



JOBS

Automation to fuel unemployment?

Increased automation is giving rise to more concerns regarding the need for human labour. *finweek* explains why not everyone will be left out in the cold and what you can do to make sure you don't become obsolete.

At least 25% of all South Africans willing and able to work are unable to find a job. Unemployment is the scourge of our times, depriving households from incomes that can buy goods and services. Incomes that will increase consumption of nutritious food; send kids to good schools; ensure secure homes; provide opportunities for leisure activities and improve living standards.



The psychological scars of joblessness can be severe and persistent. In an ideal world, all citizens who are able and willing can find a job.

Yet, there are deepening concerns that technological progress is eradicating the need for human labour. With the emergence of artificial intelligence, the Internet of Things, autonomous vehicles, and the likes of everyday applications, a very real social problem seems to be arising: Will the firm of the future need human workers? And given the poor quality of skills in SA, is it not plausible to expect that SA's unemployment rate could rise to 50%? Or even 60%?

SA is not alone. The economic consequences of the Rise of the Robots – also known as the Fourth Industrial Revolution – were the main topic of discussion at the World Economic Forum at Davos in January, with great fanfare but little content.

A far better analysis is provided by MIT economist David Autor in a paper published in the *Journal of Economic Perspectives* in December. In the article, *Why Are There Still So Many Jobs?* Autor asks why automation has not wiped out most jobs over the last decades, as was predicted in the 1960s.

The simple answer: Automation both substitutes and complements human labour. Yes, automation (machines, algorithms) replaces labour. **But automation also complements labour, increasing productivity and earnings, augmenting the demand for labour.**

Think about ATMs. A new study by Boston University professor James Bessen shows that, between 1995 and 2010, ATMs quadrupled in the US from 100 000 to 400 000.

One might assume that the spread of ATMs replaced the need for bank tellers, but bank teller employment actually rose from 500 000

to 550 000. Why? ATMs reduced the cost of operating a bank branch (by substituting what more expensive bank tellers did). Because of this cost reduction, banks opened more branches across the US, and could employ more bank tellers (although fewer per branch). Because ATMs now do the menial task of cash-dispensing, bank tellers were freed up to offer other types of 'relationship banking' services, introducing clients to new banking services like credit cards and investment products.

The effect of automation on employment thus depends on whether workers' tasks are substituted or complemented, whether there are enough workers to respond to the greater demand for the complementary tasks, and what those new workers do with their incomes.

Another example: Farmers increasingly use GPS navigation equipment to automate harvesting, substituting the need to employ tractor drivers. Can tractor drivers adjust their skills to complement the new automation? Probably not. Their jobs will likely be replaced by technicians able to install and run GPS navigation software. If there are fewer such technicians (which there are), it is likely that their wages will be higher than the tractor drivers'. These technicians will probably spend their incomes on products and services

different from the tractor drivers, benefitting industries unrelated to GPS automation (like restaurants and golf clubs) and hurting others (the local spaza shop).

The latter is often overlooked. Automation will indeed replace unskilled labour for highly skilled jobs in the first stage of the story – the tractor drivers losing their jobs to GPS technicians. **But higher farm productivity pushes up the incomes of the farmer and technicians, allowing them to spend more in the rest of the economy – often on services where automation has less of an effect.** Such services often employ unskilled labour intensively, like waiters or groundskeepers – thus a net positive impact on unskilled labour.

Autor reports that automation in the US and Europe indeed seemed to have had a positive impact on high-paying and low-paying jobs. But the middle-paying occupations – office clerks, building trade workers, machine operators – have lost out. He calls this phenomenon the polarisation of employment.

It's unlikely that automation will result in significantly higher unemployment in SA. Productivity will increase, increasing the incomes for those with skills to complement machines. Higher incomes will likely be spent on services where unskilled labour is intensively used. Expect the demand for occupations as cleaners, security guards, and hairdressers to increase – jobs where automation is complementary to human labour.

Because of the large supply of unskilled labour in SA though, such greater demand will reduce unemployment but is unlikely to affect wages. Inequality between the incomes of the small pool of skilled workers and the large pool of employed but low-wage earners will increase.

Those employed in back-office jobs where creativity and human interaction is not required should be warned: the robots and algorithms are coming for your job.

My advice: Find a way to build or programme the robots, or analyse the data they generate. Or choose a service industry where automation will complement those very human tasks of creativity, imagination and human interaction. ■

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