ARTIFICIAL INTELLIGENCE AND LOSS OF JOBS

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I. INTRODUCTION

Artificial intelligence (AI) is a term that refers to the process of developing machines that are intelligent.[1] Narrow AI is a term that refers to today's AI that is capable of performing a single task at or beyond human-level capabilities and has the potential to be more valuable than a human worker. At the moment, Narrow AI is growing[2], leading to considerations of how much human labour will be eliminated as a result of this technology's integration into virtually every aspect of human labour. As a result of this fear about automation, numerous news organizations have published articles on the future of work.[3] While technology unemployment and income destruction are legitimate issues, media coverage has a tendency to overstate them. The purpose of this study is to shed light on the entire extent to which artificial intelligence is affecting the labour market and compensation.

II. HISTORY OF AI

To analyse the impact of AI on the labour market, a review of prior technical patterns is necessary, as this enables the mapping of past regularities to the current situation. Utilizing new technology to boost corporate efficiency while simultaneously contributing to the evolution of human capital has accelerated significantly since England's First Industrial Revolution began in the 1760s.[4] Since that time, rapid expansion, changes in social and economic conditions and the introduction of new employment opportunities have all been conceivable. The manner in which these changes materialize is essential for determining the influence of AI.

Windmill innovations and the discovery of the steam engine during the First Industrial Revolution, followed by advances in electricity and the utilization of petroleum, resulted in a

[1] J. McCarthy, 'What is Artificial Intelligence?' (2007) Stanford University.
[2] Muehlhauser and Salamon, 'Intelligence Explosion: Evidence and Import (2012) Machine Intelligence Research Institute.
[3] 'Automation and Anxiety (2016) The Economist <https://www.economist.com/special-report/2016/06/23/automation-and-anxiety>.
[4] Collins et al., 'Economic Growth and Evolution: Parental Preference for Quality and Quantity of Offspring' (2013) Macroeconomic Dynamics.

tremendous rise in production and accessible resources for all sectors.[5] Employment in urban sectors increased dramatically as low-productivity agricultural labourers shifted to industrial sectors to engage in more productive positions linked with the manufacture of completed goods.[6] These were great economic times, but they were also marked by social turmoil and discontent. Throughout and after the Napoleonic Wars, British borrowing contributed to a decline in economic security, giving rise to the Luddites, who challenged new techniques of production that remove experienced artisans in favour of low-skilled labourers utilizing simple machines to mass-produce the same product.[7] These two centuries of economic progress were characterized by technological advancements that eliminated skilled labour in favour of unskilled rote labour. This was the period when low-skilled employees witnessed considerable increases in income as a result of labour productivity improvements. To be honest, the Luddite movement's efforts to slow productivity growth were doomed by the movement's limited legal and political choices. Due to increased availability, contemporary politics makes it easier to utilize these resources.

Although worker productivity increased, so did the demand for their services. Because a particular input's productivity is improved by technological means, more of it is used. This phenomenon is referred to as the Jevons Paradox.[8] While the initial research was intended to examine capital-intensive processes, labour follows a similar pattern. If technology improves the productivity of a process without incurring extravagant expenses, the industry will require additional human labour to capitalize on the efficiency gains.[9] In this approach, new technology can be viewed as augmenting rather than replacing human labour by automating specific tasks and relocating human workers to more productive positions.

III. AI AND WORK: CONTEXT AND DEBATE

The Fourth Industrial Revolution[10] is frequently described as a technological transformation that will result in a significant increase in industrial and service-sector automation, reshaping labour markets, and even displacing skilled employees. As a result of rapid innovation and the

[5] R. Buchanan, 'History of Technology - The Industrial Revolution (1750-1900)' (2005) Encyclopedia Britannica.
[6] N. Crafts, 'The Industrial Revolution: Economic Growth in Britain, 1700-1860. Recent Findings of Research in Economic and Social History' (1987) Spring.
[7] E. Thompson, 'The Making of the English Working Class' (2003) Penguin.
[8] Bauer and Papp. 'Book Review: The Jevons Paradox and the Myth of Resource Efficiency Improvements. Sustainability: Science, Practice, and Policy' (2009).
[9] E. Glaeser, 'Triumph of the City' (2012) Penguin.
[10] Klaus Schwab, 'The Fourth Industrial Revolution' (2015) Foreign Affairs.

introduction of new technology, new industries, new employment, and new ways of working are being developed. A growing number of people are concerned about the future of work and employment as a result of recent changes that have resulted in the elimination of the obsolescence of numerous jobs.[11] It has been stated that new methods are required to compensate for revenue lost to automation or to mitigate the impacts of automation.

Despite the excitement, research indicates that the dissemination of new technology is less essential than sometimes assumed and has had only a minor impact on profit generation thus far.[12] Many people took issue with Frey and Osborne's (2017) well-publicized conclusion that roughly half of all US employment is at risk of automation. Concerns about the loss of considerable numbers of jobs to automation were deemed unfounded, as jobs encompass a variety of functions, some of which may be difficult to automate, particularly non-repetitive and unstructured tasks.[13] In reality, platform companies offer politicians a new economic model and new ways of organizing employment. Platforms have not resulted in a fundamental shift in company activity in the capitalist economy.

There is little evidence that automation and digitization will result in job losses. As solar energy, the internet, and algorithmic computing demonstrated in the twentieth century, and as electric vehicles and self-driving transportation systems have demonstrated more recently, technological change and adaptation rarely follow a linear path and frequently experience significant time lags between development and widespread adoption. Broader capitalist social connections shape and implement technologies, including the agency of employers, governmental actors, employees, and representative bodies. Collective agency of workers has an effect on technological development in the same way that different types of capital have distinct imperatives and orientations. Managerial systems incorporate new work technology, which is then shaped by a plethora of conflicting, and perhaps contradicting, needs. As a result, "*research indicates that results differ by the workplace. Schorpf et al. (2017), for example, describe unique forms of control and dissent in crowdsourcing platforms, while Movitz and Alvin (2017) claim that individualized employment connections result in intra- and intergroup conflicts with little ability for collectivization".* While some believe that new technology and

[11] A. Hirschi, 'The Fourth Industrial Revolution: Issues and Implications for Career Research and Practice (2017) The Career Development Quarterly.
[12]World Bank, *World Development Report* World Bank (2018) https://www.worldbank.org/en/publication/wdr2019.
[13] *Hirschi* (n 11).

digitalization would erode worker autonomy and strengthen managerial control, others believe the opposite is true.[14]

Despite a paucity of research, perspectives on the scope and disruptive potential of new technologies in the workplace continue to be divided. Nonetheless, the growing polarisation of the labour market over the last few decades has been a clear outcome of technology improvement in the US and European labour markets.[15] As the need for highly skilled professionals has grown, the demand for workers with a lower level of education and competence has dropped. Job polarisation is expected to persist in higher-skilled professions and vocations as the number of automated work grows. The demand for on-going education and learning has increased, as projected. Despite their small numbers, the emergence of the gig economy, which includes crowd-work and work-on-demand via apps, has been a substantial transformation. "*In 2018, around 1.3 million migrant workers joined the gig economy in India, up 60% from the previous six months*."[16] Over the last decade, an average of 4.75 million people has entered the workforce in India. Because the majority of these new positions are coming from largely unregulated organisations, workers may expect little in the way of job security or benefits in the future. The leading firms in this market include Zomato and Swiggy, as well as Uber and Ola. Use of digital platform for their work was reported by only 15% of independent workers, according to a McKinsey Global Institute (2016) survey; traditional supply channels remained the major mode of delivery for gig operations.

IV. AI AND EMPLOYMENT: INDIAN PERSPECTIVE

India has many characteristics of a fast growing emergent, postcolonial economy including specialised high-growth industries like information technology and electronics. Indian capitalism operates in a low-wage/low-productivity/medium-technology framework due to large levels of poverty in agriculture, informality (which includes both the informal sector and informal employment), and industrial development based on informality. When material links such as gender, caste, ethnic origin, and religion overlap, existing inequalities in the labour market and the workplace are exacerbated.[17]

[14] Boes et al, 'The new digital workplace: how new technologies revolutionize work' (2017) A critical perspective on work and employment series, Palgrave.
[15] Goos et al, 'Job polarization in Europe' (2009) American Economic Review.
[16] 'Delhi leads gig economy, not Bengaluru: Report' Team Lease Services Report (2018).
[17] A. Hammer, 'Comparative Capitalism and Emerging Economies: Formal-Informal Interlockages and implications for institutional analysis' (2019) Review of International Political Economy.

The informal sector dominates, with the majority of people labouring in low-wage occupations with few or no benefits. The informal sector employs more than 80% of the Indian workforce, with the informal employment rate hovering at 92.4 percent. This is much higher than the anticipated average for poor countries of 70%.[18] Agrarian reforms have historically been ineffective at redressing social and economic disparities, while industrialization and urbanization have also failed to generate major gains informal employment. As a result, agriculture and the informal, low-productivity non-agricultural sector are under increasing pressure to produce jobs. Agricultural failures have resulted in a labour surplus and a high level of informality (mainly subsistence self-employment/petty commodity production), which has hampered wage growth in the formal sector and prevented any escape from poverty and informality (primarily subsistence self-employment).[19] Even though agriculture has declined in importance, it remains the country's largest employer, providing employment for the vast majority (about 60 percent). Liberalization in 1991 and COVID-19 exacerbated these agricultural and informal economic patterns, as well as high and rising unemployment, precipitating the recent migrant labour crisis.

As a result, employment in capital-intensive high-tech industries like automobile has not increased significantly. Fears of 'jobless growth' have been heightened by a growth rate of 7%, which has resulted in employment growth of less than 1%..[20] In a country where the working-age population grows by approximately 16 million people each year, less than two million new jobs are created annually. Young adults, particularly those with a college degree, are nearly twice as likely as the overall population to be unemployed. at a rate of 16%. There is also a sizable proportion working in the informal sector, where wages and productivity are low and access to infrastructure and financing is limited.

The informalization of the workforce has increased, with a shift from permanent to temporary labour, increased enterprise de-unionization, and decentralisation of bargaining, all of which have contributed to the marginalisation of political unionism in the industrial sector. Contractual and self-employment have increased dramatically, but conventional employment has remained quite stable. This indicates deterioration in working circumstances.

[18] 'The Challenge of Employment in India: An Informal Economy Perspective' National Commission for Enterprises in the Unorganised Sector (NCEUS).
[19] B Harris-White, 'Globalization, the financial crisis, and petty production in India's socially regulated informal economy' (2010) Global Labour Journal.
[20] Basole et al., 'State of Working India 2018' (2018) Azim Premji University.

The job gap has widened as the economy swings away from manufacturing and toward service-based development. The services sector accounted for 63% of GDP growth over the last decade but only 33% of overall employment. "*Over 55% of service sector employment in India continues to be in small-scale or informal jobs such as petty trade, domestic services, and other sorts of small-scale or informal labour."* Professional gig work is also on the rise, but social sector jobs such as education, health care, and public administration account for only 23% of service sector employment.[21]

The complex interaction of economic links and social linkages of gender, caste, and religion (among others) in the labour market and work and employment relations exacerbates this sectoral skewness. In India, female labour force participation is among the lowest in the world, and has been declining since 2004–05. "*Between 2011 and 2012, 19.6 million women left the labour force, with rural women comprising 53% of the total. Participation rates among educated women are lower in metropolitan areas, reflecting a lack of meaningful work opportunities (Tandem report, 2018). Women and other marginalised groups are also more likely to be concentrated in subsistence self-employment and the lowest rungs of the labour market, with limited access to education and skills development, health, and other public services; low levels of capital ownership; and increased discrimination in the labour market and when seeking credit."*[22]

The educational and skilling system, for the most part, reflects and reproduces injustices. Higher education is the focus of education, which is primarily offered to the wealthy. The quality, capability, and efficacy of the state's educational and skill structures are all lacking. The informal economy's most vulnerable workers have limited access to training institutions, which is aggravated by disadvantaged groups' lack of knowledge and participation in government training initiatives implemented in the previous decade. Companies have generally avoided investing in training in order to keep labour costs low and labour turnover low. Instead, businesses prefer to train casual labour on the job to keep labour costs down and limit the number of employees who leave the employment.[23] Only 17% of organisations in India provide in-house training, and this is mostly for official employees, who make up a small percentage of the total. According to the Periodic Labour Force Survey (2017–18), less than 2% of the

[21] *Basole.*
[22] *NCEUS.*
[23] J. Breman., *Outcast labour in Asia - circulation and informalisation of the workforce at the bottom of the economy* (2010) Oxford University Press.

population has received any type of training, whereas 5.6 percent has undergone informal training. It will never be possible to oppose capital accumulation based on informal labour and informal skilling just through supply-side strategies. In 2015, the Skill Certification and Reward Scheme and the Skill India Initiative taught about 1.8 million people for youth training and employment. Despite this, just 12.4 percent of the trainees were placed successfully. On average, just 30% of those skills are highly proficient, while the rest are poor or medium skilled.[24]

According to this brief analysis, India's labour market has a number of specific issues, including high levels of informal work/self-employment and low productivity, as well as a shortage of women in the workforce and the marginalisation of major groups. In a society currently dealing with high rates of formal unemployment, the "skills crisis," and poverty pay with no social security or job stability, creating jobs in an age of growing automation will pose significant hurdles. The importance of excess labour and the enormous informal sector must be prioritised in any evaluation of the future of employment. In a labour-rich developing economy like India, rising automation-induced unemployment raises the risk of serious consequences. In the context of a large informal sector, the impact of new technologies on employment is essential when it comes to poverty and inequality. For the third time, automation and artificial intelligence will have a considerable impact on the demand for skilling and reskilling. According to NASSCOM, about 46% of India's workforce would be working in new jobs that don't exist currently or have dramatically changed skill requirements by 2022. A recent survey[25], during the pandemic, nearly half of Indian businesses increased their AI research and investment, primarily in the automation of jobs that replace human labour and the reorganisation of current manufacturing value chain systems. For the vast majority of the people, there is still a scarcity of training and up-skilling options, which is crucial for the adoption of new technology. The social impact of new technology, particularly on labour quality and social equality, is critical. So far, work has re-created social divides. In light of these concerns, we review the National AI Strategy in the next section.

V. CONCLUSION AND IMPLICATIONS

India's national AI plan isn't grounded in the country's political economy of work, employment,

[24] Tandem Report on Emerging Technologies and the Future of Work in India (2018).
[25] 'Upskilling for shared prosperity' WEF & PwC Global (2021).

and skill development, according to a new critical evaluation of automation and the future of work in India. Because of India's long struggle to achieve widespread performance (instead of isolated pockets of excellence by which it has largely been described), the current state strategy fails to take into account the country's deep-seated and long-lasting problems with both employment and skill development.

High-tech adoption is predicted to be restricted to specialized organized industries and service industries due to low labour costs and infrastructure constraints, according to the sectoral analysis. Automobiles, financial, legal, and IT services, all of which need significant amounts of capital, have high levels of automation potential. There will be a limited and asymmetrical effect on employment as most people work in agriculture and the informal sector. For jobs, new technologies will likely create more than they destroy because they will only duplicate informal and unstable labour. The number of people working for themselves is set to rise, but this won't necessarily be accompanied by better working conditions.

Automation's uneven influence on employment has far-reaching societal implications. According to present patterns, workplace disruptions caused by future technologies will keep on excluding the great majority of poor and primarily low-skilled workers, further entrenching previously existing inequities. New technologies are less likely to be deployed in the informal economy due to the low cost of labour. Men and women in semi-urban and rural areas, as well as marginalized socioeconomic groups, will have less access to the benefits of technological advancement. As a result, women and other underrepresented groups are more likely than men to work in positions that require only low to medium levels of competence, rendering them more vulnerable to automation. Jobs in the IT and BPO industries that initially automate are more likely to be held by women in low-wage backend positions for technological reasons. Because platforms do not yet provide users with access to social safety nets, precarity exists. The already significant urban-rural gap will be exacerbated by emerging technology.

New technologies, such as the creation of a platform economy or opportunities for distance education, can provide imaginative solutions to overcome these barriers, but their utility will be determined by how well they are integrated with existing policy measures. In setting labour conditions and mediating between capitalists and workers, the state plays a critical role. By restricting regulatory participation (or not engaging at all), it supports and sustains informal and precarious work while simultaneously providing poor skilling infrastructure. Both have far-reaching implications for how individuals accept new technologies and divide authority

among employees. Dealing with informal work and skill development is an important component of addressing AI and automation issues. Automation and artificial intelligence (AI) have the potential to alleviate India's various demographic challenges while also bolstering the country's current workforce. The government has a crucial role to play in this.