Automation, Gender, and Race: Problems and Recommendations

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1. Executive Summary

The rise of digital technologies has facilitated the increase of automation in the workplace. However, while increasing high-paying job opportunities that require highly skilled workers, automation will also result in a severe decrease in the need for medium to low-wage labou in the workforce (Ernst et al., 2018). Furthermore, the rise in automation is expected to disproportionately affect women in the workforce in low-wage sectors, and in sectors where women already face barriers to entry (Madgavkar et al., 2019). This risk is also considerable in occupational sectors with gender imbalances, both in spaces where women are disproportionately represented - office administration, for example -, as well as spaces where women are a minority, such as in STEM (Science, Technology, Engineering, and Mathematics) fields (Hayasaki, 2017). Automation is predicted to displace lower-paying forms of employment whose population is predominantly comprised of women. For example, writing for the McKinsey Global institute, Madgavkar and colleagues (2019) report that 52% of all the employment opportunities women will lose will be within the service and clerical sector.

Although automation may have the positive consequence of creating more higher-paying employment opportunities, individuals will have to upskill in order to achieve access to these new positions (Ernst et al., 2018). However, the effort to upskill in order to adapt to an automated workplace will likely prove unfairly difficult for women as a result of longstanding systemic barriers. Due to patriarchal gender norms, a large share of the time women could use to update their skills may be spent on unpaid family care work in a way that does not affect men. Furthermore, other dangers of patriarchy, such as inhibited social mobility because of physical

safety, and barriers to access to educational opportunities and STEM field technologies, may limit the efforts of women to participate in automated environments (Madgavkar et al., 2019).

In the same way women face barriers to accessing opportunities in an automated environment, so do people of color. In the U.S. people of color are minoritized in society at large and face racial discrimination even in the workplace (Triana, 2015). Prevailing social and economic systems result in socio-economic inequalities that manifest themselves as racialized access to resources such as education, training, and even racial inequalities in terms of access to job opportunities (Walters, 2001). Even in the context of automation, longstanding disparities, such as those on the basis of race, are expected to perpetuate systemic racial discrimination in the workplace (Chessel, 2018). Due to the intersectional nature of systems of injustice (Crenshaw, 2005) gender and racial inequalities may particularly place women of color at added risk of displacement due to automation.

With these issues in mind, this paper is intended at investigating what measures the U.S. government might be able to undertake in an effort to ensure that automation does not disproportionately displace women in the U.S. labor force. In order to accomplish this, we will first intimately elucidate the consequences of automation for women - particularly women of color in U.S. workplaces. We will highlight expected trends in this context, and then finally make feasible recommendations based on empirical evidence.

2. Description of Policy Challenge or Issue

As the world changes, it comes as no surprise that the labor market shifts in response. For centuries, technological developments seem to have been the driving force behind an ever-changing labor market, with outdated sectors declining as new jobs emerge (Brynjolfsson & McAfee, 2014). Today, technological developments in artificial intelligence are driving a new

wave of evolution in the labor market, resulting in big changes in occupational demand. Often referred to as the Fourth Industrial Revolution, automation will play a key role in defining the future of our labor force. As a result of the automation of tasks, there has been a decline in demand for certain jobs, in categories such as office support, customer interaction, and predictable physical work (Madgavkar et al., 2019). Meanwhile, these same technological developments have driven an increase in demand for technology professionals, care providers, and builders.

When looking at the issue from a gendered perspective, the jobs in decline are roughly equally held by men and women, where their difference in wages mirrors the national average (Madgavkar et al., 2019). However, amongst growing jobs, those predominantly held by women are significantly lower-pay than those predominantly held by men (Catalyst, 2020). This can be attributed to the fact that many of the emerging jobs, which will continue to rise in demand as a result of technological advancements, are in areas with existing gender gaps such as engineering, math, and computer science (Hayasaki, 2017). By examining expected job gains, a concern for gender equality in the labor force arises, “These technological changes will create new kinds of jobs while displacing others. Men will see nearly 4 million job losses and 1.4 million gains (approximately one new job created for every three lost). In comparison, women will face 3 million job losses and only 0.55 million gains (more than five jobs lost for every one gained)” (Hayasaki, 2017).

A recent World Economic Forum (WEF) study reported that existing gender gaps in STEM dominated fields would diminish women's professional presence in the coming years (Rubery, 2018). When we expand this analysis and make the comparison between declining-job and growing-job wage gaps for race, the difference is even more stark. Emergent jobs

predominantly held by people of color pay significantly less than those predominantly held by white workers (United States Census Bureau, 2018). Additionally, women of color face significant barriers which make it difficult for access into these emerging fields, "in 2017, while more American women held college degrees compared to American men, they only accounted for 29% of workers employed in the STEM field … women of color only accounted for 11.5% of workers in STEM" (National Science Foundation, 2017).

Moving forward, it is important to examine the way in which automation, artificial intelligence, and machine learning will impact women and women of color. In the coming years, as we pursue higher levels of automation, "Job lost, gained, and changed imply that many millions of women may need not only to transition between occupations and sectors, but also to make substantial changes in the way they work in their existing jobs" (Madgavkar, 2019). In order to promote and uphold the principles of gender equity, it is crucial that we address growing disparities.

3. Policy Options to Address the Challenge or Issue

Given the complex nature of the relationship between automation, women, and race, it is essential that the U.S. government moves towards implementing policies that promote gender equity in the workplace and throughout the country, in order to combat possible externalities of automation and AI development which may hurt progress towards gender equality. Policies which empower women, and women of color, are necessary to target current and future gender gaps. Taking action is critical, especially during a time in which the ongoing global pandemic has led to regressive effects on gender equity. Additionally, the world's economic recovery following the global pandemic would benefit greatly if countries all around the world implement social and economic policies benefiting women, as "gender-parity improvements by 2030 could

lead to $13 trillion of incremental GDP in that year" (Madgavkar, 2019). However, these benefits can only be achieved if action takes place immediately. Some policies to consider include: easier access to education, upskilling, and re-education for women and women of color (specifically STEM education), legislation providing improved maternal and paternal leave, strengthening childcare benefits for parents, ensuring that women and women of color have an active role in policy implementation, and promoting diverse working environments throughout the country.

In order for American women to successfully and equally transition into an economy changed by automation, easier access to education and skill training in fields that are projected to grow the most is an essential step towards decreasing gender gaps in the workforce. Gender gaps that may arise in emerging fields are a growing concern as "66 percent of executives saw addressing potential skill gaps related to automation or digitization a top-ten priority" (Madgavkar, 2019). Furthermore, this is worrying considering women will have "low representation in sectors where job growth is expected," as a result of automation (Gutierrez, 2020). By promoting lifelong learning initiatives, whether that be through government subsidizing programs, giving tax break incentives to employers that promote opportunities for their workers to gain new trades and skills, or supporting NGOs, women can be given the opportunity to enter fast growing sectors and learn skills which will benefit new kinds of careers.

Increases in flexibility will help all American workers to respond as developments in automation and AI alter the labor market, however women often find themselves inflexible due to the burden of childcare. Distributing unpaid care work, which typically falls upon women, among men and women would help with this. Women account for 75% of the share of unpaid care work around the world according to The Bell Policy Center. This often stops women from

having the time to obtain new education and job training opportunities. Meaningful policies that can help distribute care revolve around expanding paternity leave on the federal level, encouraging companies to increase leave time and incentivizing employers to provide additional benefits. Additionally, stronger leave benefits for parents could be implemented on a national level as well as investing in easily accessible and affordable childcare facilities which would allow for parents, and especially mothers, to continue working, learning, and growing professionally after having children.

Because of the volatile and always changing circumstances that surround development of automation and AI in the American economy, women, particularly women of color, must have an active voice in policy development and implementation, inside the government and in the labor market. This can involve government and business initiatives to provide reliable information to women and women of color about how automation will change the labor market and how the gender wage gap may worsen in the near future. Additionally, introducing women to the STEM field during early education, around elementary school, through government and private programs like STEM summer camps could encourage interest in sciences and technology. The government may also incentivize underrepresented minorities, like women of color, to pursue careers in STEM by subsidizing education and technical training or supplying direct payments while they transition to newly developed labor sectors. Finally, government and business leaders must take active steps to address the lack of diversity in the STEM workforce by promoting public diversity campaigns and inclusive programs to encourage women and women of color to pursue education in STEM.

4. Conclusions and Recommendations

Ultimately, the rise in automation may hurt women in the workforce due to women, especially women of color having barriers to education in emerging fields and industries and upskilling opportunities which stems from systematic issues. With researchers at the Stanford Center on Poverty and Inequality arguing that nearly 25% of women in female-dominated occupations would need to exchange places with men in male-dominated jobs to end all the occupational segregation by gender (Weeden, 2018), there's much to be done, especially as women have much lower representation in sectors where job growth from automation is expected (Gutierrez, 2020). The U.S. government must start implementing policies that promote gender equity in the workplace and throughout the country through easier access to education, upskilling, and STEM programs in addition to better care policies, access to more accurate information, and women and women of color having an active voice in policy development and implementation.

Fundamentally, automation, much like COVID, is an accelerant which has shown the nation the drastic disparities in the socioeconomic barriers that are prevalent between genders and races in the United States. Taking the first step to work towards the recommended policies is essential to help work towards the United Nations Sustainable Development Goals like gender equality, quality education, and decent work and economic growth, which all correlate to creating a more equitable society, communities, and workplaces.

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