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Delivery workers, trapped in an algorithmic system

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Abstract
This article analyses the processes through which delivery workers are controlled by the algorithmic management practices on delivery platforms. The article builds on the existing literature on algorithmic management and control, by identifying the different types of control mechanisms used by platforms to discipline delivery workers in developing countries. It draws on surveys conducted by the International Labour Organization with about 3000 platform delivery workers in eleven developing countries (Argentina, Chile, China, Ghana, India, Indonesia, Kenya, Lebanon, Mexico, Morocco, and Ukraine) to understand how algorithmic management practices exert control and undermine workers' freedoms at work. It discusses the implications of such a control mechanism on their working conditions, as well as their freedom and autonomy to undertake and perform work. The article concludes with a discussion on what policies have helped to address some of the issues related to working conditions and what policy measures need to be taken to ensure decent working conditions for workers on digital labour platforms.

Keywords: Digital labour platforms, algorithmic management, working conditions.

Trabalhadores de entregas, presos num sistema algorítmico

Resumo
Este artigo analisa os processos através dos quais os trabalhadores de entregas são controlados pelas práticas de gestão algorítmica em plataformas de entrega. O artigo baseia-se na literatura existente sobre gestão e controlo algorítmico, identificando os diferentes tipos de mecanismos de controlo utilizados pelas plataformas para disciplinar os trabalhadores de entregas nos países em desenvolvimento. Baseia-se em inquéritos realizados pela Organização Internacional do Trabalho com cerca de 3000 trabalhadores de plataformas de entrega em onze países em desenvolvimento (Argentina, Chile, China, Gana, Índia, Indonésia, Quénia, Líbano, México, Marrocos e Ucrânia) para compreender como as práticas de gestão algorítmica exercem controlo e minam as liberdades dos trabalhadores no trabalho. Discute as implicações de tal mecanismo de controlo nas suas condições de trabalho, bem como a sua liberdade e autonomia para empreender e executar o trabalho. O artigo conclui com uma discussão sobre quais as políticas que ajudaram a abordar algumas das questões relacionadas com as condições de trabalho e que medidas políticas devem ser tomadas para assegurar condições de trabalho decentes aos trabalhadores em plataformas de trabalho digitais.

Palavras-chave: Plataformas laborais digitais, gestão algorítmica, condições de trabalho

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Les livreurs, prisonniers d'un système algorithmique

Résumé
Cet article analyse les processus par lesquels les livreurs sont contrôlés par les pratiques de gestion algorithmique des plateformes de livraison. L'article s'appuie sur la littérature existante sur la gestion et le contrôle algorithmique, en identifiant les différents types de mécanismes de contrôle utilisés par les plateformes pour discipliner les travailleurs de livraison dans les pays en développement. Il s'appuie sur des enquêtes menées par l'Organisation internationale du travail auprès d'environ 3 000 livreurs de plateformes dans onze pays en développement (Argentine, Chili, Chine, Ghana, Inde, Indonésie, Kenya, Liban, Mexique, Maroc et Ukraine) pour comprendre comment les pratiques de gestion algorithmique exercent un contrôle et portent atteinte aux libertés des travailleurs au travail. Il examine les implications d'un tel mécanisme de contrôle sur leurs conditions de travail, ainsi que sur leur liberté et leur autonomie d'entreprendre et d'exécuter un travail. L'article se termine par une discussion sur les politiques qui ont contribué à résoudre certains des problèmes liés aux conditions de travail et sur les mesures politiques à prendre pour garantir des conditions de travail décentes aux travailleurs des plateformes numériques de travail.

Mots-clés : Plateformes numériques de travail, gestion algorithmique, conditions de travail.

Los repartidores, atrapados en un sistema algorítmico

Resumen
Este artículo analiza los procesos a través de los cuales los repartidores son controlados por las prácticas de gestión algorítmica en las plataformas de reparto. El artículo se basa en la literatura existente sobre la gestión y el control algorítmicos, identificando los diferentes tipos de mecanismos de control utilizados por las plataformas para disciplinar a los repartidores en los países en desarrollo. Se basa en encuestas realizadas por la Organización Internacional del Trabajo a unos 3.000 repartidores de plataformas en once países en desarrollo (Argentina, Chile, China, Ghana, India, Indonesia, Kenia, Líbano, México, Marruecos y Ucrania) para comprender cómo las prácticas de gestión algorítmica ejercen el control y socavan las libertades laborales de los trabajadores. Se analizan las implicaciones de este mecanismo de control en sus condiciones de trabajo, así como su libertad y autonomía para emprender y realizar el trabajo. El artículo concluye con un debate sobre qué políticas han contribuido a resolver algunos de los problemas relacionados con las condiciones de trabajo y qué medidas políticas deben adoptarse para garantizar unas condiciones de trabajo dignas para los trabajadores de las plataformas laborales digitales.

Palabras clave: Plataformas laborales digitales, gestión algorítmica, condiciones laborales.

1. Introduction

The rapid digitalization of the economy and the development of a wide range of applications and digital platforms across many sectors of the economy over the past decade has brought about major transformations in the world of work. Digital labour platforms gained popularity among different users and grew rapidly after the global financial crisis of 2008. Delivery platforms alone grew eight-fold globally from 46 platforms in 2010 to 383 platforms in 2020 (ILO, 2021). These platforms grew in the neo-liberal era with the promise of providing new

entrepreneurial opportunities, autonomy, and freedom to workers. As a result, during these period activities on delivery platforms expanded from food delivery services to grocery delivery, courier services, etc. Lockdowns, social-distancing requirements and remote working arrangements during the COVID-19 pandemic gave a further boost and prominence to delivery platforms, as they became a lifeline for providing essential services such as delivering groceries, food and medicines especially to the urban consumers.

The rise of delivery platforms has also transformed consumer behaviour and led to a culture of consumption that have been incentivised by promotions and discounts by platforms, which are often funded through venture capital funds. The platforms in some instances also subsidise restaurants for holding discount campaigns (Zhu *et al.*, 2021; Li *et al.*, 2020). Such practices are not rampant among all platforms and often restaurants are forced to offer discounts by platforms.[1] While this practice has created a habit among consumers to expect discounts, this business model is not very sustainable for restaurants as besides providing discounts, restaurants also have to pay commission fees to platforms,[2] which has implications on their revenues.

The business model of the delivery platforms is largely based on charging such commission fees to the businesses (restaurants, grocery stores, etc.) and delivery fees to the consumers. For instance, about 96 per cent of the revenues of Just Eat Takeaway.com was earned from commission fees and consumer delivery fees in 2021; and about 61 per cent of the revenues of Swiggy was earned through service incomes from restaurants in 2021.[3] Several of the delivery platforms have been reporting large revenues with the boost in demand for delivery services since the COVID-19 pandemic, however most of the platforms have incurred losses in 2021.[4] In addition, these platforms operate their business by hiring workers as "self-employed", "independent contractors", or through "third party service providers" without an employment

[1] See, for more details: https://www.moneycontrol.com/news/business/restaurants-ask-swiggy-zomato-to-lower-discounts-commissions-report-5422601.html.

[2] The ILO surveys conducted in Chile, India, Kenya, Lebanon, Mexico and Ukraine show that the commission fees range between 10 per cent and 35 per cent depending upon the platform and country (ILO 2021). In addition, platforms may also charge a delivery fee to the customers, which too differs across countries and by platform.

[3] For Just Eat Takeaway.com, see 2021 annual report available at: https://www.justeattakeaway.com/annual-reports; for Swiggy, see: https://entrackr.com/2022/02/swiggys-scale-drops-27-to-rs-2547-cr-in-fy21-controls-losses-by-59/.

[4] For instance in 2021, losses were reported by some of the major delivery platforms such as Grab (USD 3,555 million); Just Eat Takeaway.com (Euros 326 million or about USD 350 million); Swiggy (INR 16,170 million or about USD 208 million); and Zomato (INR 8,224 million or about USD 106 million). For Grab, see 2021 annual report available at: https://investors.grab.com/annual-reports-0; for Just Eat Takeaway.com, see 2021 annual report available at: https://www.justeattakeaway.com/annual-reports; for Swiggy, see: https://entrackr.com/2022/02/swiggys-scale-drops-27-to-rs-2547-cr-in-fy21-controls-losses-by-59/; for Zomato, see annual report for financial year 2021, available at: https://www.zomato.com/investor-relations/financials.

relationship so that they do not have to pay any requisite employment or social protection benefits to the workers and can save on labour costs. As most platforms are yet to make profits and have a history of net losses but nevertheless continue to operate and receive funding from venture capitalists, this situation raises important questions about the sustainability of the business model as well as its welfare-generating aspects (ILO, 2021; Kenney and Zysman, 2019).

Further, the culture of consumption that these platforms are promoting can have implications on workers as the business model is functioning in a context of poor working conditions for delivery workers as platforms try to ensure quick and speedy delivery at low costs for the consumers. Such quick and low-cost services are ensured through algorithms, which are central to the business model of delivery platforms. The algorithms are used to match the demand and supply of delivery services; and calculate the price for services based on demand, distance, and workers' ratings. The algorithms are also increasingly used for managing, disciplining, and governing the workers on the platforms to ensure timely and good services.

This article looks at the algorithmic management practices, which are central to the platform business model, and it not only allocates work and calculates prices but also governs and manages the human resources. It will demonstrate how delivery platforms manage workers using Fayol's (2016, originally 1916) five functions of management in the context of algorithmic management practices, and how platforms are systematically able to use these to discipline and control workers irrespective of the cultural context. The article will discuss the implications of such algorithmic management practices on the working conditions of workers and their well-being; and how it controls and curtails the freedom and autonomy of workers to undertake and perform work. It will draw on surveys conducted with about 3000 platform delivery workers in eleven developing countries (Argentina, Chile, China, Ghana, India, Indonesia, Kenya, Lebanon, Mexico, Morocco, and Ukraine) by the International Labour Organisation (ILO). The article will conclude with a discussion on what policies have helped to address some of the issues related to working conditions and what policy measures might help to ensure decent working conditions for workers on digital labour platforms.

2. Delivery platform, algorithmic management and labour

Algorithmic management practices are quite widespread on digital labour platforms, and they are transforming a traditional human resource management practice that typically involved human interaction (ILO, 2021). These practices are quite profound on delivery platforms which are increasingly used for allocating, monitoring, evaluating and administering rewards to workers.

Many of the key features of algorithmic management have historical precedents in Weber's (2015, originally 1922) idea of bureaucratic organisation and Taylor's scientific management (Braverman, 1974). However, in some ways the algorithmic management used on platforms culminates and transcends both the bureaucratic and scientific management process as it reorganises complex work processes and uses digital tools to split and standardize tasks and uses algorithmic management to centralise control and decision-making (Baiocco *et al.*, 2022). Some scholars have argued that the automation of much of the management of the labour process on delivery platforms is akin to Bentham's panopticon or 'algorithmic panopticon', as the workers are monitored through the GPS systems (Woodcock, 2020). In this article, we demonstrate how delivery platforms manage workers through algorithmic management practices using Fayol's (2016, originally 1916) five functions of management. The article argues that platforms use algorithmic management practices, where ratings play a critical role in disciplining workers. In the process workers also tend to self-discipline and police their behaviour to get high ratings, which further entraps them into this system. Fayol's functions of management are used in the context of delivery platforms in the following way: planning and organising of work; allocation of work; control and monitoring; and evaluation and disciplining of workers. Many of these functions are automated fully or partially using computer algorithms (Baiocco *et al.*, 2022) and the ratings system is quite key for every aspect of the management function and is used to discipline workers, while at the same time it ensures supply of labour to provide services on the platform.

On delivery platforms ***planning and organising of work*** continue to be largely performed by human managers, and in few platforms such as Deliveroo and PedidosYa, this process has been automated. These platforms allow workers to schedule their workplans and slots in advance, thus providing them some flexibility. However, only workers with high ratings or seniority or 'levels' are allowed to prebook their schedules or preferred slots (ILO, 2021; Cano *et al.*, 2021; Richardson, 2020). While this process gives workers some flexibility, it ensures continuous supply and availability of workers at all hours, especially during peak demand periods such as evenings or weekends, or events.

The ***allocation of tasks*** on delivery platforms is automated and the algorithms take into consideration ratings, the number of hours worked, and orders accepted during specific days and time slots, among others. There is very little transparency about how the algorithms make decisions in allocating an order to a particular delivery worker, when there are multiple drivers or delivery workers in a particular location and it continues to remain a 'black box' (ILO, 2021; Cano *et al.*, 2021; Griesbach *et al.*, 2019; Pasquale, 2015). The information asymmetry allows platforms to exert considerable control over delivery workers using the algorithm regarding who

gets a particular ride (short or long one) or order and to which neighbourhood. Workers often face uncertainty and have limited control over the work and the destination that is allocated to them, as they must accept or reject an order within a limited time (ILO, 2021; Goods *et al.*, 2019; Griesbach *et al.*, 2019). The information asymmetry and algorithmic 'black box' also has an impact on the pricing as the price of orders continuously change, as was reported by workers in China and Australia (Chan, 2021; Goods *et al.*, 2019).

Workers are continuously ***controlled and monitored*** through digital tools and navigation technologies such as GPS tracking devices, cancellation or acceptance of orders, and the ratings provided by customers and restaurants or grocery stores (Veen *et al.*, 2020; Duggan *et al.*, 2020). Platforms also instruct the optimal routes that workers should take to provide the service within a short time taking into consideration the traffic situation based on the GPS and data tracked on them (ILO, 2021). The navigation technologies also allow platforms to monitor the time taken to complete the order or ride, which puts pressure on workers to reach their destinations faster, as even a slight delay can have an impact on their future orders as well as their ratings (ILO, 2021). Platforms also monitor that the workers are not multihoming through random checks using chat functions. For instance, in India, workers had to take selfies with their uniforms and send it to the companies to show their loyalty towards the platform, otherwise they would be fined (Bharadkar *et al.*, 2020). The algorithmic control exercised by platforms through monitoring and surveillance could also lead to workers self-disciplining and policing their behaviour to ensure that they have good ratings from customers and continuous access to work (Baiocco *et al.*, 2022).

The ***evaluation and performance*** of workers on delivery platforms are increasingly automated using ratings and reviews, and other indicators such as acceptance or cancellation rates, speed of delivery, working during peak periods, etc. and these indicators differ across the different delivery platforms. There is little transparency about how the rating is determined and the relative weights of the different indicators that are used (ILO, 2021). Due to different indicators used by platforms to evaluate workers, portability of ratings across platforms becomes a challenge and, in the process, gives platforms exclusive control over them as they are locked in. Further, while workers are classified as 'self-employed' or 'independent contractors' they often do not enjoy the flexibility or autonomy on these platforms as refusing or cancelling an order has negative consequences for them in terms of reduced ratings, getting less orders or at times they have to pay a penalty. Platforms thus exert control over both the workers' choice of work and how it is to be performed. The speed at which workers can deliver the services is a critical aspect for platforms to compete and to attract consumers. As this aspect is taken into consideration for calculating the ratings, workers are often pressured to drive quickly and reach their destination. This has severe

implications for their occupational safety and health as they are exposed to accidents, where many of them do not have access to social protection.

Platforms try to ***discipline workers*** in two ways: first, through incentives and rewards; and second through punishing workers when they digress from performing the task either by restricting access to work or deactivating them temporarily or permanently. Along with algorithmic management, platforms use gamification strategies[5] to provide incentives and rewards which has created a culture of competitive behaviour among workers. In Ghana for example, workers are incentivised by Glovo to maintain high "Excellence Scores" that factors in number of orders, number of slots booked, and hours connected, which enables them to access high-demand slots, which in turn enables the workers to earn more.[6] The incentives and rewards system also leads to long hours and high work intensity, thus impacting their work-life balance.

3. Data, methods and descriptive statistics

This article draws on country surveys conducted by the ILO in 2019 and 2020 with about 3000 workers working on delivery platforms covering eleven countries: Argentina, Chile, China, Ghana, India, Indonesia, Kenya, Lebanon, Mexico, Morocco, and Ukraine. As there is lack of official statistics about the population engaged in performing these tasks on delivery platforms, the sampling design is not representative and the findings from the country surveys does not necessarily represent the country-level population (ILO, 2021).

The surveys were conducted in the local language of the place where it was administered, and it contained detailed quantitative and open-ended qualitative questions to gain a better understanding on their working conditions (such as hours worked, income, benefits received, and social security), and how platform work affected their personal and professional lives. To ensure heterogeneity within the sample, the interviews were conducted in different neighbourhoods of the city, on different days of the week (including weekends) and during different times of the day (see ILO (2021), Appendix 4 for more details). The delivery workers were easy to identify in most countries as they had their branded vehicles, transport boxes or uniforms (jackets, helmets) and were located mainly near restaurants, shopping malls, or waiting points where they would

[5] Gamification strategies are motivation techniques that utilize elements from video or app games, such as points, badges, leader boards, among others, in non-game contexts like the workplace, which can be used to increase worker productivity and are under increasing scrutiny for their exploitative potential (see Kim 2018). In the case of delivery platforms, this can take the form of the platform setting specific work targets for the worker that appears as if playing a game on the app, and when the targets are achieved may result in monetary rewards or other benefits like the ability to book higher demand slots.

[6] See: https://delivery.glovoapp.com/gh/faq/excellence-score/.

gather, while in some others a different strategy was used.[7] The workers were approached in these locations and those who were willing to respond to the survey but were unable to do so immediately because they received a delivery order, a later appointment that was convenient for the respondent was set up. Similarly, if an interview was interrupted, later appointments were set up to complete the interview (ILO, 2021).

The survey results show that the workers on delivery platforms are typically young, with the average age of 29 years. The delivery sector is largely male-dominated, and women comprise less than 10 per cent of the survey respondents, though there are exceptions such as in Indonesia and Ukraine with close to 25 and 20 per cent of women respondents respectively. The delivery platforms have been attracting migrant workers globally, and about 15 per cent of our sample respondents were migrants and these proportions were quite high in Argentina and Chile, where about 70 per cent of the respondents were migrants, followed by Lebanon (about 30 per cent). The high proportion of migrant workers in these countries is due to the influx of Venezuelan refugees in Argentina and Chile; and Syrian refugees in Lebanon who depend on the delivery sector due to low entry barriers compared to accessing the local labour markets in these countries.

Though this sector has often been argued to be low-skilled due to the nature of tasks performed, the ILO survey findings show that one-fifth of the delivery workers are well educated (having attained a university degree). These proportions are quite high among the migrant workers in Argentina (43 per cent) and Chile (47 per cent). Similarly, while the proportion of women engaged in this sector is low, about one-third of them are well educated compared to men (20 per cent). Younger workers (below 25 years) also tend to be highly educated (17 per cent).

These trends in some sense reflect the challenges that are faced by specific groups such as women, young workers, and migrants in accessing employment opportunities in the local labour market and they depend on platform work to earn an income. For 90 per cent of the respondents, work on delivery platforms was their main source of income, and these proportions were high for both men and women workers. As a result, it is not surprising that the two main motivating factors expressed by respondents to work on delivery platforms were, due to lack of employment opportunities (28 per cent) and better pay compared to other available jobs (29 per cent). The other motivating factors included job flexibility (22 per cent), followed by to complement incomes (14 per cent), although there were some differences across countries (ILO, 2021).

[7] In Argentina, the sampling design included a first stage that consisted of identifying potential interviewees through social network groups (Facebook, WhatsApp and so on). From this first sample, workers were asked to designate other peers who might be interested in being part of the study, limiting the number of new participants each participant could provide.

4. Trapped in an algorithmic system: empirical evidence

While many of these workers are dependent on delivery platforms to earn incomes due to lack of employment opportunities, this section analyses how these workers fare and how their everyday experience on delivery platforms is determined by the algorithmic management practices. It shows how workers are trapped into the algorithmic system, particularly through the ratings system, which is decisive for the workers survival on the platforms. The framework used for analysis is as described in section 2.

Planning and organising of work: Platforms often try to ensure that there is continuous availability and supply of workers at all hours and especially during peak demand periods such as evenings or weekends. On some platforms, this is done by allowing workers who have high ratings or "levels" to pre-book their schedules or preferred slots in advance, giving them some flexibility in scheduling their working hours. Platforms such as PedidosYa or Deliveroo follow such practices and as the rating system is algorithmically managed, workers with high ratings or "levels" are automatically given the choice to book their slots. Workers in the ILO survey reported that if they do not have high ratings or good levels then they do not have the option to plan their work schedules on some platforms. In addition, on PedidosYa in Chile, workers reported that if they work fewer hours or reject orders, they may not obtain the slot of their choice and they would also receive fewer orders.

Similarly, other studies show that to be eligible to pre-book their preferred slots, workers are required to work at least 25 hours per weekend over the past three weekends or should have worked for at least 90 hours over the previous three weeks, as was observed in Instacart (Griesbach *et al.*, 2019). In countries where there is excess supply of local or migrant labour, the planning and organising of work is not automated as workers compete with each other to grab the order, which also leads to a lower pay as the pricing is dynamically changing based on the demand and supply, which was observed in both China and Australia (Chan, 2021; Goods *et al.*, 2019). Due to such intense competition, workers have to be constantly connected to the platform to secure their orders. For instance, in China where the supply of labour is high, orders disappear in seconds (Chan, 2021).

While platforms plan and organise their work, the risks are often transferred to the workers. For instance, if clients cancel or return orders, the workers may have to pay out of pocket, or cover long distances without additional pay. About 70 per cent of the delivery workers in the ILO survey reported that they had at least one cancellation in a typical week. A respondent working for Zomato in India mentioned that "if the order is cancelled before pickup, then I receive

no money for it while if it is cancelled post pick up, then I receive half the amount". In instances of last-minute cancellations, workers had different options depending upon the platform and the country they resided. About 50 per cent of the workers in the ILO survey reported that they had to return the order to the platform office, 42 per cent returned the order to the restaurant or firm, and 7 per cent paid out of their pocket, while 3 per cent kept the order free of charge. Workers often bear the additional burden during such incidents, and a respondent working for PedidosYa in Chile reported that "when an order is cancelled you have to return back the products and the time you spend and the expense of gasoline are not reimbursed by the platform".

Allocation of work: The allocation of tasks on delivery platforms is automated and shaped by workers' ratings. About 65 per cent of the respondents reported it has an impact on the amount of work they receive, and the proportions were quite high on some platforms (Cornershop, Zomato, Grab, Go-Jek, UberEats, Rappi, PedidosYa, Glovo). About half of the survey respondents reported it affected the type of work in terms of earnings and distance, and a higher proportion of workers in Argentina (59 per cent) and Indonesia (70 per cent) experienced such impacts. Workers have limited control over the allocation of tasks, and they often face uncertainty about how the orders are allocated to them and they have very little time 10 to 40 seconds to decide if they can accept or reject an order (ILO, 2021; Goods *et al.*, 2019). A respondent working for Toters in Lebanon expressed that the "company's distribution of orders is unfair, they give someone two orders and another one eight orders" and it is not clear what factors determine such an allocation. The amount of work that the workers receive is also dependent on their acceptance rates, and as a result some workers adopted the strategy of "accept all orders and reject little". About 65 per cent of the workers reported that it has impacts on getting better orders or more orders, and the proportions were quite high in Indonesia (90 per cent), followed by Ghana (76 per cent) and Lebanon (67 per cent).

In addition, there is also an information asymmetry between the platform and the workers regarding the pricing of the delivery order as there is no transparency, given that the platforms possess the data regarding the location of all the workers, restaurants and customers and make the decision, which can be quite arbitrary. In China, workers observed that this often led to constant changing of prices for delivery orders, and workers often did not have much choice but to accept whatever was being offered to ensure continuity of work (Chan, 2021).

Control and monitoring: Workers are often closely monitored through the GPS systems and can be contacted at any time by the platform as well as the clients through the app, once the order has been placed. The tracking system is also used by the platform to define the shortest route that workers should take to complete orders. The control exercised by the platform also impacts the breaks that workers can take in between their working time. In the ILO survey in

China, a Meituan rider reported that he could log off the system twice a day and get a half hour break every day, while the break time was calculated by the algorithmic system in seconds (see also Sun *et al.*, 2021). At the same time, if a worker stayed offline too long there would be an alert, followed by a fine for the worker. Also in China, the control over working time is quite intense as workers have to be on standby and ready to take the order anytime, and they could receive alerts even in the toilets, which underlines the algorithmic control and monitoring that these workers face over their working time (Sun, 2019).

While some platforms have strict rules regarding multi-homing, they also control their workers by monitoring them on a random basis. Some delivery platforms in China send messages to workers to share their location, take a selfie in their work clothes, and upload the picture on social media groups to demonstrate they are on duty. Platforms have made this mandatory and if the workers do not respond within 15 minutes, then they can be fined one day's earnings. Similarly, about 90 per cent of the delivery workers in the ILO survey in India and Lebanon indicated that platforms either gave or expected them to buy the uniforms and bags with their logos for delivery services. These practices tend to indicate the association of the worker with a specific platform, which can sometimes also be important for accessing insurance benefits, creating challenges for the worker to multi-home. This situation where the worker is working solely through one platform or is directly tied to a platform, raises issues about the employment relationship of the worker (ILO, 2021).

Evaluation and performance: Ratings are critical for most delivery workers on platforms as ratings below a particular threshold have implications on their work, as was reported by one of respondents on UberEats in India "If the rating is less than 80 per cent then my account will be deactivated". While the algorithmic rating system remains a 'black box' as discussed earlier, this aspect comes out even more clearly from workers' responses. About 28 per cent of the workers believed that the rating they received was not an accurate reflection of the work they performed, and this perception was quite high in India (43 per cent). This was largely because the ratings were influenced by factors that were beyond the worker's control, such as delays in receiving a food order from a restaurant, or traffic congestion. While ratings are key for the workers, they are also outsourced to the customer, or restaurants, who can rate workers unfairly depending upon their moods or other criteria, whereas workers have little opportunity to contest these. For instance, one of the respondents in Mexico on Rappi reported that "sometimes customers rate poorly to be reimbursed and eat for free".

While platforms attract customers through the speed of delivery services they offer, this has huge implications on workers who are often tensed and stressed, as speed is an important indicator for their ratings. About 43 per cent of the delivery workers that experienced stress

reported that it was because of the pressure to drive quickly in order to avoid any delays as the platforms can monitor and track them in real time, and to ensure that they have orders in future. The high pressure to drive quickly has a huge risk of work-related injury as delivery workers navigate through traffic and congestion especially during peak hours to reach their destination in a short time. The platforms trap the workers into this system of having to deliver services in a short time to have better ratings, which raises concerns about their personal and physical safety on roads and this concern was expressed by 88 per cent of the workers. Moreover, about 21 per cent of the delivery workers had experienced work-related injury or an accident and it was quite high in China (38 per cent) and Mexico (47 per cent). Weather condition was reported by 53 per cent of the respondents to be a reason for safety concerns, as it was physically challenging for them to complete long distances on bikes, as it could also lead to accidents or injuries.

Platforms offer speedy delivery services but do not take any measures to prevent workplace risks, which was reported by over 80 per cent of the respondents and it affects workers' ability to work and earn an income in case they are injured. Some platforms, such as Swiggy in India or Grab in Indonesia mention that they provide accident insurance coverage (SwiggyBytes, 2017; Grab, 2017), however, workers reported that they did not receive any support from these companies when they had an accident. The situation is even worse as despite their exposure to high occupational safety and health risks, only one-third of the respondents reported that they were covered by an employment injury insurance.

Disciplining: As discussed earlier, platforms use two ways to discipline workers that is through bonus and incentives and punishing workers through deactivation, which also helps them to ensure continuous supply of labour. Platforms have introduced a gamification process to give rewards and bonuses, which has attracted workers and tends to lock them in. However, these bonuses and rewards are not offered to all workers but only to those with high ratings. As a result, platforms nudge workers to maintain high ratings and ensure good behaviour on platforms. In the ILO survey, about more than three-fourths of the workers reported being offered bonuses and over 60 per cent reported receiving them. To avail the bonuses workers often had to work long hours, and on average workers spent 59 hours per week working on these platforms. There were variations across countries and in Kenya and Lebanon workers worked almost 63 hours per week. In addition, 38 per cent of the workers reported working seven days a week and 50 per cent reported working over 10 hours on three or more days per week. These bonuses comprised a very important part of their income for 85 per cent of the delivery workers.

However, despite the effort put in by the workers, there have also been instances where the platform unilaterally manipulates and alters the ratings of the workers without their knowledge

while calculating the bonus. In India for example,[8] delivery workers could only view the average rating provided by a platform, which would reduce at the end of a week when incentives would be tabulated without any clarifications, thereby limiting the incentive amount that the worker could receive. In the ILO survey, some of the respondents reported that platform stopped sending them orders when they were close to reaching the target. A respondent working for Swiggy on India similarly reported that "as far as bonus is concerned, when I reach near to the completion of the target, company stops sending orders to me. This has happened several times with me".

In the hope of earning more incomes through bonuses and rewards, workers are trapped into this system on the platforms, which results in a high intensity of work and affects their work-life balance. In addition, workers are often unable to take breaks in order to ensure they can meet targets. On some platforms, workers' reported that their break times are also controlled by the algorithms and they can be fined if they are offline for too long or deactivated if they take a leave. The high work intensity also has implications on their health and about one-fourth of the delivery workers reported that they were stressed due to long working hours. A respondent working on Swiggy in India reported that "weekly one day leave is granted, however, the company refuses any leaves on weekends. If we take any leaves on a weekend, then our accounts get blocked".

While the platforms promote their business model based on the notion of flexibility, at the same time they also restrict and discipline workers. Workers often do not have a choice to refuse or cancel their orders without repercussions, which was reported by almost half of the respondents. They reported that the repercussions included financial penalties (34 per cent), being suspended or deactivated by the platform (30 per cent) and other repercussions such as reduced access to work (9 per cent), downgraded ratings (8 per cent), or not being able to qualify for bonuses (5 per cent). About 15 per cent of the workers on delivery platforms reported their accounts being deactivated and the reasons included cancellation of orders (25 per cent), violation of platform rules (22 per cent), customer complaints (16 per cent), among others.

The proportion of workers reporting deactivation was quite high in Mexico (45 per cent), and across platforms the proportions were high on Glovo, PedidosYa, Rappi and UberEats in Argentina, Chile and Mexico. For instance, a male respondent working for UberEats in Mexico mentioned that "UberEats deactivated my account for three days because I cancelled an order that was far away". The fear of not having regular access to work and being deactivated, obliges many workers to accept orders. For instance, a respondent on Swiggy in India reported that "my account will be deactivated and they will charge INR 40 as penalty if I cancel an order". Similarly, a respondent on PedidosYa in Chile stated that "if I reject three times in a row, they pause me and

[8] Based on an ILO interview with a representative of the All-India Gig Workers Union (AIGWU).

I have to communicate with them to be reactivated". While 69 per cent of the delivery workers in the ILO survey reported that their account was deactivated for up to seven days, about 15 per cent reported that their account was deactivated permanently.

The findings from the ILO surveys across developing countries show that the platform business model thrives by engaging workers as self-employed or independent contractors without providing any benefits, many of whom are migrants or refugees and are desperately looking for work, and who provide delivery services under constant digital surveillance. The hourly earnings (including waiting times) of these workers range between US$0.9 (Ghana) and US$3.5 (Ukraine), and most of the workers in these countries earn less than the average, and less than 10 per cent of the workers have any social protection benefits. Unlike delivery workers in the global North, these workers experience even more precarious situations not only due to the poor working conditions and algorithmic control and monitoring, but also because they do not have the agency to bargain their position due to weak institutions. In addition, platforms tend to favour the customer and do not listen to the workers. A respondent on Zomato in India reported that he "had an argument with a customer because the order was delayed and he even explained to the customer that it was because of traffic congestion. The customer complained against him in Swiggy and they didn't listen to him and blocked his account". The culture of consumption promoted by delivery platforms has also changed consumer behaviour and about 17 per cent of the delivery workers in the ILO survey reported that there was a lack of respect from customers. All this has implications not only on workers' earnings and access to social protection benefits, but also to their welfare and well-being. As a result, many of them self-discipline or develop diverse strategies to cope with their situation. For instance, to get more regular orders or earn more incomes, workers have developed their own strategy by moving to areas where there is high demand or to strategic places where there is dynamic pricing.

Confronted with poor working conditions, there have been increasing instances of delivery workers organizing in several countries. These organization efforts can take the form of "new unions" or associations, through which workers have been demanding better pay and working conditions (Bessa *et al.*, 2022: 10). Moreover, workers have been utilizing innovate ways to organize, such as through social media groups on WhatsApp or Facebook, and have also been undertaking strike actions through the use of technology. In India for example, delivery workers went on a strike by logging off from the platform, so as to protest against a new system of time slots that threatened their earnings.[9] The increasing prevalence of protests by such workers, across

[9] See: https://www.newindianexpress.com/states/karnataka/2022/apr/16/food-delivery-to-be-hit-as-partners-log-off-till-sunday-2442520.html.

both developing and developed countries (Bessa *et al.*, 2022), is also indicative of the challenges that workers face and the potentially exploitative nature of delivery work through platforms.

Concluding remarks

This article has highlighted the serious challenges faced by workers on delivery platforms, who find themselves trapped in an algorithmic system that can result in exploitative working conditions. The analysis clearly shows that the algorithmic management practices used by the platforms, where ratings play a critical role in disciplining workers, precariatises workers. While freedom and autonomy at work are often advertised by such platforms to attract workers, in practice however, workers are constantly monitored and face strong pressures to work intensely and speedily, through the platform's use of gamification strategies and an opaque ratings system.

While platforms classify delivery workers as self-employed or independent contractors, workers often face an erosion of their freedom, autonomy and control at work, as platforms exert tremendous control over them through the ratings systems and constant monitoring and restricting them from multi-homing and do not provide them with any labour and social protection benefits. In the process, workers tend to be trapped in an algorithmic system and in order to ensure adequate access to work and higher earnings, workers have few options but to self-discipline, adhere to the algorithmic management practices and strive towards securing higher ratings.

Workers tend to often lack an understanding of the basis on which they are being evaluated and have little recourse to resolving disputes or voicing their concerns to the platform. Such a dominance of the platform over the workers raises serious concerns regarding the exploitative potential of algorithmic management practices utilized by delivery platforms, and also raises important questions regarding the denial of an employment relationship and the associated labour and social protections. As noted by a delivery worker in India, "They call us partners but they don't treat us that way. We are slaves to them."[10] This has implications on their earnings and well-being, and such a model also has implications for the wider society and economy.

It is important to underline that by relying on cheap labour that can be algorithmically controlled and managed, delivery platforms have been able to provide several services to consumers. Indeed, platforms offer consumers the convenience of placing an order while sitting

[10] This was stated by a delivery worker in a news report, available at: https://www.newslaundry.com/2021/08/14/we-are-slaves-to-them-zomato-swiggy-delivery-workers-speak-up-against-unfair-practices.

at home at whatever time with a few clicks on an app, which has attracted many towards these platforms. In turn, the consumer demand for such convenient services has served to support the rise of such platforms and furthered a culture of consumption. However, this way of consumption through delivery platforms that is reliant on cheap labour, not only has implications for workers and local businesses but can also have implications for consumers themselves as well as the wider society and economy. It has also led to the emergence of 'cloud kitchens' or 'virtual kitchens' which offer take-away food (Fridayani *et al.*, 2021; Choudhary, 2019), which can be set up at low cost and scaled up easily. These cloud kitchens tend to be dependent on delivery platforms for delivering food to the customer and sustaining their business (John, 2021), and not only pose challenges for local restaurants that often have higher operational costs but also serve to perpetuate a business model that is reliant on delivery workers facing difficult working conditions and lacking labour and social protections.

In addition to the discussion on culture of consumption, there is a need to bring into this debate the role of 'tech workers' who earn high salaries for programming, designing and coding algorithms, which are then used on platforms, such as delivery platforms to manage, surveil and control the 'digital underclass' or 'delivery workers' (Dorschel, 2022). There is a need to unravel the 'black box' and make humans accountable for the algorithms they design and explore the responsibilities of different 'tech workers' in the life cycle of an algorithm (Gosudarkin *et al.*, 2021) and use these technologies for improving the welfare of the 'delivery workers' or 'digital underclass' and to bring about social gains. These are important considerations in the development process, to see how technological development can be used to improve the situation of the low-paid workers rather than exploiting them.

In developed countries like Spain and the United States, some initiatives have been undertaken to address some of these challenges. Spain[11] approved a royal decree-law that establishes an employment relationship between delivery workers and the platform, and grants the legal representatives of workers the right of information regarding algorithmic management practices. In New York, United States,[12] regulations have been introduced to enhance delivery workers' protections and control over distances and routes. Furthermore, China has introduced guidelines for laxer performance evaluation systems and work assignment loads for delivery workers, and for ensuring income above minimum pay, insurance and a relaxation in delivery

[11] See: https://boe.es/diario_boe/txt.php?id=BOE-A-2021-7840.

[12] See: https://www.nrn.com/delivery-takeout-solutions/new-york-city-expands-protections-delivery-workers.

deadlines,[13] besides also developing a regulation for governing algorithms more broadly.[14] Chile has also introduced legislation to protect platform workers, which distinguishes between dependent digital platform workers and independent digital platform workers.[15] However, major regulatory gaps still exist, particularly among many developing countries. While some of the developing countries have started to take some measures to address some of the issues related to working conditions of delivery workers, there is a need for a concerted effort to ensure that these platforms are regulated within the national jurisdictions and that workers are rightly classified as employees so that they can avail their rightful employment and social protection benefits.

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[13] See: https://www.reuters.com/business/china-market-regulator-boosts-food-delivery-worker-protections-2021-07-26/ ; https://kr-asia.com/chinese-government-issues-new-policy-to-protect-food-delivery-workers.

[14] See: https://www.lexology.com/library/detail.aspx?g=046dffa7-e223-46e3-9c18-53aa5eb5c3a3.

[15] See: https://terceradosis.cl/2022/03/04/nueva-ley-laboral-asegura-derechos-muy-dificiles-de-exigir/.

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