

Bias In, Bias Out: Gender and Work in the Platform Economy

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This paper was commissioned by IDRC as part of the Women, Work, and the Gig Economy (WWGE) initiative. WWGE is a consortium of researchers and research institutions across Asia working in collaboration with policymakers, online enterprises, and workers to study how digital platforms can enhance women's economic empowerment and build gender-inclusive labour markets in the Global South. Given the author's expertise in gender, labour, and digital platforms, her perspective challenges us to think deeply about the inequalities built into global labour markets and how they are being translated into digital spaces in implicit and explicit ways. The intention is to inform potential future research and policy agendas in a rapidly digitizing global economy.

About the author

Bama Athreya is a Fellow at Open Society Foundations, with a research focus on workers in the digital economy, and a senior gender advisor to Laudes Foundation. Most recently, she worked for the US Agency for International Development as Senior Specialist for Labor, Gender and Social Inclusion. There, she led and contributed to several reports and research products, toolkits, policy guidance, and training on gender and social inclusion, and contributed to the development of global programming to address labour rights, counter human trafficking, and promote women's economic inclusion. She holds a Ph.D. in social anthropology from the University of Michigan.

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Summary

Gender discrimination in the world of work is deeply rooted and widespread. This paper focuses on the ways in which historically rooted gender divisions of labour are replicated, and may be amplified, in the digital economy, and particularly in platform-mediated work. By “platform” we are referring to the two-sided internet applications used by businesses to source, manage and bill work, including services such as urban transportation, domestic work, and light repairs.

Borrowing from anthropologist Aihwa Ong’s description of “capitalist discipline”, which explains the ways in which gender norms affect power dynamics in factory settings, the paper suggests a need to consider whether the digital economy, in particular the use of automated decision-making, introduces a new dimension to such power dynamics, and we suggest the new phrase “platform discipline”. The paper notes particularly the need for greater awareness of the ways in which artificial intelligence (AI) may amplify and accelerate existing labour market discrimination. Because of this phenomenon, it argues, more policy attention is needed to ensure equity in platform work.

Gender and other cultural norms are embedded in labour markets, and decisions about the use of digital technology reflect these norms. Understanding this context will enable policymakers to address discrimination at the roots of platforms and not just at their surfaces.

The paper is divided into four main sections:

1. The first section describes the historical and normative context for gendered divisions of labour in the digital economy.
2. The second section unpacks terminology relevant to the digital economy, in particular describing the phenomenon of platform discipline.
3. The third section explains the relevance of longstanding constraints on women’s labour market participation — in particular spatial constraints and time poverty — to how they experience online or virtual space and platform work.
4. The final section provides some critical questions and recommendations for policymakers.

The paper poses challenges to labour and development practitioners based on the author's experience as a development professional. It suggests we have not sufficiently accounted for the effects of algorithmic bias in law or policy. Moreover, policymakers' ability to address equity in the digital economy has been directly affected by narratives that not only elevate individual empowerment, but also may mask structural issues.

The analysis supports two immediate recommendations:

1. First, policymakers can address and mitigate discrimination on platforms by making algorithms transparent and subject to regulation. This is likely to drive companies themselves to address and correct for discrimination in their data practices, described in this paper as "bias in."
2. Second, workers on platforms must have the ability to negotiate over terms and conditions of work. This not only requires adequate protections for new forms of collective action, but also ensuring a "human in command" in the platform interface to ensure workers have meaningful channels of communication with decision-makers.

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Introduction



Photo: Marcel Crozet / ILO

Gender discrimination in the world of work has been well documented globally. New ways of working are being enabled by technology, and gender bias is affecting new digitally mediated labour markets. As in the labour market more generally, inequities in digital economy work may be heightened by the COVID-19 crisis. This is true across economies. This paper focuses particularly on platform work, and cites studies of platform work in various countries, including but not limited to lower- and middle-income countries (LMICs). Platform companies have globalized effects on a global, data-driven economy, and on cultural systems that are both global and local. Moreover, as some platforms erode labour protections and amplify discrimination across labour markets, common issues affect platform workers in all countries.

This paper summarizes some recent evidence on gender, labour, and platform work, draws observations from the author's research and work as a development practitioner, and provides recommendations intended for development researchers, practitioners, and policymakers. Like any other sector, platforms can provide decent work or precarious work. And, like any technology, the code underlying platforms can potentially benefit or harm workers. In recent years, multilateral bodies have issued several important policy reports on the future of work that are intended to help

policymakers harness the benefits of technology and mitigate its harms. On the harms side, these reports have tended to focus on fears that technology will displace workers. To a lesser extent, the reports have examined the effects of platforms on quality of work. Our understanding is still evolving of the full range of the effects digitalization has had on workers. To ensure platforms support decent work, we must explore in depth the complex interrelationship between technology and culture. That is the orientation of this paper.

This is neither a paper about overall trends in the labour market, nor a comprehensive evidence review. It is a cautionary essay reminding policymakers that the introduction of new technologies into the economy will not correct longstanding power imbalances. The paper highlights historical parallels to previous technological shifts in the economy, as well as the interplay between these shifts and existing gender norms. It also highlights the dangers that machine-generated — or algorithmic — bias may exacerbate and how it may disguise discrimination in labour markets if policymakers and advocates do not intervene. If we want technology to serve the aim of correcting inequality, our starting point must be to identify the root causes of that inequality.

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Context: Gendered labour markets present and past

The present

Governments, advocates and other stakeholders had hoped to place a spotlight on gender equity in 2020. The year was intended to mark a quarter century of concerted global effort to address gender equality, commemorating the 25th anniversary of the Fourth World Conference for Women and the comprehensive set of commitments launched as the Beijing Declaration and Platform for Action. Instead, 2020 was defined by a global pandemic, lockdowns, and other measures that rocked economies worldwide. Far from showcasing progress, the year exposed a rapid erosion of hard-won gains for women in the economy. Women and girls have been disproportionately leaving the paid workforce, falling back into poverty, and facing increasing care burdens (UN Women 2020). They are also facing a “shadow pandemic” of increased gender-based violence as the combination of stresses and social isolation leave women and girls more vulnerable than ever to abuse.

Gender gaps in labour markets persisted prior to 2020 (UN Women 2015; ILO 2016). A gender gap in employment has persisted in every region, with the largest gaps in Sub-Saharan Africa and Southeast Asia. Moreover, the data reflect that women have been disproportionately engaged in informal work and, in some developing regions, 75 percent or more of women’s employment is informal (ILO 2016). Global research also found that women “do nearly two and a half times more unpaid care and domestic work than men” (UN Women 2015). Already behind, women experienced further erosion of economic security in 2020 (UN Women 2020).

The lack of progress is striking, and highlights a need to examine our policy choices. The Beijing Declaration elevated detailed commitments to equality for women in the economy. Governments and multilateral organizations recognized and articulated a need to pair efforts to promote equality of opportunity and equality of outcome. In gender-related programming, this has encompassed approaches to promote women’s empowerment, focusing on the individual woman as the agent of change, and to promote gender equity, removing systemic and structural barriers. While both are needed, there are constraints and tradeoffs in choices regarding specific interventions. In labour market development approaches, women’s empowerment programs have sought to provide women themselves with the skills, abilities, and confidence they need to access better opportunities. Without addressing equity, however, women still face the same constraints to pursuing opportunities, notwithstanding their qualifications. A question throughout this paper is whether, in the digital economy, opportunities are excessively constrained by systemic barriers. The author’s experience with these tradeoffs (she has worked extensively as a development practitioner) shapes an equity-focused perspective throughout the paper.

Barriers to opportunity are historically rooted and often invisible. This point will be central to the paper’s discussion of the culture of digital firms and platform discipline. For this reason, this paper not only summarizes the condition of present-day labour markets but also takes a brief tour into the past.

The future of work?

While the pandemic has had negative effects on other sectors of the economy, the digital economy is thriving. Social distancing requirements have provided a windfall to platform companies as the COVID-19 crisis has catalyzed a shift to digital platforms in labour markets (Thorbecke 2020).

Governments are also adopting policies that will accelerate digital economic shifts post-pandemic (World Trade Organization 2020). There has been an overall rise in the share of workers worldwide whose work is in some way mediated by a platform (ILO 2021).

There is a significant gender discrepancy in platform work. A new report from the ILO (2021) notes that while four in 10 workers on online and web-based platforms worldwide are women, in LMICs only about two in 10 are women. Fully 20 percent of the global platform-mediated labour force is in India; however, only 20 percent of India's platform workers are women. Platform-based and delivery sectors are largely male dominated. Women comprise fewer than 10 percent of workers in these sectors. Women on platforms also experience a gender pay gap in some regions.

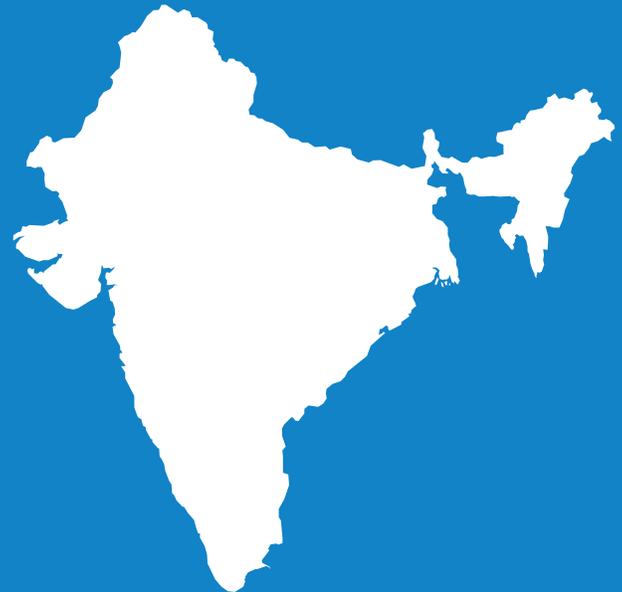
There are also clear differences in the nature of platforms entering traditionally feminized and traditionally masculinized low-wage sectors. In the transportation sector, two firms — Uber and Grab — dominate global markets with regional and local players struggling to compete. Yet in services such as beauty home care and domestic work, platforms tend to be national or subnational. There appears to be little evidence or discussion as to why this is the case and what effect it has on workers.



4 in 10 workers on online and web-based platforms worldwide are women



2 in 10 workers on online and web-based platforms in LMICs are women



2 in 10 workers in the global platform-mediated labour force are from India



Of these workers from India, **2 in 10** are women

The past: labour market discrimination in earlier technological shifts

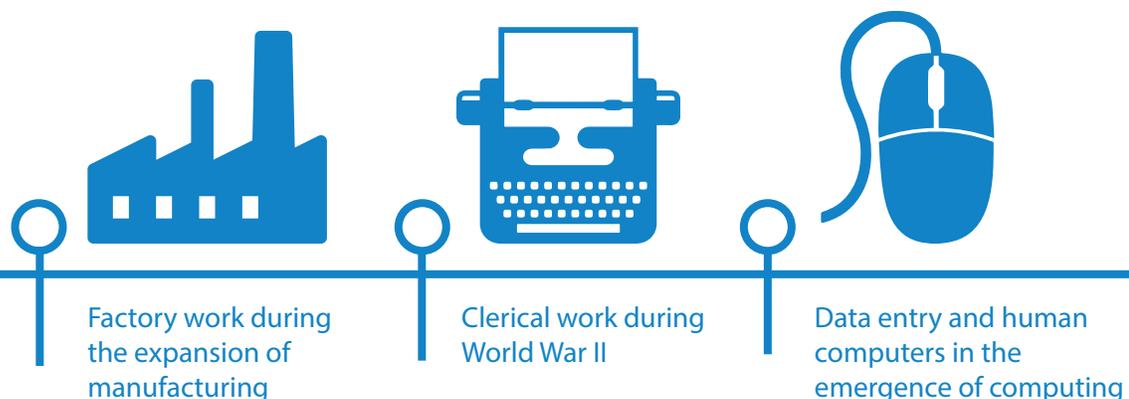
This is not the first time a technological shift has altered the gender dimensions of labour markets. The expansion of light manufacturing into previously agrarian economies created factories with predominantly female workforces; indeed, employers openly stated a preference for young female workers (Ong 1987). Improvements in information and communications technology led to the establishment of call centers around the world where feminized workforces were also preferred (Abraham 2008).

A similar pattern of feminized, low-wage work characterized the early days of the computing industry. It is important to keep in mind that as this new industry created new types of occupations, it did not do so in a vacuum. There is a rich body of scholarship detailing the ways in which occupational segregation has reflected social and cultural norms, and how political structures have served to entrench social groups into specific types of economic activity, not only in pre-industrial times, but also in industrial economies (Thompson 1963; Willis 1977). Keeping this in mind, it is no surprise that gendered labour market dynamics arose in the United Kingdom in the post-World War II era at a time when the United States and U.K. were competing for dominance in the industry (Hicks 2017).

Women in the U.K. had been able to enter the clerical workforce in large numbers during the war and thus acquired the necessary skills for the emerging computer industry. Yet industry and government together insisted on defining the work as low-skill since it was, by this period, principally being performed by women. This workforce was affected by laws such as marriage bars that compelled companies to fire women once they married, and wage ceilings premised on the assumption that women's incomes should be supplemental and not primary. This pushed skilled women out of the industry and the U.K. lost its dominant position in computing.

The US maintained its dominance not by elevating skilled women workers but by masculinizing the field of work. The popular film *Hidden Figures* dramatized the story of the first human computers in the United States in the 1950s; these were Black women who were relegated to jobs considered beneath the status of the white male engineers for whom they worked. From this period through the early 1980s, data entry was regarded as largely secretarial (i.e. feminized) work and therefore poorly paid. As more and more men entered data processing, wages rose and the status of such jobs also shifted. The shifts had everything to do with cultural norms. "Managers began

Pattern of feminized low-wage labour during technological shifts



picking coders less on the basis of aptitude and more on how well they fit a personality type: the acerbic, aloof male nerd.” (Thompson 2019). In brief, this new sector adapted to fit existing gender norms.

Notably it was during these early days of coding that the famous maxim “garbage in, garbage out” was coined, which recognized that machines replicate the mistakes of human coders. Yet it has been only in recent years that we have begun to recognize that we have created “bias in, bias out” models in AI. This will be discussed in more depth later in the paper. First, however, the paper spotlights the importance of understanding gender and social norms within a globalized corporate culture. Hicks (2017) has detailed the intentional policy decisions that underpinned gender divisions in the U.K.’s computing workforce. As these decisions demonstrate, “bias in” starts at the top. Today, major tech firms are rife with examples of workplace discrimination. The recent high-profile firing of Timnit Gebru, an AI researcher who was spotlighting algorithmic bias, is just one manifestation of a broader pattern of discrimination against women of colour in this field (Schwab 2021). That pattern of gender discrimination has been documented through a project titled Elephant in the Valley (Mundy, The Atlantic, April 2017).¹ Given evidence of gender bias within corporate culture, we must consider how corporate leaders regard workers in AI supply chains and on platforms, and the possibility that systems are encoded with bias.

During the early days of coding, the famous maxim “garbage in, garbage out” was coined, which recognized that machines replicate the mistakes of human coders. Yet only in recent years have we begun to recognize that we have created “bias in, bias out” models in AI.

¹ The project and primary data can be accessed at <https://www.elephantinthevalley.com/>



Call centers following improvements in information and communication technology

Platform discipline

This section provides a framework for understanding some of the invisible forms of influence that platforms may exert both on individual workers and social norms. It coins the term platform discipline, which is a refinement of Ong's explanation of capitalist discipline. This section defines key terms and provides an overview of research on how platforms exert control over workers. It also provides an explanation of how existing societal bias can be exacerbated by artificial intelligence (AI).

What is implicit bias?

The Implicit Association Test (IAT) was designed by sociologists Greenwald, Banaji, and Nosek to expose group-based preferences, stereotypes, and identities that may not be accessible to conscious awareness. This research demonstrated the pervasiveness of what is variously called "implicit bias", "unconscious bias", or "blind spots." Further research has detailed the ways in which unconscious reactions formed on the basis of such bias affect social relations.

Understanding bias

Is technology affected by human bias? A small but growing community of scholars is pioneering the research techniques needed to expose implicit bias in coding. Techniques to reverse-engineer seemingly neutral codes have exposed encoded gender and racial discrimination (Noble 2018; Ajunwa 2020; Benjamin 2019). A study by Steed and Caliskan (2021) uses a controlled experiment that demonstrates conclusively what other researchers have exposed through reverse-engineering of observed patterns. The researchers administered the IAT, a well-regarded sociological index to measure subjective bias in human subjects, to machines trained to learn. They found that machine learning models pick up and embed subjective bias in their automated decision-making. Indeed, machines demonstrated roughly the same patterns of gender and racial bias as humans.

In sum, there is ample evidence of the bias in, bias out phenomenon in the development of AI. As AI is deployed for more and more automated decision-making, it can amplify existing forms of social exclusion. For example, the use of automated decision-making on platforms for hiring were demonstrated to reproduce gender and racial discrimination in applicant selection (Ajunwa 2020). Another team of researchers found that Facebook algorithms introduced bias into their targeting of job advertisements. The more gender bias already existed in an industry, the more likely the algorithm would target Facebook ads to the dominant gender, as the algorithm had been coded to assume that past patterns predicted future trends in employment (Imana, Korolova and Heidemann, forthcoming 2021). Comparative data for LinkedIn, however, found no evidence of bias, which suggests the ability of firms to correct for bias in. LinkedIn spokespeople confirmed that they had been aware of and sought to correct for this problem (Horwitz 2021).

Evidence is scarce regarding the effects of automated decision-making and algorithmic bias on platform workers in lower- and middle-income countries (LMICs). Yet, as Benjamin (2019) has noted, "Coded inequity makes discrimination easier, faster, and even harder to challenge." We need to expand the evidence and advocacy stimulated by existing research and support emerging scholarship in other parts of the world where these trends may be even harder to expose and address.



Understanding discipline

In her seminal work on women factory workers in newly industrializing Malaysia, Aihwa Ong described how local communities' gender norms were disrupted by the migration of young women from villages to urban areas for factory jobs. Ong described how the authority previously imposed by males in these workers' villages and families was replaced by new forms of capitalist discipline, namely male managers in the modern factory. This paper argues that platform work is exerting a new form of capitalist discipline.

As described earlier in the paper, prior technological shifts have in some cases created feminized workforces. While this phenomenon has had some benefits for women individually and collectively, Ong's insights are critical as we consider discussions of empowerment and equity in platform work. This paper has noted above and will discuss further below the dangers of viewing platform work solely through the prism of whether it is considered empowering for individual women workers. Policymakers must consider how any new economic activity is layered into existing social stratifications. And now we know that codes and algorithms are not neutral. So we must ask: does automated decision-making interact with and perhaps amplify existing gender bias in new forms of platform discipline?

**This paper
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What is platform work?

This paper uses the term “platform” to describe a business model in which corporate entities rely on a two-sided application programming interface (API) and the internet to “source, schedule, manage, ship, and bill task-based, project-driven work” (Gray and Suri 2019).

Platform work: A definition

Marketplaces such as Etsy, aligned with traditional forms of self-employment, are part of the platform sector but are not the primary subject of this paper. The focus here is mainly on platform work where workers bid for tasks with terms and conditions set by platforms. These include both web-based tasks and location-based, person-to-person services, as the author will describe. The latter form of exchange may replace existing social networks commonly used by job-seekers in the informal sector.

The term “gig work” has become common to describe platform work; however, this term does not sufficiently differentiate platform work from all other forms of informal work, particularly in developing economies where reliance on short-term gigs for income is common. Platforms targeting low-wage workers in typically informal jobs, which include domestic services, delivery services, light repair, home beauty care, and transportation, use APIs to assign work in digitally intermediated tasks. APIs replace the social networks or human brokers that would otherwise connect those seeking to perform tasks with prospective clients. The role of race, class, and gender in informal labour markets is salient to our understanding of the so-called gig economy. Women remain more likely to be in informal work than men worldwide, particularly in LMICs (ILO 2016). This is relevant to the following discussion of platform work, as platform work may be structured to take advantage of precarity — a lack of economic stability or security — and its gender-differentiated effects on informal workers.



Platform discipline at work

APIs introduce new forms of control over work and workers. This section describes three common manifestations of platform discipline: rating systems, reward and penalty systems, and the disintermediation of social relations. To be clear, these are issues that affect workers of all genders; a more detailed treatment of the overlay of platform discipline and existing gender discrimination will be addressed in the next section of the paper.

Ratings

Platforms enable clients to rate workers, typically on some kind of simplified scale such as a five-star system. These individual ratings are then fed into automated decision-making systems. In the system, clients become unwitting instruments of control over workers. While each individual client may believe they are giving direct feedback to the platform worker, on most platforms, workers do not see individual feedback. Decisions are based on the average rating, and many platforms require average ratings well above the median point for continued assignments (Raval and Dourish 2016). Ratings reflect social norms, and may therefore reflect normative bias (Rosenblat et. al. 2016).

Ratings serve to coerce workers by using the threat of removal, or deactivation, from the platform. A study by Tandem Research of platform domestic workers in South Africa underscored how this creates subtle forms of control. Workers reported that they were urged to maintain a rating of 4.75 (out of a possible 5). Low ratings prompted warnings, and three consecutive ratings of below two stars resulted in worker accounts being deactivated. Workers had little to no ability to negotiate these ratings, coercing them to accept conditions they might otherwise contest. Moreover, although the rating system in principle works both ways, workers on multiple platforms have verified that client ratings are rarely, if ever, used. Domestic workers in the Tandem study stated, “We cannot choose clients so even if they have a low rating we still have to go.” In a similar case, platform domestic workers in Brazil described how the platform would calculate the value of a job based on the work described by the client. However, one interviewee described how she would often find additional cleaning tasks at the assigned location, and fearful that she would receive a poor rating if she did not complete them, would put in the extra time and work for no additional payment (Reporter Brasil 2019).

The Tandem Research team found, “Clients often don’t understand the rating system, and their ratings are often based on a whim, or deeply ingrained racial and class stereotypes.” Similarly, female drivers for ride-hailing platforms have reported they believe they are generally subject to lower client ratings than their male counterparts.²

APIs introduce new forms of control over work and workers by using rating systems, reward and penalty systems, and the disintermediation of social relations.

2 Author interviews with ride-hailing drivers in South Africa, July 2019, United States, September 2019.

Penalties and rewards

Platforms automate decision-making by using data gathered through continuous surveillance of workers and then fed into AI systems. The point is to optimally extract labour through automated incentives and penalties. For example, algorithms that are trained on worker data may control automated use of penalties and rewards to incentivize workers to increase and accelerate the rate of tasks performed, work at all hours, and to take on externalized costs (Gray and Suri 2019). Algorithms also exert discipline by automatically assigning penalties to workers for failing to be available at all times (ILO 2021). There may be a pernicious effect of this reward and penalty system on gender-specific time poverty, as this paper will discuss in the section on hypervigilance.

Disintermediation of social relations

Platform discipline also results in the disintermediation of relationships (Kellogg et.al. 2020). In other words, by removing direct human communication between client and worker, automated management removes the possibility of empathy in decision-making. In cases where stress, illness or emergency situations interfere with work, workers are unable to negotiate over timing or performance of a task, as there is no human in the loop. This leaves them with potentially fewer options than non-platform workers. Low wage, informal workers who rely on direct relationships with clients and social networks may have more flexibility to negotiate terms and conditions of work than platform workers. Disintermediation removes the ability to communicate and negotiate.

Domestic workers interviewed in the Tandem Research study reported their fear of being deactivated over last-minute cancellations due to unforeseen family care needs.

“I was really ill and couldn’t go to a booking so I contacted support through the app in the morning. No one answered me. The client called me at 9.30 to ask me why I wasn’t there yet for my appointment and I realized SweepSouth had not contacted the client or addressed my request at all. Later, this was included in my cancelled booking even though I was genuinely sick” (Tandem/Cloudburst 2020).

The researchers conclude,

The one-sided nature of the ratings systems creates a structural domination of the platform over workers which is dependent on worker fungibility ... Workers are also unlikely to cancel bookings because of the loss of earning potential. Autonomy is thus constrained both because of platform design and broader labour market conditions (Tandem/Cloudburst 2020).

Hunt et. al. (2019) cite similar concerns in their interviews with platform domestic workers in Kenya. Although, technically, workers are not forced to perform the service, disciplinary tactics employed by the platform increase their economic insecurity with each cancellation. This constrains workers’ actual choice over time and performance of tasks.

The disruption of normal social relations may also lead clients to engage in behavior they might otherwise consider socially unacceptable. An example is the practice of “tip-baiting.” During a surge in online grocery delivery work and long waits for service due to the pandemic and lockdowns, some customers were offering extra tips and then cancelling them after the delivery was made. Interviews with shoppers, who were predominantly female, highlighted their awareness of the disintermediation problem. One shopper noted that she was “literally exposing myself” and risking the health of her family members, something she doubted the customers understood. Another shopper whose tip was taken away because some of

the items requested were simply sold out said, “I tried my best. A lot of people are detached from the situation going on” (O’Brien and Yurieff, CNN Business, April 9, 2020).

Although this example is from the United States, the disintermediation of social relations is a factor across geographies. In India, a thriving home beauty care services market has given rise to new platforms such as Urban Company (Zainab 2020). While the company experienced a 102 percent surge in revenue in 2020, women beauty workers on the platform reported loss of income and lack of information necessary for their economic decision-making, particularly regarding lockdown measures and health and safety protocols. Unfortunately, we have no comparative data on the economic resilience of home beauty workers who made bookings through non-platform social networks. However, this paper’s author believes the disintermediation factor, which left workers entirely without information regarding the client base, left them in a more precarious situation than, for example, if they had been able to communicate with clients and determine whether or not the clients still intended to use their services in future.³

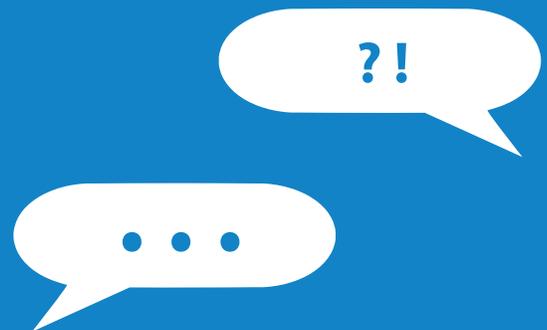
1. Ratings



2. Penalties and rewards



3. Disintermediation of social relations



In cases where stress, illness or emergency situations interfere with work, workers are unable to negotiate over timing or performance of a task, as there is no human in the loop.

³ This mirrors the overall and now well-documented way in which social media serves to make people feel distanced from speech and behavior that they would be unlikely to display in real life.

Gender norms at work and platform amplification



Photo: Pikist

The previous section explored the ways in which automated management of workers on platforms can impose new forms of discipline and control. This section explores a gap in the literature on gender in the digital economy. As outlined above, gender bias in the world of work generally, and especially in low-wage, precarious work, is well documented. Moreover, recent research has conclusively demonstrated that, in the absence of intentional corrective measures, algorithms amplify bias. Yet policymakers lack evidence of the ways that algorithmic biases may perpetuate and amplify existing forms of labour market discrimination. Policymakers must be attentive to the ways in which hidden, automated decisions may reinforce gender norms that reduce women's ability to participate in labour markets.

Overall, the section focuses on two important, longstanding and well-known constraints to women's economic activity: time poverty and gendered spatial constraints. Women experience time poverty as a result of unpaid care burdens. Although researchers have spotlighted the ways in which unpaid care work has contributed directly to formal economic output for decades, our analysis is hindered by a continued lack of comprehensive data on the full scope of the unpaid care



economy.⁴ This is relevant to the discussion below, as time poverty is an important factor limiting women's ability to access platform work and may also represent a vast hidden subsidy to the digital economy.

Women experience constraints to their physical mobility and access to public spaces that are kept in place by norms, policies, laws, and the fear of gender-based violence. Some common examples are exposure to sexual harassment in transit, reducing women's ability to travel safely to and from work sites, harassment within the workplace itself, and restrictions regarding night work imposed in the name of protecting women's safety. In brief, actual gender-based violence reinforces cultural constraints that restrict women from certain workspaces under the guise of protecting them from harm. As this section will discuss, these actual spatial constraints are replicated in online or virtual space.

This section argues that the digital economy may be structured to profit from well-embedded inequities in the unpaid care economy, and may provide an unregulated space where gender-based violence can thrive and exacerbate existing social constraints. Both of these issues belie the supposed neutrality of platforms. The narrative of flexibility is particularly fraught. Many platforms openly advertise the benefits of having a flexible work schedule that can be adapted to unpaid care burdens. Yet this message fundamentally underscores the acceptability of unpaid care burdens, shifting the policy debate away from the issue of what must be done to alleviate the burdens so caregivers can enter paid employment and, instead, elevating demand for a casual, informal, on-demand workforce. We must also pay attention to how platforms support shifts from formal workplaces to home-based work, and the danger that this change will reinforce patriarchal norms regarding unpaid care burdens and safe spaces for women.

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4 While advocates in Beijing in the mid-1990s identified a need to not only collect data, but also include analysis in the [System of National Accounts](#), governments continue to lack any serious investment even in the data collection. An ILO report published in 2018, [Care Work and Care Jobs for the Future of Decent Work](#), represents the first systematic global compilation of data by any multilateral organization.

Gender digital divide

Just as norms, policies and other barriers can restrict women's access to physical work spaces, women may also experience barriers to accessing virtual (online) space. Capital costs for equipment are one element. It is known that women experience discrimination in access to capital (UN Women 2015). There may be a relationship between lack of access to capital, lack of access to internet and computers, and gender-differentiated access to platform work. Differentiated control over household accounts may also mean women are less able to invest in the technology they need to avail themselves of platform work opportunities.

After Access has documented the gender digital divide in several countries (2018). The study documented not only differential access to hardware such as computers and smartphones, but also cultural barriers that discouraged women in some regions from participating in social media. Some respondents to the study explained that their partners or families discouraged their spending time online for fear they would engage in inappropriate online social interactions. This suggests that addressing the gender digital divide will require addressing the broader constraints to women's engagement in public spaces, and understanding online activity as a virtual public space.

Virtual spatial constraints are reinforced by social norms around unpaid care work. In *Ghost Work* (2019), Gray and Suri interview web-based platform workers. Kala, a worker in India, works on Microsoft's internal platform. A former electrical engineer, she left the workforce after having children. While her husband and in-laws did not support the idea of her returning to formal employment, they accepted the idea of her entering gig work, as it would not interfere with her unpaid care duties. "Kala's in-laws disapprove of how much time she spends on the family's computer. They'd prefer she spent more time with them, she says." In this case, cultural norms intersect with access to limited equipment (a single family computer) to create gendered barriers to Kala's access to work.

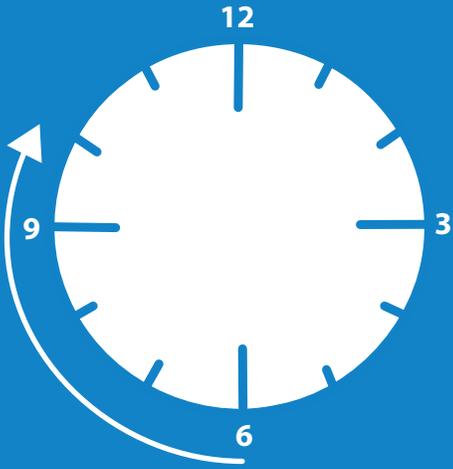
With available evidence on divides in access to hardware, and what is known about labour markets more generally, we can make certain assumptions. In households reliant on a single device, women likely have less access to shared hardware such as computers and smartphones. There is also a question of children's access, particularly if long-term shifts in education mean children need to access more and more educational content online. The recent ILO research suggests that women with childcare responsibilities who do web-based work disproportionately work at night and forego sleep.⁵

5 Presentation by Uma Rani on "The Role of Digital Platforms in Transforming the World of Work with a gender lens", April 14, 2021. We would like to thank Uma Rani, Senior Economist, ILO Geneva for providing us with statistic used for infographics in this paper.

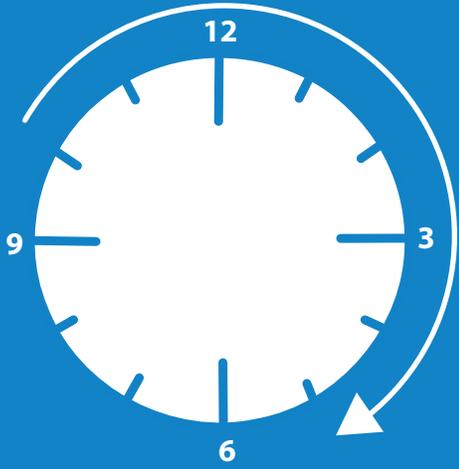


Of women with young children working on platforms, about 40% work 6 or 7 days a week

65% work in the evening (6pm-10pm)



36% work at night time (10pm-5am)



Sexual harassment

The normative aspects of the gender digital divide may be reinforced and amplified by the spiraling problem of online gender-based violence and harassment. For location-based platform work it is important to recognize that women workers in informal jobs such as domestic work and beauty home care have long been exposed to high levels of sexual harassment (UN Women 2020). It can therefore be assumed that there is a high risk of sexual harassment in such work whether or not it is mediated by platforms. The question is whether the platforms in any way affect the level of risk.

As detailed earlier, rating systems that allow workers to rate clients are rarely, if ever, used to hold clients accountable for mistreatment. Moreover, some platforms simply do not provide workers with the option to review employers or report fraudulent job postings (Tandem/Cloudburst 2020). Both women and men drivers for ride-hailing apps who experienced harassment reported a failure of the platform to identify and penalize such clients (Athreya 2020). Hunt et. al. (2019) interviewed workers providing in-home services. These interviews confirmed that many women workers felt platforms did not sufficiently vet clients and that even when they complained about mistreatment by a client, no further action was taken. "Mercy, who offered beauty services, automatically rejected all requests from male clients (due to fear of harassment)," they report. Mateescu and Nguyen (2019) have described the pernicious interaction between ratings for workers and sexual harassment. Platform workers providing domestic services may avoid reporting sexual harassment for fear of negative ratings from clients, they report.

Extensive interviews with female massage workers in the United States revealed that the disintermediation aspect of platforms left workers highly vulnerable. On the platform Zeel, clients assumed they could not be held accountable, as their financial transaction was with the platform and not directly with the worker, leaving the worker with limited access to client data. This, coupled with workers' fear of low ratings and deactivation combined in an intimate workspace to create cover for harassment (Merchant 2019). The company itself faced very limited liability for incidents of violence against masseuses. Similar research on app-based massage services is currently underway in Thailand.⁶

The ways in which platforms serve to mask the identity of clients puts other location-based platform workers at risk, as well. Rizk et. al. (2018) noted, "Both Uber and Careem drivers are concerned that clients are not screened in the same way as the drivers ... coupled with no screening for passengers, there is also an added concern of being asked to drive to certain remote areas, which they consider more dangerous for women than men." The authors conclude that most women drivers feel helpless to stop incidences of harassment from taking place and feel they have to take on the burden of their own safety. This may also constrain their ability to choose to accept rides at times and to locations that put them at risk.

6 Kriangsak Teerakowtkajorn, interview with the author, February 11, 2021.

The studies covered in this paper do not detail online harassment facing web-based workers. Yet what is known about sexual harassment in virtual space generally suggests there are gender-specific risks. As Gurumurthy and Jha note, women and minorities have already learned to adapt and self-moderate their online presence to avoid risk of harassment (2020). Advocates have for several years been documenting the rise in online sexual harassment as a means of targeting and silencing women in virtual space (Lopez 2018). Women in professions that require the use of an online public profile, such as journalists, have been shown to face extraordinarily high levels of violent sexual threats online. Use of platform and app geolocation features for stalking is also a possible concern for women platform workers, though this is another area where we lack primary research (Ng 2019). Are the same features also enabling online stalking or harassment of workers online by co-workers or clients, or leading women to avoid certain platform engagements? We need further evidence on this subject.



Unpaid care work and hypervigilance

As noted earlier, women continue to shoulder substantial unpaid care burdens worldwide, and this leads to time poverty that limits their ability to engage in paid economic activity. The effects of time poverty on women's work on platforms are not yet fully documented. The 2021 ILO report found that approximately 23 percent of all women who perform work on platforms have children under the age of six; however, that figure is 50 percent for respondents from LMICs (Figure 1).

Unpaid care work is a significant hurdle to gender parity in location-based work. For women drivers on ride-hailing platforms in Cairo, "the priority for most drivers remains the need to balance this work with household labour. Household obligations dictate their working schedules, needing to ensure childcare for their own children or grandchildren, or through curfews imposed by husbands" (Rizk et. al. 2018). For these women drivers, limited changes in household dynamics such as increased financial autonomy took place in the context of patriarchal norms that continued to constrain time use and direct women's time toward unpaid care work.

The need for hypervigilance further amplifies this problem. Several studies describe how platforms exacerbate the problem of time poverty both due to the acceleration of pace (tasks posted may disappear within seconds), and because of the sunk search costs to find such tasks. Those engaged in web-based tasks spend a significant proportion of their time in unremunerated work searching for suitable tasks. This is also a factor for location-based workers, who must be logged onto the platform and idle but available until they are assigned a task. "Hypervigilance is a necessity for top earners," state Gray and Suri.

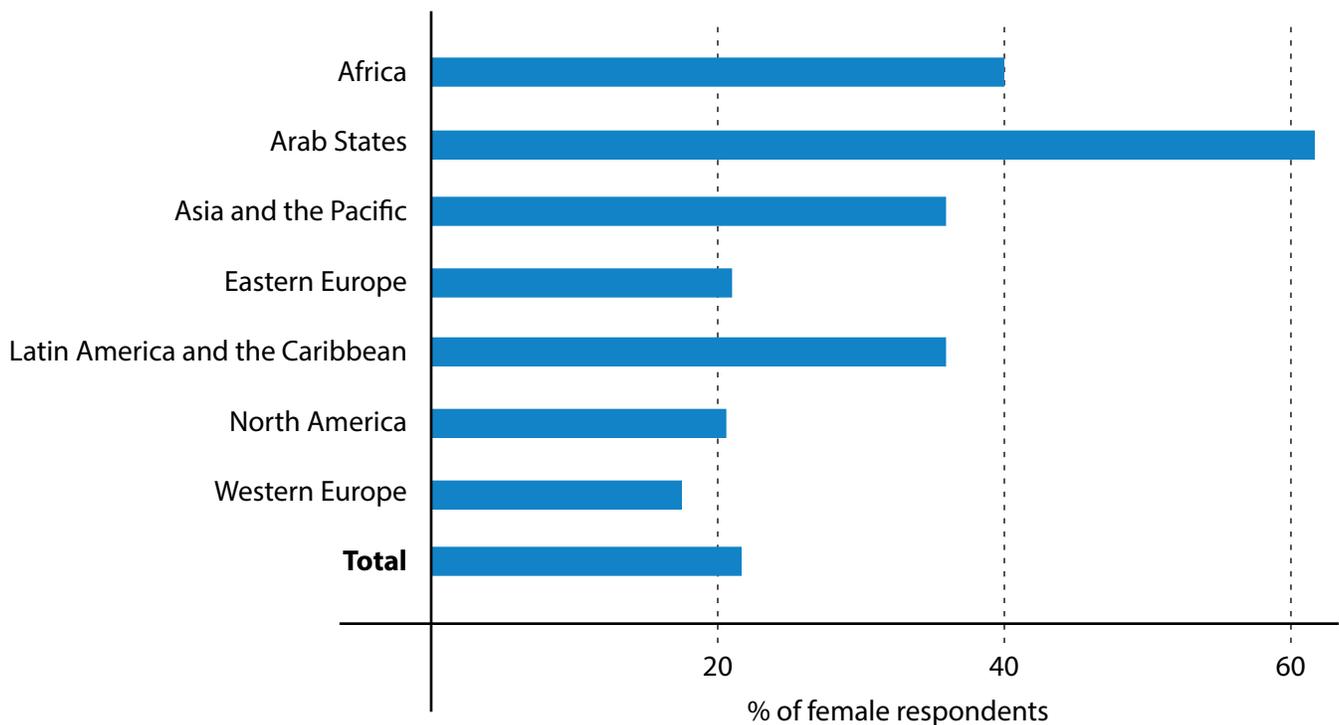


Figure 1. Share of female platform workers with young children (0-5 years) (Source: [ILO](#)).

Those ... who make the most money spend hours monitoring their dashboards and scrolling through pages upon pages of job postings ... They must be ready to snap up a well-paying or fast-and-easy task the second it pops onto their screen, lest another worker click the link and accept it first (Gray and Suri 2019).

Veena Dubal's recent interviews with low-wage female platform workers in the eastern United States also highlight a common finding across similar studies: searching for work online requires time that women often simply do not have.

"If I work 12–16 hours a day, I'll make maybe \$5/hour. But that's when there is work, but when you're sitting in between jobs and you consider that time, when you're just looking for work, then the hourly wage falls dramatically. There are so many of us now, and fewer quality jobs. Sometimes I wake up in the middle of the night just to see if I can grab some good requests" (Dubal 2020).

As noted above, platform work has been promoted by some firms as providing the flexibility needed to enable those involved in caring for family members to engage in economic activity. However, as many of the studies surveyed highlighted, platform work and the ability to be hypervigilant is actually most accessible to those who have no unpaid care burdens, and who therefore would also be most available to obtain formal work during regular, set working hours. Anwar and Graham (2020) note that for many male workers interviewed there was a status-enhancing element to the idea that they were entrepreneurs; however, women did not speak of a desire to be entrepreneurs, but rather the need to juggle care burdens at home.

What has not yet been exposed or measured is the assigned gender differential or handicap to those who lack ability to be hypervigilant and constantly available to respond to tasks. Women on platforms are more likely than men to have unpaid care burdens and are more likely to lack true flexibility to respond to the platforms; rather, they need to fit tasks in between care duties. Yet the algorithms reward those who are most constantly available with more desirable and lucrative assignments. Is the algorithm, over time, reinforcing a bias against those with greater unpaid care burdens? And, over time, does this lead to systematic discrimination against women in assignments?

Searching for work online requires time that women often simply do not have. Is the algorithm, over time, reinforcing a bias against those with greater unpaid care burdens?

Building blocks for positive change

Platforms have created shifts in social relations. Previous technological shifts, by reorganizing work, created new forms of workplace discipline, but also new forms of workplace-based solidarity. So, too, in the digital economy there are both positives and negatives to the disruption of social relations. Some forms of social realignment may be taking place as a result of platform work, including new social networks that allow for organizing.

Gray and Suri discuss the emergence of new forms of solidarity through ad hoc networks enabled by platforms such as WhatsApp and Facebook, where platform workers often form their own groups. Platforms themselves have in some cases sought to replicate and create a virtual water cooler, but with limited success (Kellogg et. al. 2019). One of the platforms in the South Africa domestic work study created a WhatsApp group for workers; however, workers reported they felt that the presence of a manager in each group prevented them from freely speaking to each other (Tandem/Cloudburst, 2020). On their own, platform workers on this and other platforms in South Africa did use WhatsApp to connect with one another.

Rizk et. al. provide a detailed example of what new social relations can look like in practice and how they can benefit women workers:

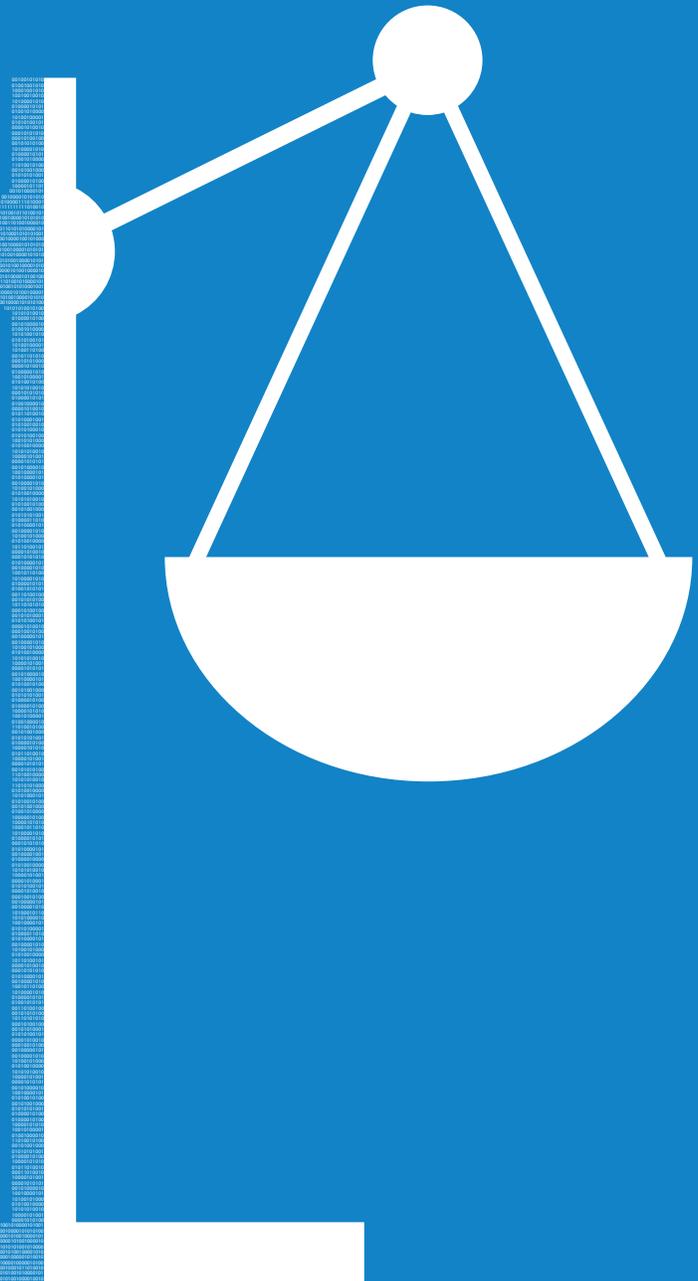
Some drivers have formed a group, including both women and men, and they physically meet up regularly. They express having developed a sense of belonging to this group. Many participants expressed that working as drivers has allowed them to expand their networks and connections, forming communities of support with other female drivers. Common platforms used to communicate are WhatsApp or Facebook groups. Drivers also spoke of an application that they use to communicate with both male and female drivers when they are in situations that require assistance.

With the right transparency and accountability measures in place, APIs could correct for the information asymmetries present in traditional social networks. Platforms could provide more transparent information to workers about potential jobs than they might obtain from traditional networks or labour brokers. This, in turn, could increase workers' choices and bargaining power. The platform Babajob in India (now defunct) provided workers with information about prevailing market wages, allowing them to determine whether specific employers were offering above or below market rates (Tandem/Cloudburst 2019). A combination of greater information sharing and transparency on platforms, and more intentional support for ad hoc spaces where workers can safely share information, could provide a partial corrective to platform discipline — a point discussed further in the recommendations below.

Gender bias in the world of work is amplified by algorithms in the absence of corrective measures. Women face multiple barriers to participating in platform work, including:

- **Gender digital divide**
- **Sexual harassment**
- **Unpaid care work**

Gender bias in platform work



Equity in the platform economy

The global transformation to a digital economy was already well underway when COVID-19 began its spread. Over the past year, pandemic-induced economic dislocations exacerbated reliance on digital intermediaries in the world of work. Platform companies were winners in this shift. Now that change has been catalyzed, we must assume it will continue in the post-pandemic recovery. If we take a gender-blind approach to this profound technological and labour market shift, we risk erasing the incremental gains women have made in the world of work. This section will note some gaps in development policy and practice that we need to recognize if we are to begin to address them. It will then provide two recommendations to address some of the issues this paper has identified.

Minding the gaps: Cautions for policymakers

The future of work has been a subject of increasing interest to policymakers in recent years. Governments and multilateral organizations have sought to determine how best to address labour market dislocations in what is sometimes termed the “fourth industrial revolution” (Schwab 2015). Some studies have addressed gender aspects of labour market displacement (Florito et. al. 2018; Picot and Spath 2020; OECD 2018). For the most part, such analysis has taken an ahistoric approach to the data on gendered digital divides. In other words, recommendations have oriented policymakers toward addressing immediate gaps in access to technology, not correcting for underlying, historically rooted inequity. As argued in the first part of this paper, gender equity cannot simply focus on providing greater opportunity in the form of technology or skills. Policymakers must also address longstanding barriers, such as the need to reduce and redistribute the unpaid care burden.

This paper has also called out the need for more data and analysis on ways in which artificial intelligence may be further amplifying traditional social and cultural barriers to the world of work. The following points are intended to provide scope for careful analysis of policy and development interventions, to ensure that we correct for our own blind spots and do not inadvertently feed into the exacerbation of bias and labour market exclusion.

Question assumptions about technology

First, policymakers must avoid excessive faith in the ability of technology to solve complex problems. Anwar and Graham summarize the problem of policymakers in lower- and middle-income countries (LMICs): faced with longstanding and seemingly intractable unemployment and underemployment, development practitioners and policymakers have been attracted to innovation. “It is at this moment that many tend to look towards digital technologies and internet connectivity as a panacea for inherent labour market systems problems,” they state.



Among other examples, USAID invested in supply-side platforms like Babajob (India) and Bong Pheak (Cambodia) that held the promise of providing more and better information to job-seekers. From a donor perspective, the intent was to smooth labour markets, removing frictions and inefficiencies. Some also argued that platforms would reduce discrimination in labour markets. This belied policymakers' belief that platforms did not impose discriminatory barriers to entry, and that tasks would be distributed on a randomized basis where the gender, ethnicity, race, or migration status of the worker would have no effect on the assignment. We now know this is not the case. Later studies commissioned by USAID, ODI, and other development agencies suggest the increase in choice and flexibility appears to be largely on the employer/client side. The findings of these studies are well-summarized by the following quote from an article on platform work in Indonesia: "Digital platforms, then, have not removed frictions — they have shifted them onto someone else" (Qadri 2020). Donors and policymakers should invest in increasing gendered power analysis around these kinds of interventions to ensure that any inherent inequities in design are addressed up front.

Avoid over-reliance on the notion of individual empowerment

Optimism in technological fixes for difficult problems is not accidental; cultural narratives have continuously reinforced the promise of technology. Metcalf et. al. (2019) in their discussion of the ethics of technology note, "Silicon Valley logic holds that trenchant social problems can be addressed through innovative technical solutions developed by those with the most aptitude and creative energy and that an unencumbered market will recognize, reward and disseminate the best solutions."

The conflation of the terms "technology" and "innovation" in policy has masked the ways in which technology can actually serve regressive purposes, from a social and cultural viewpoint. Wendy Liu's memoir of her aspirations to succeed in the culture of Silicon Valley provides keen insight into an industry that sustains a narrative that winners succeed solely by dint of their individual merit, yet perpetuates a culture of discrimination against women and people of colour. As Dubal (2020) notes, this also applies to platform workers in low-wage task work, as the digital economy "engineers an anti-welfare subjectivity: a sense that they could do it on their own, and if they failed, well, that was on them."

If we take a gender-blind approach to this profound technological and labour market shift, we risk erasing the incremental gains women have made in the world of work.

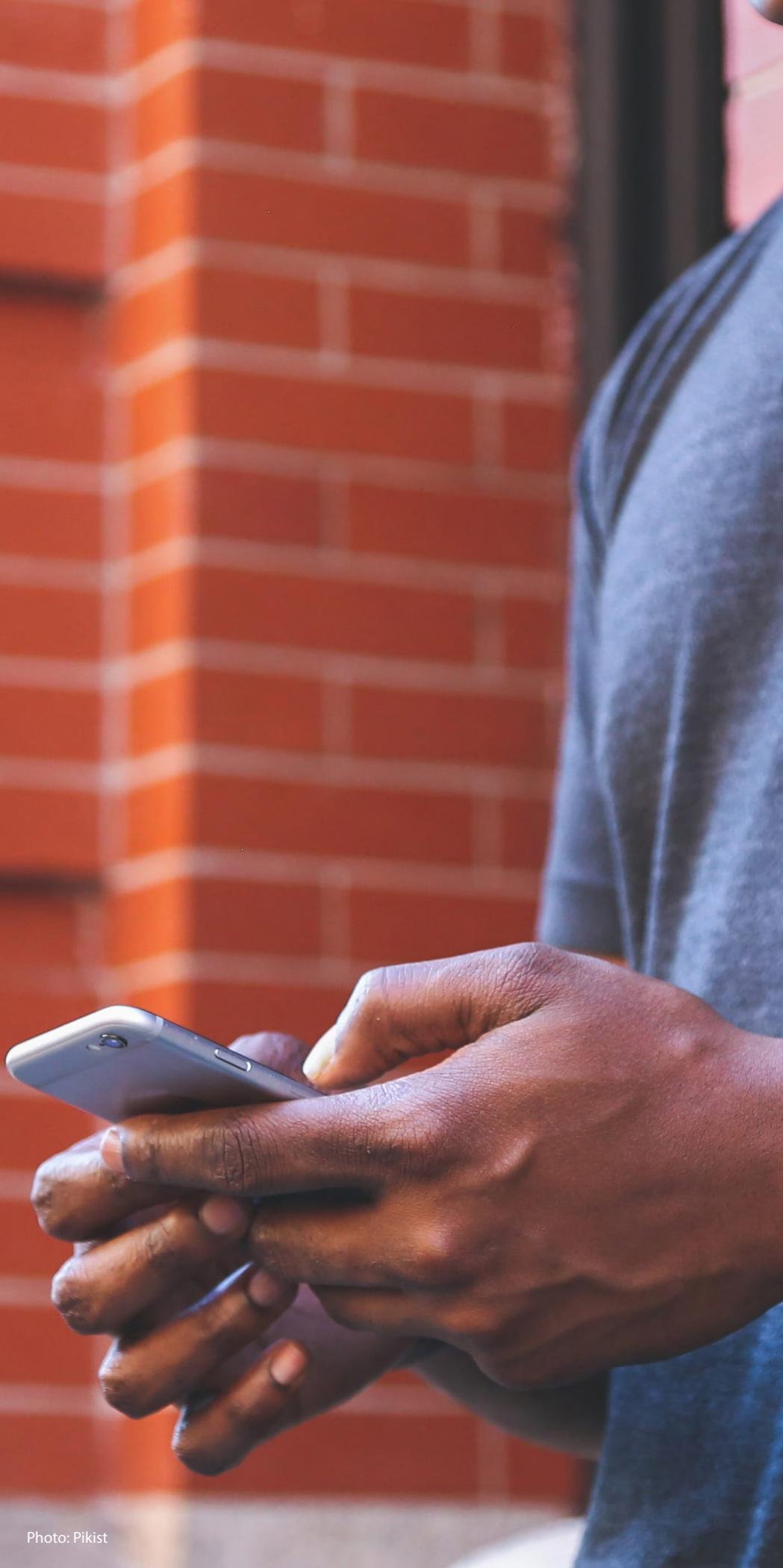
The antidote to this, as dramatically illustrated in the various global responses to the current pandemic, is for governments to measure progress in broader terms than individual success. If some individuals benefit, but labour markets as a whole weaken, we must consider how platforms may be contributing structurally and systemically to the erosion of decent work. We must also consider interventions that empower workers — and particularly those who have been restricted or excluded from traditional labour markets — collectively rather than individually. An individual worker constrained by unpaid care burdens and offered a choice of flexible work may be better off individually. However, when an entire community or class of such workers is collectively made available to labour markets, collective consequences may look very different than individual consequences. Suri and Gray's data on platforms notably revealed that the vast majority of work on platforms is performed by approximately 20 percent of the available workforce; these workers are putting in full-time hours. While Suri and Gray do not provide gender breakdowns, it is likely that those putting full-time hours into platform work are disproportionately male. Yet, as they note, the 80 percent of workers conducting 20 percent of the work are extremely important for continued labour arbitrage. With our assumptions on gender, the logical conclusion is that those working part time and around unpaid care duties are serving to undermine terms and conditions of work for those working full time on platforms.

It would be naïve to assume platform companies will be neutral actors on this topic, as they are direct beneficiaries of the effects of platform-discipline. Capital concentration in the digital sector and shifts in social capital pose obstacles to policy solutions; these can be countered if policymakers reject the narrative of self-reliance and consider how well platforms are serving to shift overall labour market dynamics — and particularly for disadvantaged groups — toward decent work.

The rabbit hole is real

The ways in which algorithms on social media serve to engage users through the display of increasingly extreme content are now well-documented (The Social Dilemma, 2021). Former Google engineer Guillaume Chaslot coined the term “rabbit hole” to describe the ways in which these algorithmic nudges amplify not only more and more extreme content, but ultimately extreme and sometimes violent behaviors. One corollary to this finding is that there is a likely interplay between the gender digital divide and the rabbit hole that serves to amplify gender-based violence. Algorithms in all forms of virtual space have been trained on biased data, as initial gender digital divides resulted in far more men than women online. Trained on men's preferences and expressions of implicit bias, algorithms have amplified those qualities, rewarding users for engaging with content that further reinforced gender bias and gender-based violence (Noble 2018). This, in turn, has further constricted women's ability to engage comfortably in virtual space. Some women have expressed the feeling they “should not be on the internet” (After Access 2020).

Policymakers must address the increasingly toxic online environment if they want to ensure gender equity in access to platform work, or any kind of work requiring an online presence. To date, the responses to increasing online sexual harassment have been episodic and not systematic. Holding individual perpetrators of harassment accountable is insufficient to disrupt the snowballing amplification of extreme content and its widespread chilling effects. Policymakers concerned with gender-based violence in the world of work must consider the need for broader efforts to rein in the algorithms that amplify and provoke violence across all virtual spaces.



Trained on men's preferences and expressions of implicit bias, algorithms have amplified those qualities, rewarding users for engaging with content that further reinforces gender bias and gender-based violence.

Recommendations



Photo: Pikist

There is nothing new about gig work; informal work, and associated precarity, have long been more norm than exception throughout the world. Yet there is no reason why platforms should reinforce informality and precarity. Policy and public investment choices can play a role in promoting pathways to decent work. Recent multilateral and expert reports focused on the future of work, gender and digital economy, and platform work have provided solid recommendations for strengthened employment and social protection for platform workers. Some reports have also identified investing in the care economy as essential to creating genuine flexibility and choice for platform workers subject to unpaid care burdens. The author of this paper supports such recommendations and seeks here to cover ground that is not fully addressed in those reports.

Interventions based on approaches to informality in older forms of work will miss the mark when applied to platforms that, while claiming to be mere bulletin boards, may be aggregating millions of jobs, setting wages, and determining all aspects of working conditions. That is why this paper has stressed that creating pathways to formality for informal platform workers requires stepping away from the industry-perpetuated narrative of entrepreneurship and completely rethinking how we understand autonomy and control over the means of production in a data-driven economy. The following two recommendations are a starting point.



Recommendation 1: Create transparency and regulatory authority over algorithms to address algorithmic discrimination

Labour law and regulation generally, and workplace anti-discrimination protections specifically, cannot be applied to platform work as currently designed. Platform companies have marketed themselves as intermediaries, simply connecting self-employed individuals with gigs. The ways in which algorithms control work and workers have been masked in this narrative. To address this, policymakers must develop new regulations fit for an economy where data and algorithms are part and parcel of labour relations.

Digital rights advocates, in particular those in LMICs, are at the forefront of understanding the need for citizens to be able to negotiate over data extraction and its uses. “The key subject of data control is indeed going to be the major point of conflict between corporate advocates and those defending development and the public interest in years to come,” advocates note (ALIA, 2019). Thus, to address equity in platform work, policymakers must regulate what data is collected from platform users, who may access it, and how it is used (Gurumurthy and Chami 2020).

Importantly, citizens must have collective representation in data governance. Some digital rights activists have suggested individualized solutions, such as empowering individuals to opt out of data collection (this approach is now part of Europe’s Generalized Data Protection Regulation). These proposals belie the fact that data is only a valuable resource in the aggregate. A recent pathbreaking suit brought by Uber drivers in the U.K. has argued that, even if workers had access to their individual personal data, it would have no value without reference to the full set of other users (Athreya 2021). A critical point here is that access to or control over data itself is not enough; there must also be transparency, access and ability to negotiate over automated decision-making, or the algorithms applied to such data. This is particularly important in enabling women and marginalized groups to address possible algorithmic bias.

Platform companies rely on user data, yet the data sets they maintain are not transparent. They could easily be made so. To address bias, auditable data trails will be needed, and governments and civil society stakeholders, in particular worker organizations and consumer groups, will need not only the right to access information, but also sufficient legal protections so they can contest discriminatory applications. Governments will need to consider amendments to anti-discrimination and commercial codes to provide such protections. A recent New York City council bill provides an interesting potential model, though its application is limited to platforms used for hiring (Givens et. al. 2021). LMICs may be able to lead the way in this area; digital rights advocates in India, for example, have proposed ambitious data governance proposals that could incorporate such provisions (Singh 2020).

Recommendation 2: Put humans in the loop, collectively and on both sides of the table

Policymakers also must address the problem of collective agency for platform workers in ways that go beyond traditional industrial relations frameworks. In short, we must put humans back in the loop on both sides of the bargaining table. On the worker side, creating space, support, and legal status for new forms of organizing will be critical. On the other side of the table, platform companies must be required to identify principals who can be held accountable for decisions that affect workers, whether or not they directly employ such workers.

This does not necessarily mean simply shoehorning platforms into traditional employment frameworks. Platforms are not merely labour brokers. Their control over terms and conditions of work for very large and sometimes geographically dispersed pools of workers has effects throughout economies. Platform companies exercise a sophisticated ability to penetrate labour markets and substantially direct economic activity. Companies with the capacity to manipulate large data sets also have the capacity to set parameters, such as floor wages, and adapt services accordingly. Importantly, given their access to client data, platform companies must be held accountable for assigning workers to situations where they may face harassment or abuse. This accountability will not be possible unless companies identify those who will bear responsibility.

This paper has noted that platform workers are engaging in creative organizing using WhatsApp and other social media platforms. Apparently, isolated and vulnerable workers have found one another and are building communities online. The best evidence of effective transitions from online organizing to offline collective action are in sectors that are male dominated, in particular transportation and delivery. This seems to reflect the fact that such workers are able to connect offline in public spaces; delivery workers and drivers have noted that their informal chats in public spaces such as the parking lots of restaurants or airport waiting lots spurred the creation of more permanent, albeit still informal, groups (Wells and Attoh 2020). Labour laws have not sufficiently covered such groups' right to bargain collectively. Recent victories for platform workers in Europe, where unions are relatively strong, are important. But workers in other countries may require new forms of coverage for their collective rights. Platform workers might draw from notable examples worldwide of informal worker associations such as the Self-Employed Women's Association in India, International Domestic Workers Federation, HomeNet, and StreetNet. A new network of online drivers, the International Alliance of App-Based Transportation Workers, was launched in early 2020 and is seeking to build a global network similar to the International Domestic Workers Federation model.

A movement to organize platform workers into cooperatives is also providing a vitally useful alternative to the current platform business model (Scholz 2015). In Indonesia, laws governing cooperatives have provided the necessary space for platform workers to associate and bargain with platforms. In other countries, however, cooperative laws do not enable such bargaining. Thus, platform cooperatives are in most contexts useful only as an alternative business model and not as a bargaining unit. While such models provide helpful alternatives to workers, it will be difficult for any of them to reach scale in a market where the imperative is toward data monopolization. There will be a need for platform worker advocates, and a nascent but growing group of platform worker organizers, to form alliances with larger organizations that have built some of the critical social infrastructure needed to reach and engage large numbers of isolated and precarious workers.

Digitization may have a silver lining if advocates can harness it. In economies with greater digital penetration, such as the United States, organizations such as the National Domestic Workers' Alliance have effectively engaged in online-to-offline organizing with women workers in a hard-to-organize sector. As more and more precarious work worldwide shifts online, so too may the potential for organizers and advocates to develop new social networks that connect and collectively empower platform workers.

Gender bias in platform work

Policy and public investment choices



Conclusion

Policymakers must build guardrails that ensure equity for workers

Platforms can enable decent work on equitable terms for all workers. Yet most platforms do not do so today. The fault is not with the technology, but with the decisions regarding its use. Platforms and APIs could be used to increase workers' access to information and choices; instead, this information is used to impose new forms of control and discipline. Algorithms could be coded to address and mitigate labour market inequities; instead, they often amplify existing discrimination. Alternatives supporting decent work, such as platform cooperatives, are insufficient to correct for a widespread business model that has locked in such choices.

Policymakers will have to step in and create guardrails for platform workers. These new guardrails must include worker-centered data governance and legal constraints on the use of APIs that perpetuate algorithmic bias and gender-based violence. They must also sustain meaningful opportunities for platform workers to have a collective voice on the terms and conditions of their work. Clearly these are not the only challenges to be addressed to ensure gender equity in the future of work. The recommendations in this paper are simply a single contribution to systemic efforts to address the promise of technology to the world of work and correct for its more inequitable uses.



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