Peter Gansallo
Stat Measure & Model
Annotated Bibliography

Question: How has the rise of automation and AI technology disproportionately impacted job security and employment rates among marginalized groups?

Marginalized groups: Racial and ethnic minorities (e.g., African Americans, Latinos, Indigenous peoples), Low-income individuals and families in this case

1.
https://sciendo.com/article/10.2478/izajolp-2019-0004

Ernst, Ekkehardt, Rossana Merola, and Daniel Samaan. "Economics of Artificial Intelligence: Implications for the Future of Work." *IZA Journal of Labor Policy*, vol. 9, no. 4, 2019.

The authors provided a very in depth analysis of the potential effects of AI's economic effect on the future. In this article the author mentioned some key terms like capital-skill complementarity; this is the relationship that as technology advances and replaces low skilled work, high skilled workers become in more demand because these workers can use advanced technologies more effectively. This would increase the wage gap between low skilled and high skilled workers, and this is something that happened in the past, many low-skilled workers in the past were unable to transition to new jobs or industries that emerged alongside technological advances. This lack of “mobility” caused long-term unemployment for many low-skilled workers, increasing income inequality. The author then explained that AI is different from the past technological advances we’ve had. AI can affect more than just routine tasks, now it focuses more on mental tasks rather than physical tasks, potentially leading to broader impacts across a range of industries. The explanations the author gave say that this would actually lead to less polarization between incomes and actually potentially closing the gap between low skilled and high skilled workers.

The article also explains the difference between AI and previous technological advancements by emphasizing that AI's influence goes beyond routine tasks, “replacing mental tasks rather than just physical ones”. This can lead to broader impacts across various industries, potentially reducing income polarization and closing the wage gap between low-skilled and high-skilled workers. However, companies that adopt AI technology early may create significant competitive advantages over their peers, further increasing disparities.

The authors discuss the importance of taxation and regulatory policies to ensure that the benefits of AI are equally shared. This article is very informative for my research topic, as it shows possible solutions that address the economic disparities driven by technological change. It also shows AI might not be as bad to marginalized communities in the workforce as I may have thought.

2.

https://www.researchgate.net/profile/Amy-Healy/publication/325796290_How_to_escape_the_low_learning_trap_in_a_runaway_labour_market/links/5b3f7edaaca27207851e87fd/How-to-escape-the-low-learning-trap-in-a-runaway-labour-market.pdf#page=142

Petropoulos, Georgios. *The Impact of Artificial Intelligence on Employment*. 2018.

Georgios Petrpoulos has had two main points in his article, displacement vs productivity. Displacement is the loss of human-waged jobs to AI and automation, while productivity is the increase of jobs due to AI and automation creating new opportunities and fields of work for humans. Georgios Petropoulos reviews a few different studies examining his two main points. One of the studies said 46% of jobs in the US are at risk from AI and Automation and 54% in the UK. This doesn't represent well the displacement vs productivity points. Jobs may be lost from AI and Automation, but at the same time new job opportunities may arise from AI and Automation, and there might actually be a net increase of jobs from AI and Automation. However from the review of the other studies it was a common find that low skilled jobs were the ones being taken and have a negative effect from AI and automation, whilst middle and high skilled jobs benefitted form AI and Automation. He then proposed different techniques to solve this issue.

This article is valuable for its balanced view, presenting both the risks and potential benefits of AI on employment. The strength of Petropoulos' work lies in his use of a wide range of studies, which supports his argument about how automation might affect different sectors differently.

This source will be useful in my research for understanding the broader impacts of AI on job markets, especially when discussing the unequal effects on low-skilled versus high-skilled workers. I will use this to support my argument on the disproportionate impact of AI on marginalized groups, focusing on job displacement.

3.

Cardenas, Soraya, and Serafin F. Vallejo-Cardenas. “Continuing the conversation on how structural racial and ethnic inequalities affect AI biases.” *2019 IEEE International Symposium on Technology and Society (ISTAS)*, Nov. 2019, https://doi.org/10.1109/istas48451.2019.8937853

This article explains how AI systems have adopted pre existing biases in society, especially against marginalized communities like African Americans and Latinos. It shows how these biases affect underrepresented people. We have examples like facial recognition technologies, struggling to correctly identify darker-skinned individuals, self-driving cars being less likely to detect pedestrians with darker skin tones, and Amazon having an algorithm scrapped in 2018 because it showed bias towards men. Then discusses what I feel the author makes a case for being the root of the problem. Most AI engineers are White or Asian men, minorities are severely underrepresented, resulting in algorithms that fail to account for the experiences of marginalized groups. 1% of google employees are african american. The author also points out that structural inequalities in education and employment create barriers for marginalized groups to enter STEM fields, he mentions 10% of white people live under the poverty line while black and latino are 38% and 30% under the poverty line. Students from low socioeconomic backgrounds have less access to computers and the internet, and are more likely to drop out of STEM programs due to a lack of support and resources. The author goes in further detail about these things. The paper ends with recommendations to solve AI bias. This includes improving workforce diversity in AI development, mandating bias testing for algorithms, integrating social scientists in AI projects, and reforming education systems to provide better access to technology for underrepresented groups.

The author of this paper has a good analysis of how AI can continue social biases. This article has real-world examples, such as facial recognition errors and biased algorithms, that highlight the impact of biased AI on marginalized communities. The author primarily focuses on the U.S. and doesn’t mention things outside of the US.

This source will be useful in my research to demonstrate how AI disproportionately affects marginalized groups. It provides evidence which that that the development of AI reflects and continues current societal inequalities, and adds another aspect of how we marginalized groups get filtered early to even have an impact to affect the AI biases which can support my argument through the connection that the lack of representation in AI development can create a cycle of exclusion, and the lack of getting into stem can further the gap between low income and mid/high income people.

4.

Morgan, Mathew. *AVOIDING THE EXISTENTIAL INJUSTICE OF UNEMPLOYMENT CAUSED BY TECHNOLOGY*, 1 Apr. 2018,

jscholarship.library.jhu.edu/server/api/core/bitstreams/c1da093c-b74f-4ce5-9f34-4af98d30652f/content

The author talks about existential justice, this is anyone that's unable to get a job or loses their job and it's not their fault or anything they "could've done", an example is someone who does their work very well and has good performance, but still loses their job because their work was replaced by a machine or got automated. The author discusses how quickly AI is advancing, and how many jobs are gonna be automated in the next couple of years/decades. The author discusses that low level, and low skilled jobs are gonna be the first to go. As an example, the Chanying Precision Technology Company in Dongguan City, China replaced nearly 600 workers with 60 robots and reduced its defects by 80% and increased production by 250%. They found that cities, including Las Vegas, Riverside, CA and Orlando, FL, that may lose more than 60% of their jobs to automation also have high percentages of low-skill, low-wage jobs. Then even high level/high skilled jobs may be next to go as well. Currently in the US there is cultural value between hard work and income. Work is and has been important in the United States. Founding father Benjamin Franklin emphasized the importance of hard work in his writings. He quipped that "time is money and ascribed to a view that a person who can earn $10 a day at work should consider taking half of a day off as throwing $5 away". The author states that eventually when most jobs have been taken by automation, people's perception and thought process of hard work and productivity equating to money, should change, that many people won't have work and will feel and deemed "they didn't work hard enough" and people shouldn't let UBI, Universal Basic Income, have a negative connotation to it, that people are money for not doing anything, where as it's more for basic needs to exist. In order for this to be a solution, it'd call for a cultural shift that values non-paid contributions to society, recognizing activities outside of formal employment as meaningful.

This article provided a deep discussion of the long-term cultural impacts of AI-driven unemployment. The article talks about societal consequences of widespread automation, beyond the economic realm. This source combined with my other sources will be useful in my research as a potential solution, the numbers given of how low level jobs are at risk, and them being the first to be taken by automation show the impact AI will have on marginalized communities.