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# Who's Afraid of Automation?

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**indeed** Labor Market Insights



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People are worried that robots will take our jobs. Some 60% of American adults think robots, automation, and artificial intelligence will put many jobs at risk, even though expert predictions about job losses are all over the map. These fears are a rare example of bipartisan agreement about the labor market—concerns cross demographic and geographic lines, according to a September 2018 Indeed survey of 2000 American adults.

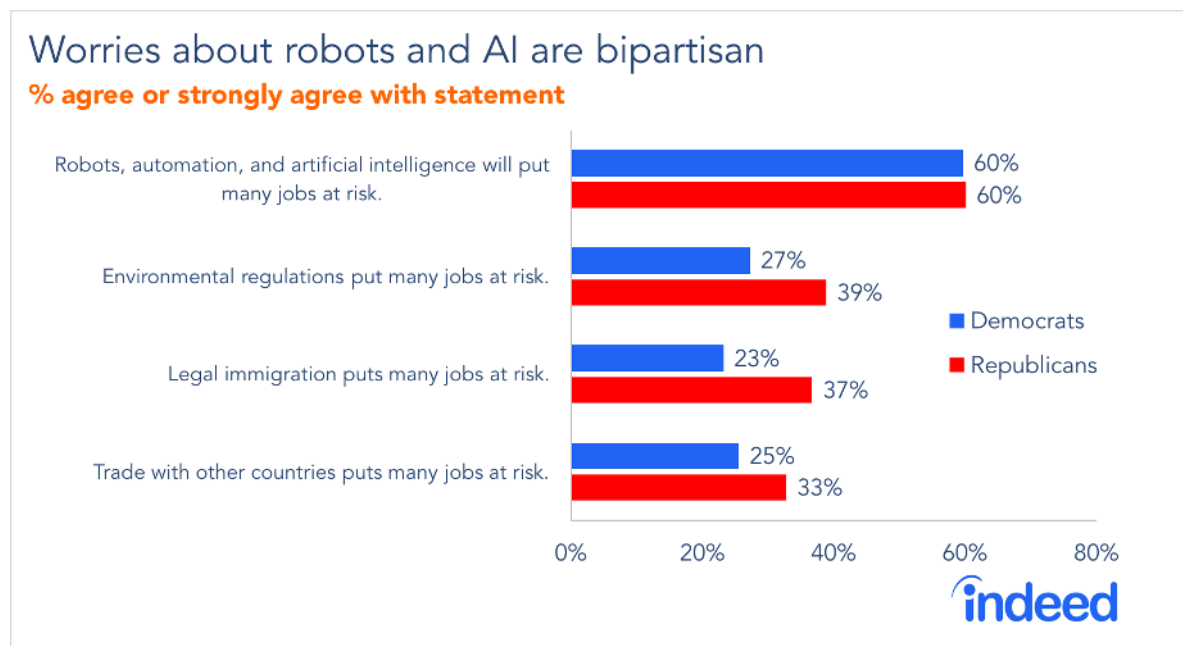
People who say they are pessimistic about America's economic future tend to be more concerned about automation. So are people with less education—and rightly so since their jobs are more at risk. At the same time though, young working-age adults and women are worried about automation even though they're less vulnerable than other groups.

Support for many labor market policies runs hotter for people more concerned about automation. Surprisingly, the policy that automation worriers lean toward most strongly is restricting legal immigration—even though today's immigrants often work in professional and technical occupations that aren't especially at risk from automation. Other policies, like worker training or a universal basic income, might help those affected by automation more directly.

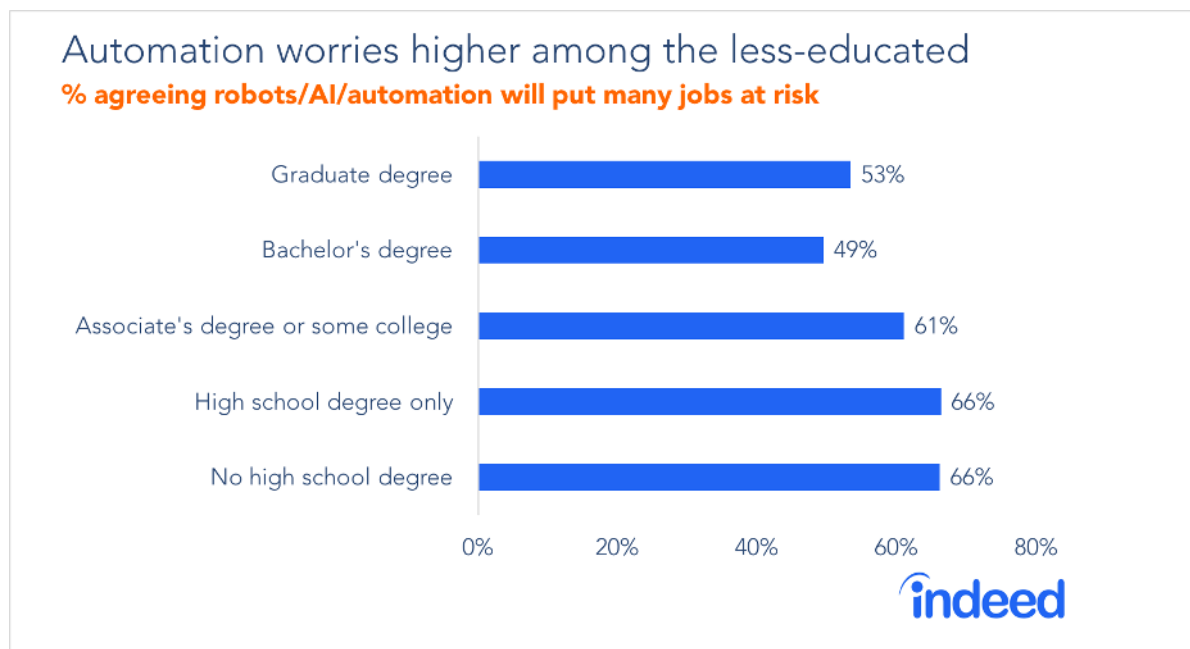
# Automation worries are widespread

Three out of five adults who responded to our survey think robots, automation, and artificial intelligence will put many jobs at risk. These concerns are far more widespread than worries about other factors — only half as many adults think environmental regulations, legal immigration, or trade hurts jobs.

Furthermore, worries about automation cross partisan lines. Among both Democrats and Republicans, 60% think these technologies will put many jobs at risk. In contrast, Republicans are more concerned than Democrats that environmental regulations, legal immigration, and trade will hurt jobs.



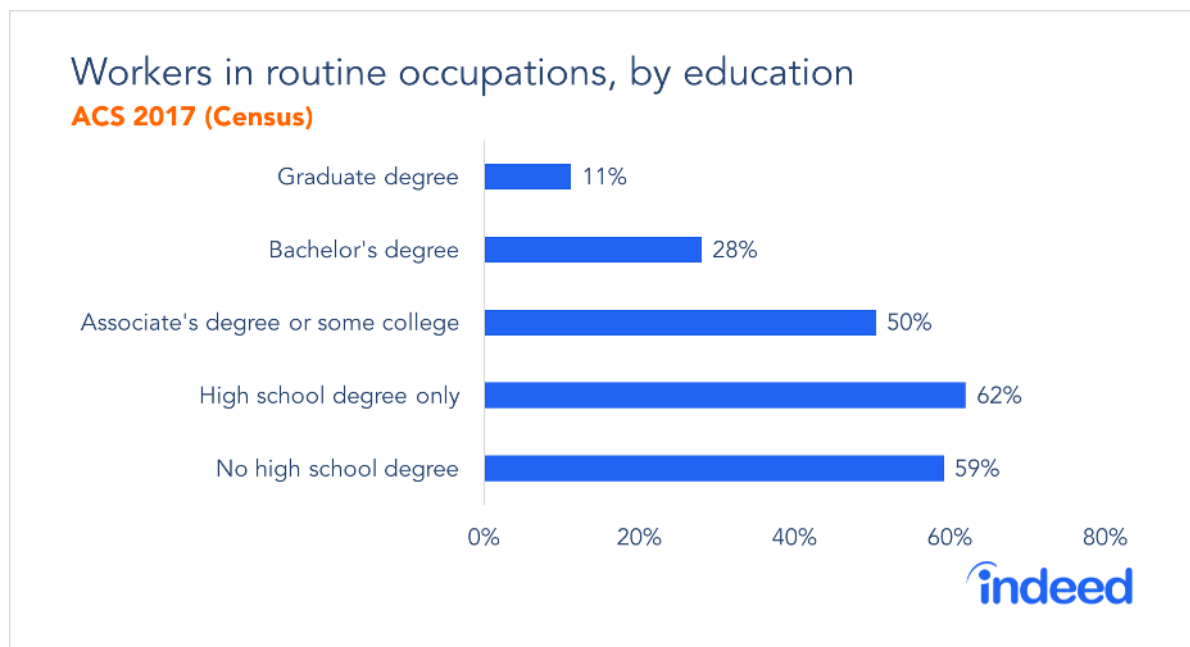
Still, automation worries some people more than others. Two-thirds of people with a high-school degree or less agree that these technologies will threaten many jobs, compared with half of those with at least a bachelor's degree. Younger prime-working-age adults, 25 to 44, are more concerned than 18 to 24-year-olds and older adults. Women are more concerned than men, as are people who are more pessimistic about national economic conditions today. But as we'll see in the next section, those most worried about automation aren't always those most at risk.



# Even people not personally at risk are worried about automation

Although worries about automation are widespread, the pain is likely to be more concentrated. The types of jobs potentially most at risk from automation and AI are “routine”—expressed as a set of rules and therefore potentially replaced by algorithms. These include manufacturing and other goods-producing jobs, as well as sales and clerical roles. Professional, technical, and personal-service jobs are less vulnerable.

According to Census data, 62% of people with only a high-school degree work in routine jobs, versus just 28% of those with a bachelor’s and 11% of graduate-degree holders. The education gaps in whose jobs are at risk are much wider than the gaps in how worried people are about automation.



On other dimensions, the people who appear to be most at risk aren't the most worried. Although women are more concerned that automation will put many jobs at risk, they are less likely to hold routine jobs than men are—37% compared with 51% of male workers. Similarly, young adults 25 to 44 are the most worried about automation, even though they are less likely to work in routine jobs than 18 to 24-year-olds and those 45 or older.

Location also matters. Although there's little geographic pattern in who is worried about automation, jobs are more at risk in some places than others. Less than 35% of jobs are routine in metro San Jose and Washington DC, and college towns like Boulder CO and Ithaca NY. But more than 60% of jobs are routine in manufacturing centers like Dalton GA and Elkhart IN, and the oil boomtown of Odessa TX. Places with a lower share of routine jobs have higher levels of education, and their residents are more confident about local economic conditions. They also are more likely to vote Democratic. So, even though worries about automation cross political and geographic lines, the pain would be likely to hit some people and places much harder than others.

# Automation concerns could lead to policy demands

There is no consensus among experts about how automation will affect the labor market. Some studies agree with the 60% of adults who think automation will hurt jobs, while other studies side with the optimistic 40%. But if automation does end up putting lots of people out of work, there'll be pressure on the government to do something.

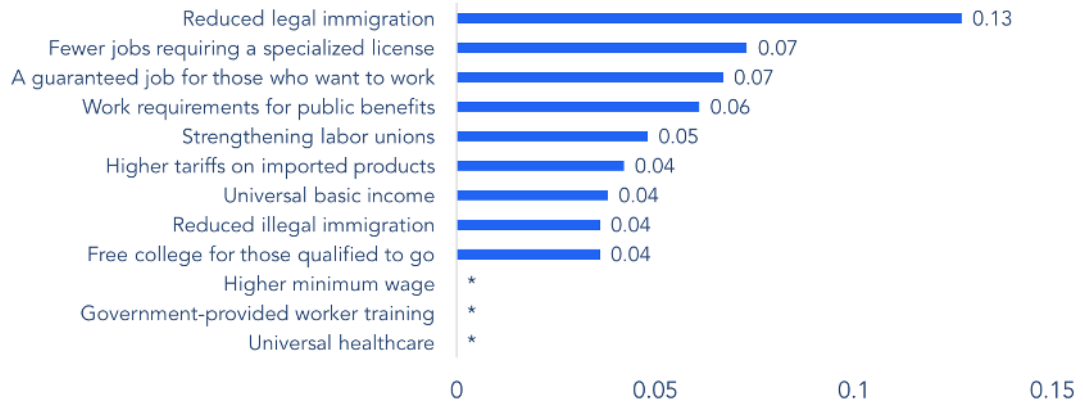
What labor market policies are popular among people who think automation will hurt jobs? People more concerned about automation tend to favor reducing legal immigration—perhaps in the hope they won't have to compete as hard for the dwindling number of jobs that survive automation. That's the policy most strongly associated with agreeing that automation will put many jobs at risk, after adjusting for demographics, partisanship, and other attitudes. Reducing specialized occupational licensing and instituting a jobs guarantee are also more popular policy ideas among people more concerned about automation's effect on jobs.

Notably, people worried about automation are no more likely to support government-provided worker training—even though experts argue workers will need retraining as automation transforms the labor market. And, universal basic income—a favorite policy of some tech leaders who are building the technologies that will speed automation—has only modestly higher support among people more worried about automation than those who aren't worried.



## Policies favored by people worried about automation

Difference in support among those more concerned about automation



Coefficient from regression of favoring-policy-idea on worried-about-automation, with controls; "\*" denotes not statistically significant



There remain so many unanswered—and unanswerable—questions about robots, automation, and artificial intelligence. It's possible they will put tons of people out of jobs and force us to rethink the entire role of work. Or they might create new occupations we can scarcely imagine today, boost productivity, and make us all wealthier. Today, Americans lean toward pessimism. Anxiety is widespread about how automation will affect jobs. Even those who aren't themselves at risk of losing their jobs are worried. If their fears come true, political pressure to protect at-risk workers might build.

## **Methodology**

*This report is based on an online survey of 2,000 US adults age 18+ conducted September 19-23, 2018, for Indeed by Decipher/FocusVision. Weights were applied in order to match respondent distributions across age, educational attainment, race/ethnicity, and sex with the 2018 Current Population Survey's Annual Social and Economic Supplement.*

*Throughout this analysis, Democrats and Republicans include both people who identified with that political party, as well as independents and others who lean toward that party. Some questions follow the language used by the Pew Research Center. However, our results should not be compared with Pew Research Center results for trending purposes.*

*The prevalence of routine jobs is based on the US Census Bureau's 2017 American Community Survey.*

*The propensity of people to worry about automation is based on a regression of the 4-point scale response to agreement or disagreement with "robots, automation, and artificial intelligence will put many jobs at risk" on political leaning, attitudes about personal financial situation and national economic conditions, age, education, sex, and race/ethnicity.*

*The relationships between automation worries and specific labor policies are based on separate regressions of a 3-point scale response to whether each policy is a good idea on the 4-point scale response to the question whether robots, automation, and AI will put many jobs at risk. Controls were included for political leaning, attitudes about personal financial situation and national economic conditions, and several additional attitudinal statements about the labor market.*



## About the Author

**Jed Kolko** is **Chief Economist** at the **Indeed Hiring Lab**. Previously he was Chief Economist and VP of Analytics at Trulia, the online real estate marketplace. He has also led research teams at the Public Policy Institute of California and at Forrester Research. Jed specializes in using large-scale proprietary and publicly available datasets to uncover insights about labor markets, the future of work, demographics, housing markets, and urban trends. He earned his B.A. in social studies and his Ph.D. in economics at Harvard University.

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