New industrial revolution sparked by technology gives power to service, retail, wholesale industries

August 15 2019

The United States is experiencing a new type of industrial revolution, one in which businesses outside of manufacturing are harnessing the power of the internet to scale up production and increase profits.

Three sectors are contributing to the new wave: service, retail, and wholesale—according to a working paper published by researchers at Princeton University and the University of Chicago in the *National Bureau of Economic Research*.

"We found these industries are now accounting for a larger share of national employment, and it's because they are using fixed-cost technologies to standardize their offerings and increase their scale of operations," said co-lead author Esteban Rossi-Hansberg, Theodore A. Wells '29 Professor of Economics at Princeton University's Department of Economics and Woodrow Wilson School of Public and International Affairs.

Take Starbucks or the Cheesecake Factory, for example. Both companies have invested in specific technologies to help determine optimal staffing and food and drink production for each restaurant, each day. They also use these technologies to introduce new menu items quickly, ensuring product uniformity around the country.

This allows for what the researchers call a "horizontal expansion" across

more locations in the country. Unlike Henry Ford's manufacturing revolution—where businesses boomed in a concentrated location—this new industrial era empowers companies to spread, increasing the number of local markets they serve.

"Of course, this form of expansion has some precedents, like McDonalds, but it was not common for most services until more recently, with the information technology revolution, as we document in the paper," Rossi-Hansberg said.

To investigate the rise in national industry concentration, Rossi-Hansberg and Chang-Tai Hsieh of the University of Chicago's Booth School of Business used microdata from the Longitudinal Business Database. Spanning 1977 to 2013, this data based on administrative employment records of every nonfarm private establishment in the U.S. economy. For the purposes of this study, they dropped establishments in the public, educational, and mining sectors.

They found that in the service, retail and wholesale industries, the largest businesses are becoming larger. They grew specifically because they increased the number of local markets they serve. Although more ubiquitous across markets, these large firms actually decreased their size in each of them. Expanding to new markets, rather than growing their presence in each of them, became the new business model.

While it is hard to pinpoint the exact technologies responsible for these changes, the timing suggests that improvements in management and information technology (IT) might be responsible according to the researchers.

The findings also point to technologies with large fixed costs and smaller variable costs. For example, setting up a system to handle medical records in a chain of hospitals requires large upfront investments—a

fixed cost. It also results in smaller costs when expanding the number of markets served, which are variable costs. This makes it profitable to serve local markets that were previously not viable.

"New IT-based technologies have allowed large services and retail firms to serve many more markets profitably. This implies gains for local consumers who can enjoy better, cheaper, and more specialized services even in areas with small local markets," said Rossi-Hansberg.

Further work is needed to understand some of the nuances of these findings. In particular, there could be implications for income distribution and workers of different skills across locations. Fixed setup costs probably require capital and skilled workers located in large metropolitan areas. This could have led, in part, to the increased inequality and the lower share of labor in total output experienced by the U.S. economy since the 1980s, the researchers said.

The paper, "The Industrial Revolution in Services," was published in NBER as a working paper and was not peer-reviewed or subject to the review by the NBER Board of Directors that accompanies official NBER publications.

Provided by Princeton University

Citation: New industrial revolution sparked by technology gives power to service, retail, wholesale industries (2019, August 15) retrieved 20 September 2024 from https://phys.org/news/2019-08-industrial-revolution-technology-power-retail.html