
IMPLICATIONS OF DIGITAL TRANSFORMATION ON EMPLOYMENT IN DEVELOPING COUNTRIES

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Employment issues in developing countries have long attracted worldwide attention. However, these problems are more complex than imagined. The population of developing nations has been growing rapidly for many years. Integrating such a rapidly growing workforce into a relatively weak economy can be a tremendous undertaking. Many workers continue to struggle with low wages and inhumane, hazardous jobs. Limited social security increases the vulnerability of workers in economic situations (e.g., bankruptcy, layoffs, and so on) and in personal life (e.g., illness, occupational accidents, and so on). The most urgent task for a developing country is determining how to quickly generate massive numbers of jobs and guarantee security for its residents with limited purchasing power and investment capital.

In recent years, digital technology has been prevalent in various workplaces. From a robotic arm on a factory assembly line to an interactive screen in an office, from a sample transport robot in a laboratory to a navigation system for a transport fleet, technological adoption may be crucial for an organization's smooth and efficient operation. Thus, the impact of digital technology on employment in developing countries must be explored.

- ***Technology May Diminish Occupations, Not Employment***

Many concerns have been raised regarding the negative impact of new digital technologies, such as automation, AI, and robotics, on the current status of employment (Ford, 2015). First, workers may be displaced and therefore lose their jobs. In addition, workers may not quickly adapt to new workplaces that use digital technologies. Second, the potential employment market biases.

Many job applicants are concerned that the “imperfect” recognition of race, gender, and age markers by AI algorithms may subject them to prejudice at the start of the application process. Third, technological advances may deprive some jobs of their initial bargaining power. Finally, the rapid pace of technological advancement has significantly widened the gap between economic winners and losers, raising concerns that inequality leads to social problems. Digital technology favors “superstars.” Thus, those without Internet access or skills training will fall behind.

Historically, nevertheless, no technological advancement has had catastrophic consequences on unemployment. Most new technologies are designed to boost job efficiency, which will ultimately reduce labor demand (Gali, 1999). A significant example is the replacement of horse-drawn carriages with steam engines and automobiles following the Industrial Revolution. A large workforce to transport bulky goods is no longer required. Increased transportation capacity enabled industries to increase output, and companies began to offer numerous employment opportunities to the local community. Every technological breakthrough in human history has increased job diversity and has improved human welfare, and the use of digital technology should be no exception.

Although new technologies may decrease occupations, it should not be a cause for concern. Technology has created many new positions that have never existed before. Digital consumption, production, network chains, and multinational industries provide new employment and possibilities. Farmers, for example, may sell their goods via TikTok live streaming, and certain influencers and vloggers are also becoming increasingly popular on social media. Some developing countries are exploiting this new opportunity to solve their own cheap labor crisis: Bangladesh accounts for 16% of the global Internet freelance workforce, second only to India (Graham et al., 2017). The Kenyan government has also established the Ajira Digital Program, which is a government initiative managed by the ICT Ministry, which provides access to digital employment opportunities for over one million young people.

Moreover, technology will alter the nature of work, allowing workers to focus on higher-value and higher-touch tasks and become more creative, strategic, and entrepreneurial. Women can also profit along the process. Historically, gender stereotypes have limited the types of jobs available to women and the opportunities for them to learn new skills. Nonetheless, technology can provide women with new levels of flexibility, such as the ability to work from home, work more flexible hours, engage in e-commerce rather than traditional brick-and-mortar businesses, and more.

- *From Linking Information to Linking Global Service Industry*

Unlike the manufacturing industry, which has established a wide global supply chain, the traditional service industry faces a particularly difficult road to achieving global division of labor (Apte & Mason, 1995; Han & Mithas, 2013). In the manufacturing industry, a product can be processed in different parts of the world and then combined into one piece. However, the service industry is unable to create this type of division given that it requires human-to-human services. Therefore, the traditional service industry demands that the service provider and receiver must be in the same place at the same time; teachers and students in class, doctors and patients in the hospital.

The transformation stimulated by digital technologies is now noticeable in the service industry. With the advent of the digital age, the service industry can not only trade globally, but also divide labor on a global scale. As we have seen in our daily lives, the Internet is evolving from previously linking information (we know where to find new employment) to new linkages that connect behavior and activities (Bardhan et al., 2007). Services are no longer limited to being in the same place at the same time. If one wishes to file a complaint about a product purchased from a US company, the employee who entertains the query through a customer service hotline could be in India; online courses through VIPKID (an online learning website) enable Chinese children in Beijing to communicate with teachers in North America or in Australia; and a symphony can be played synchronously by musicians from all over the world via digital communication. Before 5G technology, this type of service, produced and delivered worldwide, was unconceivable. The impact of such developments on the service industry is profound. Much of the previously on-site labor is now completely immersed in the Internet realm.

- *Gig Economy: New Opportunities*

Digital technologies have stimulated a new economic pattern which we may call the “gig economy.” In a gig economy, temporary, flexible jobs are commonplace, and companies prefer to hire independent contractors and freelancers over full-time employees. Since the introduction of digital workforce platforms, employment in the gig economy has exploded in a short period of time, and technology-based companies have also grown rapidly. The gig economy comprises web-based online jobs (such as translation, legal, and financial services) and location-based tasks performed in person by workers (such as taxis, deliveries, domestic work, and caregiving). For many people, working daily from 9 a.m. to 5 p.m. for one company or on the payroll is no longer a viable option. They instead balance multiple sources of income and labor autonomously, one by one. The gig economy can meet the demands of the workforce with immediate on-demand personnel. The network enables people to be matched with greater speed and precision than when hiring skilled technical employees. For example, Yelp’s algorithm will rate some workers to minimize labor market information asymmetry.

However, the gig economy has its flaws. Many experts are concerned that delayed government regulation will not protect individual gig workers in the long run (Todolí-Signes, 2017; Stewart & Stanford, 2017; Kaine & Josserand, 2019). Some scholars have argued that gig economy employees are caught between traditional workers and independent contractors, and this ambiguity of identity can weaken the bargaining power of unions and employees. Furthermore, many emerging jobs lack adequate employee protection, such as the lack of defined compensation rules, no working hour identification criteria, and no performance rating system. The country's social security system also fails to adapt promptly to the issues of developing businesses. Research conducted in poor countries has revealed that the gig economy might lead to violations of employees' rights. Thus, an increasing number of academics are calling for a reconsideration of the regulatory framework for the gig economy (De Stefano, 2015; Aloisi, 2016; Kaine & Josserand, 2019; Woodcock & Graham, 2019).

- *Suggestions for Developing Countries*

First, multiple stakeholders should increase investment in the digital technology infrastructure of developing nations through international aid, foreign direct investment, and development bank assistance. The first step in solving digital inequality is to gain Internet access. Diverse financial sources should increase their assistance contributions, leveraging their resources and skills to support digital policy and regulatory frameworks.

Second, to prepare for the digital economy and new job requirements, developing nations should actively establish and engage in talent development and re-employment skill training programs. Likewise, training programs should prioritize technologically disadvantaged groups, so that people who have fallen behind in the digital era may keep up with technical advances and reap the benefits of technology.

Third, governments should provide social protection for new jobs. Governments must consider how social systems can benefit from the digital economy. The gig economy workforce should be integrated into the social safety net or build a new social safety net to accommodate the expanding number of gig workers. The most promising reform is decoupling employment from benefit delivery, so that employees are no longer reliant on a single employer for health insurance, pensions, and other benefits. More flexible public policies are warranted to better respond to the realities of modern markets to promote sustainable growth and more creative employment arrangements.

Fourth, international organizations and international non-governmental organizations should assume greater responsibility and contribute to the establishment and adoption of international labor safety standards in the digital age. Particularly, global organizations can use their international reach and resources to frequently study employment challenges in developing countries and provide global data references for global investment and government employment choices. Concurrently, they can also actively play their coordinating role in reaching a broader global agreement on worker safety.

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