

The Future of Employment

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Diario Expansión (Spain)

The technological and digital transformation under way, known as the fourth industrial revolution, has given rise to intense debate about its effects on employment. Opinions are divided. On the one hand, the pessimists. Robotisation, automation, artificial intelligence, big data and the internet of things will lead to a more unequal society with mass technological unemployment. On the other, the optimists. The effects of these changes will be no different from those of the technological revolutions of the last two centuries: society will be able to reinvent itself and create new occupations and activities to satisfy people's wish to work and increase the quality and quantity of their levels of consumption and leisure. For the economic historian Joel Mokyr (2014): "the future holds occupations that will look just as strange to us" [as some of today's did] to our grandparents". Our lack of imagination about tomorrow's jobs is largely responsible for the pessimism that exists.

Although we do not have a crystal ball allowing us to see the future, there are reasons to be optimistic providing we are able to anticipate and manage the changes proactively, efficiently and equitably. The technological and digital transformation represents a real opportunity in the history of mankind, but also a huge challenge. As detailed in [a recent review by BBVA Research](#), there is currently no basis for asserting that it is affecting performance at aggregate level. But it is already having disruptive effects on other aspects of the labour market, such as polarisation by occupation, and tasks that are disappearing as against others that require new skills and lead to a wage gap among workers, with redistributive consequences.

What do we know so far? Since the beginning of the twentieth century, technical progress has allowed per capita income to double roughly every forty years without increasing unemployment. For example, the unemployment rate in the US is currently 4.3%, compared with 4.5% at the beginning of the last century, and with a much higher percentage of the working age population in employment, thanks among other things to the incorporation of women into the labour market. In contrast with Keynes' forecast in 1930 that to maintain full employment we would be able to work only 15 hours a week, the decline in working hours to 35 or 40 hours a week has more to do with the wish to use the increase in disposable income to increase the quantity and quality of leisure time, as well as the consumption of new goods and services. For decades we have also been seeing a significant structural change. In 1900, 41% of jobs in the US, and 64% of those in Spain, were in agriculture. A hundred years later these percentages had fallen to 2% and less than 4% respectively, with the majority of the population working in the service sector.

The latest evidence indicates mixed effects, at least in the short and medium term, which are difficult to separate from other changes such as globalisation and public policy responses. We have evidence that robotisation destroys some jobs while others are created and productivity increases, with highly uneven effects across industries, occupations and countries. Although we cannot conclude that there is a cause and effect relationship, the countries with the highest rates of robotisation have lower unemployment rates at the aggregate level. Something similar can be observed with the degree of penetration of the new digital technologies. We have also been observing for some time that despite the increase in the relative supply of workers with higher education, their wages are growing faster than those of other employees. The new technologies benefit workers who perform non-routine and abstract tasks, mainly replacing those that carry out routine tasks, and barely affect those performing manual and non-routine tasks. However, this polarisation of employment and wages does not necessarily imply greater inequality. In fact we see great

disparities among countries. Some of the countries in which the fourth industrial revolution is most advanced also have the lowest levels of inequality.

The challenge for citizens, companies and governments consists in promoting and taking advantage in an inclusive manner of all the opportunities offered by the new technologies in terms of well-being and prosperity. At the same time, we must ensure that the transition between jobs that are destroyed and those that are created is as efficient and equitable as possible. In order for this process to win greater support from society, for progress not to falter and so that false populist solutions are not looked for, the losers must be compensated with the huge benefits generated by technological advances, protecting people, not obsolescent jobs. Employment and education policies and all measures that ensure equal opportunities and social inclusion are crucial. Our society and its institutions must modernise as technology progresses, so that the disruptive effects are clearly positive and the opportunities of this new age are made available to all.

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