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The Losers of the AI Revolution

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In an effort to adapt to an economy largely fueled by e-commerce, retailers are beginning to merge their distribution centers with their stores. The intermingling of inventories in stores and warehouses has some retailers testing the use of shelf-scanning robots that roam store aisles and provide restocking data in real time. Because the data provides an accurate snapshot of store inventory multiple times a day, consumers can purchase their items for same day pick-up, and managers can target areas to restock based on profitability, all for a lower price than hiring a human armed with a scanner.

Robots displacing humans is not a new phenomenon. Robots are even penetrating white collar service jobs, which was once thought to be shielded from automation. What is happening here is the same story we have seen in each of the industrial revolutions—disruptions in the market caused by innovation and globalization—except today the digital and socioeconomic sphere lay the groundwork for a far more unsettling result.

Americans already face competition from foreign workers working, virtually, in U.S. offices. Through platforms like Upwork, companies hire freelancers from across the globe, often at a much lower wage. This obviously takes jobs away from the U.S., but it allows for a redistribution of income to those who are willing to work for less. Through a process called "machine learning," essentially an advanced version of pattern matching, computers using AI are now able to perform the same service type jobs that freelancers using Upwork are looking to do while at a much lower cost. As more companies adopt this technology, labor income that would go to a human gets redistributed as capital income to the owner of the robot. This will exacerbate U.S. wealth and income inequality for two reasons: first, capital is already extremely concentrated at the top; second, taxes on capital income are much lower than taxes on labor income.

The fact that technological innovation creates jobs is very unlikely to mitigate this effect. Newly created job positions, such as robot monitoring professionals, data scientists, automation specialists, and content curators, all require higher education, which has become increasingly expensive. If interest rates continue to increase, lower and middle class people not looking to enter into computer science or engineering majors will be less willing to go to college, leaving

mostly those at the top going to school. This trend further concentrates wealth and income at the top.

A second mitigating factor might be the fact that as the economy becomes more capital driven the rising stock of capital should cause the rate of return for capital to fall. Intuitively, this makes sense, but what drives the reduction in the rate of return of capital is more complicated than supply and demand alone and depends on the elasticity of substitution between capital and labor. A high elasticity suggests more substitutability between capital and labor, which elicits a slower reduction in the rate of return for capital. A low elasticity suggests that capital and labor are complements, which elicits a quicker reduction in the rate of return. Think of calculators. If you hand an accountant one calculator, she becomes extremely productive and the owner gets a high rate of return. Hand her two, and the second calculator does not add any more productivity, and the owner's rate of return on the second calculator is minimal. The rate of return sharply falls because calculators complement labor and are useless without a human to operate them. Now imagine you can completely replace the accountant with an AI-enabled computer. You may not see a substantial reduction in the rate of return until the third or fourth AI-enabled computer.

Unless the U.S. government is willing to intervene, by perhaps raising taxes on capital income, the future looks bleak. The losers of the AI revolution are not just the low-skilled laborers without a college degree, it's everyone but those at the top who are unable to enjoy the fruits of what many call the fourth industrial revolution, falling victim to a widening gap between the middle class and the rich.