Climate change, labor market and the future of gender inequality: The case of South Africa

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Increasing temperatures induced by climate change will have consequences on the labor market. Especially in industries with high

exposure to heat, high temperatures may result in a reduction in labor supply (due to fewer hours worked), which can impact the overall productivity of labor-intensive industries.

In order to explain how climate change can affect labor availability and, in particular, how it can impact the gender pay gap, a recent study by CMCC@Ca'Foscari and RFF-CMCC European Institute on Economics and the Environment (EIEE) researchers examined the impact of climatic stressors on female labor in South Africa. The work, published in the journal *Climate and Development*, focused on the gender dimension of climate change by investigating its impact on women's labor force availability, especially in high-exposure sectors such as agriculture and construction in developing countries, and the pay gap between male and female workers and in outdoor and indoor settings.

Using a dataset from five waves of a longitudinal national household survey in South Africa from 2008 to 2017—in which the same households have been interviewed over time to detect any changes in socioeconomic and demographic characteristics—they found that higher temperatures have a negative impact on working hours of low-skilled labor, especially among women in the most highly-exposed sectors to heat.

"Climate change is already having a measurable impact on workers, especially those working outside. Further, female workers are more vulnerable to heat stress," says Shouro Dasgupta, author of the study, a researcher at the CMCC Foundation and EIEE, Lecturer at Ca' Foscari University of Venice.

Researchers incorporated these findings in an overlapping generations (OLG) model to study the future impact of climate and socioeconomic changes on gender pay gap.

Their findings confirm that climate change will decrease the relative availability of female low-skilled labor who are usually employed in sectors with high exposure to heat. This would create more demand for this type of labor, driving a potential increase in the relative wages of low-skilled female workers. This would close the wage gap between male and female low-skilled labor as well as the wage gap between low-skilled and high-skilled female labor.

Nevertheless, the authors warn that although the gender pay gap may reduce as a result of climate change impacts on labor supply, the overall impact of climate change on the economy remains negative considering the damages to labor availability and sectoral productivity. Indeed, their findings suggest that the total economic output per adult could shrink by up to 11% in South Africa by the end of the century under a severe climate scenario.

Besides the negative impacts of climate change on the South Africa economy, results highlight the importance of targeted adaptation policies that can build on their positive impacts in reducing gender pay gap in rural communities. Such policies should use this opportunity to invest in women's education in order to empower them to take up more active roles in the policy sphere.

"Climate change brings new threats and opportunities to our societies. It is up to the policy makers and community organizers to mobilize their resources and harvest these potential benefits in order to reduce the damages from climate change," affirms Soheil Shayegh, lead author of the study, a researcher at EIEE and CMCC Foundation.

More information: Soheil Shayegh et al, Climate change, labour availability and the future of gender inequality in South Africa, *Climate and Development* (2022). DOI: 10.1080/17565529.2022.2074349