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ARTIFICIAL INTELLIGENCE AND THE IMPACT ON DEVELOPING COUNTRIES

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ABSTRACT

This paper examines the potential impact of Artificial Intelligence (AI) on developing countries. The study focuses on the impact of AI on employment, market structure, and international trade in these countries. The analysis finds that AI has the potential to significantly impact the labor market in developing countries, leading to job displacement, wage stagnation, and the creation of new job opportunities. It also finds that AI has the potential to alter market structures and disrupt international trade, with significant implications for the economies of developing countries. On, the one hand, AI and robotics can erode the comparative advantage of the developing countries in producing labor-intensive goods and on the other hand, AI presents the opportunity to trade hitherto non-tradable services like tele-medicine, digitalization etc. Finally, the study suggests that governments in developing countries must take proactive measures to manage the effects of AI, including investing in education and training programs, promoting innovation, and establishing legal and regulatory frameworks to protect workers and consumers.

Keywords: Artificial Intelligence, Automation, Job displacement, Job-creation, Productivity, Super-star firms, Regulatory framework

INTRODUCTION

The world is standing today at the cusp of another significant technological breakthrough that will bring a paradigm shift in the way goods and services are produced. This technological revolution is being heralded in policy and academic circles as the fourth industrial révolution or as Industry 4.0. (Sangahvi,et al., 2019). With the exponential fall in computing costs worldwide, it has become cheaper to employ more and more digital and artificial intelligence technologies in the production of goods and services.

Industry 4.0 is based on rapid advances in information and communication technology, thereby aiding intelligent networking of machines and processes for industry. Artificial Intelligence (AI) can be considered as a backbone of the entire Industry 4.0 ecosystem as AI algorithms permeate various facets such as optimizing the supply chain of manufacturing operations, inventory control, staffing and energy consumption to name a few. Al refers to the technology which makes machines capable of performing the tasks normally requiring human intelligence, for example, speech recognition, natural language understanding and processing and visual recognition. Naturally, humans are endowed with cognitive capabilities, allowing them to do pattern recognition which machines could not do earlier before the advent of Artificial Intelligence. To illustrate, let us assume that one person has not seen a 'blue' coloured bowl in his life, but has seen a 'red' coloured bowl of the same type. Now, if this person is directed to bring the 'blue' bowl, he would be able to perform the task of bringing the blue bowl even though he has never seen it in his life. However, if the description of the 'blue' bowl were not coded into the robot's data system, the robot would have failed to execute the task. Thus, in the pre-Al age, humans had a comparative advantage over machines in performing routine tasks requiring cognitive skills because of their capability to do pattern recognition and to connect the dots from previous experiences of similar types.

In recent times, extraordinary rapid advances are being made in Machine Learning (ML) technology (Sangahvi et al., 2019). Improvements in this technology have enormous potential to erode the comparative advantage of human beings in doing routine and repetitive tasks based on simple pattern recognition. Machine Learning is the scientific study of algorithms and statistical models that computer systems use to effectively perform a specific task without using explicit instructions, relying on previous data patterns and inferences instead (Rose, . et al., 2015).

1. ARTIFICIAL INTELLIGENCE AND ITS POTENTIAL IMPACT ON PRODUCTIVITY AND EMPLOYMENT

According to Acemoglu and Restrepo (2018)), Industry 4.0 will result in the emergence of technologies that can be categorized into two parts such as (1) Enabling technologies and (2) Displacing technologies.

Enabling technologies augment the productivity of the person performing a job. For example- The advent of the telescope did not replace the astronomers or scientists who were earlier conducting space research; it merely augmented the productivity of these people in performing their tasks.

However, on the other hand, displacing technologies directly displace workers from their current jobs; for example- milling machines and power looms directly took over the jobs of the artisans. Thus, it becomes essential to distinguish whether the technology is substituting or complementing the worker.

At the same time, it is also important to distinguish between jobs and tasks. A job is a collection of different tasks which a worker does in his job. For example, a teacher's job involves various tasks of delivering a lecture in a class on a specific topic, addressing students' doubts about the delivered lecture, and customizing his/her approach to teaching according to the different needs of the students.

The first two tasks can be automated leveraging AI and ML, but the third task (i.e., customizing the lecturer's approach to teaching according to the different needs of the students) will be more difficult to automate as it would be challenging to code it in terms of the 'if and then' rules. However, even if we assume that with advances in future in this technology, the third task also gets automated, even then, the teacher's job will not disappear. Because apart from performing the above tasks, a teacher also provides various sorts of counselling such as career and emotional counselling to students even when it is not sought. This task involves more human attributes such as persuasion and empathy, which may not be as effectively performed by a machine at this juncture as a human. Thus, it is unlikely that a teacher's job will get displaced. AI can perform some tasks of teaching and thus would end up increasing the productivity of teachers by allowing them to effectively use their time and efforts on the more non-routine tasks requiring more human aspects.

In the direction of **displacing** technologies, let us consider some examples. For instance, there exist some jobs which can be entirely automated with the onset of AI-enabled production regime. For example, the job of IT professionals doing repetitive, rule-based, routine coding can be completely taken over by AI-enabled technology (Ward et al., 2017). And in this case, the technology has an upper hand and could render the workers unemployed. Let us consider a more elaborate example. Even before the advent of AI, the software development processes are undergoing a paradigm shift towards fourth generation modeling languages, also referred to as the Model-Driven Software Engineering (MDSE). With this emerging paradigm, the source code is automatically generated from higher level models such as Unified Modeling language (UML) diagrams modelled by software architects and engineers. Its practical applicability is gaining wide attention in the last two decades in the industry, including the industry 4.0 and IoT applications as described and demonstrated in Iyenghar & Pulvermueller (2018),. Now, with the advent of AI and a combination of AI and MDSE, for instance AI-guided MDSE as described in Iyenghar & Pulvermueller (2022), could further reduce, if not completely eliminate, the need for the IT professionals in the future.

Now, let us consider the **potential impact on productivity and employment**. Besides the displacement effect, either for some tasks or for the complete job, AI and robotics also entails a productivity effect. A telling example of this process comes from the impact of the introduction of automated teller machines (ATMs) on the employment of bank tellers. Bessen (2016) documents that concurrent with the rapid spread of ATMs, a clear example of automating technology that enabled these new machines to perform tasks that were previously performed more expensively by labor, there was an expansion in the employment of bank tellers. Bessen (2016) suggests that ATMs reduced costs of banking and encouraged banks to open more branches, raising the demand for bank tellers who then specialized in a range of tasks that ATMs did not automate, like customer service, etc.

Also, suppose technological improvements result in technology deepening or increasing capital productivity in tasks that have already been automated. In that case, it will generate only productivity effects. These productivity effects then raise labor demand. (Acemoglu and Restrepo, 2018)).

The substitution of expensive labour with cheaper machines or robots leads to significant cost savings. The benefits of these cost savings can then either be passed on to the consumers in the form of reduced prices or can lead to higher profit margins for the entrepreneurs. Let us explore the potential effects that would arise via the first channel of reduced prices. If the product in which technology has resulted in cost savings is characterized by higher price elasticity, the overall effective demand for this product will rise. Also, if the fall in the cost of production, and thus in the prices, is significantly large in the home country, then international comparative advantage in producing the good may also arise, which will increase the overall demand for the good for the producers in the domestic country. Although employment elasticity in the production of this product falls, the total size of employment may in fact rise due to expansion of production.

At the same time, a reduction in the price of the product also creates an income effect due to which the demand for other goods or services may also rise and hence can increase the employment opportunities in those sectors as well. Nevertheless, it is not necessary that the cost savings are always transferred to the consumers in the form of reduced prices. They might be retained by the entrepreneurs as well. The precise extent of sharing of cost savings between producers and consumers depends on many factors, like market structure, market power, contestability in the market, etc.

However, even if we assume that the entrepreneur retains the entire share of cost savings in the form of higher profits, then also these increased profits will create incentives for further investment in the sector. This will increase the demand for labour in cases where the tasks of production of these goods cannot be automated. Nonetheless, the total effect on the induced increase in the overall output can be expected to be lower via this channel. Because the decision to invest by an entrepreneur also depends on the overall effective demand for the good being produced. And in the scenario where the employees are getting laid off, a sense of pessimism prevails amongst the households and the consumers, and this may reduce the effective demand for all kinds of goods and services being produced in the economy. And this may disincentivize entrepreneurs to invest further even when there is no lack of available funds.

Besides, if Al personnel are in short supply, which is often the case in developing countries, their scarce pool of talent would have to be paid wages much more than their marginal productivity to make them stay longer with the firm. As a result, the firm may end up in a situation where it is saving costs on the one hand by substituting labour by Al sophisticated machines, and on the other hand, its costs get inflated due to the requirement of paying wages to the few Al personnel. (Acemoglu and Restrepo, 2018). In this situation, the firm may end up getting much less overall cost advantage. Furthermore, the above situation, coupled with the depressed effective demand, might even cause recessionary pressures.

Moreover, too much emphasis on automation may also crowd out the time available to the common and the scarce pool of Al experts and scientists for other critical technological breakthroughs. And this may also adversely impact the economy's overall productivity and innovative activity.

Thus, any economy can only benefit by using Al, Robotics, and automation if and only if the productivity effects are substantial. Thus, the real danger for the labour force does not come from brilliant machines but from so-so machines (Brynjolfsson et al., 2020). These so-so machines will be smart enough to displace the labour performing the routine tasks but will not create that much productivity effect and might even lead to an absolute fall in employment.

However, for the time being, let us assume that the productivity effects are significantly high so that total employment ends up getting increased in the economy post-Al. Even in that setting, the increase in output per worker will be more than the increase in wages (Acemoglu and Restrepo, 2018)). Thus, even if we assume the productivity effects to be quite substantial, even then, labour share in the total GDP is expected to fall.

Nonetheless, if we extend our static analysis to a dynamic setting, the effects of Industry 4.0 on the labour share may not look as gloomy. History has witnessed various technological revolutions earlier as well. During agricultural mechanization, tractors also directly displaced the farm labourers. The introduction of the steam engine and power looms also led to the significant displacement effect (Mantoux, 1928). The question now arises: if all these technologies have been able to displace workers successfully, how does one explain the prevalence of so many existing jobs today? (Autor et.al, 2017).

The answer to the above question lies in the fact that periods of intensive automation have often coincided with the emergence of new jobs, activities, industries, and tasks. New jobs can emerge related to the current production process. For example- with the onset of Al, the jobs for Al trainers may emerge. Not only in industry but also in universities, the need for new courses and subjects pertaining to AI will increase substantially to address the market needs. Also, there can be the emergence of the completely new jobs whose nature can't be predicted at present. For example- A farmer in the 18th century would not have thought about the emergence of products and services like computers, software products, electric cars, banking services, etc. But these goods and services emerged and provided employment to millions of individuals.

Similarly, the present Al breakthrough is also not expected to be entirely different from history. However, it is important to note that this time, the penetration of new technologies is expected to be much faster, and the real challenge lies in managing the pace of adjustment. It is perhaps telling that wages started growing in the 19th-century British economy only after mass schooling and when other investments in human capital expanded workforce's skills. Similarly, the adjustment to the large supply of labor, which got freed from agriculture in early 20th-century in America, was greatly aided by the 'high school movement,' which increased the human capital of the new generation of American workers (Goldin & Katz2009). The forces at work at present are likely to be more general than these examples. New tasks tend to require new skills. But to the extent that the workforce does not possess those skills, the adjustment process will be delayed. Even more ominously, if the educational system is not geared to providing those skills (and if we are not even aware of the types of new skills that will be required so as to enable investments in them), the adjustment will be greatly impeded.

Thus, without the intervention of the state, the mechanism of structural adjustment highlighted above may be slow and can cause misery and lead to the painful costs of adjustment for the millions of workers who get displaced from their jobs. This may lead to social unrest, strengthening of interest groups, etc., which can adversely affect productivity and further slacken the pace of adjustment.

Also, as opposed to the developed world, whose population is aging, the population structure of many developing countries is displaying a youth bulge, and this phenomenon will continue in the future. According to the statisticians, the only reason that the German population did not decline in 2021 was the fact that more people are immigrating here than emigrating abroad (Carter, 2022). For example, by 2030, India will have the youngest workforce in the world (Kapila, 2016), further aggravating the country's employment challenge. Thus, the success of Al crucially depends on how fast the infrastructural, regulatory, and legal environment is made conducive for the Al-enabled production regime.

2. AI AND MARKET STRUCTURE

Now, we analyze the market structure in an Al-enabled production system. The advent of different sophisticated technologies like cloud computing has significantly reduced the need to incur fixed costs for maintaining data centers and servers. Cloud computing is the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user (Sangahvi et al., 2019). Thus, this characteristic of the market increases the market's contestability and helps put a restraint on the incumbents' market power as any innovative entrant can come up with improved product, production process, etc., without incurring too much fixed costs. Hence, this can give rise to the startup culture.

However, at the same time, it should be noted that big global tech industries with deep pockets also suck up Al talent from around the globe, leaving a shortage of human capital skilled in Al elsewhere. These big companies can afford to pay very high wages to a few Al personnel, which may lead to the concentration of Al talent in these superstar firms (Autor et al., 2017). The significance of economies of scale and scope becomes even more pronounced in an Al-based production system. It is worth having an Al team within a company if there are a variety of applications for them to work out. Also, in contrast to the conventional production system, big data is one of the key inputs in the Al-based production system, and this *big data is non-rival*. It can be used simultaneously in multiple applications at the same time without reducing its availability to any one of the other applications of a firm. Thus, once the fixed costs for new digital services are covered, a growing market can be served at approximately zero marginal cost.

Thus, in an era of digital technology, in which big data is a crucial input, big incumbent firms have the ability to expand at an exponential pace. Besides, it is important to note that these Al-based products and services are also characterized by significant network and lock-in effects and thus further helping the incumbent firms to expand their market share (Autor et al., 2017). Moreover, it is also feasible for these superstar firms to engage in predatory pricing and bear losses to wipe out competition.

Besides, the firms which have a large customer base, will be able to get more data on consumers' behavioural patterns and while doing their econometric data analysis, as per the law of large numbers, these firms would be able to come up with more useful and precise estimates which will help them to further improve their customer experience and to get further access to consumer data in return. As the competitive advantage of the incumbents is reinforced, the power of the new entrants to drive the technological change may be weakened.

Thus, it may be expected that although AI will reduce the entry costs for any potential entrant, there will be more than ever significant and important first mover advantages in this data driven AI-enabled production regime. The first mover firm will be able to capitalize on its first mover advantage at a much faster pace in an AI-led production setting.

However, it must also be noted that the more personalized information about the behavioural patterns of consumers will also enable the producers to charge more personalized prices from consumers. The prevalence of third-degree price discrimination can be assumed to be far more rampant in this new production system.

Since, big data will be one of the key inputs in the production process, sharing of this data amongst firms also becomes a big issue. Private companies have strong incentives to maintain data privately. However, if this non-rival data is shared amongst different players, overall research output and the total quality and quantity of the goods and services produced could be significantly higher. Thus, the market, on its own, will fail to reach a socially optimal outcome because there exists a significant gap between private and social incentives to share data outside of the formal institutional mechanism. In a game theoretical framework, it will be socially optimal to share the non-rival data, but in the Nash equilibrium each firm would end up keeping its data private unless any outside intervention is made. Also, the private incentives for knowledge creation are naturally lower in developing countries with a small market for technology-led products, poor capital market backing innovation, and limited informational resources. Thus, the non-sharing of data and less than optimal knowledge creation can also have adverse implications for the quality of research and technical progress of developing countries and this can have perverse ramifications on the global competitiveness of these countries in the production regime where the first mover advantages loom large and are more than ever important in this new setting. However, before addressing the question of global competitiveness, it is crucial to understand the potential impact of AI on the world trade scenario.

3. AI AND INTERNATIONAL TRADE

With an exponential fall in the cost of computing and data storage, it becomes further cheaper to communicate and share information globally. Furthermore, this time, this fall in cost is coupled with rapid advancements in natural language processing and machine translation. Thus, there arises a much wider scope to trade services globally, which was hitherto considered non-tradable due to language and various other kinds of barriers. AI is expected to accelerate the spread of global supply chains in which MNCs would integrate their worldwide operations much more vigorously (Baldwin, 2019). Industry 4.0 will make it feasible for a teacher in the US to sell his teaching services to the students in Kenya in their own native language while sitting in his office in the US. Also, AI makes it feasible for

Kenyan or Indian teacher to sell their teaching services abroad. For example, the integration of advanced technologies such as artificial intelligence (AI), the Internet of Things (IoT), and big data analytics can make online teaching experience very smooth by utilizing AI-powered chatbots and intelligent tutoring systems to provide personalized assistance to students. These systems can analyze data to identify areas of weakness or strength and develop targeted learning plans. The use of IoT devices can also provide real-time feedback on student progress, enabling educators to make adjustments and improve the learning experience. Similarly, Natural language processing can enable the development of conversational agents that can interact with students in real-time.

But what can be expected to happen to the trade competitiveness of developing countries in producing the goods post-Al revolution? The onset of Robotics and Al-led production regime will automate routine jobs, which can be easily coded in the 'if and then' rules. Thus, under this setting of the production process, the share and importance of unskilled and semi-skilled labourers in the production value chain are expected to fall substantially. And this may erode the incentives for producers to move their activities from developed to developing countries. Firms in developed countries may find it cheaper to automate certain processes instead of offshoring. And it implies that the historical comparative advantage enjoyed by developing countries due to their lower labour cost is at risk of getting eroded.

Thus, unless developing countries move up in the production value chain, there arises a significant danger of workers getting displaced not only by automation but also by the possibility of re-shoring. Countries like India, Vietnam, South Africa, and Morocco, which have big outsourcing industries, mainly specialize in the back office administrative tasks in banking, health, insurance, and accounting, which are at the highest risk of getting automated.

Banga (2019) estimates the share of different countries in cross-border e-commerce and highlights the losing trade competitiveness of developing countries and LDCs in digital products. Thus, if developing countries fail to digitize their manufacturing, they may lose their global trade competitiveness even in their traditional export sectors and domestic markets.

However, the actual situation may not be as gloomy if developing countries leverage the opportunity provided by Al to build their competitiveness in the hitherto non-tradable services. There still exists a massive gap in the wages of service providers in developed and developing countries, especially in those services that were not possible to trade in the pre-Al era. Thus, developing countries must formulate the appropriate policy framework to train and provide the required skills to their service providers to leverage this window of opportunity. Otherwise, industry 4.0 may lead to further divergence in the income and economic status of the developed and developing world.

4. ROLE OF STATE

The long-run strategy solution is to equip labourers with the required skills to enable them to move up higher in the value chain so that Al-enabled technologies could complement their skills instead of substituting them. And this requires the support of the state because markets on their own may fail to create the optimal level of skilling and re-skilling (Zeira.,1998). And this problem can be much more pronounced in the case of developing countries.

However, this long-term solution to provide the appropriate skills to a large size of the labour force, that too from a very narrow base, can take a very long time to manifest any tangible outcomes. By contrast, technology and Al can penetrate the market and erode labour cost advantages of developing countries at an extraordinarily fast pace. Thus, it might become crucial to protect domestic industries from foreign competition. One such measure that can be used is the data localisation policy. China has ingeniously exploited this policy under the guise of stricter privacy norms (Vempati, 2016).

Data localization or data residency law requires that the data about a nation's citizens or residents is collected, processed, and stored inside the country before being transferred internationally. It will force foreign countries to set up their servers and data centers within the host country's premises; thus, this can have significant positive technological spillover effects on domestic firms. Furthermore, some crucial data sets about domestic consumers can also be provided only to domestic firms. It would create an indirect subsidy to the domestic Al industry. At the same time, foreign firms exporting their services to developing countries must be encouraged to share their source code. Moreover, it is also imperative for developing countries to preserve their policy space at the WTO negotiations.

However, it must also be noted that Al is a general-purpose technology, and government must leverage this technology in governance. Al is the invention of the method of the invention. Thus, the government can and must use this technology to plug various loopholes in the monitoring, execution, and implementation of social welfare programs. Al can help the policymakers constrained with limited fiscal resources in detecting tax frauds, preventing subsidy leakages, and better target the beneficiaries in various social welfare schemes. Al can be an asset of incalculable value in the predictive maintenance of public infrastructure. For example, proactive physical infrastructure monitoring can be done using Al by combining data points like usage metrics and image recognition to predict when and what maintenance is required. It can prevent many accidents like train derailments, collapsing of bridges, dams, etc. Al can also play a significant role in the agricultural sector as well. Precision farming has been hailed as the next major agricultural milestone to improve farming productivity.

Further, in many developing countries, there is no proper way of monitoring the activities of government officials and bureaucrats, which leads to massive corruption. Al enables the government to check if things are happening on the ground (Sharma et al., 2020). Let us assume that the bureaucrats in India are tasked with building toilets in public schools. In India, to ensure that the toilets are actually built, the government has created a mobile app where a government functionary will have to go to the toilet site, click a photo of the toilet, and upload it to the central server. However, if there are one crore toilets to be built, this would result in 1 crore photographs. But it would be impossible for the monitoring authority to check whether each of these photos shows a complete toilet or a half-built toilet. If the toilet in use, or is stashed with hay? Or if the 100 images have been uploaded by a government functionary sitting in her office? So, the government usually relies on random checks to create deterrence effects. But Al can create a way to process each of these one crore photos and generate an alert whenever the photograph is not that of a wholly built toilet and ensure that the multiple images don't get uploaded by a government functionary sitting in her office. Similarly, the application of Al in education and health will not only lead to the better and more efficient utilisation of public resources but can also help in bridging the rural-urban divide. Thus, if Al is leveraged in governance, it can help reduce the inequalities in opportunities in any country.

Now let us assume that the government does not make any effort to leverage technology in governance, or its pace of embracing Al is very slow compared to the rapid exponential rate of penetration of Al in market-oriented sectors. Then, what would be the effects of Al on the distribution of income and wealth under the above scenario?

In an Al-led market regime, the significance and relevance of old skills will become obsolete much faster, and new skills will replace them. Al will incessantly replace workers from their current jobs, and workers will have to update their skills to perform slightly modified tasks continuously. If that entails requiring new skills that are costly to learn, automation can increase inequality within occupations.

Economically disadvantaged individuals, for whom the burden of direct cost and the opportunity cost of acquiring new skills is higher than their wealthier counterparts, will get less training and may even move down in the work hierarchy. And the more prosperous individuals will end up moving up the value supply chain in a scenario where no state support is provided.

Besides, as routine tasks get automated, the significance and relevance of skills like creative thinking, ability to innovate, having strong communication and leadership skills etc will increase more than proportionately in the production value chain (ILO, 2018). However, these skills require strong social, emphatic, and interpersonal competencies. These capabilities can include innate ability, creativity, the ability to think out of the box, ability to continuously persevere unless one gets the solution to the problem he/she is seeking. As opposed to rule-based routine jobs, which are often based upon the knowledge of some rules and tools, success under the Al-led production regime will largely depend on the inherent personal capabilities of any individual.

It is important to note that mastery in future jobs will indeed require learning some new rules and tools. But once these rules and tools are learnt, productivity will depend much more on the innate ability of the individuals in an Al-enabled production regime. Hence, the maximum productivity effect on the nation will occur when the individuals with the highest innate abilities and creativities contribute to the national output.

However, the market equilibrium outcome can result in only richer individuals getting the required skills and moving up in the production value chain. In the absence of government support to learn and acquire skills for all, only the privileged individuals born into rich families will have the resources to acquire the skill. No matter how talented, creative, and innately intelligent individuals may be, without the opportunity to acquire the required skill, they may not be able to contribute to the output according to their full potential. Hence, a lack of opportunities to acquire the required skills will prevent many bright individuals from deprived backgrounds to make the best use of their innate capabilities and talents. This will ultimately get manifested in the aggregate level of productivity and competitiveness in a country because, in the post-AI production regime, the comparative advantage will largely be determined by creativity, interpersonal skills, ability to make judgements, etc. Thus, inequalities in opportunities for training and education will not only have adverse impacts on income distribution but can also adversely impact the overall productivity and, therefore, the global competitiveness of any economy in an Al-enabled production regime.

CONCLUSION

In conclusion, this research paper highlights the potential impact of Artificial Intelligence (AI) on developing countries, specifically focusing on employment, market structure, and international trade. The findings indicate that AI has the potential to bring about significant changes in the labor market of these countries. While it may lead to job displacement and wage stagnation, it also presents opportunities for the creation of new jobs. Moreover, the study recognizes the transformative effect of AI on market structures and international trade. On one hand, the adoption of AI and robotics may undermine the comparative advantage of developing countries in labor-intensive goods production. On the other hand, AI offers the potential for developing countries to engage in previously non-tradable services such as telemedicine and digitalization.

To effectively manage the effects of AI, it is crucial for governments in developing countries to take proactive measures. This includes investing in education and training programs to equip the workforce with the necessary skills for the AI-driven economy. Promoting innovation and providing support for research and development can also enable developing countries to harness the potential benefits of AI. Additionally, establishing robust legal and regulatory frameworks is essential to safeguard the rights of workers and protect consumers in this rapidly evolving landscape. In nutshell, by adopting proactive strategies and embracing the transformative potential of AI, these countries can navigate the challenges and opportunities presented by this technology, fostering inclusive growth and sustainable development.

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