

The changing occupation landscape: How automation affects workers health and mortality

September 28 2021



Credit: CC0 Public Domain

A study on how structural economic risk at the occupational level is linked to long-term health outcomes of employees found that individuals

in occupations characterized by high routine intensity are likely to become unemployed in the long term and have higher rates of disability and mortality, according to researchers at the Robert N. Butler Columbia Aging Center based at Columbia University Mailman School of Public Health. Until now, there has been a lack of large-scale population level analyses focusing on how one's job is affected by technology- induced displacement and its health and social effects. The findings are published online in the journal *Occupational and Environmental Medicine*.

The researchers categorized all Norwegian employees in 2003 aged 33-52 in 335 occupations using the Routine Task Intensity (RTI) index, a weighted sum of selected job characteristics based on an occupation's routine cognitive or physical tasks that can potentially be automated or outsourced. The sample was composed of 416,003 men and 376,413 women.

"Because we can follow the earnings and social security history of these workers for 15 years, through 2018, we limited the data extract to those aged 33-52 in 2003—wage earners in their prime earnings age—and observed employment and disability status in 2018 and mortality status in 2019," noted Vegard Skirbekk, Ph.D., professor of population and family [health](#) at Columbia Mailman School of Public Health, and senior author. "The key findings are robust to controlling for other factors, such as [educational attainment](#), and persist when we compared siblings working in jobs with different levels of routine intensity. "

A second Index—the Frey-Osborne Index—was also used to more narrowly reflect the probability that expected advances in machine-learning techniques would make it possible to automate the tasks involved in different occupations over the coming decades.

Working in an occupation with an RTI score slightly above the mean in 2003, was associated with a raised probability of being deceased in

2019, corresponding to raised [mortality rates](#) of 6.7 percent for men and 5.5 percent for women.

"Our finding matched earlier research that found declining employment in occupations with higher RTI scores," observed Skirbekk. "While the projected impact of technological changes on [labor markets](#) varies across studies, many expect these economic changes to continue or even accelerate and encompass larger shares of the economy."

According to Skirbekk there are several reasons why technology-induced job loss can relate to health outcomes. Holding an occupation that is being phased out over time increases the risk of employment loss and makes re-employment harder since job openings within the same [occupation](#) will tend to become scarce. Having a job where one has a higher risk of being laid off can cause stress and greater risk of anxiety and depression.

"This unique study underscores that we should pay more attention to the types of job people hold—which can have negative implications for their job prospects, health and lifespan. In the face of widespread automation, such effects could well increase in importance in the years ahead," said Skirbekk. "Governments need to consider individuals holding [jobs](#) that are at risk, assess opportunities for retraining and reeducation, give counseling, provide economic support, offer preventive healthcare services and pay more attention to these groups of individuals as a whole."

More information: Bernt Bratsberg et al, Technology-induced job loss risk, disability and all-cause mortality in Norway, *Occupational and Environmental Medicine* (2021). [DOI: 10.1136/oemed-2021-107598](https://doi.org/10.1136/oemed-2021-107598)

Provided by Columbia University's Mailman School of Public Health

Citation: The changing occupation landscape: How automation affects workers health and mortality (2021, September 28) retrieved 24 April 2024 from <https://medicalxpress.com/news/2021-09-occupation-landscape-automation-affects-workers.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.