

## Job Polarization and the Great Recession

Murat Tasci and Jessica Ice

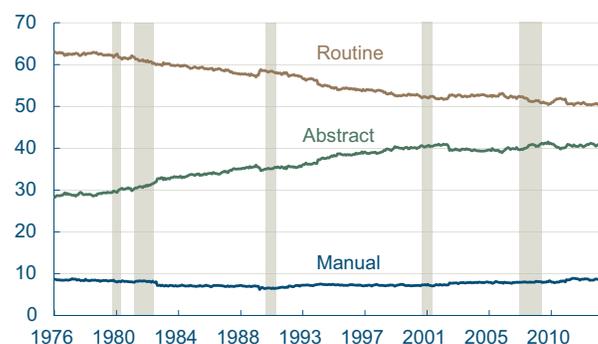
Five years into an economic recovery from the Great Recession, the US labor market continues to gradually improve. Some of the more adverse effects, like the high unemployment rate and longer average spells of unemployment, have been quite persistent, but they are, nevertheless temporary. However, some effects might be more permanent.

Recessions can be times when emerging (or ongoing) structural changes in labor markets get exacerbated. One such change in the current environment is job polarization. The term refers to a situation in which workers with particular skills lose ground because changing technology reduces the demand for their skills, while workers with other skills gain.

Although technology usually enhances productivity by complementing the tasks of workers, it can also have a negative effect on the labor market if it is able to entirely replace those tasks. Every occupation involves a wide range of tasks which are in different degrees of demand given the current state of technology. Economists classify these tasks into abstract, routine, and manual types of tasks and have observed that some types are more susceptible to technological change than others.

### Percentage of All Employed by Task Composition

Percent, seasonally adjusted



Note: Shaded bars indicate recessions.

Sources: Bureau of Labor Statistics; Bureau of the Census; David Autor and David Dorn. "The Growth of Low Skill Service Jobs and the Polarization of the U.S. Labor Market." *American Economic Review*, 103(5), 1553-1597, 2013.

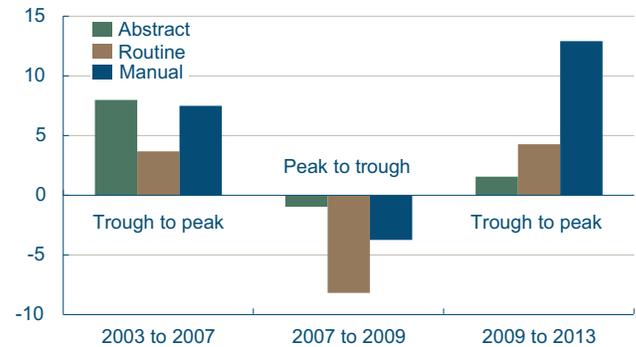
For instance, computer technologies are especially useful at performing programmable or routine tasks—so much so that they might be able replace workers whose occupations wholly or largely consist of routine tasks, such as assembly line workers.

Job polarization has indeed been happening over the past several decades. Occupations that involve predominantly routine tasks have seen their share of overall employment fall since the late 1970s. In 1976 routine occupations constituted almost two-thirds of aggregate employment but by the end of 2013 their share had declined to about 50 percent. On the other hand, occupations that involve predominantly abstract tasks have gained ground, increasing their share from about 28 percent to 40 percent over the same period. Occupations dominated by manual tasks have always stayed below 10 percent, though their share of total employment varied between 7 percent and 8 percent over the same period. These occupations perform tasks that are most likely harder to automate or off-shore, such as housemaids, construction workers, hairdressers, and so on.

Although the trend toward a falling employment share for routine occupations has been prevalent since the 1970s, it became more evident during the Great Recession. From July 2003 to December 2007—from the employment trough of the previous recession to the employment peak directly prior to the Great Recession—employment in occupations with primarily abstract and manual tasks increased by 8.0 percent and 7.5 percent, respectively, with primarily routine occupations gaining only 3.7 percent. From the employment peak to the trough of the Great Recession (December 2007 to October 2009) routine jobs suffered the greatest loss, falling 8.2 percent, while abstract jobs decreased by only 1.0 percent. It is also striking that during the recovery both manual and abstract occupations have more than recouped the employment losses they sustained during the recession, while routine jobs have increased by only 4.3 percent, after having fallen almost twice as much during the recession.

## Employment Changes by Task Composition: All Employed Persons

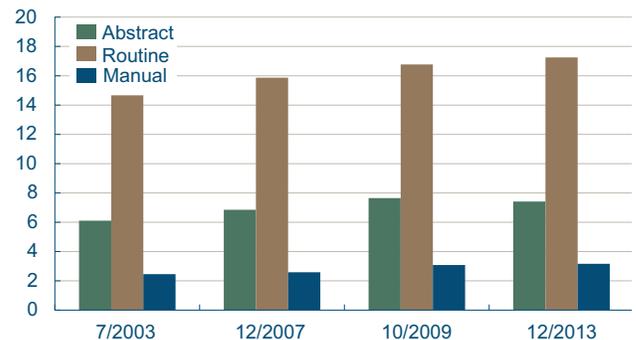
Period percent change, all workers



Sources: Bureau of Labor Statistics; Bureau of the Census; David Autor and David Dorn. "The Growth of Low Skill Service Jobs and the Polarization of the U.S. Labor Market." *American Economic Review*, 103(5), 1553-1597, 2013.

## Number of Part-Time Employees by Task Composition

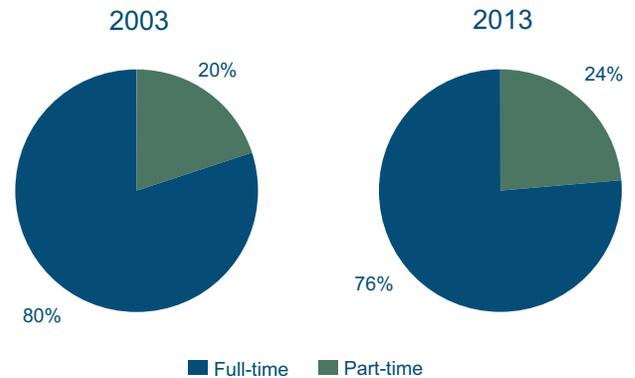
Number employed, millions



Sources: Bureau of Labor Statistics; Bureau of the Census; David Autor and David Dorn. "The Growth of Low Skill Service Jobs and the Polarization of the U.S. Labor Market." *American Economic Review*, 103(5), 1553-1597, 2013.

The disproportionately adverse effects of the recession on routine occupations become more evident when one analyzes the composition of employees with part-time and full-time status. This recession led to record levels of part-time employment, in addition to high unemployment. All three types of occupations were affected, each experiencing an increase in part-time employment at the same time. However, the increase was largest for routine occupations. While the composition of part-time employment has not changed over the past decade—routine occupations constituted almost two-thirds of part-time employment between 2003 and 2013—the fraction of workers employed part-time increased much more for routine jobs than for abstract and manual occupations during the Great Recession. In 2003, only 20 percent of employment in routine occupations was part-time, whereas by 2013 it was 24 percent. Meanwhile, part-time employment in both abstract and manual occupations grew only 2 percentage points over the same period.

### Share of Employed Population with Routine Occupations by Labor Force Status



Sources: Bureau of Labor Statistics; Bureau of the Census; David Autor and David Dorn. "The Growth of Low Skill Service Jobs and the Polarization of the U.S. Labor Market." *American Economic Review*, 103(5), 1553-1597, 2013.



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