Who Loses to Automation? AI-Driven Labour Displacement and the Limits of Reskilling Policies in Platform-Based Informal Work in India

[1]Anagha Ramteke, [2]Ganga Hari

[1,2] *Department of Economics, School of Arts and Sciences, Azim Premji University, Bangalore, India*
Email: [1]anagha.ramteke24_ug@apu.edu.in, [2]ganga.hari24_ug@apu.edu.in

Abstract

Rapid advances in artificial intelligence (AI) and automation have led to serious concerns about labour displacement and job insecurity, yet their effects vary widely across different labour market contexts.

This paper examines how AI-driven automation shapes employment outcomes in platform-based informal work in India, with a focus on labour displacement and limits of reskilling policies. Using a qualitative, secondary literature-based analysis which examines the distinction between job displacement and task displacement, the study examines how algorithmic management restructures work in platform-based employment. The paper argues that while AI primarily operates at the task level, the lack of job security, institutional protection and access to alternative labour tracks means that task-level displacement manifests as complete job displacement in the informal sector especially in platform-based informal work. Furthermore, it shows that prevailing reskilling policies are not suitable for this context as they assume access to stable employment, training opportunities and institutional support that the informal sector generally lacks. The findings highlight the importance of labour market structure in shaping the employment effects of automation and suggest that policy responses must move beyond reskilling to address informality and job quality in developing economies. On the basis of the mentioned findings, this paper proposes potential policy implications which focuses on the importance of a multifaceted approach to reskilling and job protection.

Introduction

Rapid advances in artificial intelligence and automation have increased concern among economists, policy makers and the general public alike regarding the future of jobs and employment. Discussions on fear of job loss and increasing inequality are on the rise since the extent of labour displacement that will be caused by AI is still being debated on and researched. Contrary to earlier debates, recent research has shown that AI and automation do not pose a uniform threat to employment, but rather, the effect of it depends on the sector of work, skill levels and institutional setting. Evidence from advanced economies show that AI and Automation change the context of the job and the tasks that need to be performed manually instead of eliminating the job as a whole.

These concerns have placed AI driven Automation at the centre of contemporary discussion on the future of work and labour market policy. The effects of AI driven automation manifests differently in India due to its distinct labour market structure. Unlike advanced economies India's labour market is still dominated by the informal sector which constitutes 90.7% of the workforce (Mehrotra & Parida 2019). The informal sector lacks written

contracts, social security and legal protection. Laborers in this sector often face low and unstable incomes and have limited access to training and skill development opportunities when faced with technological changes at work. This leads to further job insecurity and income instability. Henceforth, examining the effects of AI and automation on the labour market in the Indian context requires close attention to its informal sector and the vulnerabilities that the workers face.

In recent years platform-based work has grown rapidly in India. According to the NITI Ayog policy brief, around 7.7 million workers are part of platform-based work as of 2020-21 (NITI Aayog, 2022). Despite these jobs being marketed as flexible income opportunity, most platforms run under informal work conditions that lack job security, worker safety and unstable income. Moreover, platform-based work is highly affected by technological changes especially the integration of AI and Automation models in decision making through algorithms for task assignment, price setting, performance monitoring and so on. This makes platform-based work a suitable site to examine the effects of AI-driven automation. Because when workers are managed by automated systems rather than human managers, changes in technology directly affects how much they are paid, the amount of work they receive and at what intervals they receive the next task. Hence, studying platform-based work and how AI-driven automation affects it, gives us insight on how automation interacts with a branch of the informal sector and how it shapes the labour outcomes in India.

While the literature on AI-driven automation has expanded rapidly, most of the existing literature concentrates on task displacement and worker adjustment within the formal sector. A common assumption is that workers can respond to technological change by shifting to new tasks or enhancing their skills through reskilling policies. However, far less attention has been given to the functioning of AI- driven automation in informal labour markets, particularly in platform-based work in developing countries like India. The labour market, characterized by insecure employment, and a limited chance of training, automation at the task level may fail to bring re-organization at the job level rather increase employment insecurity or displacement. This gap in literature comes out as an important intersection in understanding how automation shapes labour outcomes among platform workers in informal settings and the effectiveness of existing reskilling frameworks in mitigating worker vulnerabilities.

What we try explore in this paper is *How AI-driven task automation affects job security among platform-based informal workers in India and to what extent can existing reskilling policies mitigate labour displacement in this segment?* This paper argues that while AI in platform work primarily operates to task level automation and algorithmic management, the absence of job security and task reallocation opportunities means that it often manifests as effective job displacement. Furthermore, we argue that existing reskilling policies are insufficient to mitigate job displacement faced by platform based informal workers. We further discuss potential policy proposal that focuses on a multifaceted approach rather than solely focusing on reskilling.

Literature Review
1. Automation and Labour: Job vs Task Displacement
The literature on automation and labour recognizes well that jobs represent a bunch of different tasks with differing vulnerabilities to technological change, rather than just one thing. One of the early task-based theories says that changes in technology tends to substitute routine, easy-to-define tasks and complement more flexible thinking and people skills (Autor et al.,2013). Automation within this frame hardly wipes out an entire job; instead it changes how the tasks of a job is designed. In some cases, workers can shift their effort to the remaining tasks that still need manual support when most of the tasks are automated, even in industries with plenty of new technologies, this helps them remain employable. This view has done much to help shift the debate away from the "jobs disappear" point of view towards a one that tries to explain changes in the organization of work.

Building on this idea, recent studies say automation's effect on jobs depends on how labour is displaced and reallocated. Acemoglu and Restrepo argues that automation can push workers out by replacing tasks, but it can also create new tasks and jobs that partly replace those losses (Acemoglu and Restrepo,2019). From this perspective, displacement doesn't directly translate into job loss, because workers can adjust within the task set or acquire new skills. However, this literature largely assumes that people are formally employed and have the institutional support and training needed to adjust. Therefore, while the task-based jobs make sense theoretically, it does matter how automation affects workers in labour markets where there is a lack of good opportunity to reallocate tasks or upgrade skills.

2. AI and Employment Outcomes: Evidence of Heterogeneous Effects

Research on Artificial intelligence and automation reveals a slight difference in its impact on jobs which is unequally distributed. In developed countries, AI generally transforms what a job looks like through the automation of specific tasks. That displaces job opportunities, skill requirements, and remuneration structures rather than eliminating jobs entirely. Reports from OECD Employment outlook (2023) sums up that workers in jobs heavy with routine or easily codifiable tasks are more exposed to automation, while those doing non-routine creative thinking or people skills might experience helpful, complementary effects. (OECD,2023)

It also depends on the industry and the specific rules that apply to it. Where labour markets are well-institutionalized, with social protection and training opportunities, automating tasks is more likely to be associated with job reorganization and workers adapting. Automation can be associated with job insecurity and pay dispersion where institutional arrangements are weak. Once again, the impacts related not just to what the technology is capable of but also to the broader economy and institutions within automation occurs. Therefore, context is key when assessing how AI-driven automation affects jobs.

3. Reskilling as a Policy Response to Automation

The dominant concepts to address jobs changing because of automation are now upskilling and reskilling. Global policies see building skills as the primary goal through which workers will adapt to technology, be employable, and transition into new types of jobs as demand in specific sector shifts. According to the (OECD,2023) and (ILO,2019) reports, Automation is more a shift in skill requirements than the significant risk of job loss, with ongoing learning at the heart of staying in the labour market.

But this optimistic perspective establishes a few preconditions, that is reskilling programs are available for the workers who have the time and financial means to acquire new skills; and labour markets are willing and able to retain reskilled workers. These preconditions more accurately align with formal jobs that afford support and social protection, and they are far less defined in nonstandard forms of work. This implies that diverse labour markets may exhibit significant variation in the effectiveness of reskilling as a strategy to respond to automation, and it creates doubts on whether it could be universally applied in such an inclusive manner.

4. Gap in the Literature

Taken together, these studies shed light on how automation reshapes work at the task level, causes varied employment outcomes, and provokes policy moves cantered on reskilling. However, much of this work fits better with formal labour markets in which workers are assumed to have access to institutional support, training, and channels through which to reallocate tasks. Relatively little attention has been given to how AI-driven automation operates within informal labour markets run through digital platforms in developing economies, where workers often face job insecurity, limited reskilling options, and fewer pathways to adapt to technological change as framed by task-based theories and policy models. This omission reduces our understanding of the impact of automation on job security and outcomes for these informal platform workers and raises questions about the relevance of currently promoted reskilling policies to such platforms. Against this background, this study investigates how AI-driven task automation affects platform-based informal workers in India and considers the extent to which current reskilling policies can mitigate labour displacement in this sector.

Context: Platform-Based Informal Work in India

Platform- based work has emerged as a significant and rapidly expanding Segment of India's labour market, especially in urban areas. According to NITI Aayog policy brief, Platform based work in India is defined as a subset of the broader gig economy where work is based on online software apps or digital platforms.

While the broader gig economy includes casual wage workers in conventional sectors, platform workers are specifically those whose livelihood are mediated through digital technologies (NITI Aayog, 2022). These digital platforms match Workers with customers for on demand services such as food delivery, cab services or other logistical issues. The NITI Aayog policy brief further says that approximately 7.7 million workers are engaged in platform-based work in India as of 2020-21 and is expected to more than triple, reaching 23.5 million workers by 2029-30(NITI Aayog, 2022). Although platform work is often represented as flexible employment, its rapid expansion and role in essential services make it an important part of India's labour market. Hence studying the platform-based work gives us an opportunity to examine how technological changes, especially AI driven automation shapes labour conditions in a developing economy.

Despite the growing importance in the Indian labour market, most platform-based work still falls under the informal sector and the workers are considered independent contractors rather than employees, which means that they are excluded from standard labour protection such as written contracts, social security benefits and minimum wages. As a result, workers often face irregular working hours, income instability and limited space for grievance redressal. Furthermore, the absence of formal employment relationships means that workers do not or have minimal access to training and skill development opportunities. Such situations make platform-based workers vulnerable to economic and technological changes.

In India, technology plays the most important role in governance and organization of the platform-based labour. Digital platforms rely on algorithmic systems to intervene in almost every aspect of the labour processes including task allocation, performance assessment, pricing and work intensity (ILO, 2021). Workers receive their tasks or their level of remuneration based on the decisions which includes performance evaluations, which are generated by automated systems characterized by limited transparency and minimal avenues for workers to negotiate. This form of algorithmic mediation diminishes direct human oversight and places workers in a state of pronounced dependence on platform-dictated determinations. This dependence boosts vulnerability for informal workers who lack employment protections or alternative sources of income, as platform algorithms and incentive structures may have immediate effect on access to work and earnings. The primary role of technology in governing platform work describes both the terms under which labour is performed and the risks borne by workers; this sector has become particularly vulnerable to artificial intelligence-driven changes in the organization of work.

Analysis: AI-Driven Automation in Platform Work

In platform-based informal work, AI driven automation often operates through systems of algorithmic management that organises labour at task level. As explained in ILO world employment and social outlook report, through automation many functions that were previously performed by human managers are managed by different algorithmic systems, for example- allocation of tasks, price setting and performance monitoring (ILO, 2021). Workers' access to tasks is determined through an algorithmic process that draws real time data, including location, acceptance rates, customer ratings and completion times. Such platforms break down jobs in such a way that each task is standardised and can be constantly evaluated. Empirical studies highlight that while such systems are often presented as enabling flexibility and autonomy, they exercise great control over workers by deciding when, where and under what conditions they work. As a result, AI driven automation in platform work does not eliminate jobs as a whole rather reorganises work by automating decision making and task coordination which in turn decides the workers work condition and job security.

In most of the literature on automation, task level technological change is not expected to result in job loss, it rather just alters the nature of work, workers are expected to either do other tasks or upskill (Autor, 2013) (Acemoglu & Restrepo, 2019). However, this assumption cannot be used when talking about platform-based work. Since platform-based workers have very narrow and rigid roles and limited control over the tasks they perform, this restricts their ability to shift into non automated tasks or other complementary tasks as technological changes take place. As tasks become overly standardized and optimised through algorithmic systems, workers experience a lack of power in shifting or adjusting their work in response to technological changes. Furthermore, the absence of formal employment registration and institutional protection further constraints adaptation. Due to workers' lack of access to training, internal mobility or job security mechanisms. In such situations changes in the algorithm or reduction in task availability can directly affect the workers' access to work and the conditions they work in, it can lead to an increase in job insecurity. Henceforth even if jobs may not be formally eliminated but the conditions under which task-based workers work means that task displacement often manifests as effective job displacement.

The consequences of AI driven task automation in platform work are most clearly reflected in the patterns of income instability and work intensity. Since access to tasks are decided by the algorithmic systems, changes in platform rules, incentive structure, or performance threshold can affect the volume and regularity of work available to the workers. Earnings are therefore unstable and closely tied to platform-based metrics, this results in workers being vulnerable to income fluctuations that are mostly beyond their control (ILO, 2021). Due to this many workers will feel the need to increase working hours or accept less favourable tasks in order to maintain a comparatively steady stream of income, despite these platforms advertising themselves as a flexible source of labour or

income. This can lead to intense mental and physical strain and toxic working conditions. Overtime such working conditions can lead to workers leaving the platform as they are not able to keep up or disengagement from the platform due to performance thresholds not being met. While this might not fall under formal lay-off, they overall lead to complete job displacement since workers lose sustained access to work and income due to technological and AI driven changes in labour organisation.

It is important to note that the effects of AI-driven automation within platform-based informal work are not uniform across sectors. Multiple factors such as the degree of dependence on the platform income, work intensity and individual worker characteristics decide the final outcome. Workers that depend on platform work as their primary income are the least disadvantaged, since they are the most vulnerable to their livelihood being affected if there is a change in task availability or performance thresholds. Workers who work part-time will face comparatively less income shocks as technological changes take place.

Reskilling Policies And Their Limits

In response to concerns regarding displacement due to AI driven automation, reskilling and upskilling are the most dominant policy responses. Majority of policy documents and international reports emphasises the need for skill development to adapt to the changes brought by rapid technological changes, maintain employability and transition into new forms of work as the labour market transforms (OECD, 2023) (ILO, 2019). Here automation is not treated as a direct threat to employment. It is rather seen as a tool that reorganises the task structure and leads to a change in skill requirement. Hence continuous skill development is central to sustained participation in the evolving labour market.

But the above policies are pushed forward considering a set of assumptions that majorly cannot be applied to the platform based informal labour market. Reskilling strategies presumes the availability of accessibility to affordable training opportunities along with workers ability to keep aside time and have access to resources for the training. These assume a degree of job security, income stability and institutional support that platform-based workers do not have. Multiple evidence points to a lack of or an uneven distribution of reskilling opportunities for the platform based informal workers. Moreover, as discussed previously these opportunities are then further shaped by preexisting inequalities.

The policies often fail to take into account the informal nature of work and task rigidity that comes with platform-based work and is more suitable for formal sector employees. These differences therefore raise questions about the effectiveness and inclusivity of reskilling and upskilling policies have across different sectors as a response to automation induced labour risks.

Policy Implications Beyond Reskilling

The analysis on AI-driven automation in platform based informal work suggests that current policies that majorly rely on reskilling are not sufficient to deal with labour displacement and income instability.

Policy discussions recognise that social protection systems and policies centred around full-time formal employment are not suited for employment that is fragmented and informal like that of platform-based work.

In the context of platform-based informal work, social security benefits being tied to a single employer or employment relationship is not ideal since the workers move across different platforms and face unstable access to tasks due to algorithmic management.

Hence, we need a Policy approach that combines basic labour protection, increases platform accountability and context-specific reskilling. Such policies can manifest as fixed minimum wage per task to ensure minimum financial security in the face of unstable access to tasks, portable social security that workers can access across platforms, transparency in algorithmic decision making that controls access to tasks and reskilling initiatives that takes into account the unstable schedules and income constraints platform-based workers have.

Such policies recognise that the risks posed by AI-driven automation in platform-based informal work do not arise only due to skill mismatches but also due to the institutional and employment structures in which such technologies are used.

Conclusion

This paper explored how AI driven automation shapes job security in platform based informal work in India and whether existing reskilling policies are capable of mitigating labour displacement in this segment. By examining the difference between task displacement and job displacement, we analyse that automation in platform-based work is largely through task reallocation and algorithmic management. In the absence of job security and access to task or job reallocation this leads to a direct displacement of work rather than just that of a task. Algorithmic control over task allocation, pricing and performance evaluation contributes to income

stability, rising work intensity and growing employment insecurity even if jobs are not formally eliminated.

The findings highlight the importance of labour market context when discussing the effects of automation. While literature suggests that task level automation does not lead to job displacement as a whole, the paper argues that lack of job security and access to alternative tasks, both conditions which hold true in the context of platform-based work can lead to job displacement. All this contributes to an absence of sustained employment for workers working in the platform-based informal sector.

This paper further highlights the limits of reskilling and upskilling policies to this context of platform-based work. Policies designed with formal labour market structures in mind usually fail to account for the time constraints, income instability and lack of institutional support faced by platform -based informal workers.

These insights have broader implications for debates on the future of work in developing economies. They argue that policy responses cannot solely rely on reskilling and upskilling policies to mitigate labour displacement caused by automation. They must take into consideration the conditions under which labour structures are organised. In labour markets characterised by informality and algorithmic management, there is lacking an multifaceted policy approach in which strengthening labour protection, improving job quality and enhancing platform accountability are as important as expanding access to reskilling and upskilling initiatives.

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