Future of Work in the global South (FOWIGS): Digital Labour, New Opportunities and Challenges (Working paper)

This is a working paper, your comments are welcome in the interactive comments box on the website.

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Executive Summary

The digital economy, particularly location-based platforms, could potentially provide alternative forms of work to alleviate mass unemployment in many countries. Such platforms may offer opportunities to people who face unequal access to income-generating opportunities or endure systemic barriers to entry in traditional labour markets. However, their proliferation has raised concerns across the globe about the multitude of challenges and risks associated with the type of work facilitated by the location-based platforms.

This research was undertaken as part of a wider global South study across sub-Saharan Africa (SSA), Latin America, and SouthEast Asia on the "Future of Work in the global South (FoWiGS)" project. The aim of the FoWiGS project was to identify the nature of multidimensional inequalities in developing countries and understand the extent to which involvement in the digital economy closes, reproduces or widens existing inequalities, especially for marginalised groups.

Building on findings from the pre-COVID-19 pandemic global South FoWiGS Quantitative Report (QR) and the 2018 Research ICT Africa report on microwork across seven African countries, this report presents findings from an in-depth qualitative study of location-based platform workers' in Cape Town and Johannesburg—two major cities that power the South African economy and are at the forefront of developments in digitally mediated work in SSA. The report also considers the impact of the pandemic and lockdown on already precarious platform work.

The main findings are based on six focus groups conducted in Cape Town and Johannesburg, with individuals who work across different types of platform work on the major digital e-hailing, e-delivery and e-domestic platforms. Discussions in the focus groups included questions about workers' motivations for undertaking this type of work, the nature of the work itself, and their experiences of using location-based platforms to find and carry out work. Through a process of transcript coding and analysis of the focus group discussions, six key thematic findings aggregated across the different types of platform work (e-hailing, e-delivery and domestic work) emerged:

- **Diverse motivations for working in the platform economy**

  Although there are various motivations for workers joining different platforms some because they improved the conditions under which they were previously working or provided them with work they did not previously have, almost all the workers in all the focus groups were making survivalists choices within a very constrained set of options. Gendered division of labour between location-based platforms that offer different services**.** Relative to other options open to many lower-skilled workers , location-based platforms offer workers some positive features that they value— such as gainful employment and income, which were the top two motivating factors for many workers. Other key motivating factors included the lack of alternative employment opportunities and better work flexibility. However, workers also identified significant challenges that highlight the

precarious nature of platform work and the inadequacy of the platform economy to provide high-quality jobs.

- **Thresholds and barriers to entry vary by type of digital work**

The major prerequisite to work on on-demand location-based platforms is access and use of Internet-enabled mobile devices, where data transfers facilitate linking customers with services through the use of the platforms' online mobile applications— a crucial enabler for workers to carry out their work. Consequently, limited ownership and control of assets negatively impacts people's ability to respond to economic opportunities and to exercise agency in the platform economy, particularly for those who already face multidimensional barriers in traditional labour markets.

- **Gendered division of labour between different types of location-based platforms**

Men are overwhelmingly more likely than women to carry out e-hailing or e-delivery work, while women are overrepresented on domestic work platforms. Women are believed to be at a disadvantage in carrying out e-hailing or e-delivery work if they have childcare and domestic duties that prevent them from working long hours and are not able to meet the required targets. With regards to e-hailing and e-delivery, beyond constraints related to the digital divide, there are barriers women face with buying or renting a vehicle. In contrast, domestic work labour platforms predominantly recruit women, reflecting traditional stereotypes around women's work, including cleaning and washing, and, although more limited on domestic work digital platforms, childcare. These divisions also reflect offline divisions of labour**.** The analysis of the conditions of work across platforms reveals how women workers are managed by platforms compared to men. Domestic workers seem to be subject to a greater power differential with clients, and to more platform discipline.

- **Working conditions differ across platforms**

Different elements play an important role in shaping working conditions associated with various location-based platforms. Respondents believe that more can be done to improve their working conditions. On the one hand, internally they would like a standard agreed fee or regulations that offer social protections and benefits such as: minimum wages, health insurance; life cover, unemployment benefits (UIF) and death benefits. There has also been a general call by workers advocating for regulation of the location-based platform industry and interventions by the government through strike action, which have been ineffective in promoting action.

- **Workers' have limited privacy and agency over their own data**

Data collection and algorithmic governance are used to enable the services that many location-based platforms facilitate. For example, algorithms are used to allocate tasks to workers automatically via smartphones based on geolocation data such as acceptance of trip requests (the

gig) and performance evaluation based on customer ratings. All respondents said there was limited privacy and high surveillance across all digital platforms with no possibilities for them to access and dispute their customer service ratings, receive information for removal from a platform, or transfer their data to other platforms. However, automation of assigning "a gig" was seen as a positive substitution for having "humans in the loop" as there were instances where supervisors' who manually assign workers with jobs were based on kickbacks they received from the worker.

- **On-demand platform functionality affects platform workers and customer interaction**

Complex relations exist between the platform, platform workers and customers. The available functionalities and capabilities of location-based platforms impact the working conditions of digital workers, such as job allocation, the rating system, privacy, surveillance, safety and security features and ultimately the basic functionality of the platforms.

The findings reveal that digital platforms may exacerbate declining labour income share, and worsen structural inequality in labour markets, particularly through bias and discrimination embedded in the business models, datasets used, the technology applied, and existing "offline" systemic issues that perpetuate labour market discrimination. While there may be some uncertainty with regards to the impact of platformisation for nascent digital economies in SSA, it is clear that co-ordinated, concerted implementation efforts are required for policy makers to create contextual interventions that can foster economic justice, build future resilience, and mitigate the negative labour market distortions that digital platforms can generate. Stakeholder cooperation is needed to improve the location-based platform ecosystem. The following key recommendations are made:

- the South African government needs to a tackle the key structural constraints that inhibit online labour rights, gender equality and inclusive social protection by facilitating a policy and regulatory environment which is fit for purpose and contextually relevant to address existing labour market inefficiencies that are exacerbated by location-based platformisation;
- acknowledging the jurisdictional challenges of enforcement when digital platform do not have any physical presence in the country, governments should co-operate to ensure that (multinational) location-based platforms provide a minimum set of protections to their workers, such as facilitating working conditions that align with existing relevant national labour regulation;
- in the shorter term, creating incentives for platforms that comply with both international best practices such as the ILO basic conditions of service and the platforms making themselves available for assessment by organisations such as Fairwork, could be a practical solution. This can be done through official accreditation and possibly even tax discounts;
- Governments need to support the development of an evidence base from which they design policy frameworks and implement regulation that ensures they understand the complex

interactions, ecosystems, and unintended externalities that arise from the presence of location-based platforms in their countries; and

- location-based platforms should be compelled through global governance to provide more transparent innovative communication strategies and algorithmic transparency to facilitate robust and trusted working conditions.

Stakeholder cooperation is needed to improve the location-based platform ecosystem. All stakeholders in the location-based platform ecosystem (platforms, policy makers and regulators, platform workers and trade unions, and consumers) need to support interventions that can create enabling working conditions needed to promote both gender equity and improvement of working conditions for platform workers in South Africa. This requires all the stakeholders to assume social responsibilities for their impact on society. For example, customers have relatively low levels of understanding and awareness of worker entitlements

For developing countries, digital labour platforms present serious policy challenges for the future of work in the on-demand economy. Moreover, implementation of data-driven algorithmic decision making in different ecosystems reveals that technology is not neutral; algorithms are biased in nature and are prone to creating new forms of discrimination or exacerbating existing inequities. This highlights the need for concerted efforts for targeted policy integration of digital policy with other "offline" policy frameworks, such as labour and education policies. Addressing fundamental "offline" challenges, while addressing broader data policy and algorithmic governance requirements in a mutually reinforcing manner, can accommodate mitigating harms associated with digital and online-sourced work and ultimately enable shared prosperity from digital dividends.

1. Introduction

In many developing economies, location-based platforms that coordinate demand and supply for services through manual labour have been viewed as a panacea to growing unemployment— with potential positive spillover effects that could boost investments in soft and hard information and communication technology (ICT) infrastructure in these nascent digital ecosystems (Kiosken et al, 2018). Location-based platforms have the potential to create opportunities that offer an alternative to traditional employment, yet these opportunities are overshadowed by challenges and risks that are inherent in the digital economy (UNCTAD, 2019). For many platform workers, these challenges include poor working conditions that are regulated by terms of service agreements[1] (as opposed to employment contracts), that fail to account for low income, often precarious work, no social protection,

[1] Terms of service agreements are contracts that define aspects related to working time, pay, customer service etiquette, applicable law and data ownership, among others.

and lack of agency and privacy. Moreover, the potential consequences of unregulated algorithmic management of work organisation and working conditions suggests that the algorithmically managed tasks may accelerate and exacerbate existing precarious employment dynamics (Danaher, et al.,2017; Casilli and Gutierrez, 2019).

As reflected in the key findings (section 5), patform workers must often work longer hours, accept lower pay, and assume greater risks in order to compete for jobs on these platforms. The following section examines the main characteristics of the gig or 'on-demand' economy to contextualise the key findings in section 5, which assesses the experiences of workers who work on location-based digital labour platforms in South Africa.

This research was undertaken as part of a wider global South study across Sub-Saharan Africa (SSA) , Latin America , and SouthEast Asia on the FoWiGS project.[2] The aim of the project was to identify the nature of multidimensional inequalities in developing countries and understand the extent to which involvement in the digital economy closes, reproduces or widens existing inequalities, especially for marginalised groups. Building on findings from the 2020 FoWiGS Quantitative Report (QR) and the 2018 report on microwork across seven African countries[3], this study explores some of the qualitative dimensions that arise and cannot be quantified and/or explained by these quantitative analyses of data from the 2018 After Access Survey. The key main findings from RIA's previous research on the gig economy are as follows:

- with the low level of Internet penetration on the continent, adoption of 'platform-work' in SSA is highly constrained. Most of this work is undertaken on location-based platforms, where tasks are sourced online but carried out "in-person" by workers within certain geographical boundaries (e.g., such as e-hailing, e-delivery or domestic work);
- the main motivation to participate in the digital labour market is highly correlated with income and women are more likely to be motivated to work online to increase or supplement their income than increase skills;
- the QR reveals that there are still differentials in income between males and females who participate in the on-demand labour market. The income wage gap favours men with male platform workers having higher income than females who also participate in the same type of work, with the same level of digital capabilities. There are also employment characteristics that cannot be explained by the data or modelling of it, that widen the gender income gap;

[2] Aguilar et al (2020): Future of Work in the global South (FoWiGS): A gender assessment across 20 countries in the Global South https://lirneasia.net/2020/10/future-of-work-in-the-global-south-digital-labor-new-opportunities-and-challenges-working-paper/

[3] Both the FOWIGS study and the microwork report used the dataset from the After Access survey conducted across 10 African countries between 2017 and 2019.

- there are noticeable gendered divisions in the type of work and digital labour platforms commonly used by men and women. For instance, riding/taxi/delivery services are predominantly carried out by men rather than women; and
- the on-demand economy exhibits new features that disrupt, but overall it represents the continuation (and in some cases deepening) of long-standing structural and gendered inequalities.

These results indicated that further research was required to investigate the unmeasurable characteristics that perpetuate gender differentials as platform workers interact with digital platform intermediaries. This is particularly the case for SSA, which has the largest stock of low-skilled workers often engaged in informal and low-productivity activities, and where women are overrepresented (Choi et, al, 2020; Hunt and Samman, 2019).

The purpose of this study then was to understand how the working conditions imposed by platform business models amplify and exploit inequalities. From an intersectional perspective it seeks to understand the nature of inequality in relation to class, race and gender in order to identify the required points, and feasibility, of regulation.

Concerted measures are needed to ensure that conditions for addressing longstanding inequity that have been compounded by the COVID-19 pandemic and lockdowns. These are necessary in order to navigate the current on-going pandemic disrupted landscape, as countries formulate ways to “build back better” for a more inclusive, resilient society grounded by economic justice and shared prosperity from the emerging data-driven economy.

Having provided this brief introduction to the project, the next section describes the location-based platform model, and provides insights from the QR context to understand: multidimensional inequalities in the labour market; the gendered division of labour in platform work; harms that arise due to data use and algorithmic management in the on-demand economy; and the interaction between the platform, the customer, and platform worker. This information provides context that supports the key findings from the focus groups. Next we explain the methodological procedures that have been applied to conduct the qualitative study. Section 5 presents the key findings from the focus group discussions. And lastly, this report ends with conclusions and recommendations where we advocate for an ecosystemic approach which requires all stakeholders that are part of the platform economy (platforms, policy makers and regulators, platform workers and trade unions, and consumers) support interventions that can create fair working conditions needed to promote both gender equity and economic justice for platform workers in South Africa.

2. Classification of platform work

Over the past few years, as on-demand platforms offering digitally sourced labour have proliferated, so have the terms and usage for the different types of labour brokerage and services offered by platforms, with the same terms often being used to refer to different activities or functions. Almost a decade ago when the first 'microwork' platforms were emerging, led by Amazon Mechanical Turk, all online labour was referred to as 'microwork' and sometimes 'crowdsourced work'. A much later 2018 International Labour Organization (ILO) report however usefully distinguishes microwork platforms as:

> Microtask platforms are a type of web-based labour platform that provide businesses and other clients with access to a large, flexible workforce (a "crowd") for the completion of small, mostly clerical tasks, that can be completed remotely using a computer and Internet connection… Clients use the platforms to post bulk tasks that need completion; workers select the tasks and are paid for each individual task or piece of work completed. The platforms pay the workers the price indicated by the client minus their fee. (p.xv)

At the time that RIA prepared the nationally representative After Access survey of ICT access and use in 10 African countries, it was these activities that it was seeking to capture in its microwork module which sought to understand the opportunities and harms of online work. What the data revealed was that the extent to which online work could ameliorate the widespread un- and underemployment that plagues the continent was severely hampered by access to the internet and that the kind of microwork being undertaken in the global North and even in Latin America and parts of South East Asia required the levels of digital literacy and education not widely available on the continent. What the survey did find was that the relatively low numbers of people with smart devices who indicated they were platform workers were predominantly undertaking digitally sourced manual labour. In this sense, they were providing substitute services to those traditionally offered by taxi companies, or full-time domestic workers and gardeners and so on. What the data also confirmed was that this digitally sourced manual labour was undertaken by people with lower levels of education and income. Microwork understood as online completion of a piece of a bulk task such as data gathering or inputting, surveying or monitoring, was undertaken by very few of the respondents outside of South Africa and to a lesser degree Nigeria and Kenya and was performed by more educated people with higher incomes.

This distinction is usefully captured in the 2021 ILO World Employment and Social Outlook report which classifies digital labour into two broad categories, 'online web-based' and 'location-based' platforms:

> On online web-based platforms, tasks or work assignments are performed online or remotely by workers and include carrying out translation, legal, financial and patent services, design and software development on freelance and contest-based platforms; solving complex programming or data analytics problems within a designated time on competitive programming platforms; or completing short-term tasks, such as annotating images, moderating content, or transcribing a video on microtask platforms. The tasks on location-

> based platforms are carried out in person in specified physical locations by workers, and include taxi, delivery and home services (such as a plumber or electrician), domestic work and care provision. (p18)

This report is primarily concerned with location-based platforms.

3. Context

Spurred by the increase in broadband connectivity and innovations in ICTs in the global South, the rise of digital platforms has impacted many labour markets and led to the emergence of new forms of work. These are characterised in the literature by dynamic business models that collect customer and worker data and use it to facilitate efficiency and enhanced productivity, achieve wider market reach and new labour processes that impact the nature of work as we know it (ILO, 2021; World Bank, 2015). Other features of digital platforms highlighted in the new business models include scalability and network effects, datafication, asset-lessness, elasticity and innovation. Many of these characteristics can be found in the global location-based platforms dominant on the Africa continent. Presented as disruptive and creating a break with past labour processes, the findings of the After Access survey and this study highlight the blurring of offline and online labour markets. Arguably, changes in the labour process on location-based platforms can be better understood as outcomes of digital-intermediation of traditional offline work than completely novel forms of digital work.

2.1. Datafication and algorithmic management fuel on-demand digital labour platforms

Data-driven business models and algorithmic management[4] are the two distinct features of digital labour platforms. These features allow them to regulate customer-worker interactions and provide platforms with the ability to use and process the massive amounts of both aggregated and personal data collected directly or indirectly[5] from app users (customers and workers) (ILO, 2021; Galperin and Alarcon, 2018). Data collection also strengthens the platforms' surveillance powers. As shown in section 5.5, this can have significant implications for workers' privacy (even between work activities). The use of data analytics and algorithmic decision-making that may have no human involvement has significant implications for platforms workers since they are used for dynamic pricing (which impacts workers earnings), job allocation, and the deactivation of workers with low customer ratings (Choudary 2018).

[4] An algorithm is a 'process or set of rules to be followed in calculations or other problem-solving operations'. Algorithmic management, therefore, refers to the use of 'computer-programmed procedures for transforming input data into a desired output for controlling functions in an organisation (Kellogg et al., 2020).

[5] Indirect data collection takes place through cookies, web beacons, or embedded scripts, or through third parties such as Google Analytics, social networking services or business partners.

Surveillance of workers with the use of geolocation data, even between work activities, violates their privacy. In South Africa, while there are instruments such as the Protection of Personal Information (POPIA) Act 4 of 2013 to provide data subjects with a range of rights over their data that allow them to exercise considerable control over it (rights of access, rectification, portability etc), workers on digital labour platforms still face more data-related risks and limited ownership due to privacy policy terms that are embedded in their terms of service and the jurisdictional challenges faced in enforcing domestic law on corporations without physical presence in a country or with business registrations in other countries .

Over and above issues related to privacy and economic rights over data, another core challenge is that the business models that drive many of these platforms allow them to create substantial network and scale effects on aggregated data collected, where the platform is able to offer better services and product offerings by virtue of having more users on their platforms. As a result, platforms that are first to market such as Uber are able to lock-in customers with these advantages which allow them not only to provide defined platform services (better safety checks for cars and drivers, track trip, ride-share) , but also to dominate entire ecosystems through vertical and horizontal integration into ancillary sectors (e.g. UberEats). (WDR, 2021). These network and scale effects can exacerbate dominance, control, and inequality that already exist in various growth enhancing sectors, particularly for many developing countries where these major global platforms have already attained a utility-type position in the data ecosystem (ILO, 2021). From a driver's point of view, in the case of Uber and Bolt, as the South African focus groups showed, the barriers to entry may be raised for some to join certain platforms associated with high quality service for which customers are willing to pay a premium. The trans-jurisdictional nature of global digital platforms may also create cross-border issues related to data rights and the privacy of data collected, used and stored of both workers and consumers. (UNCTAD, 2021).

Similar to other developing countries, South Africa also has no legislation or institutions to comprehensively regulate digital platforms. While institutions such as Competition Commission have indicated public interest in creating competition law provisions to regulate digital platform intermediaries,[6] and legal instruments such as the Companies Act, 2008 and Labour law (Basic Conditions of Employment Act, the Labour Relations Act, and the Employment Equity Act), that respectively govern registered companies and provide guidelines that support fair work, they are inadequate for monitoring and regulating dynamic digital platform intermediaries that rely on intricate, multi-layered, and ultimately hierarchical interactions to thrive in ecosystems where they are established (Gillespie 2010).

[6] https://www.compcom.co.za/wp-content/uploads/2021/02/OIPMI-Draft-ToR-19-02-2021.pdf

These different elements combined with the interaction between customers, workers, and the platform itself play an important role in shaping working conditions on digital labour platforms. For example, if a worker's performance does not meet the standards embedded in the algorithm, this can result in them not receiving any work or deactivation from the respective platform.

The use of data enabled by labour platforms has circumvented many existing regulatory approaches across the globe. This has led to potential gaps in terms of liability, consumer protection and the protection of fundamental rights (UNTAD 2019). Understanding and identifying the potential shortcomings or problems in the use of algorithmic management systems ensures that these systems are designed and implemented in a way that safeguards against user risk and still ensures the transparency and legitimacy of the system (ILO, 2021).

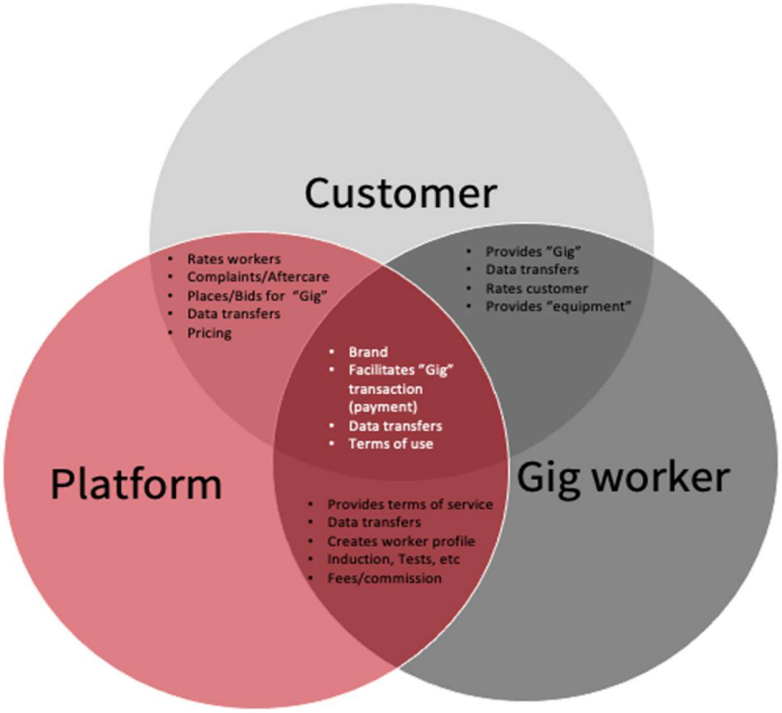
2.5. Complex interactions exist between the customer, platform worker and online platform

As described above, on-demand work platforms act as algorithmic matchmakers for services and define the temporary relationship between service providers and recipients. As shown in Figure 2, the nature of interaction between customer, platform worker and online platform can be grouped into four main forms of contact between the customer and platform, the customer and platform worker, platform and platform worker and an interplay between the platform, worker and customer. The interaction between the platform, workers and customers overlaps in a complex relationship facilitated by a virtuous data cycle that has bearings on platform workers' working conditions (ILO, 2021; Galperin and Alarcon, 2018).

These dynamic interactions, often facilitated by complex algorithms and variable platform designs influence how platforms operate in terms of price setting and remuneration mechanisms and treatment of workers on these platforms. For example, on many e-hailing platforms, during high demand periods, platforms use surge pricing algorithms that allow them to adjust the ride fare based on customer demand and supply (Hall et al,. 2015). Alternatively, during low demand periods discounts and promotions are offered to customers to incentivise platform use. As revealed in the focus groups this has consequences on drivers earnings.

As shown in Figure 1, these interactions vary across platforms and are often a seamless transaction that involves all three parties, or alternatively only involves a combination of two parties. See Annexure A for further detail.

Figure 1: Nature of interaction between customer, platform worker and online platform



Source: Augmented from IES,2017

Multidimensional inequalities impact who benefits from digitally mediated labour markets

The findings from the After Access survey and the QR report together with this study highlight the intersectional dimension of inequality in South Africa that are manifested in the labour market. Those most marginalised from and vulnerable in the labour market are those that exist at the intersection of class, race and gender. Their precarious position in the labour market cannot be simply explained only by individual choice, but result from the structural distribution of rules, standards and assets, and by the different identities of their society (Aguilar et al,.2020; Crenshaw, 1998; Folbre, 1994).

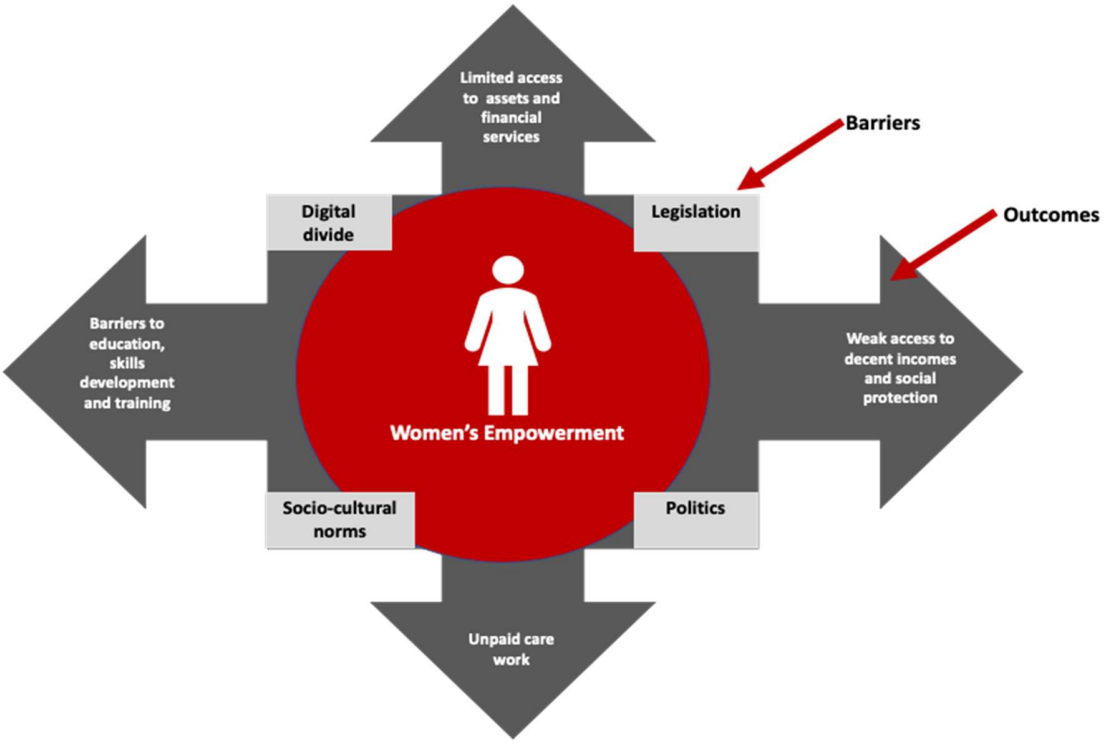
This viewpoint enables an examination of intersections that impact socioeconomic disadvantage and how access to opportunities are influenced by multiple overlapping identities embodied in society such as sexuality, gender, class, race, ethnicity, and physical ability. These factors are often long-standing socially constructed identities imposed on individuals and are not dependent on people's will or choice. For example, there is intersectional inequality of opportunities (e.g., being poor and a woman) when the distribution of indicators of well-being (income, education, employment, health) depends on the circumstances and factors of individuals that are beyond the individual's control (Arneson,1989; Roemer,1998).

Due to the gendered nature of the digital divide, women face significant hurdles to participate in more "formal" labour markets, such as those provided by the on-demand economy. Women are less likely to own internet-enabled mobile devices and are overrepresented in the survivalist informal economy

(Gillwald et al, 2019; Rogan and Alfers, 2019). Women are also underrepresented in other indicators such as digital capabilities and to some extent adequate education and skills (English and financial literacy) necessary to make use of tools that are often used on digital labour platform applications, such as global positioning system (GPS) satellite-based map navigation systems, as well as for reading different features related to fees, income, and customer requests and instructions.

As shown in Figure 2, these variations in representation between men and women could be due to multiple barriers in local labour markets that produce outcomes that create women's weak economic agency in terms of access to decent income and social protections and women's limited ownership and control of assets such as motor vehicles and smartphones that ultimately influence their socioeconomic mobility and access to opportunities in labour markets (Raman and Kulkarni, 2021; Hunt and Samman, 2016; Nyokangi, 2014).

Figure 2: Factors that reduce women's empowerment in labour markets



Source: Augmented from ILO, 2013 and Hunt and Samman, 2016

2.2. Gender segregated divisions of labour influence platform work

One of the main benefits associated with the data-driven digital economy is the potential to create equal opportunities for marginalised groups based on skills, expertise, and output rather than demographic indicators (Zhang et al, 2019). However, as demonstrated in section 5.3, while flexibility was one of the major reasons to undertake platform work, women's unequal and often rigid position in

the household as carers and the vulnerabilities they face in the labour market are incompatible with the requirements of constant availability and instantaneous (on-demand) responsiveness, and the precariousness and uncertainty of the platform economy (Piasna and Drahoukopil, 2017). Evidence from the QR suggests that gender inequality in the on-demand economy manifests in two distinct outcomes:

(i) Differences in the type of platform work carried out between men and women; and

(ii) Income wage gap differentials between men and women who have the same professional skills (e.g., academic qualifications and experience) and perform similar tasks.

In the South African context, the rise of on-demand domestic work perpetuates unequal historical power relations emerging out of discrimination and exploitation against low-skilled female job seekers who are already more vulnerable in traditional domestic work, a sector prone to informality, precarity and exploitation (Hunt & Samman, 2020). These labour dynamics are perpetuated not only by inadequate enforcement of legislation to facilitate women's movement into technologically mediated workforces but also due to the gendered digital divide and the perpetuation of structural and operational barriers that promote the gendered division of on-demand work. These divisions of labour could be worsened by the use of unregulated algorithmic management, which is ubiquitous in the platform economy. For example, gender-biased algorithmic management systems based on existing unrepresentative data sets could result in lower quality of service, unfair allocation of resources, asymmetries in information and opportunities, and potential reinforcement of existing offline harmful stereotypes and prejudices (ILO,2021).

2.3. The precarious nature of on-demand work in South Africa

The dichotomy of the South African economy is reflected in its relatively highly developed internet infrastructure and market innovation, which is starkly contrasted by high levels of unemployment (particularly amongst low skilled workers), informality, and extreme inequality (World Bank, 2018). These structural economic defects arguably facilitate the emergence of the on-demand/gig economy, which for the purpose of this paper is defined as a labour market facilitated by (often multinational) digital platform intermediaries that provide a technology-based service through a website or smartphone that connects customers and workers. Platforms emerge as an outcome of long-term social and economic efficiencies in markets that require alternative methods for organising human productive activities (Casilli and Guiterrez, 2019).

The type of labour relations mediated by digital platforms spawns a variety of working arrangements which do not guarantee fundamental worker rights such as paid leave, retirement, safety, and the right to be paid fairly for one's contribution (ILO, 2021). Workers whose work is mediated through such platforms face overlapping challenges such as labour supply exceeding demand, limited social protection and income volatility (ILO, 2021;Galperin and Alarcon, 2018; Graham et., al, 2017). The

benefits of these platforms are not as frictionless as often portrayed. There is growing evidence that employment in the on-demand or gig economy can replicate offline patterns of labour exploitation particularly for lower skilled individuals who manage to find (low quality and low paying) work online (Anwar & Graham, 2021; Bukht & Heeks,2018; Galperin and Alarcon, 2018).

The 'taskification' of work also reduces human activities to the smallest conceivable unit of execution in order to generate data and to allow algorithmic matching of workers and customers, facilitate interoperable time-sensitive interconnections, and value capture from data (Galperin and Alarcon, 2018). Furthermore, evidence suggests that the very high turnover rates of platform workers in a twelve month period is indicative the work may be associated with lower job quality and exploitative work conditions (Farrel and Grieg, 2016). These risks where magnified as COVID-19 pandemic anti-contagion measures reduced demand and earnings for e-hailing and homecare services, while in contrast those in the e-delivery sectors (mostly groceries and food delivery) experienced an upsurge in demand as brick-and-mortar stores adjusted to e-commerce as an alternative (Ahmed, 2020).

While it can be argued this downward pressure on labour standards that breeds precarious work will apply across the entire workforce engaged in new forms of (digital) work, existing gender differences are likely to be reproduced because of women's more vulnerable position in the labour market (Piasna,2017, Hunt and Samman, 2016).

3. Methodology

The overall findings from the QR demonstrate that the platform work phenomenon is not homogeneously efficient nor conducive to a frictionless or equitable labour market in the global South. Moreover, in the context of multidimensional inequalities and non-quantifiable factors such as culture or tradition, which have an impact on women's livelihoods and economic agency (Hunt and Samman, 2016), further research is required to understand the patterns revealed in the QR, particularly in the African on-demand economy. These have implications that shape how the growing platform economy evolves in South Africa.

A number of lines of enquiry were developed for the focus groups that drew as indicated on the previous quantitative analyses, but also emerged from the desk research:

- Motivations for working in the platform economy;
- Working conditions across different location-based platforms;
- Privacy, safety and security measures of workers data;
- Impact of the on-going COVID-19 pandemic; and
- Gendered division of labour between location-based platforms that offer different services.

The use of qualitative techniques are used to complement the quantitative research. Adopting a qualitative research approach to complement the quantitative assessment permits the exploration of questions that may have been omitted in the survey or that are not quantifiable, such as cultural issues

and social norms, which result in employment discrimination and negative perceptions based on gender stereotypes, and ultimately affect remuneration. The study consisted of two methods, namely focus group discussions and desk research.

3.1. Focus Groups

Focus group discussions were designed and implemented to capture variables that impact socio-technical experiences as a method to gain insight into factors such as discriminatory experiences, personal information management, time use and flexibility, and the relation framework with customers, employers and employees, amongst others. A snowball sampling approach was used to draw participants known to each other into interviews from different forms of work. The discussions were recorded, transcribed and coded. Transcript coding analysis was used to capture emerging themes based on the transcripts from the focus group discussions. All responses to questions asked in the focus group facilitation guide were coded and internally triangulated to establish patterns and anomalies. Further detail on the methodology can be found in Annexure B.

3.2. Desk Research

Desk research was used to identify the dominant on-demand platforms that operate in each city based on the three most common categories of platform work identified in South Africa—e-hailing, e-delivery, and domestic work. Public information from credible resources was used to provide further evidence that could be used to support thematic findings (such as the provision of technology mediated services for workers).

3.3. Research Questions

On the basis of the non-measurable factors which arose from the QR that reflect inequitable participation by women in the platform economy, the qualitative study sought to answer the following research questions:

a) How do the working conditions that arise from the data-driven business models of location-based labour platforms impact on workers?
b) What attracts workers to platform work and what are the benefits and challenges?
c) Are there gendered factors that contribute to working in the on-demand economy?
d) Is there a definitive gendered division of work assigned? Does this division impact remuneration, attrition and uptake of jobs for women? and
e) Are there barriers to entry that prevent new workers from gaining a foothold on the platform? To what degree are these gendered?

4. Key Findings

The precarious nature of on-demand/gig work is well documented, particularly work facilitated by multinational location-based digital platforms, such as Uber, Mr Delivery, and Bolt, amongst others which lack job security and consist of uncertain employment status since workers are classified as "independent contractors" (rather than employees) on a non-permanent basis. These workers are hired to deliver services consisting of short-term tasks, often contracted through terms of service agreements. (ILO, 2021)

The business models adopted by many location-based digital platforms are facilitated by technological innovations such as artificial intelligence (AI), Internet-enabled mobile devices, and advances in cloud infrastructure (storage and cloud computing). These have enabled platforms to simultaneously reduce operating costs and create value from data[7] and metadata[8] at speed and scale to power algorithms in real-time which dictate prices and fees, allocate tasks, schedule jobs, evaluate performance and manage overall interaction between the worker, the customer, and the location-based platform (Sheriff 2018; Hall, et.al, 2015). These dynamics impact the working conditions that workers face.

The common themes across the different types of platform work were summarised with considerations for geographical, gender, and work-type differences, where any appear. The themes included issues ranging from motivation for digital work; ease of entry onto the platforms; work conditions; current and future support required; gender differences, to the impact of COVID-19, among others. The following key findings were captured.

4.1. Varied reasons motivate working in the platform economy

The digital economy, particularly on-demand location-based platforms, could potentially provide alternative forms of work to alleviate mass unemployment in many countries. Such platforms may offer opportunities particularly to people that face unequal access to income-generating opportunities or endure systemic barriers to entry in traditional labour markets. However, while these platforms have created additional income-generating opportunities for many workers, they have also raised concerns across the globe about the multitude of challenges and risks associated with this type of work (Casilli and Guitierrez, 2019).

[7] Data can be described as any information about the users requested by the platforms or volunteered by the individuals: a name, a telephone number, a password, but also the likes on specific content and the messages in someone's inbox.

[8] Metadata are information about other data: for instance, a tag on an Instagram picture, the IP address attached to a Wikipedia edit, or the description under a YouTube video.

Gainful employment and income was a prime motivating factor for many workers. Other key motivating factors included the lack of alternative employment opportunities and flexibility. When asked about prior employment the majority of respondents across the different work types – e-hailing, e-delivery, and domestic work types – all indicated dissatisfaction with previous work. As one Uber drive in Johannesburg explained:

> *The reason I came here is because this [previous] company was not paying me well and here I was making money [on the platform - Uber]. I was making good money at the time, and I could work anytime that I want to. I chose this work, there was no force.*- Uber driver, Johannesburg.

Moreover, respondents indicated that income levels have gradually declined compared to the initial years after joining their respective digital platforms, thus it has become a less lucrative means of income. According to respondents, due to "overcrowding" on the platforms, they have to work much longer hours in order to earn a sufficient income. When asked why they continued to stay on these platforms, the respondents indicated two main reasons: the hope that income levels will go back to the way they were, and limited alternatives for viable employment/income in the current economic climate.

4.2. Nature of barriers to entry vary by type of platform work

This section sheds light on the prerequisites and processes required for one to join the location-based platforms and the perceived degree of barriers to entry constructed by the platform. A matter of interest was respondents' feedback on the degree of flexibility amongst e-hailing platforms in terms of requirements. For example all platforms require vehicle registration certificates. Bolt and Uber also require insurance. Uber further requires vehicle inspection (road worthiness) certificates, vehicle operator discs (checked annually) and taxi operator licences (also referred to as a permit). Also, Uber only accepts vehicle models manufactured from 2011, while Bolt and InDriver accept relatively older models (from 2008).

With regards to driver requirements, Bolt drivers only require a driver's licence to qualify. Overall, the enforcement of driver or vehicle requirements is not as stringent. Consequently, drivers and/or vehicle owners capitalise on these weaknesses in the verification and/or enforcement processes. Respondents peppered the inputs with incidences of drivers using aliases to register on inDriver and instances where drivers 'swop' or 'rent out' their profiles. As one respondent put it:

> *Our Bolt profiles or InDriver, it's either we throw them away or we rent it to some people without South African licence.* – Bolt driver, Cape Town

Immigration status is not a requirement for e-hailing and e-delivery platforms (unlike domestic work), therefore barriers to entry are relatively low. While these requirements are perceived relatively low barriers to entry, respondents encountered challenges, including long waiting periods in the issuing of operating permits by municipal authorities. In addition, their operator discs do not state the area in which they operate (as is the standard for public transport permits), resulting in challenges with the police.

> *I think the problem is the permit. You can register for a permit and even wait for four years. Until now I am still waiting for my permit. They just put your name on a board and give you a receipt. And when you have that receipt, it does not exist to the police. The police when they stop you need the permit from the 'glass house' [municipality]. Our permit does not state a route and the police require that.* — Uber driver, Johannesburg

Relative to the requirements of the other types of work (ride hailing and e-delivery), the barriers to entry for domestic work are higher by virtue of additional identification requirements and qualifying assessments. Table 1 below is a summary of the perceived degrees of barriers to entry across the location-based platforms.

Table 1: Overview of requirements and degree of barriers to entry by type of digital work

Type of digital worker	Requirements	Barrier to entry
Domestic workers	▪ Applications: Online with an in-person interview *Applicant Requirements*: Personal documents (asylum, account number, passport, grades for grade 12); Written/online test (certificate provided); R100 for police clearance (fingerprints taken at local office); RSA ID or work permit; and Training.	Moderate
E-hailing drivers	Applications: Online	Low

	Driver Requirements: Background/criminal check; Professional Driver Permit (PDP)[9]; Driver's licence; Driver evaluation; A photo . *Vehicle Requirements:* Certificate for vehicle/vehicle document; Insurance; Operator disc; Taxi operator licence; Roadworthiness certificate; Background/criminal check.	
E-delivery drivers	Applications: Online with some instances of in-person submission of required documents. *Driver Requirements*: ID document; Drivers' licence; Staff uniforms; Background/criminal checks.	Low
Sources: Focus Group discussion, Johannesburg and Cape Town, South Africa. 2021		

4.3. Gendered division of labour between location-based platforms that offer different services

The ubiquity of remote work and fast-paced digital transformation is often seen as a boon to strengthen the position of women in the labour market, since more flexible work arrangements may make it easier to combine paid work with caring responsibilities which are still more often taken on by women. However, there is mixed evidence on the impact of digitally mediated platforms on multidimensional gender gaps, since the work is often mandated by socio-cultural norms, where the burden of unpaid care work is still predominantly faced by women (Hunt and Samman, 2019). For example, women are more likely than men to be motivated to carry out platform work as they can only work part-time or flexible schedules because of a "family, education, or health reason" (Piasna and Drahokoupil, 2017).

Paradoxically, these same factors prevent them from devoting long hours to their jobs and perpetuate prevailing gender norms in the occupational segregation of tasks. These dynamics are exacerbated by precarious work arrangements offered by location-based platforms that may also reduce job quality and traditional labour protections. The findings reveal that this type of work perpetuates gender barriers—domestic work tends to be female oriented while e-hailing and e-delivery work is often a male-dominated labour network. Safety and security were also cited as another significant barrier for limited representation of females on e-hailing and e-delivery platforms. E-hailing and e-delivery drivers stated that their type of work was male dominated due to a lack of safety associated with the work.

> *The main issue is safety. Imagine you can get robbed or hijacked at any time. They can kill or rape you at any time. It's a dog eats dog kind of situation.*— Uber Driver, Johannesburg

[9] A PDP is required to drive on a public road in South Africa transporting goods, dangerous goods, or passengers for an income.

Another reason cited is the fact that e-hailers and e-delivery drivers work long hours, which was viewed by discussants (all men) as not being compatible with women's roles, especially if they have a family or are married.

> *Safety is very important but remember our ladies, some of them are married, they need to take care of the house. You know it's different in our society men can go and work until 10 at night but a woman is at home; maybe they have got a kid or two kids you have to take care of them as well. You cannot be out at night so, ja, if you are in a marriage a lady cannot be there. A man you could take that risk and start working.* – Uber Driver, Cape Town

In such a situation, women are believed to be at a disadvantage if they do not work long hours and are not able to meet the requisite targets, especially if they do not own the vehicle.

> *The first thing is about safety, the second thing is that this job you have to stick like for more than 12 hours to get the amount that you can be satisfied. So you see the women most of them have responsibility, they are mothers, they are breastfeeding their children, they can't afford those 12 hours. Even [if] they work hard, actually tomorrow they gonna be sick.* – UberEats Driver, Cape Town

According to respondents, there are a variety of reasons why domestic work is female oriented:

> *I think it's both, but mainly women know what to do when they are in the house than men; and then we also have clients who have children who need help, so it's obvious they need a woman*. – SweepSouth. Domestic Worker, Cape Town

4.4. Discontent with working conditions across platforms

Respondents believe that more can be done to improve their working conditions. On the one hand, internally they would like a standard agreed fee or regulations to offer social protections and conditions that comply with minimum wages, health insurance, life cover, unemployment benefits (UIF) and death benefits, to name a few. Other alternatives to improve work conditions suggested by the respondents was that there should be a limit on the number of people working on platforms in order for the work to remain viable.

A matter of interest is that in South Africa, while so called "national champions" in terms of location-based platforms such as SweepSouth (housework) and Takealot (e-delivery) have relatively different

terms of service that vary from those implemented by global location-based platforms, the commonality is that the multi-sided business models adopted by these local entities still benefit from existing legal loopholes and regulatory arbitrage. These loopholes allow them to circumvent local labour relations rules including minimum wages, safety requirements, and unemployment insurance by treating employees as independent contract workers. This classification was challenged by civil society groups that believe that rights of Uber drivers are protected by the Labour Relations Act (Mudongo and Chinembiri, 2021).

Informed by the established motivations for joining these platforms, the respondents provided accounts of their everyday work environment and the prevailing conditions. The following highlights the key findings across different factors that influence working conditions. These conditions were categorised into issues that range from platform support in terms of administrative staff and communication effectiveness to basic employment benefits, if any.

> *Uber should have limits on taking numbers [of drivers]. They should also verify because there are a lot of people who started the platform who are still active but have not been driving for 2 years of 3 years and there is a lot of them.*— Interview with Uber Driver, Cape Town

Outcomes of court action against platforms such as Uber for better working conditions, employee rights, and social protections often end in claims that regulating these multinational platforms do not fall within South Africa's jurisdiction. These different elements play an important role in shaping working conditions associated with various location-based platforms. Globally, there have been calls from mainly e-hailing workers but more broadly from academics and labour rights advocates and the ILO for regulation of the industry and intervention by the government. According to e-hailing respondents in Johannesburg, attempts to have their concerns heard by the government through strike action have been fruitless. As one respondent explains:

> *How many times have we gone to strike at the government offices? They just keep quiet. No, we are still investigating. How can you still be investigating? Maybe it's four years now. They are investigating how these platforms operate. When I come to a country, I come with a business plan and the government collects tax. So, a government knows*. – Interview with Uber Driver, Johannesburg

E-hailing drivers in Cape Town stated that they were less inclined to strike as most of the drivers were non-South African:

> *We don't demonstrate in Cape Town here mostly because 95% of drivers are foreigners. In Joburg they are South Africans, that's why they have the guts to do it*. – Interview with Uber Driver, Cape Town

Externally, platform workers believe that there is more that can be done by government to regulate the industry and improve their working conditions. Internally platform workers would like the respective platforms to change the existing pricing models and to introduce a minimum wage that is in compliance with government regulations:

> *They need to do some kind of background check also, we need our daily rate to go and also if they can they are a big company: we need transport. It is either they give us transport money, data money or an allowance of some sort. We need that. Or just a basic salary for transport and data because in December some other companies give you a bonus; we do not have anything like that*. – Interview with SweepSouth worker, Johannesburg

4.4.1. Staff Support

One of the key components in determining the quality of platform work is the terms and support which workers are entitled to. The discussions revealed that there is limited local support from platforms and it was noted that most of the support was provided online and appeared to be automated and machine-based, facilitated by chatbots.

> *The other issue is with the offices. I think they need to put Uber Eats offices here in South Africa because some of us depend on Uber for support our families. Because of silly complaints from the customers, the next day I get blocked and what happens to my family? There has to be an office where they review all those issues and there has to be a disciplinary process for the drivers in the office. So, I can say it is job security*.— Interview with Uber Eats E-delivery Driver, Johannesburg

Respondents shared their views of the degree of support they receive from their employers (the online work platforms) to enable them to work efficiently and/or to address any challenges that they may have. Overall, the view among respondents is that the level of support across the digital platforms is

poor. This also highlighted discrepancies between the platforms' policies and the actual experience of digital workers.

Respondents specifically complained about the use of chatbots citing them as frustrating because the support responses are often rigid and/or irrelevant leaving a sense of "no support" among drivers. Respondents among domestic workers also complained of a lack of response/support and in some cases long resolution times via telephonic support:

> *Because my app was not working for the last two months and then I called to the main office, and they told me I have to call the area manager, but she didn't reply to me for two or three weeks. I keep on calling because I wanted to work but she didn't reply to me and then I called back to the office then they settled the manner*. – Interview with SweepSouth Domestic Worker, Cape Town

4.4.2. Basic employment benefits

Respondents indicated that they do not receive basic employment benefits such as medical insurance, retirement benefits, life insurance, family leave, disability insurance, vacation, occupational injury and diseases compensation, unemployment insurance and skills and development benefits. It appears that this is due to the nature of their work as digital workers are not considered full-time employees and most of these benefits, by law, are entitled to "full-time employees". Furthermore, there is a general sense of a lack of empathy towards employees:

> *I think, if possible, we need people who can inform the companies that are running these businesses, if possible, to tell them that companies need to implement something like road accident fund in the event of injury etc. or if they have to go to hospital and are disabled or something and will need that support*— Interview with Bolt E-driver, Johannesburg

4.4.3. Earnings, income, discounts and fees

The expansion of location-based platforms globally has created "race to the bottom" type scenarios where dominant market players engage in price wars with new entrants to undercut their competitors' price offering. This often results in sacrificing quality standards or worker safety (often defying regulation) or reducing labour costs (ILO, 2021). Exploitation of workers occurs through various means such as opaque fee structures and remuneration, charging high commission on fees received through work facilitated by the platform, surveillance of workers, penalisation of workers who are not "superstars" and have poor customer ratings, the weighting of customer ratings against worker ratings of clients, and through terms of service agreements that fall outside of local labour laws.

The current remuneration model across all platforms is "no work, no pay". Competition between rival platforms has triggered aggressive price wars. In the case of e-delivery and ride hailing platforms this is in the form of aggressive discounts on the trips. Both Uber and Bolt have competing cheaper priced 'Go' service options offering discounts of up to 100% to regular consumers. However, workers on these platforms are concerned about a few aspects of the discounts: Discounts, costs, and fees are only communicated at the end of the trip. This can result in significant loss-making trips for the drivers and was considered exploitative by respondents:

> *One of our biggest challenges of these e-hailing platforms in pricing and discounts etc. is dishonesty and transparency. For instance, I think it was two months ago and I gave someone a ride for R50 and gave a tip on top and the kms changed but not a lot. When it came to my statement, the tip wasn't showing but the client was charged more because of the additional km. This is Uber by the way. But it was different to what was reflected on my receipt. I don't think you can call this a partnership. For instance, let me talk about Uber for now. Bolt is abusing us enough. Let's leave those abusers.* –- Interview with Uber and Bolt driver, Johannesburg

Noteworthy is that several incentives in the form of perks and better earnings were used to lure workers to carry out work on certain platforms. These range from high performance bonuses (e.g., the 'booster' bonus for e-delivery drivers) or higher rates (e.g., Uber Eats initially offered very high delivery services fees to its drivers) or with promises of favourable rates after a certain threshold of service (e.g., SweepSouth employees are promised higher rates once they achieve 400 hours of service or Uber drivers being paid for simply being online). Respondents believe these initial perks created a false expectation of lucrative potential future earnings for the workers:

> *And from there Uber Eats was not that busy but we used to be paid a lot. The least money we were paid for an order was R50. Just to pick up an order, today is R12 or R15. Back then we would get R50. We also used to be paid per day just to be online, probably R400 and the rest it is your own….These days we struggle a lot whereby they are kind of robbing us. They are no longer paying as before. You can say now you have to make a lot of orders, probably ten. For ten orders it's almost R200. This is how it has reduced, and most drivers are not happy*. – Interview with Uber Eats driver, Johannesburg

As highlighted earlier, competing e-hailing and e-delivery services platforms are often embroiled in price wars that include massive customer discounts. While this has enabled the dominant platforms to retain their competitive advantage, it has a significant impact on the income levels of drivers/owners:

> *I think they must check especially with what is happening on the ground, especially fuel went up three times now but still we are still earning the amount we were earning before it went up and you have to change the parts as well. The moment you ride a vehicle there is wear and tear. It needs to be fixed and all those things will cost more than what you are earning*. – Interview with Mr. D driver, Johannesburg

4.5. Privacy, safety and security measures are weak across all platforms and workers have limited agency over their own data

4.5.1. Privacy and surveillance

As highlighted in section 3.4, data collection and algorithmic governance are used to enable the services that many location-based platforms facilitate. Common data used to train and improve platform machine learning (ML) algorithms include: GPS location details, customer ratings, user communication, and even data stored on users' personal devices, such as address book information or names of applications installed, to name a few (ILO, 2021). This data is often used to develop new products, enhance efficiency and productivity, shape pricing and remuneration structures, and to evaluate and organise work; ultimately creating a "data feedback loop" where massive amounts of data is collected, stored, restructured, and analysed to create intelligence on real-time user behavioural—a valuable competitive advantage for multi-sided location-based platforms.

This virtuous data cycle allows platforms to create value from data which facilitates the functioning of the digitally enabled service in question. As a result, all respondents revealed that there is limited privacy and various forms of surveillance across all digital platforms, but particular those using drivers. For example, across all the platforms in the study algorithms assume some management functions by either automatically allocating tasks to workers via smartphones based on data such as acceptance of trip requests (the gig) and performance evaluation.

The massive amounts of user-generated data is owned, controlled and managed by the platform. Many privacy policies of platforms generally stipulate that they use the data collected for essential functionality such as to communicate with, notify, support and verify customers and workers, to provide and improve or personalise platform services, and to ensure compliance with safety and security and legal obligations (ILO,2021). This has prompted growing global concerns related to how data collected by dominant oligopoly platforms is being used, who owns the data, and how it impacts different users, as well as interventions to mitigate misappropriation of data and ensure more equitable forms of user rights over data. (UNCTAD 2021; UNCTAD 2021; Galperin and Alarcon, 2018).

Domestic work respondents stated that they are monitored and tracked by the platform and are required to "clock in and clock out" on the app. Failure to do so results in negative ratings:

> *So, when you are going to work you have to press on and when you arrive you press again so on* –- Interview with SweepSouth Domestic Worker, Cape Town

If workers receive a bad rating or are deactivated due to low ratings they do not have a right to appeal the decision. For e-hailing drivers it is commonplace for customers to be updated at every step of a trip, provided with an approximate waiting time, an estimated fare and ride duration, and have the ability to track their driver and their ride in real time through their mobile application. They are employed to work in a certain area, and even when they are not on a trip their activities are monitored:

> *On Uber Eats if I feel like going online, I just press online. But Mr. D they're gonna track you if I go to Waterfront, they will ask what you are doing in Waterfront now you are supposed to be in Rondebosch. If I am stopping on the robot like 10 mins, they will ask you the customer is waiting for their food, why are you doing this*. – Interview with E-delivery Driver, Cape Town

4.5.2. Safety and security

The lack of safety and security for e-hailing and e-delivery drivers is well documented (Fairwork 2020). While most platforms provide guidelines on safety and security such as use of safety equipment (helmets and reflective vests), and the importance of abiding to traffic laws, in the South African context there is no medical assistance provided to e-delivery workers, and food delivery is often prioritised over the driver's physical condition in the case of an accident. For e-hailing the main safety concerns relate to robberies and violent attacks that Uber/Bolt drivers face and from other players in the public transport sector (metered taxis and minibus taxis).

Uber and Bolt e-drivers and e-delivery respondents indicated that there were panic buttons located on the phones on the app that alerted the nearest emergency response security companies that are in partnership with Uber and Bolt South Africa. There was no indication of emergency support on other e-hailing and e-delivery platforms:

> *They say we must press a panic button when we are being robbed? Someone has a gun to your head. How are you going to press a panic button and when you press the panic button, they call you and they want to know if you are ok? How can I speak to you when I am getting robbed? Plus, they take your phone*. – Interview with Uber and Bolt e-drivers, Johannesburg

E-delivery drivers also spoke about the physical dangers they faced and that there was no support from the platforms in case of accidents, which were frequent. Several drivers spoke of having to report an accident as soon as it occurred so that if it was on the way to deliver the food, another driver could be sent to collect the food to ensure it was delivered within the anticipated time period. A number of drivers spoke of severe accidents where they were eventually assisted by the public to get an ambulance to hospital and where they had variously spent days and months in one case. In these instances there was no follow up call from the platform if they had managed to call in to report the accident, and no income or relief from the platform during that period.

Domestic work respondents indicated that there are no security features on the app, but some indicated that if they were challenged about terms of work or physically threatened by a client, the company was responsive to their calls. If the matter could not be resolved by the client, they were permitted to leave the situation. Table 2 below is an overview of the security and safety issues identified, as well as the available recourse/support around these issues.

Table 2: Overview of the identified security and safety issues

Type of Digital Work	Safety and Security Issues and Recourse Available	
	Issue	**Available Recourse**
Domestic workers	Background checks on customers	None. They can call if feeling threatened and typical advice has been that they leave.
	Customers that are threatening	Report and leave. However, some workers have stayed because they needed the work, resulting in some post-traumatic stress disorder (PTSD).
	[Cape Town Only] Allergies or other health issues that could impact work	Cancel/decline the job without penalty
Ride hailing and E-delivery services	Injuries during work	Advice line on the steps to follow getting help e.g., calling the police, waiting for an ambulance. No direct intervention. No adequate health, injury, or death insurance available to cover incidences despite claims to the contrary.
	Threatening/unsafe situations	Panic buttons in the app to request. In some areas, partnerships with rapid response companies ensures faster access to escorts, security, and protection. "Are you OK" feature which calls the driver if vehicle is stationary for longer than a certain time.
	Robberies, abductions and in some cases murder by rivals from metered and minibus taxis	Apologies without any tangible intervention by the client. No personal and/or family assistance in the event of death/injury. Law enforcement attitude is one of "don't go where they don't want you".

	Female drivers more vulnerable to attacks	Few women on the workforce.
	Unsafe Areas	Highlight these to the employers. Policy says drivers can opt to not deliver/service those areas but often they are penalised for cancelling or refusing customer requests in and to such areas.
		Workers have come up with alternative ways to mitigate this: request safer designated areas to deliver orders/pick up passengers. This approach is not condoned in the companies.
		Workers can cancel orders they deem unsafe, but this is added to the tally of cancelled orders which could subsequently result in being blocked from the platform
	Limited background checks Weak implementation of service requirements e.g., up-to-date insurance, swapping/renting out of profiles between drivers	Both passengers and drivers are vulnerable to criminals. No active efforts to address this.
	Safety features included in the app accessed via smartphone and the phone is often the first thing thieves go for. Drivers identify safety hotspots, but these continue to pop up on orders. Regular cancellation of such orders could result in being blocked off the app. App-based operations and acceptance of cash payments makes workers a target for criminals.	

4.6. Impact of the on-going COVID-19 pandemic

Anecdotal evidence suggests that while COVID-19 pandemic mitigation efforts increased the necessity for remote-work arrangements and online services that further reinforced the hyperconnectivity and digital interdependence of the global digital economy, the pandemic simultaneously highlighted widening inequalities and power imbalances between hyper-digitalised and under-connected regions and countries. Given the pandemic-induced disruptions in labour markets the following issues were raised.

4.6.1. Closure of physical branches

Some platforms, for example Uber Eats and Bolt in Johannesburg, closed their physical offices and now all interaction with drivers is implemented online or in some cases telephonically. Only Uber ride-hailing still has a physical office for driver "walk-in" support. This move to virtual support is fraught with challenges – complaints from respondents range from significant delays in support to inappropriate feedback from the virtualised platforms:

> *So now when COVID started it's like they shut off their offices now. If you have a problem you have to chat with them online, of which there is no one in South Africa that you can with…. When I chatted with someone who is in America, you write with him proper English, the person will respond with something that is different to your concern. Back then it was easy when they had offices. I would speak to someone one-on-one. They now shut down their offices and this online thing is not working. They are not helping as we expected them to be helping. They said the office is only open for Uber drivers and not Uber eats*. – Interview with Uber Eats Driver, Johannesburg

4.6.2. Social protection

Domestic worker respondents stated that they received financial support during the hard lockdown if they worked on the SweepSouth platform at least three times a week, but on condition they did not have an incident on their record e.g., accidental breakages. The injustice of this qualification for their receiving support undermines the value of the initiatives.

4.6.3. Health and safety risk

Although mask wearing is mandatory when interacting with service workers and in public places, digital workers lamented that most clients do not want to wear masks, which puts them at risk. Uber driver respondents indicated that they had leeway to cancel a trip if a client is not wearing a mask. While other digital work platforms were not as strict. For instance, domestic workers stated that they did not have

a choice if clients do not wear masks in their homes. E-delivery driver respondents noted that they encountered a lot of clients that did not wear masks when collecting food:

> *A lot of customers do not put on masks. A lot of customers come and say very sorry I forgot to put on a mask. So, I myself must step back or I must tell the customer to let me open the bag first and you tell them to pick up their food from the bag. 80% of the customers do not wear masks and come with their elbow on their mouth*.— Interview with E-delivery Driver, Johannesburg

4.7. On-demand platform decision-making affects platform workers and customer interaction

This section is framed by information in sections 3.4 and 3.5. which details the nature of algorithmic management that is ubiquitous to location-based platforms and the complex interaction between the platform, platform workers and customers. Further investigation was conducted to ascertain the available functionalities and capabilities of location-based platforms and how these impact the working conditions of digital workers. They included: job allocation, rating system, privacy, surveillance, safety and security features and the basic functionality of the platforms. Another concern is that often the opaque "black-box" proprietary algorithms are used to nudge, provoke, control, and constrain human behaviour through processes such as algorithmic management of surge pricing and fees, evaluation of worker performance, customer onboarding and advertising, and job allocation decisions, to name a few (Cusumano, Gawer and Yoffie 2019). For example since algorithms often modify their outcomes based on data that imitates the users' behaviour. These algorithms are fully capable of learning, reinforcing or creating new biases and might automate existing patterns of discrimination and inequity, such as inadvertently promoting gendered work.

4.7.1. Rating System

Algorithms are used to evaluate workers in platform work via reputational systems that rank workers on the basis of customer-generated ratings that create a measurable indicator of a client's satisfaction with the service provided by the platform worker. The ratings are composed based on different metrics that vary according to type of work such as service quality for domestic workers, goods hand over procedure for e-delivery drivers, and cancellation of rides for e-hailing drivers, amongst others.

While there are nuances in the number of factors consolidated to inform ratings across platforms, the common feature is that these ratings determine the amount of work assigned and level of earnings to which a worker is entitled to, since a lower rating can result in reduced work opportunities or even permanent deactivation of a worker's account from the platform. In the focus groups, ratings were another source of contention where respondents expressed the precarious nature of their working conditions in terms of lack of fair dispute resolution mechanisms to contest poor ratings and/or subsequent deactivations. Several respondents stated they discovered they had been blocked off their work platform without any prior formal communication from the platform:

> *I wish they would do this (poor customer rating). If I do complain about a rude client, they shouldn't allow that client to take my ratings down. They shouldn't do that because it's not my fault. I'm going to be unemployed and still that client is able to book somebody else* – Interview with SweepSouth Domestic Worker, Cape Town

Respondents also highlighted a disconnect between what the customer "sees" on the platform versus what is happening during the work assignment. A consequence of this, according to respondents, is that customers often unfairly rate them negatively for aspects of the work that are beyond their control. For example, according to e-delivery respondents, multiple deliveries (i.e., one driver having to collect and deliver meals for multiple customers) are common on their platforms. However, this can result in long delivery times and instances where the food is undesirable (e.g., cold) by the time the driver reaches the last destination on a multiple delivery assignment, resulting in a low rating. Respondents highlighted that more needs to be done to ensure clear communication and transparency to customers regarding aspects of the delivery process for which the driver is liable for and those beyond their control:

> *And another point I wanted to raise is two orders. You get two trips at once. So, when you start those trips, it does not notify the clients that I have got two orders. It tells both customers that the driver is on his way and if a customer. Now the first order can come out and the second order can after 30 minutes whilst the first order is getting cold. It is better that Uber notifies the customer when I pick up two orders that I am delivering to the first client and it's coming to you as they are in the vicinity*. – Interview with Uber Eats, Johannesburg

Respondents also complained about the lack of transparency and communication in the rating process. Given that these platforms often make use of algorithms to assign tasks and evaluate performance the lack of transparency may be indicative of impending algorithmic governance challenges associated with location-based platforms (ILO, 2021). While there are commonalities across platform rating systems, the following information highlights variation in ratings systems across the different types of workers and platforms in both Cape Town and Johannesburg.

Domestic worker respondents stated that the app has a functionality to rate clients and for clients to rate their work at the end of each shift. Domestic workers indicated that while they could rate clients, their opinions were rarely considered:

> *We can also rate the clients, but you know a client is always right*.— Interview with SweepSouth Domestic Worker, Cape Town

The level of rating received has a direct impact on their ability to work through the platform. A low rating automatically results in downgrade (represented by a red dot/doll on the application), resulting in less work assigned. Consistent low ratings result in deactivation and removal from the platform. Furthermore, recovering from a low rating is challenging as one low rating justifies a down-grade, while ten consecutive five-star ratings are required to be "upgraded" to resume a rating held before a negative rating was incurred. Domestic workers indicated that there are several scenarios that could lead to low ratings including: a poor rating from a difficult client; a client that rates you less than 5; cancellation of a booking by the domestic worker due to illness or any other reason; failure to finish work within the allocated time; refusal for domestic workers to do work that they are not supposed to do (e.g., hand washing clothes); and being accused of stealing.

> *So, when you finish your job, you rate the client say 4, 3, 2 they don't follow up. But, when you rate the client 1, they want to know why you rated the client 1. But if a client rates you 1, they do not ask why a client rated you 1 and… and immediately you get rated down and I think because of that red dot, it affects you from getting jobs*. – Interview with SweepSouth Domestic Worker, Johannesburg

A consequence of the rating system where "platform superstars" get preferential work allocation is that domestic workers have limited agency to rectify a negative situation and are prone to exploitation to avoid low ratings by any means. Furthermore, new recruits are essentially at the bottom of the pyramid and are exposed to more precarious work conditions and are more likely to be exploited that their counterparts who have higher customer ratings, as they face limited job allocation opportunities.

Respondents indicated this includes going to work sick; performing extra tasks beyond that they are assigned and will be paid for, and working longer hours than required:

> *For example, we are not allowed to do hand washing but at times you end up doing it to avoid getting a bad rating. If you tell the client, we are not allowed to do this and that, the client will rate you 1 for that*. – Interview with SweepSouth Domestic Worker, Johannesburg

E-hailing drivers are rated by clients after each trip. The rating system is a score between 1 and 5 stars, based on a number of indicators such as client ratings, cancellation rates, and GPS monitoring, amongst

others. The ratings impact the drivers' job allocation and thus potential income. According to e-hailing and e-delivery respondents, drivers that have a high number of low ratings are blocked and deactivated from the platform. Deactivation can also occur when drivers have failed to verify their identity, extended inactivity , or when a driver fails to adhere to a platform's codes of conduct and standards. Like domestic workers, drivers are also not usually notified prior to an account deactivation.

4.7.2. Cancellations/Unfair dismissal

Too many cancellations on a worker's profile – whether it stems from the clients or the workers themselves – can result in workers being disqualified from the platform. Respondents deemed this unfair and a process in need of greater transparency by considering the context of cancellations. Furthermore, in the event cancellations, e-delivery and ride-hailing workers claimed that their respective platforms would deduct their commissions on such incidents regardless of having earned no income and that this is something that is not communicated upfront and often something they discover on their payout statements or after the fact:

> *Let's say the client cancels the trip. Then you get another trip, and they cancel as well. They can block you for clients cancelling trips. You can get blocked for multiple cancellations on the part of clients.* – Interview with Bolt driver, Johannesburg.

Respondents from e-delivery and ride hailing services believe cancellation fees are very little compensation. This is because they are typically significantly less than potential earnings from the cancelled trip and drivers often have no way of recouping the lost income.

4.7.3. Job Allocation

An algorithmically determined performance management system that influences job allocation is a key feature in many dominant location-based platforms. Using platform-generated data such as client ratings, GPS coordinates, and worker acceptance or cancellation of tasks, these algorithms can determine working hours as well as access to future work opportunities based on the aforementioned metrics (ILO, 2021). However, findings from the focus groups reveal that job allocation varies across platforms and range from strict allocation and evaluation of work through algorithms to hybrid model that involves "humans in the loop" when making job allocation decisions.

Job allocation for workers across the different platforms is based on the workers geographical preference or current GPS coordinates. According to all the respondents, the rating system also has an impact on how jobs are allocated. While job allocation is fairly automated, across the platforms, domestic worker respondents indicated that there is human bias and prejudice involved in the allocation of jobs on the platform. For instance, area managers have an influence on job allocation.

Domestic worker respondents reported incidences of human interference in the allocation of shifts despite the existence of an automated system. Respondents indicated that this often led to incidences of favouritism i.e., those in good books or liked by the administration team would get regular and/or lucrative shifts. They also revealed incidents of paying bribes to the administration team to get lucrative shifts. There were revelations of less favourable working conditions (shifts and payment) if one is not on good terms with anyone who is a member of the administration or middle management team:

> *I wanted to tell you that I think it's because of your ratings that's why you get more booking. Sometimes it's not because you stay near or wherever you stay, but I think the clients also if they like you maybe the way you are working for them, they keep on booking you; but sometimes I don't think its automatic because sometimes you find that someone from Woodstock the job is here in Cape Town and they take that person and leave one who has good rating*.— Interview with SweepSouth Domestic Worker, Johannesburg

4.7.4. Dispute Resolution

Digital work platforms have adopted policies of "customer first" or "customer is always right" which typically entails doing what is important for them. While such an approach can be part of customer service best practices and has resulted in strong rapport with clients, it often comes at the expense of the digital workers.

Respondents complained about the lack of support from the online work providers in cases of disputes with clients as they were often expected to bear the brunt of any dispute even if it was not their fault. Furthermore, they believed current dispute channels did not consider or enable the workers to present their point of view i.e., a one-sided approach to customer disputes, leaving workers susceptible to customer bias or unfair practices:

> *Some of them when you are approaching with their food, they can dislike you and rate you down and even complain that they didn't receive his/her order, so Uber does have any concern or they do not communicate with you to get your side of the story to find out what happened. So, your ratings will automatically go down or they will block you*. – Interview with Uber driver, Johannesburg

A major pain point raised was the customer ratings system, which in the case of unfavourable ratings can result in a worker being blocked from the platforms or in the case of domestic workers getting a smaller number of work shifts and/or less favourable (lower pay rate) gigs. At present, the online

platforms accept the ratings as fact and apply them to the workers' profile without a means to verify the rating or receive input for context from the workers:

> *So, a customer can say Mapula stole my ring. I think a friend of mine on the WhatsApp group, she lost a job, they did deactivate her, and she keeps saying that I did not steal the ring but because the client is always right. Maybe the client did misplace the ring because our company mostly listens to clients. So, they did deactivate her, and she is busy sitting at home and she does not have a job.* –- Interview with SweepSouth worker, Johannesburg

Respondents highlighted several practices they deemed unfair and would need to be addressed in the future. These included that workers are sometimes penalised for following recommended or mandated procedures. For instance, if a customer refuses to accept food because it was not as advertised. When the driver calls about the problem, they may tell them to be careful next time; but, surprisingly, some respondents highlighted that the cost of the food would be deducted from their earnings. The other problem is that there is a "one-sided approach" to dispute resolution which favours clients over the workers (See Dispute Resolution section). Workers are also penalised for being innovative: operating outside of prescribed procedures, even if efficient and/or it improves the service, is more often penalised than rewarded. Table 3 below summarises the capabilities and functionalities of online labour platforms.

Table 3: Functionality and description of location-based platforms

Type of work	Functionality	Description
Domestic workers	Rating system	This is an automated system that clients and digital workers use to rate each other. The ratings subscribed to either a client or digital worker is subjective. The system assigns points depending on the level of rating, which is typically between 1 and 5, with 5 being the highest rating.
	Job Allocation	Jobs are allocated automatically using algorithms. In some cases, there is human intervention.
	Privacy and Surveillance	Systems to track movement and/or activities of staff.
	Safety and Security	Call Admin teams
	Dispute Resolution	Favours customer
Ride hailing and E-delivery drivers	Rating system	An automated system that is used by clients to rate drivers' level of service. Drivers also rate clients based on their behaviour.

	Job Allocation	Automated
	Privacy and Surveillance	Automated
	Safety and security	Panic Button "Are you OK feature"
	Dispute resolution	No mechanism
Sources: Focus Group discussion, Johannesburg and Cape Town, South Africa. 2021		

5. Conclusion and Recommendations

The socio-economic implications of labour platformisation will continue to unfold as digital uptake increases in the global South. There is evidence that the presence of global digital platforms can benefit developing countries by providing access to new technology, jobs or skills. Yet, these platforms also give rise to factors that may amplify discrimination, declining labour income share, and inequality in labour markets. These **platforms are characterised by precarious working conditions** (for those who deliver the services), a rise in corporate power and market concentration, and erosion of labour bargaining power—which make it difficult for some parties involved in these ecosystems to reap equitable gains from growth of digital platforms in the locations where they operate and earn profits.

Women face many barriers that influence their overall socioeconomic agency. Understanding social constructs and systems that influence organisation of society, including the gendering of precarious employment, is useful to inform mutually reinforcing interventions that provide more equitable outcomes in labour markets. As indicated in the focus groups these factors are exacerbated by socio-cultural barriers which women in particular face and prevent them from devoting long hours to their jobs—such as unpaid domestic and family care responsibilities as well as prevailing gender norms in the occupational segregation of tasks. The analysis of the conditions of work across platforms and the different focus groups in the two main centres of South Africa also starts to reveal how women workers are managed by platforms compared to men. **Domestic workers seem to be subject to a greater power differential with clients, and to more platform discipline**.

The results indicate that further research is required to investigate the **factors that perpetuate gender differentials as platform workers interact with digital labour platform intermediaries during the on-going pandemic**. This is particularly the case for SSA, which has the largest stock of low-skilled workers, often engaged in informal and low-productivity activities, where women are overrepresented. Thus concerted measures are needed to navigate the current COVID-19 pandemic disrupted landscape.

This is essential as countries formulate ways in post-pandemic economic and social construction to create more inclusive, resilient societies that are grounded by economic justice and shared prosperity from the emerging data-driven economy.

While there may be some uncertainty with regards to the impact for nascent digital economies, it is clear that there is a need to address the **negative labour market distortions digital platforms can generate.** Dealing with the complex adaptive global nature of platform work requires an ecosystemic approach. All stakeholders that are part of the location-based platform ecosystem (platforms, policy makers and regulators, the government, platform workers and trade unions, and consumers) should support initiatives that create the fair working conditions needed to promote both gender equity and economic justice for platform workers in South Africa.

Political will is crucial to ensure that these interventions are geared to address wider systemic barriers that people at the intersection of multiple inequalities face. This is necessary for creating more equitable outcomes and shared prosperity in both digital and offline labour markets.

Furthermore**, building an evidence base is needed to mitigate the inherent features of location-based platforms,** such as their business-models that perpetuate rising inequalities and the market power that certain global oligopoly platforms accumulate. This has implications for market structures (competition), data protection and privacy, cross-border data flows, consumer protection, and taxation in the global digital economy, particularly for developing economies that often lack the necessary prerequisites, enablers, and safeguards to create equitable digital dividends from the digital economy.

Incentives, similar to the public assessment used by Fairwork could be extended to address emerging data and algorithmic governance challenges, where platforms are audited by relevant stakeholders to ensure they meet criteria such as protecting user data, providing user data portability, and using explainable AI, amongst other requirements that are necessary to ensure trust, accountability and the responsible use of algorithmic tools to support decisions that impact labour markets and society in general. As highlighted in section 5.4, if a worker constantly cancels tasks, or if they receive a low rating from a customer, their account is deactivated by the algorithm—they are often unable to find out the reason(s) for said actions nor gain feedback of how they can improve their performance, since the platform's proprietary algorithms, such as source code, are not accessible to the platform workers nor other interested parties.

For **location-based platforms, access to the source code would be useful in dispute resolution or for monitoring unethical practices,** since in certain cases accessing the underlying source code of an algorithm can be the only way to inspect whether the said algorithm is producing anticompetitive or discriminatory results. Also, as current technological tools to monitor workers progress are radicalising forms of work exploitation and control, these should be reviewed based on considerations of privacy and surveillance and human rights laws. To prevent outcomes that ultimately undermine the effectiveness and legitimacy of beneficial and responsible algorithmic management, the State should

initiate sector-specific consultations to develop protocols for algorithmic transparency standards on how algorithmic tools are used to support decisions in key sectors.

The following recommendations are made:

- The South African government needs to a tackle the key structural constraints that inhibit online labour rights, gender equality and inclusive social protection. Concerted efforts are needed to ensure the interventions that are designed to strengthen economic justice in the digital economy simultaneously facilitate a policy and regulatory environment which is fit for purpose and contextually relevant to address existing labour market inefficiencies that are exacerbated by location-based platformisation;
- Acknowledging the jurisdictional challenges of enforcement when digital platform do not have any physical presence in the country, governments should co-operate to ensure that (multinational) location-based platforms provide a minimum set of protections to their workers, such as facilitating working conditions that align with existing relevant national labour regulations. Another intervention would be to create an enabling environment that ensures safety and security and wage equality for more women to participate on various platforms in a manner that reduces the gender gap in employment in South Africa.
- While these longer term strategies are put in place, creating incentives for platforms that comply with both international best practices such as the ILO basic conditions of service and the platforms making themselves available for assessment by organisations such as Fairwork, could be a practical solution. This can be done through official accreditation and possibly even tax discounts.
- Demand side and supply side data is needed to understand how digital technology impacts overlapping ecosystems where it is deployed domestically and internationally. Governments need to create an evidence base from which they design policy frameworks and implement regulation that ensures they understand the complex interactions, ecosystems, and unintended externalities that arise from the presence of location-based platforms in their countries.
- Location-based platforms should be compelled again through global governance to provide more transparent innovative communication strategies and algorithmic transparency to facilitate robust and trusted working conditions.
- Stakeholder cooperation is needed to improve the location-based platform ecosystem. All stakeholders in the location-based platform ecosystem (platforms, policy makers and regulators, platform workers and trade unions, and consumers) need to support interventions that can create enabling working conditions needed to promote both gender equity and improvement of working conditions for platform workers in South Africa. This requires all the stakeholders to assume social responsibilities for their impact on society. For example, customers have relatively low levels of understanding and awareness of worker entitlements.

To elicit change beyond reforms made by the platforms and policymakers, consumer conduct, consumption patterns and attitudes towards worker entitlements need to be understood and reviewed. This can be done through collecting demand side data and regulators creating advocacy campaigns related to relevant labour law, competition issues and other issues where consumer power may influence economic outcomes.

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Annexure A

Nature of interaction between customer, platform worker and online platform. Based on Figure 1, the following detail explains the interaction between the customer, platform worker and online platform:

The customer and platform: The platform uses data generated by the customer such as service ratings, payment decisions, financial information, and GPS location data to price match, adjust fares, complete the transaction, provide safety and security features, and offer personalised ads and other ancillary services that may be provided by the platform. The service offered by the platform provided to the individual can also include mechanisms to dispute transactions and implement a complaints procedure via email or chatbot based mediums, when required**.**

The customer and platform worker: The customer and platform worker have an "offline" in-person transactional interaction during the provision of the "gig" service or delivery of goods. This transaction occurs within mutually agreed geographical boundaries. Data provided by workers allows the customer to evaluate performance and make purchasing decisions in real-time based on the platform worker's profile, which includes characteristics such as current location, estimated delivery/arrival, and vehicle details, amongst others.

The platform and platform worker: The platform worker provides their skills and equipment to the platform to evaluate and accept, and uses the platform to liaise with customers. The platform collects personal and non-personal data to build the workers an online profile. Some platforms also have additional requirements for workers such as mandatory induction, uniform, branded equipment, and insurance , to name a few. These requirements vary across platforms and based on the nature of the service provided.

The platform, platform worker and customer: All three parties typically interact in a manner that mostly facilitates making financial transactions and data transfer to enable the services mediated through the platform. Customers can monitor e-delivery and e-hailing drivers from the time they place an order/trip until the end of a delivery/trip. The respective platforms have the capacity to monitor drivers and locate their whereabouts through the apps. Consequently, data such as distance, time taken to reach the destination, type of vehicle, to name a few, influence the fees and prices charges for workers and customers respectively. Workers on these platforms are monitored in real time, by both the platform company and the customers, and data is collected and also used for training the platform's machine-learning algorithms, which can influence worker ratings, access to work, fare-setting for rides or surge pricing. The platform also facilitates payment of services and delivery of goods between the customer and platform worker for completion of work (usually taking a commission during the process). The potential influence of customers is increasingly recognised in the growing app-based platform literature. However risks and burdens, which are faced by workers on these platforms, are often

unknown or disregarded by consumers who use these services (Anwar and Graham, 2021; Rahman and Thelen, 2019)

Annexure B

Methodology

Expanding the neo-classical economic approach used in determining the gendered digital effect in the QR, the qualitative aspect of this report was guided by two economic theories that explain the causes of gender inequality in labour markets: the neoclassical theory of the labour market (which focuses on individual choices) (Blinder, 1973; Oaxaca, 1973) and the theory of feminist economics (which focuses on social norms and structural constraints) (Figart, 2005; Folbre,1994). The concept of intersectionality was also applied to understand the socio-technical dimensions of inequality in digitally mediated labour markets. Qualitative techniques allowed us to investigate unobservable attributes that could not be explained by the quantitative approach but that influence the premise of the study.

Description of the sample

Grouping the data (text in qualitative research) facilitated a deeper understanding of the perceived working conditions, challenges, and risks and opportunities of platform workers in South Africa. The in- person focus groups were conducted with participants from Cape Town (eigh e-hailing, Uber and Bolt drivers), 11 e-delivery drivers (Uber Eats, Mr Delivery, Takealot) and eigh domestic workers from SweepSouth and Domestly.[10] In Johannesburg, the focus groups had 12 e-hailing, 12 e-delivery and eigh domestic workers.

Transcript Analysis-Coding

The interviews were recorded, with permission from respondents, using encrypted Dictaphones. These recordings were then transcribed using a professional transcription organisation as well as the IES in-house transcription resource. The transcripts were analysed using Atlas.ti, which enabled systematic extraction and analysis of qualitative data. This was carried out manually by the research team, with regular quality control checks by the project manager. The transcripts were coded, and grouped into 'families' (i.e. descriptors) to allow easy and systematic retrieval of information falling under different headings. This report was written on the basis of the analysis of the data from the 150 transcripts of interviews. One of the key components to ensure reliability and validity of the results is the analysis of the transcripts which should be based on "theoretical frameworks, models and coding schemes" (Garrison et al., 2006). The study applies the Community of Inquiry framework developed by Garrison, Anderson and Archer (2000) to undertake transcript analysis. Transcript analysis provides an observational technique to understand the platform workers' discourses based on a text-based

[10] Domestly closed down in 2020

approach. Analytical frameworks form the basis of rigorously distilling much of the data (text) gathered so that the sentiments and views of the respondents are echoed in the write up. We used the "negotiated approach" advocated by Garrison et al (2005) in transcript analysis in which the transcript and coding is based on intensive researchers' discretion in grouping to respective thematic codes. Based on the exploratory nature of the research, we used the word, sentence paragraph or sequence of paragraphs as the unit of analysis (Garrison et al., 2006).

The limitations of this method are that there exists more than one category (theme) in which a sentence could fall under and coded that to the most salient category for each presence (Garrison et al., 2006). Additionally, the coding at indicator level was not necessarily answering the research questions of this study since the category decisions were made at early stages of the project. Key themes for discussion in the findings include e-worker background information, registration process, conditions of service, safety and security, technology (surveillance, privacy, platform rating system, Google maps etc), payment (weekly vs monthly, tip, discrepancies and related issues.), gender dimensions (barriers due to work conditions, nature of job), COVID-19, participant demographics and limitations in the platform work.