Job Polarization

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Countries’ economies evolve. Sectors of the economy that were once engines of prosperity disappear while others take their place. In 1850, around 60% of the US labor force was dedicated to agriculture. Today, less than 1% of the US labor force works directly in agriculture, yet agricultural output is at its highest historical levels (in real terms), and the US is a net exporter of farm products. Productivity increases in agriculture and mechanization make it possible for a small portion of the US labor force to produce all the food we need and then some. A sectoral shift away from agriculture toward manufacturing led the US to historic levels of wealth and prosperity between 1930 to 1960. From the 1960s, the economy has shifted labor away from manufacturing and toward the information technology and service sectors. Nevertheless, as measured by its market value, US manufacturing output is at its historical peak, and manufacturing output per worker is 80 times higher than its level in 1960.

The recent sectoral shift towards information technology and services promises to bring immense wealth and prosperity to the US. However, compared to previous periods of transformation, the wealth generated is not accruing broadly across the entire population. Picture the US labor force as 100 individuals lined up next to each other, shoulder to shoulder, ordered in terms of how much income they make. Those at the far left of the line represent the US workforce with the lowest earnings, and those to the right end have the highest earnings.

The transition to information technology and services is changing the number of jobs available at different levels of earnings. Automation and new technology are eliminating many jobs in the middle of the income distribution but creating more jobs on the extremes of the distribution. This process of job creation and destruction is increasing the employment shares of both lower and higher income occupations. Of the 100 workers, those in the middle are moving to the right and left, hollowing out the middle.

Furthermore, the wage gap between lower-paid and higher-paid workers is growing. Imagine the 100 workers again, as workers are moving to the right and the left, the gap between those at the right and the left keeps growing. This phenomenon is called job polarization. Many economists suggest that these structural changes to our economy may be contributing to social and political trends like increasing income inequality and political polarization.

Job polarization presents opportunities and challenges for incoming college students. Imagine yourself at the onset of the 20th century; would you learn horse-drawn coach-building? Or would you specialize in new technology like the automobile? Your economic success depends on your choice. Unsurprisingly, many successful early automobile manufacturers started in a different line of work: the founders of Peugeot and Dodge came from the bicycle business; Bugatti, the furniture business; Toyota, the looming industry; and Nissan, steam engine manufacturing. Similarly, our students have choices to make in college that have implications for their future careers (and incomes) in an ever-changing economy.

As new opportunities arrive, our students’ also face challenges. A quickly evolving economy has made the informational gap between labor markets and students even broader than before. Combined with conflicting advice and a plethora of choices, lack of information has increased the uncertainty our students face when making
choices. Many of our students will change their careers four or five times during their work-life, not because of an evolving economy but because of uninformed decisions made early in their college tenure.

I will not argue that all of our students should become engineers and data scientists. Moving to the right on the income distribution tables is not about the field of study; it is about having the right tools and applying them to each area. The recent innovations in technology can improve the productivity and earning potential of all sectors of the economy when implemented by a trained workforce.

How can we future-proof our students? From the perspective of individual choices, students should consider diversifying their skills within each of their chosen disciplines. Students with technical skills, like computer programming and mathematics, could benefit from training in persuasion, leadership, and communication. Students with language and communication skills can diversify by acquiring competencies in computer programming and mathematics. Each academic department can seek out complementary departments to create curricula that provide students with a combination of skills that makes them attractive job market candidates.

Higher-level leadership should consider building incentives to reduce the cost of interdisciplinary collaborations all across the university and strengthen connections with promising sectors in the economy.

Just like surfers who leverage the power of the ocean by correctly timing their efforts, understanding macroeconomic trends can help us, as educators, to place our students on a path that will lead them to opportunities for economic success and personal growth.