Work/Jobs

Impact of automation in developing countries

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The impact of automation will likely be different in the developing world compared with the developed world, largely because robotics presents a more direct threat to higher-paid routine labour in rich countries, although it will eventually also threaten jobs in developing countries.

As with every previous industrial revolution, new jobs will emerge that will replace the jobs lost to robots and automation. These developments will occur at every level and could appear to threaten large communities. For example, as China, the US and Europe transition to electric vehicles, and the rest of the world follows, millions of established jobs associated with the internal combustion engine will eventually become redundant, to be replaced by skill requirements related to electric engines, battery storage and energy management systems. However, this time around more jobs will be automated as production processes evolve.

The impact of robots and artificial intelligence will very likely widen the gap between rich and poor countries by shifting more investment to advanced economies where automation is already established. Developing economies will tend to specialise in sectors that rely more on unskilled labour and the impact could result in a permanent decline in the terms of trade of poorer countries. In that way robots may still end up stealing jobs in developing countries.

The question is whether the current crop of workers will be able to reskill and upskill. For example, as South African transitions from coal to renewables as the dominant source of energy, thousands of coal miners in places such as Mpumalanga will lose their jobs. Many thousands more jobs will be created across the country as distributed wind, solar and biomass energy sources come on line, but that shift is only possible if accompanied by a drastic effort to rapidly improve and transform skills.

The largest potential for robot-based automation is in countries with large and well-paying manufacturing sectors, such as Germany, Japan, South Korea, the US and increasingly China. The automation of low-wage and light manufacturing jobs, such as those generally found in Africa, seems much less likely in the foreseeable future. Both the African Development Bank and the UN Conference on Trade and Development suggest that robot-based automation has had a relatively small effect in developing countries so far, which is likely to remain given their lack of technological diversification. The impact of robotisation is mostly concentrated in countries with a large manufacturing sector dominated by industries such as automotives and electronics.[1]

The current views on automation are that jobs will increase in vocations that cannot easily be replaced by robots, such as those that require non-routine cognitive skills, such as managing teams, nursing and cleaning. Care work that requires empathy and judgement (such as nurses and elderly care) is harder to automate and is likely to increase as populations around the world age. So, people will have to transition from one set of skills that may be replaced by automation to another, where that threat is not as acute. This is clearly less of a challenge in Africa, where employment is less formal and structured than elsewhere.

However, the demand for routine, job-specific skills, such as those required for processing payroll, bookkeeping or assembling goods, will decrease and jobs that combine different skill sets will increase. As a result, global value chains are becoming more knowledge intensive and low-skilled labour is becoming less important as a factor of contribution compared to capital and technology. [2] The demand for labour is increasingly away from low-skilled to semi-skilled and skilled labour, and it is for this reason that more and better education is so important for Africa.

A 2017 report by McKinsey estimates that less than 5% of occupations are candidates for full automation and that the ‘correct’ lens through which automation should be viewed is that of tasks, not occupations or jobs.

Technology by technology and job by job, there will be continued progress – and it will differ hugely between countries at different levels of development. In Japan and Germany, countries with highly paid and scarce workers, many of whom work in the automotive industry, a higher percentage of additional work could be automated. However, in many parts of Africa new jobs could be created at much lower start-up costs owing to the reductions in the capital costs and lower barriers to entry.[3] These findings underline the importance of providing the basics for empowerment, such as household electricity and low-cost global Internet coverage, which will unlock access to education, trade and other means of self-help.

So, will future jobs also come to Africa or will most still be created in Asia? In considering this question, it is important to bear in mind that the capital and labour intensity of manufacturing is declining and that technology (or knowledge) is globalising.

In view of these considerations, and contrary to the trepidation with which the Fourth Industrial Revolution is viewed in Europe and North America, the view from Africa is positive. As progress comes from a low base, it offers prospects for a degree of catch-up. For one, this is because of the expectation that it would create more jobs in both the formal and informal sector.

In a recent research survey, less than a fifth of respondents thought the Fourth Industrial Revolution would have a negative impact on jobs. In fact, the vast majority were excited about its positive impact.

In this vein, a report prepared for the European Commission concluded that the nature of work is part of the changing economy and 'no longer a static concept but an umbrella term for roles performed in a different manner and under different legal arrangements.' [4]

Instead of workers being replaced completely by machines, the more likely future is one in which people work alongside highly productive machines. This is already evident in the way in which ICT is penetrating modern life through the use of smartphone applications to augment or ease the completion of everyday tasks.

Therefore, the impact of the digital economy in OECD countries will include a trend towards short-term contracts and part-time work, although the vast majority of workers in the EU, for example, are still on full-time contacts. In addition, the Commission believes that automation will reduce routine job opportunities, such as those on a typical assembly line, in the formal sector.[5]

Yet, in a certain sense, Africans might find this an easier transition, as Africans in the formal and informal sector often already juggle a number of part-time jobs. The trend towards the so-called gig economy or Internet employment, which is characterised by freelance, on-demand work, is the latest manifestation of this greater fragmentation of work. And with COVID-19 lockdown strategies in many countries forcing many employees to work remotely, the gig economy and off-site work were given a major boost. In time, the COVID-19 pandemic will have revolutionised the service sector globally.

In the gig economy, independent workers are hired for short-term tasks, often via online work platforms that pay them for each transaction or 'gig' they complete. At high levels of complexity and value, the gig economy is about digital technologies enabling geographically dispersed teams, who often come from different countries, to be assembled around a given project. [6] Although formally regarded as still being quite small in much of Africa (at less than 0.3% of the labour force), it is burgeoning, especially in on-demand services, ranging from fast-food deliveries to more sophisticated tasks such as accounting and editing. [7]

The interesting thing about the notion of the gig economy is that it is already a reality in Africa, although in a different form. Many entrepreneurial Africans in countries such as Kenya and Nigeria already hustle to keep bread on the table by doing any number of jobs, tasks and functions in a seamless and often informally structured work environment.

Innovations that will provide safety nets, such as unemployment insurance, healthcare and risk cover, are sure to follow. The Fourth Industrial Revolution is unlocking opportunities for millions of self-employed workers that did not previously exist (However, the 2020 World Employment and Social Outlook report from the ILO does warn that new forms of work are eroding the earning power of the self-employed.)

It is unlikely that we will witness widespread automation in sub-Saharan Africa, but work in this part of the world will still be threatened by widespread automation elsewhere, which will reduce production costs. The region's large informal economy and lack of digital infrastructure currently preclude such a development, as low pay levels mean that labour will remain cheap. Cheap labour in this region may, through technology, also be able to compete with more expensive labour elsewhere – but only if Africans have the required minimum skills.

Endnotes

1. C Monga, Industrialization: A primer, in Industrialized Africa – Strategies, Policies, Institutions, and Financing. Abidjan: African Development Bank Group, 2017, 10; United Nations Conference on Trade and Development, Trade and development, beyond austerity: Towards a global new deal, New York: UNCTAD, 2017, ix.
2. S Lund et al, Globalization in transition: The future of trade and value chains, New York: McKinsey Global Institute, 2019, 2.
3. McKinsey estimates that across 46 countries (both developing and developed economies), it looks as if, by 2030, a range with a midpoint of 16% of occupations will have been automated and dislocated by automation. The range is large, and can go from very little to 30% as it depends on the rate of adoption, nature of the country and wage dynamics in the various sectors in that country. One can expect that in advanced economies it would be higher, say, 20%, whereas for developing countries the midpoint will be much lower as wages are lower. McKinsey, podcast, What is the future of work?, 1 December 2017.
4. European Commission, The future of work skills and resilience for a world of change, EPSC Strategic Notes, Issue 13, 2016, 11.
5. European Commission, The future of work skills and resilience for a world of change, EPSC Strategic Notes, Issue 13, 2016, 4.
6. Africans in the informal sector do not have much job security and global developments such as the gig economy appear to also shift the risk of employment steadily to the employee in an environment where there are few or no social safety nets such as unemployment benefits and where unions are weak. This means that employees have less bargaining power, opening the potential for job insecurity and greater wage differentials. European Commission, The future of work skills and resilience for a world of change. EPSC Strategic Notes, Issue 13, 2016, 2.
7. Mo Ibrahim Foundation, Africa's Youth: Jobs or Migration?, London: Mo Ibrahim Foundation, 2019, 46.

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