The Algorithm-Based Platform Economy: A New Terrain of Control and Resistance

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ABSTRACT

The rise and spread of platform economy, along with more flexible employment relations, is constantly changing the labor practices of most developed and developing countries. The predominant focus of popular public narratives is on the economic value of algorithms. On the contrary, the task of this article is to ask questions about these existing knowledges and pay attention to labor control and labor resistance in this changing labor process. Based on literature on gig workers, this article argues that the algorithm, as the technological basis of platform economy, more subtly controls labor behaviors and curtail workers' voice. At the same time, new technologies and work arrangements also provide them with opportunities to make use of their agency.

Keywords: the platform economy, algorithm control, human agency, labor practice.

1. INTRODUCTION

In the past decade, the platform economy, also namely "gig economy" or "sharing economy", has rapidly developed in most developed and developing countries. The platform here a digital infrastructure that enable customers, laborers, and providers of services or products to interact, thereby promoting economic activity [1]. Limited by the type and category of work, some platform tasks can only be delivered locally and rely on the physical mobility of labor, such as food delivery, while some platform tasks can be distributed remotely, regardless of where workers are located, including various digital services [2]. Compared with the onerous manufacturing work on assembly lines or construction sites, laborers working on the platform enjoy more autonomy and discretion to a certain extent, because they are no longer disciplined by human supervisors all the time [2]. However, a variety of existing literatures show that laborers in the platform economy merely enjoy limited freedom, because the algorithm manipulated by the platform companies more subtly control the behavior and performance of employees. Though the exploitative characteristics of platform economy has been increasingly scrutinized, critics of algorithm control and management are dominated in the existing academia. Therefore, platform laborers are regarded as passive objects of algorithm control, and their agents are still not fully explored.

This paper holds that platform laborers are not the passive recipients of algorithm control, but the co-creators of labor practice landscape. In the platform economy, their structural inferiority among stakeholders also empowers these laborers to generate new subjectivity and manipulate their agency to resist algorithm control and defend their common interests. It is also worth noting that the agency of laborers, the upgrading of algorithms and the change of work arrangements are intertwined. Using the method of literature review, combined with the materials observed by non-participants, this paper proves that algorithm control suppresses and interestingly stimulates their agency at the same time. In this way, the spectacle of algorithm-centered platform economy subsequently has changed. The main issues addressed in this article are how workers' voice is subtly curtailed through algorithm control, and how these workers deal with and further resist algorithm control to safeguard their interests.

2. ALGORITHM CONTROL IN THE PLATFORM ECONOMY

Platform companies often define themselves as high-tech firms that only act as links between different parties, and regard workers as "independent contractors" [3].

Though this sounds relatively new and even mysterious, they still face the problem of reallocating their labor force. Therefore, in every transaction of platform economy, there is a control system, which combines some specific technological development with many traditional technologies of labor control system. In academia, it is almost corny to recognize the key and even decisive role of algorithm-based specific techniques in labor control system, ensuring efficiency and flexibility of the workforce [2] [4]. Algorithm control/management refers to that in the system of control, "self-learning algorithms are given the responsibility for making and executing decisions affecting labor, thereby limiting human involvement and oversight of the labor process" [4]. Although the control degree of different platform companies is different, some representative techniques of algorithm control have been proved to be commonly manipulated [5]. Therefore, this section mainly demonstrates how algorithm-based specific techniques manipulated by platform companies can maximally limit workers' abilities to enjoy the so-called autonomy and discretion, to unite, and to hold the bargaining power.

2.1. Work Assignment and Social Isolation

The main recruitment mode of most platform firms is outsourcing, which means that tasks are assigned to an amorphous collection of individuals. Therefore, gig workers who maintain flexible employment relationship with platforms are absolutely dominated compared with formal workers. In other words, gig workers on the platform face a high level of colleague turnover and they do not share a common physical workplace like colleagues in traditional manufacturing sector, especially those who accept work tasks remotely [6]. More importantly, as algorithms replace manual regulators, the deployment of services or products could be realized automatically through websites or platform-matched mobile apps. As a result, workers have limited opportunities to connect with colleagues and mobilize solidarity. The research on the working conditions of remote gig workers once argued that the control mechanism in the platform economy led to the social isolation of workers to varying degrees [2]. The dispersal is not only a problem for remote gig workers, but also for local workers. For example, according to the specific route calculated by the algorithm, after accepting the task with time limit, food couriers will take the bus to the designated place to deliver food [7]. Therefore, the communication of couriers is usually just a simple interaction rather than in-depth conversation [7]. Due to such automized work assignment, the nature of platform work is atomized, which worsens the solidarity of workers.

2.2. Performance Management and Competition

Platform firms normally face a fundamental flaw, that is, the problem of enforcing work intensification, which is due to the lack of human supervisors in the labor process [7]. Its general solution ends up in adopting a floating piece wage system. The piece wage system "[naturalizes] the personal interest of the laborer to strain his [or her] labor-power as intensely as possible", which is thus almost an indispensable part of the development of capitalism [8]. Unlike assembly lines that create value with workers, the platform requires gig workers to finish their tasks exclusively and individually. Therefore, once the order is posted on the platform, online workers around the world or offline workers in a certain region will instantly enter the competition of orders as soon as possible. Moreover, since firms usually have sufficient labor resources to ensure sufficiency of the labor force, platform workers have "the fear of being replaced" by other workers, which stimulates them to work more positively [2]. In addition to the piece rate, the platform also adopts the strategy of combining payment incentives and punishments to restrict rejection rates and app-offline time [5] [7].

What is more, like the conventional labor control mechanism, performance management also matters in the algorithm-based platform economy. One of the effective means is the platform-based rating and ranking system based on complex calculations of various individual labor practices. The platform-based rating and ranking system is manipulated to ensure a high level of service quality, which leads to the fact that gig workers with higher rates and ranks can be more easily assigned orders with higher piece wage, while gig workers with lower rates and ranks even face the risk of being kicked out [4]. All these have strengthened the intra-worker competition, especially the decline of piece wage accompanied by the increase of workers [7].

2.3. Asymmetric Information and Communication Barriers

The specific techniques of work assignments and the calculation of performance assessment discussed in above section are integral to a set of black-boxed practice. "Black box" refers to a system in which inputs and outputs can be observed, but ordinary people do not know the actual process of one becoming another except software engineers [9]. For gig workers engaged in specific tasks, the interface of platform-related apps or websites there is the only channel for them to obtain the essential information of each step of the labor process and the logic and elaborations of the algorithms are hidden in their view, although it is closely related to their interests [10][11]. This opaque approach forces gig workers to passively accept tasks and experience fear and insecurity

because they are required to face changing situations without prior notice. Such information asymmetries lead to the relatively weaker structural power of workers relative to customers and platforms. Algorithms, as the virtual bosses of workers, are thus seen as "arbitrary and inscrutable" existence, resulting in a broken communication system, in which the courier is not considered as a stakeholder who needs to talk with it [5][6]. More specifically, gig workers usually can only express their concerns via emails or message boards, which hinder direct communication with their boss.

3. RESISTANCE UNDER ALGORITHM CONTROL

Although algorithm control has an adverse impact on workers' autonomy and discretion, undermining their solidarity and even limiting their bargaining power with the company, workers' labor practice is not determined by the pure technical design of the platform, because workers are not the passive recipients of the control system. In other words, workers' daily decisions and actions are not driven by pure economic rationality, but by a complex amalgam of intuition and judgment generated to respond to complex algorithms, in line with their integral interests [12]. Recent evidence highlights that workers have begun to generate more and more contention and disillusioned about complex and opaque algorithms [12][13]. For instance, gig couriers working on China's food-delivery platforms clearly notice the decrease of piece wage with the expanded scale of recruitment though Meituan and Ele.me change it stealthily, which causes workers' grievance and further pushes them to adopt collective actions [13]. Therefore, the specific control system based on algorithm directs and shapes the labor process, and further constrains workers' agency, which conversely promotes workers to form their own strategic resistance. Therefore, the impact of platform economy on emerging labor practices needs to be observed from the concrete practices adopted by workers, not just from the perspective of technological management.

In the study on the extent to which the platform economy covertly controls and exploits workers, a more constructive argument points out that the discussion should go beyond "the somewhat elusive questions of who is ultimately 'in control'" and treat workers as decision-makers who are not only bound by workplace discipline [14]. In order to oppose algorithmic control and the asymmetric forces it produces, recent research has proved that gig workers can take "anticipatory compliance practices" to pacify the algorithm [15], express their concerns about the managerial silencing in the workplace [6], and participate in "algoactivism" (a set of emerging tactics of resistance, individually or collectively) [16]. As Hyman (1987) pointed out, "the emergent pattern of labor control contains its own

emergent contradiction. The new disciplines imposed on workers can be expected to provoke unpredictable and disruptive forms of revolt" [17], the platform economy characterized by algorithm control thus also plays a role in motivating workers. This section will show how and through which practices gig workers present their agency in detail.

3.1. Individual Resistance

As Scott revealed, some subtle but powerful forms of daily resistance are used to avoid directly confronting groups of domination or changing the existing orders [18]. Gig workers usually adopt less obvious strategies to avoid algorithmic scrutiny, stay on the platform and survive with the system. The strategy adopted by workers individually mainly optimizes the algorithms by meeting the existing standards. For instance, a high percentage of orders refusion is highly likely to damage their remuneration, as this will eventually translate into an algorithm for evaluating individual performance. Therefore, while controlling the number of rejected orders, workers purposefully reject tasks with a higher potential of failing or receiving bad feedback. Remote workers of Upwork (a famous digital labor platform engaged in outsourcing) usually share their experience in selecting orders on Reddit's online forums [15]. According to the same logic, many gig couriers tend to decline long-distance orders, especially during peak periods, to avoid overtime, although the orders they could accept are not constrained by geographic distance [13]. This strategy directly targeting the algorithm also include but is not limited to avoiding the reference to "gray area words" [15] and switching between different accounts [16].

In addition, in order to avoid triggering punishments, workers turn their attention to communications with customers. Under the supervision of the rating and ranking system based on clients' feedback, client/worker relationship becomes vitally important to workers' income. Therefore, platform workers need to actively engage in various forms of emotional labor in exchange for positive feedback from their clients [10][11]. Couriers of Meituan and Ele.me, for example, are expected to be polite to customers throughout the service process. The embeddedness of emotional labor is integral to the labor process of platform economy, as a common strategy used by individuals to maximize earnings. Furthermore, workers sometimes directly ask customers for positive feedback or cooperate with customers to bypass the rules of the algorithm. If workers log in to the platform account, they will be subject to strict algorithm constraints every minute. Therefore, if all the above strategies to carefully deal with the algorithm fail, workers will face severe punishments of the algorithm, such as the deactivation of their accounts and the termination of their contracts. In extreme cases, workers who are punished and unable to

earn income tend to adopt extreme measures to express their grievances, even anger, and attract public attention, such as suicide and harming customers who give bad feedback.

3.2. Collective Action

In addition to individual resistance, there are also collective strategies to resist algorithm control. As described in 2.1., the nature of gig work is more atomized and decentralized. However, even though workers under the algorithm control do not have the same social relations as their counterparts in conventional sectors (where there are informal social ties and formal labor unions), they are still able to generate solidarity and mobilized collective actions due to their common inferiority and precarity [7][13]. Although the mobilization of technology restrains the agency of workers, it also creates new opportunities for workers to form informal social networks based on the Internet. Online public forums, chat groups and social media homepages have become new channels for workers to ask questions, share experience and useful information and provide a framework of offline collective actions and even formal organizations. The Upwork community on Reddit is precisely an excellent example, which proves the foundation of creating a sense of solidarity [15]. In addition to tech-based networks, there are also physical locations that local gig workers can connect to. For couriers of Deliveroo, for instance, they gather in regional centers (like squares in cities) during off peak hours to relax, chat, and share food [7]. This connection can even span specific platforms where workers are registered.

Employees will take different types of collective actions according to the specific goals they want to achieve and the work aspects they want to influence. The establishment of the Food Courier Network (FCN), originated in Britain, is a response to algorithm control of online food delivery companies. The FCN plays a role in generating workers' voice over poor pay and precarious working conditions, and the FCNs frequently organize meetings, publicly displays the discussion content on social media, and submit the courier's request letter to the online food delivery companies to promote the company to make changes [6]. However, unless these collective actions have an adverse impact on the company's operations, the company will adjust in time to respond to the concerns of couriers. Therefore, when necessary, workers tend to manipulate more radical forms of resistance, such as strikes and protests. Cant once recorded the strike of Deliveroo couriers in detail, and these couriers were organized based on non-union self-organization [7]. These organized strikes have effectively changed the work arrangement of the platform economy, and then changed the labor practice of couriers. In addition to against platform companies, collective actions also involve dialogue with local authorities and the public to raise public attention to working conditions in the platform economy.

4. DISCUSSION AND CONCLUSION

As discussed above, on the one hand, it is necessary to realize that the development of platform economy has brought new dilemmas to workers' autonomy and solidarity. Under the control of algorithm, the working conditions of gig workers indeed remain precarious rather free. On the other hand, it is also important to go beyond the dual relationship between exploitation and being exploited and reconsider the agency of workers in this new terrain since workers on various platforms develop new subjectivity with the new process of labor practice and take actions to fight for their own and common interests.

It is worth noting that although different resistance modes have significantly different degrees of complexity, the methods adopted by workers for algorithmic control are intertwined according to changing needs and conditions. What is more, sometimes the method of resistance will not directly benefit the working condition of workers, but will worsen them. The original intention of some individual strategies is to avoid algorithm scrutiny, which in turn strengthens the power of algorithm control. An important reason is that the daily obedient resistance of workers precisely shapes the algorithm's materiality in labor practice [15]. Another reason is that the data generated through the daily practices of workers becomes the basis of rewriting algorithms. For instance, if the couriers change the routes of food delivery to save more time, the estimated time to complete an order will be shorter. In general, the power of algorithm control and labor practices of workers are inter-constructed and co-evolved.

The scope and extent of social support that gig workers receive, the modes of resistance adopted by them, and the possible social influence of their actions are restrained by different legal and social circumstances in different national states. Therefore, the tension between algorithm control and workers' resistance can be regarded as a continuum that changes greatly with the change of context pivot. Nevertheless, the agency of workers can change in any workplace, which is the basis of the development of platform economy and any other form of capitalism. In addition to the necessary state intervention and companies' response, space should also be left for workers' own agents.

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