacetera, and Elizabeth Lyons. 2015. Digitization and the Contract Labor Market: A Research Agenda. In *Economic Analysis of the Digital Economy*. University of Chicago Press, 219–250. <https://doi.org/10.7208/chicago/9780226206981.003.0008>
2. Shaowen Bardzell. 2010. Feminist HCI: Taking Stock and Outlining an Agenda for Design. In *Proceedings of the ACM Conference on Human Factors in Computing Systems*, 1301–1310.
3. Hannah Riley Bowles, Linda Babcock, and Lei Lai. 2007. Social incentives for gender differences in the propensity to initiate negotiations: Sometimes it does hurt to ask. *Organizational Behavior and Human Decision Processes* 103, 1: 84–103. <https://doi.org/10.1016/j.obhdp.2006.09.001>
4. Robin Brewer, Meredith Ringel Morris, and Anne Marie Piper. 2016. “Why Would Anybody Do This?”: Understanding Older Adults’ Motivations and Challenges in Crowd Work. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (CHI ’16), 2246–2257. <https://doi.org/10.1145/2858036.2858198>
5. Carrie J. Cai, Shamsi T. Iqbal, and Jaime Teevan. 2016. Chain Reactions: The Impact of Order on Microtask Chains. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (CHI ’16), 3143–3154. <https://doi.org/10.1145/2858036.2858237>
6. Cook, Cody, Diamond, Rebecca, Hall, Jonathan, List, John A., and Oyer, Paul. 2018. *The Gender Earnings Gap in the Gig Economy: Evidence from over a Million Rideshare Drivers*. Retrieved April 19, 2018 from <https://www.gsb.stanford.edu/faculty-research/working-papers/gender-earnings-gap-gig-economy-evidence-over-million-rideshare>
7. Creative Industries Federation. 2017. *Creative Freelancers*. Creative Industries Federation. Retrieved September 28, 2018 from <https://www.creativeindustriesfederation.com/sites/default/files/2017-07/Creative%20Freelancers%201.0.pdf>
8. Mira Dontcheva, Robert R Morris, Joel R Brandt, and Elizabeth M Gerber. 2014. Combining crowdsourcing and learning to improve engagement and performance. In *Proceedings of the 32nd Annual ACM Conference on Human Factors in Computing Systems*, 3379–3388. <https://doi.org/10.1145/2556288.2557217>
9. Eureka Foong, Nicholas Vincent, Brent Hecht, and Elizabeth M Gerber. 2018. Women (Still) Ask For Less: Gender Differences in Hourly Rate in an Online Labor Marketplace. *Proceedings of the ACM on Human-Computer Interaction* 2, CSCW.
10. Denae Ford, Alisse Harkins, and Chris Parnin. 2017. Someone like me: How does peer parity

- influence participation of women on stack overflow? In *2017 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, 239–243.
<https://doi.org/10.1109/VLHCC.2017.8103473>
11. Claudia Goldin. 2014. A Grand Gender Convergence: Its Last Chapter. *American Economic Review* 104, 4: 1091–1119.
<https://doi.org/10.1257/aer.104.4.1091>
 12. Mark Graham, Isis Hjorth, and Vili Lehdonvirta. 2017. Digital labour and development: impacts of global digital labour platforms and the gig economy on worker livelihoods. *Transfer: European Review of Labour and Research* 23, 2: 135–162.
<https://doi.org/10.1177/1024258916687250>
 13. Mark Granovetter. 2018. *Getting a Job: A Study of Contacts and Careers*. University of Chicago Press.
 14. Mary L Gray, Siddharth Suri, Syed Shoaib Ali, and Deepti Kulkarni. 2016. The Crowd is a Collaborative Network. In *Proceedings of the ACM Conference on Computer Supported Cooperative Work*. Retrieved from
<http://dx.doi.org/10.1145/2818048.2819942>
 15. Anikó Hannák, Claudia Wagner, David Garcia, Alan Mislove, Markus Strohmaier, and Christo Wilson. 2017. Bias in Online Freelance Marketplaces: Evidence from TaskRabbit and Fiverr. In *Proceedings of the ACM Conference on Computer-Supported Cooperative Work and Social Computing*.
<https://doi.org/10.1145/2998181.2998327>
 16. Lilly C. Irani and M. Six Silberman. 2013. Turkopticon: interrupting worker invisibility in amazon mechanical turk. In *Proceedings of ACM Conference on Human Factors in Computing Systems (CHI 2013)*, 611.
<https://doi.org/10.1145/2470654.2470742>
 17. Otto Kässi and Vili Lehdonvirta. 2016. *Online Labour Index: Measuring the Online Gig Economy for Policy and Research*. Retrieved April 19, 2018 from <https://mpr.ub.uni-muenchen.de/74943/>
 18. Lawrence F Katz and Alan B Krueger. 2016. *The Rise and Nature of Alternative Work Arrangements in the United States, 1995-2015*. National Bureau of Economic Research.
<https://doi.org/10.3386/w22667>
 19. Aniket Kittur, Jeffrey V Nickerson, Michael Bernstein, Elizabeth M Gerber, Aaron Shaw, John Zimmerman, Matt Lease, and John Horton. 2013. The future of crowd work. In *Proceedings of the 16th ACM Conference on Computer Supported Cooperative Work & Social Computing*, 1301–1318.
<https://doi.org/10.1145/2441776.2441923>
 20. David Martin, Benjamin V Hanrahan, Jacki O’Neill, and Neha Gupta. 2014. Being a turker. In *Proceedings of the 17th ACM conference on Computer supported cooperative work & social computing*, 224–235.
<https://doi.org/10.1145/2531602.2531663>
 21. Niloufar Salehi, Lilly C. Irani, Michael S. Bernstein, Ali Alkhatib, Eva Ogbé, Kristy Milland, and Clickhappier. 2015. We Are Dynamo: Overcoming Stalling and Friction in Collective Action for Crowd Workers. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems - CHI ’15*, 1621–1630.
<https://doi.org/10.1145/2702123.2702508>
 22. Ryo Suzuki, Niloufar Salehi, Michelle S Lam, Juan C Marroquin, and Michael S Bernstein. 2016. Atelier: Repurposing Expert Crowdsourcing Tasks as Micro-internships. In *Proceedings of the 2016 Conference*

- on Human Factors in Computing*, 2645–2656.
<https://doi.org/10.1145/2858036.2858121>
23. U.S. Bureau of Labor Statistics. 2017. *Highlights of women's earnings in 2016*. U.S. Bureau of Labor Statistics. Retrieved April 19, 2018 from <https://www.bls.gov/opub/reports/womens-earnings/2016/pdf/home.pdf>
 24. US Bureau of Labor Statistics. 2018. *Contingent and Alternative Employment Arrangements Summary*. Retrieved September 28, 2018 from <https://www.bls.gov/news.release/conemp.nr0.htm>
 25. Melissa A Valentine, Daniela Retelny, Alexandra To, Negar Rahmati, Tulsee Doshi, and Michael S Bernstein. 2017. Flash Organizations. In *the 2017 CHI Conference*, 3523–3537.
<https://doi.org/10.1145/3025453.3025811>
 26. Johannes Wachs, Anikó Hannák, András Vörös, and Bálint Daróczy. 2017. Why Do Men Get More Attention? Exploring Factors Behind Success in an Online Design Community. In *arXiv:1705.02972 [cs]*. Retrieved April 19, 2018 from <http://arxiv.org/abs/1705.02972>
 27. Turker Nation : Our mTurk Forum helps you earn money online with Amazon mTurk. Retrieved September 28, 2018 from <http://turkernation.com/>
 28. Upwork - Hire Freelancers & Get Freelance Jobs Online. Retrieved April 19, 2018 from <https://www.upwork.com/>
 29. Making career moves? Sign up to be a Uber Driver or get a ride to the airport | Uber. Retrieved April 18, 2018 from <https://www.uber.com/>
 30. TaskRabbit connects you to safe and reliable help in your neighborhood. Retrieved April 18, 2018 from <https://www.taskrabbit.com/>
 31. Hire Freelancers & Find Freelance Jobs Online - Freelancer. Retrieved April 18, 2018 from <https://www.freelancer.com/>
 32. Fiverr - Freelance Services Marketplace for The Lean Entrepreneur. Retrieved April 19, 2018 from <https://www.fiverr.com/>
 33. Shots - Dribbble - Dribbble. Retrieved March 1, 2018 from <https://dribbble.com/>
 34. Behance :: Best of Behance. Retrieved September 28, 2018 from <https://www.behance.net/>