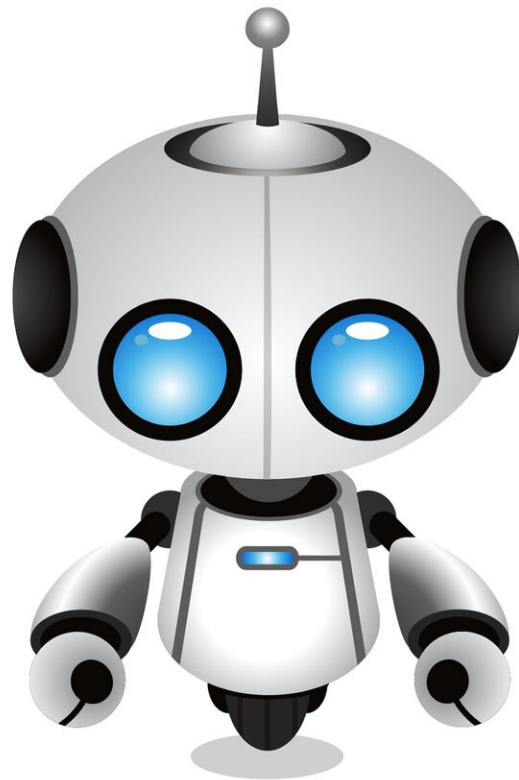


Robots good for gender equity, not so good for stability/fertility of marriage: study

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Robots aren't a man's best friend, statistically speaking. They worsen the economic stature of men and, in the process, alter marital status and ultimately marital fertility.

While such a presence of robots reduces women's willingness to undertake a long-term commitment such as marriage, it also affects women's earnings "substantially" less than men's earnings and thus helps to better balance gender pay inequity.

Those are among the findings from an international study involving a University of Pittsburgh economist. The scientists' data-driven research, titled "Robots, Marriageable Men, Family, and Fertility" and published recently in the *Journal of Human Resources*, shows that—in 741 U.S. regions more exposed to industrial robots— there was a statistical decline in gender inequity in income and workforce participation... but also in marriage stability, marriage fertility and the earning power of men.

"There has been an intense debate on the effects of robotics and automation on labor market outcomes, but we still know little about how these structural economic changes are reshaping key life-course choices. In this study, we attempt to look at how these permanent changes occurring in [labor markets](#) are affecting marriage markets and family formation" said Osea Giuntella, an expert in [labor economics](#) and economic demography and an assistant professor in the Department of Economics in the Kenneth P. Dietrich School of Arts & Sciences.

"Our study shows the exposure to robots' competition affected the relative labor market opportunities of men and women. Male income fell at a substantially higher rate than female income, decreasing the gender income gap. Moreover, [robot](#) exposure has increased female labor force

participation significantly while leaving the labor force participation of men unchanged. We argue that these labor market effects affected men's marriageability and women's willingness to long-term commitments with a decline in marriages and marital fertility"

Their study added family and fertility behavior to ongoing research about the economic prospects of life in the times of robotics, which were defined in their study as automatically controlled, reprogrammable and multipurpose machines.

The researchers were able to "exploit," in their words, the data on marriage, marriage fertility, divorce, cohabitation and non-marital fertility compiled in the American Community Survey—an annual U.S. Census Bureau report—encompassing 2005-16. They likewise measured regional exposure to robotics via International Federation of Robots data. To mitigate against a potential impact from U.S. demographic trends, they compared U.S. regional employment numbers against the rise in robotics and then parallel data from Europe.

What their surveys found: Labor markets with robot exposure created different effects on men and women. The data revealed a one standard deviation increase in such exposure (1.9 additional robots per 1,000 workers) penalized men. Their decreased income translated into a reduction in both the gender income gap by 4.2% and the workforce-participation gender gap by 2.1%. It also means that women in these regions have a greater bargaining power and the men have a worsened economic stature, wrote Giuntella along with Massimo Anelli of Bocconi University in Italy and Luca Stella of Freie Universitat Berlin.

The family dynamic was greatly affected, their study found. The researchers discovered no change in the fertility rate overall, but marital fertility sustained a 12% decline amid a 15% increase in nonmarital births. Regional zones experiencing an increase in robot exposure were

associated with a 1% reduction in marriage rate, a 9% increase in divorces and a 10% increase in the likelihood of cohabitations.

They also looked to see if the electronics industry weighted their findings—it didn't. The same for the automotive industry. Similarly, they looked back in time, aligning their findings against previous studies about the causal effects on the [labor](#) market (the coal boom and bust in the 20th century, for instance) and research as recent as 2020.

In the end, they surmised, it isn't that robots will replace human workers, but rather that they cause a *ripple effect*, something for which policymakers, roboticized businesses and workers themselves could better prepare themselves. They wrote that "more encompassing family policies that cover married and cohabitating couples more homegenously would be an effective response," as well as further research utilizing employer-employee data may well help to stem concerns about the well-being of children from relationships charged by this robotic age.

"Our findings add to a long-standing discussion on the effects of technology—household appliances, medical progress, etc.—on family and fertility decisions by focusing on a more recent wave of technological changes, particularly the development of robotics and automation," Giuntella said. "Those technological changes, instead of directly affecting fertility and family choices, might disrupt them by profoundly changing employment opportunities for both women and men."

More information: Massimo Anelli et al, Robots, Marriageable Men, Family, and Fertility, *Journal of Human Resources* (2021). [DOI: 10.3368/jhr.1020-11223R1](https://doi.org/10.3368/jhr.1020-11223R1)

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