

## Macro Roundup Article

**Headline:** [Technology and Labor Displacement: Evidence from Linking Patents with Worker-Level Data](#)

**Article Link:** <https://www.nber.org/papers/w31846>

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**Tweet:** An @NBERpubs study finds that, unlike labor-saving technologies that drive earnings declines and job losses for all affected workers, labor-augmenting technologies disproportionately impact white-collar, older, and higher-paid workers. @DimitrisPapan20

**Summary:** Improvements in labor-saving (automation) technologies are negatively related to the wage earnings of workers in affected occupation–industry cells. For instance, an increase in our exposure measure from the median to the 90th percentile is associated with a 2.5 pp decline in the total earnings of the average worker over the next five years. These earnings losses are concentrated on a subset of workers, since exposed workers experience a 1.2pp increase in the probability of involuntary job loss over the next five years. Importantly, the magnitude of these wage declines or job loss probabilities are essentially unrelated to observable measures of worker skill—measured by age, level of wage earnings relative to other workers in the same industry and occupation, and college education. Perhaps surprisingly, but consistent with our model, new labor-augmenting technologies also lead to a decline in earnings for exposed workers, though the average magnitudes are smaller. An increase in our exposure measure from the median to the 90th percentile is associated with a 1.3pp decline in earnings growth and a 0.5pp increase in the likelihood of involuntary job loss. However, unlike in the case of labor-saving technology, the effects of exposure to labor-augmenting technologies are fairly heterogeneous: it disproportionately affects white-collar workers (defined as those with college degrees, or those employed in non-manufacturing industries or in occupations emphasizing cognitive tasks); older workers; and workers that are paid more relative to their peers (other workers with similar characteristics in the same industry and occupation). Related: Perspectives on the Labor Share and AI Isn't Good Enough and The Economics of Inequality in High-Wage Economies

**Primary Topic:** Investment

**Topics:** Academic paper, Database, Investment, Productivity, Unemployment/Participation, Wages/Income, Weekly, Workforce

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