Gendered Dimensions of Digital Platform Work

Review of the Literature and New Findings

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The Centre progresses social change by critically examining the socio economic, cultural and gendered inequalities of work, along with industry governance and responsibility as a core dimension of decent work and the nexus of business and society. CDWI seeks to advance decent work and industry through rigorous scholarship and research-informed policy advocacy. https://research.qut.edu.au/centre-for-decent-work-and-industry/

Executive Summary

Women have long experienced structural barriers to participation in the labour market and career progression in traditional workplaces. Digital platforms represent a new, less formalised, less bureaucratic approach to work, premised on worker autonomy and control over flexible hours, locations and tasks, and in which men and women experience equal access to work opportunities. Globally and locally emerging research challenges this assumption and draws attention to the complex experiences of women undertaking digital platform work—often as vulnerable workers, and in differing labour market positions.

In June 2021, the Victorian Department of Premier and Cabinet engaged a research team from Queensland University of Technology who had undertaken the national prevalence survey in 2019/20, to conduct a review of Australian and international evidence of the gendered dimensions of digital platform work. This report presents a summary of global studies on gender and digital platform work; supporting evidence and examples from the Australian National Survey Data (“Digital Platform Work in Australia”); and qualitative research undertaken by the research team. The report also canvasses important areas for future research to address gendered inequities in the digital economy. Key findings are summarised below, with particular emphasis on findings from the Australian data.

Gendered Participation

› In Australia, women are half as likely as men to be engaged in platform work and they participate less frequently than men. Globally, numerous prevalence surveys show that younger (under 35 years) males undertake digital platform work at higher rates than women (see for example, Huws et al., 2017; Pesole et al., 2018; McDonald et al., 2020).

› In Australia male digital platform workers were significantly more likely than women to be temporary residents and to speak a language other than English at home.

› Conversely, male and female platform workers were approximately equally likely to be Australian citizens, permanent residents and speak English at home. There were no gender differences in relation to whether platform workers identified as Aboriginal and/or Torres Strait Islander, or as having a disability.

› Globally, women are under-represented in the types of digital platform work outside traditional feminised areas, such as transport and food delivery. Men are also more likely to undertake digital platform work that involves software development and technology, and/or skilled trade work at higher rates than women. These patterns are replicated in Australia.

› In contrast, women are more likely to participate in historically feminised work such as clerical and data entry, sales and marketing support, writing and translation, and care work. In Australia, this includes participation on platforms such as Mable, Madpaws, Odesk (now owned by Upwork) and Peopleperhour (97.5% women).

› Women in Australia are far more likely than men (14.3% compared to 5.1%) to nominate the location of their platform work as being ‘in the home of an individual client’.

› Structural factors shape the concentration of women in feminised industries, including in digital platform work. Opportunities to undertake digital platform work in both Australia and the UK have been shown to be limited by a lack of platform infrastructure, by limited connectivity associated with remoteness, or by a lack of demand (Johnes, 2019; McDonald et al., 2020). Participation in online digital platform work is lower in rural areas globally, and particularly so in developing countries where ICT connectivity can be problematic (ILO, 2021, p. 140).

› Platform work in regional and remote areas in Australia is more likely to be work that is done ‘in-person’ (48.65%) and not computer based online work (34.14%).

Gender Variances in Working Hours and Income

- Studies have consistently found pay disparities between men and women undertaking digital platform work ranging between 10% and 37%. Women doing digital platform work (particularly in the domestic care sector) are exposed to variable incomes and fluctuating rates of pay.
- In Australia, women earn less than men doing digital platform work. Females were more likely than males to earn under $40,000 annually and males were more likely than females to earn over $100,000 annually.
- As an hourly rate on average, men earned $2.67 per hour higher than the comparable rate reported by women. Forty percent (40%) of current platform workers however were unsure about what hourly rate they were earning via the digital platform.
- Women platform workers were also significantly more likely to earn lower incomes (less than AU$40,000 per annum) in their non-platform work. They were significantly more likely than men to be homemakers or unpaid carers (outside of the digital platform), and when they were employed, were more likely to be in work that was part-time, casual, or which involved a fixed term contract.
- Women’s caring responsibilities restrict time/s available for platform work, affect the timeliness of task completion, and limit the volume of work that can be completed—all of which contribute to lower rates of pay.
- Rates of pay experienced by women undertaking digital platform work are driven by client demand, worker competition, and algorithms that contribute to pay differentials by mirroring gender differences in bargaining power. In the care sector, digital platform income can be unstable, exposed to fluctuating client demand, cancellations and work intensification.
- In Australia, men worked slightly longer hours than women performing digital platform work. On average males worked 12.44 (SD = 13.86) hours per week on their main digital platform and females 11.56 (SD = 23.24) hours.
- Men were more likely to undertake digital platform work at least a few times per week on average, while females were more likely than men to work less than once per month.

Gendered Motivations

- Consistent with international studies, the primary motivation for commencing digital platform work for both men and women in Australia was income generation, with most workers seeking to supplement income derived from other sources, such as another job (McDonald et al., 2020).
- Men and women were equally likely to cite financial factors (e.g. to earn extra income) and flexibility (e.g. the ability to work the hours I want, being my own boss) as motivating factors to participate in platform work.
- Women’s desire for flexibility has been found to be linked to scheduling their hours around unpaid care responsibilities (Berg, 2016; Churchill & Craig, 2019).
- Women in Australia are significantly more likely than men to say that networking (e.g. building networks, socially connecting) was a motivating factor.

Bias and Discrimination

- Significant numbers of platform workers experience, and/or observe discrimination or harassment while working.
- Algorithms that are used to automatically distribute, allocate, and monitor work on digital platforms have been shown to reproduce gender bias when the underlying data set is based on gendered social norms and systemic social inequalities that preference male workers (Kohlransch & Weber, 2020; Kullmann, 2018).
- Significant gender biases have been found in rideshare ratings. In the case of an inferior experience, particularly in terms of vehicle cleanliness and style of driving, female drivers are penalised more so than male drivers (Greenwood et al., 2020).
- In Australia, some platforms provide the option for clients to filter worker profiles according to preferred characteristics including gender (Williams et al., 2020a). Such mechanisms may enable clients to express gender-based preferences that reify gendered social roles or enable discrimination.
Health, Safety and Wellbeing and COVID-19

Digital platform workers are exposed to health and safety risks and this risk is heightened for women. Race also influences the susceptibility of workers to unsafe working conditions, as evidenced in a US study that compared Uber drivers with digital platform care workers (Ticona et al., 2016).

For rideshare drivers, especially women, risks include physical and sexual assault, and exposure to illegality in the form of requests to deliver stolen goods and illegal drugs (e.g. Tarife, 2017; Ticona et al. 2016; Huws et al., 2017; Reid-Musson et al., 2020).

Workers undertaking platform-mediated cleaning or care work (primarily female workers), receive limited information about either the client or the task, prior to commencing a job, making it difficult to manage health and safety risks (Ticona & Mateescu, 2018; Williams et al., 2021).

Digital platform workers have been affected by the COVID-19 pandemic. While also demonstrating that the effects are varied according to type of work and country of location, the Fairwork Foundation (2020) found that globally around half of gig workers lost their jobs, and those whose work continued were faced with significant average income loss of around 66% following the start of the pandemic. Though demand increased in areas such as food, parcel and grocery delivery, this increase has not necessarily translated into increased income, in part as a result of increased numbers of workers seeking gig work (Fairwork Foundation 2020). Consistent with the traditional labour market, it is likely that women were most negatively affected while some male-dominated areas of digital platform work such as parcel and food delivery saw an increase in demand. On the other hand, demand for digital labour in sectors that have higher levels of female participation such as clerical, data entry, creative, multi-media, and sales/marketing work declined (Stephany et al., 2020; ILO, 2021).

The review identified seven key areas that warrant urgent further research to bring to light, and ultimately alleviate, gendered inequities in digital platform work. Research is needed to more fully understand:

1. the gender pay gap in digital platform work;
2. work life boundaries in digital platform work, and the role of gendered norms around responsibilities for reproductive work;
3. intersectional dimensions of digital platform work;
4. short and long-term gendered impacts of Covid-19;
5. algorithmic discrimination and harassment;
6. the role of clients/customers as employers; and
7. ongoing changes in prevalence and participation through longitudinal nationally representative survey research.
Introduction

The proliferation of labour accessed via digital platforms has been framed as a move away from formal, bureaucratic, male-dominated work structures. This view assumes that men and women experience a level playing field on digital platforms because structural barriers that hamper women working in traditional workplaces are removed. Emerging research professed in the recent Inquiry into the On-demand Workforce (Victorian Government, 2020; pps. 44, 45 referred to herein as the Inquiry), challenges this assumption and draws attention to the complex experiences of women undertaking digital platform work — often as vulnerable workers, and in differing labour market positions in terms of race, class, and age for example.

In 2019, the Victorian Government commissioned the first national prevalence survey to measure participation in digital platform work in Australia. While not specifically focussed on exploring gendered inequalities, the findings from this survey point to possible gender differences in patterns of participation in digital platform work, indicating that structural barriers to women’s participation in work may not be ameliorated in the gig economy.

Globally, new research has also begun to emerge that reveals the gendered dimensions of digital platform work. No study however has undertaken a comprehensive review of this literature to provide a complete picture of the current state of knowledge on this issue.

In June 2021, the Victorian Department of Premier and Cabinet engaged a research team from Queensland University of Technology who had undertaken the national prevalence survey, to provide a more detailed review of Australian and international evidence in relation to gendered dimensions of digital platform work. This report presents that evidence. The objectives of the review are to:

1. identify and report on evidence of gendered differences in participation in digital platform work, including differential impacts of the nature of participation on men and women;
2. explore both the Australian national survey data by gender and new qualitative research findings; and
3. canvass important areas for future research that may address gendered inequities emerging in the digital economy.

The report includes a literature review specific to this project and draws on data from prior studies undertaken by the research team. It begins by outlining the approach to the literature review and summarising the data sets and methodologies utilised in each of the empirical studies. The review and primary data are then presented. The report concludes with a summary and agenda for future research.
Methodology

The report encompasses a global literature review and empirical data collection that includes: Survey data; gender analysis of the national prevalence survey data; in-depth interviews with digital platform workers; and an analysis of the terms and conditions of select digital platforms operating in Australia. This section details the methods of data collection and analysis in relation to each study.

Literature Review

The literature review presents evidence from international research investigating gendered dimensions of digital platform work. It draws on a diverse range of theoretical, methodological, and empirical approaches to understand gendered dimensions of work in the gig economy.

Commencing with a structured scoping exercise, the research team conducted a literature search in leading management databases including ABI-Inform, EBSCOHost and Web of Science using a combination of the keywords: (gig work OR gig workers OR platform work OR platform-mediated OR on-demand work OR on-demand labour OR digital platform work OR shar* economy OR platform economy OR gig economy OR uber* OR collab* work/economy) AND (gender OR woman OR women OR female OR feminin* OR masculin*). The search was restricted to abstracts of peer-reviewed, English language sources with no timeframe or quality-criteria limitations imposed. The article titles, abstracts and keywords were reviewed to identify the articles that fit the scope of the search. We included both empirical and conceptual sources. Additional resources were accessed through the reference lists of the reviewed articles where they did not appear in our original search but encompassed studies in which gender intersected with the gig economy, such as studies on work undertaken in feminised occupational contexts (e.g. administrative work, care work, beauty care). The search also extended to published studies in media, communication, and technology domains.

We undertook a critical analysis and synthesis (Cronin & George, 2020) of the studies identified in the above process, abstracting broader themes and integrating diverse perspectives to elucidate gendered dimensions of the gig economy, and to highlight key areas for future research. To further place gendered dimensions of gig work within the context of the broader labour market, the research team gathered and reported statistics on women’s participation in the global workforce, occupational segregation, pay equality and level of engagement with digital platform work. This information was drawn from data from the International Labour Organisation, Australian Bureau of Statistics and Workforce Gender Equality Agency, facilitating a picture of Australian women’s workforce participation in a global context.

Additional literature and scholarly research is also presented from gender studies, industrial relations, and feminist reviews of women in the workforce, indicating historical trends and evolution of women’s participation across occupational contexts. This provides a deeper understanding of the background and context shaping the gendered dimensions of gig work.

Empirical Data Collection and Data Analysis

The primary data presented in this report were collected by the QUT research team in a series of studies undertaken as part of an Australian Research Council funded project titled ‘Working the Gig Economy: The Organisation of Digital Platform Work’ (DP180101191). This research included in-depth interviews and analyses of the website content and terms and conditions documents of platforms which intermediate work. Each study was subject to QUT Human Research Ethics Committee approval.

In addition, the report includes a gender-focused analysis of data from a nation-wide survey Digital Platform Work in Australia (referred to henceforth as the National Survey). The study was conducted in 2019 and published in 2020. The following sections summarise the methodology used for the National survey and other quantitative and qualitative data presented in the report.
Respondents who indicated experience performing platform work within the last 12 months (current workers) were the primary focus of the survey and it is this group that is the focus of the current report. The period of 12 months for current platform workers was chosen to facilitate accurate respondent recall. These respondents answered questions specifically about offering or providing services in relation to:

- the specific platforms through which they had sought or provided work;
- how long ago they first started;
- how often they were engaged;
- how many hours per week they spent working or offering services;
- the income they earned;
- their motivations for deciding to work or offer services;
- the kind of work they most commonly offered or performed;
- the basis for payment by the platform;
- the operations of the platform;
- the location of clients;
- where they were located while completing tasks;
- the extent to which they used their skills, experience or qualifications;
- their satisfaction with aspects of the work; and
- any other comments they wished to make about their experiences.

Background demographics were collected from all survey respondents, including age, employment status, occupation, industry, gender, postcode, highest level of education, household type and number of dependants, taxable income, Australian residency status, whether they speak a language other than English at home, Aboriginal and/or Torres Strait Islander status, and disability status. Using this demographic data, the current report undertakes an additional analysis of the survey results focussing on the gender of survey respondents through comparisons of male and female respondents’ demographics and experiences of providing labour or services through digital platforms.

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Of the 14031 respondents to the survey, 988 respondents indicated that they currently, or in the last 12 months, earned an income working or offering services through a digital platform, referred to by the pseudonym Platform X). The data from these 988 respondents was extracted from the larger data set to form the data for the additional analyses included in this report. Five respondents did not indicate their gender and hence the final data set contained 983 current platform workers - 638 males and 345 females.

Three key sets of analyses were conducted to compare male and female platform workers' demographics and experiences of providing labour or services through a digital platform.

The first set of analyses compared the demographic backgrounds of male and female platform workers to explore if there were any systematic differences. Tests for significant gender differences were conducted through Chi Square and T-test analyses.

The next set of analyses compared male and female engagement and experiences with distinct digital platforms, the type or work they engaged in, and the conditions they received. Proportions of males and females were compared across platforms, income earned, and type of work conducted. Tests for significant systematic differences were conducted through Chi Square and T-test analyses.

The final set of analyses explored respondents' motivations for engaging in platform work and level of satisfaction with this work. In the first instance, the data reduction technique of factor analysis was undertaken using all survey questions that related to worker motivations for providing labour/services through a digital platform. Results of these analyses indicated that motivations fell into three categories: Financial, Flexibility and Networking. Items indicating these motivations were combined to form a total mean score (1 low motivation to 5 high motivation) for each category. Male and female scores on each motivational category were compared and significance tested through T-Tests.

A factor analysis was conducted on all survey questions regarding satisfaction with digital platform work. Results of these analyses indicated that satisfaction fell into two categories: Conditions and Flexibility. Items within these satisfaction categories were combined to form a total mean score (1 low satisfaction to 5 high satisfaction) for each category. Male and female scores on each category were compared and significance tested through T-Tests. The results of these analyses and comparisons between male and female participation, are presented in written, tabular, or graphical form throughout the report.

**Digital Platform Workers**

**DATA SET: PHOTOGRAPHERS**

During 2017 and 2018 the QUT research team undertook a study investigating the motivations and experiences of care workers providing childcare and aged and disability care services via a global digital platform offering care services in Australia. 38 in-depth, semi-structured interviews with workers offering care services via a digital platform were undertaken.

Access to workers was gained with the cooperation and support of the platform involved (hereafter referred to by the pseudonym Platform X), which emailed an invitation to participate in the study to workers registered on their Australian network. Platform X offered workers a $40 Amazon gift voucher to participate. Workers registered their interest with QUT researchers via a confidential link and QUT researchers independently contacted the workers to arrange a confidential interview. The identity of participants was not shared with the platform. Platform X received a summary report of the findings with all worker data de-identified to maintain worker confidentiality. The demographic profile of the workers interviewed (the sample) is provided in Table 1 below (Williams et al., 2020).

With permission of Platform X, QUT researchers also registered as users of the digital platform in order to experience the functionality of the site and compare information gathered during the interviews. A carer and a care-seeker profile were created in order to understand the functionality of the platform and the experiences of both types of users. Findings from this study are presented throughout this report to illustrate the gendered dimensions of gig work that emerged in the feminised context of care work.
<table>
<thead>
<tr>
<th>Table 1: Profile of Digital Platform Care Worker Sample</th>
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<tbody>
<tr>
<td><strong>Age</strong></td>
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<td>18-24</td>
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<td>25-34</td>
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<td>35-49</td>
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<td>50-64</td>
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<td>65-74</td>
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<tr>
<td><strong>Gender</strong></td>
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<td>Female</td>
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<tr>
<td>Male</td>
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<tr>
<td><strong>Australian State of residence</strong></td>
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<td>SA</td>
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<td>WA</td>
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<tr>
<td><strong>Household type</strong></td>
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<td>Couple, with children</td>
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<td>Couple, without children</td>
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<tr>
<td>Single, without children</td>
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<tr>
<td>Single, with children</td>
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<tr>
<td>Other or did not provide</td>
</tr>
<tr>
<td><strong>Residency status</strong></td>
</tr>
<tr>
<td>Australian citizen or Permanent Resident</td>
</tr>
<tr>
<td>Temporary Resident on Visa</td>
</tr>
</tbody>
</table>
Terms and Conditions of Digital Platforms

[QUT Ethics approval No. 1900000128]

DATA SET: DIGITAL PLATFORM WEBSITES AND TERMS AND CONDITIONS

In late 2018 and early 2019 the QUT research team studied the publicly available terms and conditions of selected digital platforms operating in Australia. The contractual terms and conditions (user agreements), and the websites of digital platforms are under-examined sources of data in relation to digital platform work. They are however crucial in shaping client-platform-worker relations because they are the primary means through which access to work is defined for independent contractors.

The study of terms and conditions had multiple objectives including how they operate as a means of digital labour control; are utilised to attract, select, and manage digital platform workers; and are aligned (or not) to existing regulatory frameworks. This study resulted in several published papers (see McDonald et al., 2020b in Work, Employment & Society and Williams et al., 2020a in Creative Industries Journal in the reference list).

The analysis of terms and conditions included comparisons of digital platforms operating in Australia that offered graphic design services (work undertaken wholly online) and those offering disability or aged care (work conducted in person) in Australia.

To select graphic design platforms, we used search terms including ‘graphic design work’, ‘find a graphic designer’, ‘graphic design jobs’, ‘website development’ and ‘logo designers.’ To select care platforms, search terms included ‘find a carer/support worker’, ‘care providers’, ‘disability care’, ‘home care’, ‘aged care’; ‘support worker/carer jobs’, and ‘working in aged care/disability care’. The search was limited to platforms offering services in the Australian context by using the appended word ‘Australia’, although some platforms in the sample also provided other types of services and/or provided services outside Australia. The final sample consisted of eight digital platforms offering care services and nine digital platforms specialising in graphic design services.

Website content included ‘frequently asked questions’, ‘how it works’ sections, and information for people seeking work. Both the terms and conditions and website content were publicly available data sources, and were downloaded, saved offline and preserved for coding, along with screenshots of relevant website pages (Hurwitz et al., 2018).

The following sections present a review of the extant literature on gender and digital platform work and integrate relevant findings from the above empirical data sets to provide Australian-based evidence of the gendered dimensions of digital platform work. The review is organised around 8 overlapping themes/issues.
Review of Research and Findings

Although the exploration of gender in the gig economy is a nascent field of enquiry, research and public attention on digital platform work overall demonstrates a gender bias by focusing on male-dominated on-demand work such as ridesharing (Ticona & Mateescu, 2018). The emphasis on male-dominated industries can be explained as grounded in concerns about the increasing numbers of male workers turning to employment outside the standard model of an employment contract (Huws, 2016). Women, on the other hand, have long been exposed to the precarity and vulnerabilities associated with non-standard employment.

Importantly, in terms of understanding the context for the analysis, gender is concerned not just with the inequalities experienced by women but also in relation to the experiences of men. For this reason, our analysis of empirical data includes the experiences of female and male digital platform workers.

We acknowledge the emphasis in much of the literature, and in our empirical work, on understandings of gender premised on heterosexuality and the related binary construction of men and women. Management scholars (see, for example, Pringle 2008) have long called for recognition of the often-invisible entanglements of gender and heterosexuality underpinning approaches to gender and work. This is substantively addressed in intersectional approaches which bring to the fore intersections of sexuality and gender (see The intersection of gender and other platform worker characteristics on page 18).

Women’s Work: Contexts, Considerations and Continuities

To understand women’s participation and experiences in digital platform work, it is first necessary to understand their participation in the labour market more broadly. According to the Australian Bureau of Statistics (ABS) Gender Indicators (2020), in 2019-2020 over two thirds of women in Australia were in paid employment: this is the highest proportion to date and includes a substantial increase of close to 10% of women aged between 60 and 64 since 2009-10. During 2019-2020 more than three quarters of men were in the workforce (ABS 2020). ABS (2020) data shows that women between the ages of 20 and 74 are close to three times more likely than men to be working part time and that while 95% of men with children under 6 years of age are in the labour force, for women this figure is just 65%.

Women are also under-represented in management positions, and at the same time continue to dominate clerical and administrative work, and community and personal service work, in each case representing over 70% of the workforce (ABS 2020). The full-time gender pay gap in Australia in February 2021 sits at 13.4%, with the lowest gap of 6.3% in public administration and safety employment, and the highest gap of 24.4% occurring in health care and social services employment (WGEA, 2021).

There has been longstanding, widespread agreement that women’s economic and labour market disadvantage is deeply connected to the uneven gendered division of reproductive labour (Huws, 2019). Australian women are more likely to work part-time and be employed on a casual or temporary contract basis (Charlesworth et al., 2011) and this is linked to women’s continued primary responsibility for the labour associated with social reproduction. For example, it spans domestic tasks such as cleaning and shopping along with activities and emotional work in support of nurturing and maintaining family and community relationships, (Katz, 2001). Women in Australia are more likely than men to give up paid work to be the primary carer of children or the elderly and they are more likely to be ‘secondary earners’ in a household (Pocock et al., 2012). This has implications for career progression and relatedly, women’s income earning and retirement savings capacity (Charlesworth et al., 2011).

Digital platforms are significantly implicated ‘in the marketisation and commodification of social reproductive labour’ and indeed have played a
role in transforming the ‘content and organisation of reproductive labour inside and outside the household’ (Huws, 2019, p.123). A key reason for the commodification of reproductive work is the reduction of available time in which to do housework—known as the ‘domestic time squeeze’. There are a number of reasons for this squeeze, including women’s increasing participation in the workforce, work intensification and temporal expansion beyond the 9 to 5 working day, and loss of access to support from extended family (Huws, 2019).

Digital platform work environments can be seen as both a continuation of and site of new tensions between the ‘never-quite-separate spheres’ of women’s unpaid domestic work and their paid work (Gregg & Andrijašević 2019, p.3). It is women who undertake much of the usually poorly paid commodified care work arranged through digital platforms, often enabling other (middle-class) women to participate in (higher) paid work. The relatively low wages in feminised paid care sectors make it difficult for many workers to manage their own unpaid care responsibilities, leading in turn to their experience of the domestic time squeeze. While care work is not by any means the full extent of women’s participation in digital platform work, it remains an exemplar segment of gig work for illuminating the complexity and intersectionality of gender inequalities.

The growing involvement of digital technologies in both securing and conducting work enacts a continuation, if not exacerbation, of traditional gender inequalities (Piasna & Drahokoupil, 2017) while also creating new forms of inequality, not least through the increased precarity and flexibility which characterises gig work (Churchill et al., 2019).

Inequality is shaped by what have been identified as the three core techniques underpinning the platform economy: platform ‘immunity’ from responsibility for workers; ‘control’ over the workforce; and increased worker ‘superfluity and fungibility’ (van Doorn, 2017, p.907). The core technique of ‘platform immunity’ from responsibility for workers—which has received significant attention in the literature and the media—is grounded in the lack of identification of workers as employees. This excludes platform workers from protections of labour law (see Kullman, 2018, p.5). and in turn gives rise to new forms of precarity and increased economic and social inequality (Kullman, 2018, p.5), as noted above. These techniques need to be located as part of a wider shift away from regulated Fordism—in which domestic labour and motherhood were distinct from the sphere of paid work—to a post-Fordist environment in which individuals are expected to “craft their own employability” and where independent contractors and entrepreneurs emerge as the ideal workers (Adkins 2016, p. 3).

Patterns of Participation in Digital Platform Work

Levels and types of participation by gender

Evidence in the international/scholarly literature confirms that women are proportionately under-represented in platform work in general. Prevalence studies that measure the size of the gig economy in various countries have consistently found that fewer women than men participate in digital platform work (see for example Huws et al., 2017; Pesole et al., 2018). The COLLEEM study undertaken in the UK found that the representation of women decreased as the intensity of platform work increased (Pesole et al., 2018, p.22). That is, women represented 40.2% of digital platform workers working less than 10 hours per week, but only around 26% utilised platform work as their main job where they worked more than 20 hours per week (Pesole et al., 2018, p.22). Other studies have found that women represent less than 10% of digital platform workers providing transport and food delivery services globally, and approximately 40% of online (web-based) digital platform workers (ILO, 2021, p.137).

Developing nations tend to have lower numbers of women participating in digital platform work (about 2 in 10 online digital platform workers are women compared to 4 in 10 in developed nations) (ILO, 2021, p. 137). While India represents the largest supplier of global digital platform labour, it also has the lowest participation rate for women (21%), regardless of the type of work (ILO, 2021, p.54). Participation rates of women relative to men are highest in the Ukraine (39%) and the USA (41%), particularly in relation to writing and translation work (ILO, 2021). As these figures show, participation in digital platform work can be influenced by geographic location but also by socio-cultural norms and expectations.

Access to technology and digital skills are examples of social barriers that are gendered. Women have been found to be more vulnerable to the digital divide, particularly if they have lower socio-economic status or education (Sinha, 2018; Vasilescu et al., 2020), and this can inhibit their participation in digital platform work. Opportunities to undertake digital platform work in both Australia and the UK have been shown to be limited by a lack of platform infrastructure, by limited connectivity associated with remoteness, or by a lack of demand (Johnes, 2019; McDonald et al., 2020). For example, participation in online digital platform work is lower in rural areas globally, and particularly so in developing countries where ICT connectivity can be problematic (ILO, 2021, p. 140).
Research has demonstrated that the emphasis on possibilities for women as digital entrepreneurs, often touted as a major benefit/levelling effect of platform work (Blackham, 2018; Kenney & Zysman, 2016), is complex and problematic. Gender remains a barrier for many attempting to achieve this form of independent self-employment. Wang & Keane (2020), for example, studied Chinese entrepreneurial women who were attempting to establish a digital enterprise. The study showed that digital entrepreneurship was aggressively competitive and masculinist and contributed to significant boundary blurring between work and life as women struggled with the variety, range and time-squeeze of tasks required to be successful. Structurally, women’s caring responsibilities also denied them recognition for their labour from either entrepreneurial communities of practice, or from their families (Wang & Keane, 2020).

The gendered patterns of participation in digital platform work outlined in the studies above are reproduced in Australia. Overall, the National Survey shows that women are less likely to be current digital platform workers, or to have undertaken digital platform work in the past, when compared to men (Table 2 below). How issues such as geographic location, intersectionality and feminised or masculinised work environments shape women’s participation in Australia is presented in the data below.

Table 2: Participation in Digital Platform Work by Gender (n = 14,013)

<table>
<thead>
<tr>
<th>Have you earned income by working or offering services through digital platforms?</th>
<th>No</th>
<th>Yes, but not in the last 12 months</th>
<th>Yes, currently or within the last 12 months</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>90.6%</td>
<td>4.4%</td>
<td>5.0%</td>
<td>6943</td>
</tr>
<tr>
<td>Male</td>
<td>83.4%</td>
<td>7.5%</td>
<td>9.1%</td>
<td>7036</td>
</tr>
</tbody>
</table>

2 Interpreting statistics: The Chi squared statistic ($\chi^2$) tests the probability that there were more males or females in a particular category than would be expected by chance. The p value associated with statistics tells how likely we are to get that proportion of males or females in a category by chance. A test is significant if p < .05 or less than a 5% probability of occurring by chance.

There were no significant differences between men and women in terms of whether they engaged in online platform work, in person platform work, or both. Gender variations were evident however in the type of work in which men and women participated. Men participated in digital platform work that involved software development and technology; transport and food delivery; and skilled trade work, at higher rates than women. This included participation on platforms such as Deliveroo, OLA and Uber.

In contrast, women were more likely to participate in historically feminised work such as clerical and data entry, sales and marketing support, writing and translation, and care work. This included participation on platforms such as Mable, Madpaws, Odesk (now owned by Upwork) and Peopleperhour (97.5% women). The survey data shows that females were more likely than males to work for Mable ($\chi^2 = 4.27$, p = .039); Madpaws ($\chi^2 = 15.23$, p < .001); Odesk ($\chi^2 = 8.42$, p = .004) and Upwork ($\chi^2 = 3.96$, p = .04). Gendered divisions by type of work, such as where greater numbers of women work in feminised occupations, is consistent with patterns in other country contexts discussed earlier, such as the USA (ILO, 2021).
Women’s increased likelihood of undertaking care work in private homes is indicated in the finding that women were far more likely than men (14.3% compared to 5.1%) to nominate the location of their platform work as being ‘in the home of an individual client’. In contrast, males were more likely than females to work for Uber ($\chi^2 = 23.65, p < .001$), Deliveroo ($\chi^2 = 5.58, p = .018$) and Ola ($\chi^2 = 3.57, p = .05$). Men and women were about equally likely to work on a range of other commonly used platforms identified in the survey such as Airtasker, Freelancer and Fiverr. The proportion of men and women working for platforms identified by survey respondents is provided in Figure 1 below:

Figure 1: Platform Participation by Gender

### Proportion of Males and Females Working for Each Platform

In the photography industry gradual technological change, including the rise of a wide range of digital platforms through which photographers can digitise, advertise, promote, and sell images or their photography services, has contributed to labour participation statistics that suggest greater levels of gender equity.

Findings from the National Survey also confirmed similar worker characteristics and patterns of participation to those found in studies undertaken overseas. Higher proportions of younger people (aged 18-34) and males were working through digital platforms. Respondents who were students or unemployed also had higher participation rates than those who were employed, retired, fulltime homemakers or volunteers. Those with higher levels of education (particularly bachelor or postgraduate degrees) were more likely to work through digital platforms than respondents with lower levels of education (Mcdonald et al., 2020, p.32).

Further analysis of these results by gender show that male digital platform workers were significantly more likely than women to be temporary residents ($\chi^2 (3) = 8.36, p = .039$) and to speak a language other than English at home ($\chi^2 (2) = 6.00, p = .05$). However, male and female respondents were equally likely to identify as Aboriginal or Torres Strait Islander (3.1% of Males and 4.1% of females). Males and females were also equally likely to report living with a disability (6.3% of males 8.1% of females).

Although the numbers of respondents from regional or remote areas who reported engaging in platform work was small (N = 37), platform work in regional and remote areas in Australia was more likely to be work that is done ‘in-person’ (48.65%) rather than computer-based/online (34.14%). Around 13% of respondents in regional and remote areas reported participating in both types of work ($\chi^2 (8) = 15.82, p = .045$).
The impact of connectivity and geographic remoteness on participation in digital platform work also emerged in qualitative responses from national survey respondents who had participated in platform work in the past but not in the last 12 months. Similar findings emerged from interviews with photographers, especially in responses from women. Whilst this data provides some insights into the issue of geographic isolation and digital access, to date there is little research that explicitly explores issues of equity and access by location and the implications this has for women.

Box 1: Digital and Location Divide
- Excerpt from Photographer

"Where I live, which is on the farm, 20 kilometres from town… and the data limits on that are so low that I can’t work from home…. It’s an absolute farce if you’re trying to run a business in the country… I mean you don’t know what it’s like trying to upload [work] that’s several hundred megabytes, and you set the upload in the morning, and by the afternoon it still hasn’t finished, so you leave it going, and then you come back into town in the morning and it’s timed out, and you have to start again..." (Female photographer, 10 years experience)

Box 2: Digital and Location Divide
- Excerpts from National Survey

“My internet access is no longer good. I was offered less work” (Male, Past Digital Platform Worker)

“I lived in a small town where it [the platform] wasn’t used much.” (Female, Past Digital Platform Worker)

“Not enough [tasks] in regional areas. Not until you register can you search and find that there isn’t anything outside capital cities.” (Female, Past Digital Platform Worker)

“[The jobs] didn’t feel right or it was a long way from where I lived and required coming home late at night.” (Female, Past Digital Platform Worker)

The intersection of gender and other platform worker characteristics

As the emerging literature and empirical data makes very clear (e.g., Vyas, 2021; van Doorn, 2017), an intersectional approach is necessary to understand how gender inequality and digital platform work intersect. That is, it is necessary to consider how position in the labour market and/or markers of identity and dis/advantage—race, class, age, and sexuality as core examples—intersect with gender to shape women’s participation in and experiences of digital platform work in particular times, places, and situations. These axes of difference can intersect separately and collectively with gender to create specific and contingent forms of inclusion and exclusion in access to and experience of work mediated through digital platforms. For example, inequalities based on race, ethnicity, gender, income, and immigration status, shape the ways that people engage in different forms of online sociality, advantaging some workers over others (Ticona & Mateescu, 2018).

An important exemplar of the need for an intersectional approach is the documented uneven economic and social impacts that job losses arising from the Covid-19 pandemic have had on women (Work & Family Policy Roundtable, 2020; Foley & Williamson, 2021). For example, the age and class profiles of a particular workforce, or industry segment (e.g., hospitality, retail), geographic location or type of household, may variously intersect to disadvantage some individuals and groups more than others.

In their study of the Swedish home-cooked food platform “Yummy,” Webster & Zhang (2020) demonstrate how gender, race and class norms can be reproduced to establish platform market position. The study provides a case example of the reproduction of gendered power relations in tech industries, revealing an 80% male management team and a worker base of home chefs, 70% of whom were female immigrants. This study also revealed how the reproduction of normative assumptions about gender, migrant status, assumed idleness and the production of food, underpin the platform business model. The women in their study were encouraged by the platform to exploit their migrant status and home-based social roles to establish themselves as emerging entrepreneurs.

The “typical” online freelance and microworker in the US has been described as male and under 35 years of age (Kuek et al., 2015). Numerous prevalence surveys demonstrate higher participation rates among younger (under 35 years) males (see for example, Huws et al., 2017; Pesole et al., 2018; McDonald et al., 2020). A UK review of gender in the gig economy also found fewer female digital platform workers, lower frequency of participation by women, lower levels of pay for female digital platform workers and a higher likelihood that women would exit digital platform work (Hunt & Samman, 2019). Globally, women are particularly under-represented in the types of digital platform work outside traditional feminised areas, such as transport and food delivery. US Uber drivers are more likely to be men (only 13.8% women) (Hall & Krueger, 2018) and women on average make up less than 25% of drivers (Tarife, 2017). Similarly, in
Gendered Dimensions of Digital Platform Work

Review of the Literature and New Findings

Belgium only 11.4% of Deliveroo riders are women (Drahokoupil & Piasna, 2019).

A small Australian study undertaken by Churchill & Craig (2019) surveyed 504 self-selected digital platform workers, including a large number whose income was derived from selling items online. Though their results may not be generalisable to the entire Australian population, they found that men were more likely to work through transport and food delivery platforms, while women were more likely to source work through online clerical/design platforms and undertake clerical, creative or care and cleaning tasks. In Churchill & Craig’s (2019) study, the participation of women in feminised digital platform work such as the clerical, creative and domestic care work, is also a consistent pattern internationally. For example, more than half of the “shoppers” on Instacart and “dashers” on Doordash in the US are women—usually mothers supporting children (Milkman et al., 2021). Milkman et al’s (2021) study demonstrates how digital platforms commodify and marketise women’s unpaid labour—in this case the shopping and food preparation responsibilities common to women and mothers.

Drivers of participation

The scholarly literature suggests a number of factors driving women’s participation patterns. Churchill & Craig’s (2019) Australian survey of gig workers was unusual in that it was highly educated (43% of women held a tertiary qualification). However, the study suggested that women’s active participation in creative work via digital platforms (including selling goods on Gumtree) reflects the potential for some digital platform work to overcome the structural barriers that exist in specific industries. They argue that informal employment arrangements coupled with a lack of workplace protections against discrimination, harassment and gender inequities makes employment for women in creative industries more difficult, but that these barriers to women’s participation may be less likely to occur in online creative work (Churchill & Craig, 2019, p.757).

Other studies highlight structural factors that shape the concentration of women in feminised industries, including in a digital context. For example, through an analysis of job postings and bids on the Spanish online freelance platform Nubelo (since acquired by Freelancer.com), Galperin (2019) found that women were significantly less likely to be hired for masculinised work such as software development (see also Barzilay & Ben-David, 2017) and were more likely to be hired for feminised work such as writing and translation. Consistent with patterns seen in other studies, Galperin’s (2019) study demonstrated that type of work/task was highly relevant. Overall female applicants were 34% more likely to be hired for tasks than male applicants; however, when viewed by type of task, female applicants were 50% less likely to be hired for jobs in software and web development, and 54% more likely to be hired for writing and translation jobs. Prior job experience did not alter the male hiring advantage in software and web development.

Time and Income

The National Survey revealed that male respondents worked slightly longer hours undertaking platform work than women. On average males worked 12.44 (SD = 13.86) hours per week on their main digital platform and females 11.56 (SD = 23.24) hours. Women were far less likely than men to work more than 35 hours per week and somewhat more likely than men to work nine or fewer hours per week (χ² (5) = 11.01, p = .049). Men and women platform workers were approximately equally likely to work between 10 and 35 hours per week. Men were more likely to work at least a few times a week on platform work, while females were more likely than males to work less than once a month (χ² (3) = 13.95, p = .003).

The literature consistently identifies pay disparities between men and women undertaking digital platform work. In a study of digital interactions spanning requested rates, occupations, and work hours on an online platform, Barzilay & Ben-David (2017) found that the average hourly requested rate of women on the platform was 37% lower than that of men. This discrepancy persisted regardless of experience, qualifications, rating/reviews or type of work undertaken. Studies of Amazon Mechanical Turk found a gender wage gap of between 10% -20% which was exacerbated by women’s fragmented patterns of participation arising from their domestic and care responsibilities (Adams, 2020; Adams & Berg, 2017; Litman et al., 2020). Women also earn 34% less than men in the ride-booking space (Tarife, 2017). Platform work in the fields of Engineering & Architecture, IT & Networking, and Data Science & Analytics, in which men are concentrated, are also areas with the highest gender pay gap in hourly rates (Barzilay & Ben-David, 2017).

While digital platform workers can ostensibly set their own rates of remuneration, Barzilay & Ben-David (2017) argue that women may undervalue their services in ways that are consistent with gender differences in pay negotiations identified in research in traditional employment settings (see also Exley et al, 2016; Barzilay, 2019) and that platforms do little to moderate these inequities. Abendroth’s (2020) study of crowd-workers in Germany found that algorithms contribute to pay differentials by mirroring gender differences in bargaining power...
and that this reflects the overall position of the worker in the broader labour market as well as their reliance on platform income. The study found that men, had greater access to higher-paid tasks. Conversely, women undertaking domestic work via digital platforms, such as food preparation and delivery, reported periodic, unpredictable and immediate changes or ‘pivots’ in rates of pay so that their income for the same work varied substantially from week to week (Milkman et al., 2021).

Although women engaged in platform-mediated work experience a substantial and pervasive gender pay gap, such work can nevertheless provide access to work and income not otherwise available to them. A study by Hunt and Samman (2020) for example, found that domestic care workers in South Africa – overwhelmingly women – were the primary income earner (84%). While still insufficient to meet their basic needs, digital platform work provided these women with higher pay than they would have received doing domestic care work off the platform (Hunt & Samman, 2020). Rates of pay, however, were driven by client demand and over time the platform reduced pay rates to gain market share. Similar to Milkman et al’s (2020) study reported previously, fluctuating client demand and increased expectations of the number of tasks that needed to be completed in the allocated time, resulted in unstable, fluctuating levels of income, cancellation of ‘shifts’ and work intensification.

Levels of income cannot be fully understood without consideration of unpaid work that is required to engage with platform functions and potential clients and other indirect costs of locating work. Terranova (2000) refers to this ‘free labour’ as a defining characteristic of the digital economy. Rand’s (2019) UK-based study of sex work managed through digital platforms demonstrates how platform design rewards unpaid labour. Sex workers, in order to be successful, were required to spend considerable unpaid time developing and uploading new content in order to raise their profile. Resonating with research in other industries, Rand (2019) also found that these workers became dependent on the platform as a result of two coercive factors. The first factor was the sunk costs associated with the time and effort of developing a profile and audience and high intermediary fees charged by the platform. The second factor was their inability to transfer reviews and networks across to other competitor digital platforms.

The National Survey results showed that women earned less than men. The graph above shows the proportion of males and females in each income category. Females were more likely than males to earn under $40,000 annually and males were more likely than females to earn over $100,000 annually ($^2 (10) = 39.87, p < .001).

As an hourly rate on average, men earned $2.67 per hour higher than the comparable rate reported by women. However, forty percent (40%) of current platform workers were unsure about what hourly rate they were earning via the digital platform. For those reporting an estimated hourly rate earned on the digital platform, the mean (with the top and bottom 5% of extreme responses trimmed) was $33.45 for males and $30.78 for females. The median response for pre-tax dollars per hour was $25.00. Importantly, women platform workers were also significantly more likely to earn lower incomes (less than AU$40,000 per annum) in their non-platform work.
Of the participants who earned an income via platform work, females were more likely to report they were not required to pay tax (27.3%) compared to males (19.3%) (χ2 (3) = 20.24, p < .001) and males and females were equally likely to not pay tax for other reasons (males 14.9% and females 14.2%). No significant differences emerged between males’ and females’ self-reported need to engage in platform work or the proportion of their annual income made up from platform work. Overall males and females both reported that the income from platform work was nice to have but not essential and that digital platform income made up less than half of their total annual income.

Our empirical research with workers offering care work through digital platforms challenges the popular notion that workers autonomously set their own rates. Carers typically determined their listed hourly rate only after examining the rates charged by other carers on the platform. This was made evident by the platform in a pop-up box showing a calculation of “average hourly rate in your area”. Not uncommonly, workers offered rates lower than this average in order to be more competitive and as a means to attract clients. Carers also described how care-seekers would sometimes seek lower rates than those advertised by the worker. Other research (e.g. Rand, 2019) cited above has also found that platform remuneration is at least partly driven by consumers in a competitive marketplace.

The indirect costs of engaging with digital platform work may also undermine potential income levels and workers are not always cognisant of these costs. For example, very few Australian care workers we interviewed accounted for the cost of superannuation or insurances when calculating their pay rates. Carers also described having to renegotiate hourly pay rates with clients and/or pursue underpayment or non-payments. For some carers, this resulted in discontinuing work with the client because the negotiations around hourly rates was unsuccessful or “too hard”.

**Box 4: Unpaid Work**

- Excerpts from Care Workers

- “She wasn’t paying me the correct amount….would come home after two and a half hours but she’s only paying me two.” (Female Carer, Queensland)

- “…the only reason why I stopped one client was because I wasn’t getting paid on time and I was just forever begging money and I just thought, oh, that’s not cool.” (Female Carer, Queensland)

Australian care workers undertook substantial unpaid work including both the tasks needed to register with the platform - including acquiring police and working with children checks - and regularly interacting with existing and new clients to negotiate potential work. Websites set out a range of required or ideal features of carer profiles including personal and contact details, photos, work history, languages, interests, lifestyle, availability, biography, and verified identifications, certifications and authentications (Williams et al., 2020a). Yet similar details were not always required of clients. For carers, this sometimes resulted in situations where they accepted a job based on insufficient or inaccurate information, or where the responsibilities and associated risks were greater than they had anticipated.

**Box 5: Inaccurate Information**

- Excerpt from Care Worker

- “It’s a little bit hair-raising that although the parents explain the household routine to you, really you don’t know the child or children’s - for want of a better word - peculiarities… Sometimes what they’ve written isn’t realistic.” (Female Carer, Western Australia)

In our empirical cases of platform-mediated photographic work and care work, workers often described the rate requested by the client as “not worth my time” when the costs of travel, equipment or running a car were factored in. A major reason that photographers avoided digital labour platforms such Snappr, which facilitated app-based portrait, event, real estate and product photographic work, was because competition for work revolved solely around low price points. Fees to complete a photographic shoot were cited as usually under $100, which was described by various photographers as “below the minimum wage”.

**Box 3: Wage Rates**

- Excerpts from Care Workers

- “I usually set them [my rates] based on kind of the market, so what other people are generally charging. Then I try to look at my experience and my qualifications and charge accordingly….sometimes I do drop my rate and I’m not that happy about it. But I will do that sometimes…..” (Female Carer, Victoria)

- “It [The platform] suggests some running rate, in my area. Like earlier I put for my ads, my rate was $40 per hour…[the platform] was showing me $18 per hour [average in my area], so then I thought let us put $25. So I’m thinking if it doesn’t work then maybe I can reduce another $5 dollars. Whatever the market is.” (Male Carer, Queensland)

- “[I charge] Thirty-five dollars an hour… I have to negotiate it and I have to prove that I’m worth it because apparently the average rate is $18 per hour.” (Female Carer, Queensland)
“below the cost of production” or “less than I would pay an assistant”. Male interviewees pointed to untenable rates and a devaluing of the profession, both of which are characteristics associated with feminised work.

Box 6: Wage Rates – Excerpts from Photographers

“What does it cost me? What does it cost the business going across town shooting those images, the wear and tear on my gear, my time, my petrol, my post-processing, my internet connect, my upload… What are you valuing your time at and is that realistic?” (Male Photographer)

“We certainly don’t use [platforms],...Basically it’s an auction system. It is not going to actually cover our costs… They’re only going to survive by churning through aspiring young photographers until they get to the point where those people have either moved onto more lucrative forms of work or they’ve essentially gone broke…..” (Male Photographer, 20yrs industry experience)

Platforms and the income opportunity they provided were referred to by photographers as “a red herring” and “a pyramid structure” where “one person at the top who manages all this makes all the money and [creates] an awful lot of disgruntled people” (Male, 20yrs). One female photographer described how a platform she was registered to work on requested that she place the platform logo on her own business website in exchange for “preferential status” that would ostensibly send more work opportunities her way. Despite having been registered for some time, she had not received any work without having the preferential status that required her to promote the platform (without pay) to clients that were accessing her services independent of the platform (McDonald et al. 2020a, Williams et al., 2021).

Digital Platform Work and Work-life Balance

Digital platform work is said to make employment more accessible to low-skilled or untrained women or women who undertake primary care responsibilities in the home (Kohlrausch & Weber, 2020; Wood et al., 2019; Milkman et al., 2021). Altenreid (2020, p.153) argues, for example, that the “spatial and temporal flexibility” characterising micro tasking on crowdwork platforms, is perceived as ‘well-suited’ to those providing unpaid care and domestic work—in the main, women. Women combining unpaid reproductive responsibilities and crowdwork are found “on almost all platforms and among all countries” (Altenreid 2020, p.153). A broader societal devaluation of domestic and caring labour is central to the myth of microtasking as fun for ‘bored housewives’ and not deserving a decent wage (Altenreid, 2020).

Digital platform work, by virtue of offering flexibility of hours and times worked, is said to counter the lack of flexibility in many traditional workplaces, thus making it attractive to women who undertake domestic care duties and need to work from home (Churchill & Craig, 2019). Milkman and colleagues (2021) note that for the white working-class participants in their US study, the attraction of platform-based food delivery work was that it provided greater control over their paid working hours enabling prioritisation of caring responsibilities compared to other work.

Similarly, in Australia, Shebah, a transport platform that allows only female drivers, submitted to the Inquiry into the Victorian On-demand Workforce (2020) that the average driver ‘is seeking casual flexible work that fits around her family and other priorities’. Shebah put forward in their submission that many of its drivers are carers of ageing parents and children with a disability. They explained that if required, the platform allows the female driver’s child to travel with her, if passengers do not object. However, at the same time as facilitating access to work for women with significant caring responsibilities, this type of ‘flexibility’ also blurs the lines between markets, work, and domestic spheres (Bartlett, 2016), reinforcing the social role of women as primary caregivers.

Women’s caring responsibilities may restrict time/s available for platform work, affect the timeliness of task completion, and limit the volume of work that can be completed - all of which contribute to lower rates of pay. Indeed, it is argued that the need to be constantly available and responsive discriminates against those seeking to simultaneously undertake online work and fulfill caring obligations (Plasna & Drahokoupil 2017, p.328). The flexibility that can characterise platform work offers a very ‘neoliberal solution to work-family conflict’ so that women continue to be overrepresented in precarious and poorly paid work (Milkman et. al. 2021, p.358).

An Australian study by Woodman & Cook (2019) examined time scheduling amongst heterosexual couples in their late 20s where both partners were engaged in paid work with non-standard working hours. They found that the burden of complex time scheduling and coordination of work and personal lives falls predominantly to women. While this work has long been recognised as being disproportionately undertaken by women with caring responsibilities, their study demonstrates that this burden is both intensified by non-standard and unpredictable hours—a key characteristic of the gig economy—and is also taken up by
young women without children. Woodman & Cook (2019) argue that although under-researched, this additional burden on women is not only likely to be exacerbated in the gig economy.

More broadly, working from home, which is a predominant feature of digital platform work conducted online, can exacerbate the unequal division of unpaid reproductive work (Plasna & Drahokoupil, 2017, p.328). Evidence presented in submissions to the Inquiry indicates that inconsistent and irregular hours, or the requirement for a high level of responsiveness associated with platform work may place pressure on women who have caring responsibilities due to difficulties controlling schedules and balancing paid work with other commitments (Victorian Government Inquiry report, 2020, p.46). As Flanagan (2019, p. 71) argues, workers, often registered on more than one platform, “must serve multiple employers simultaneously” and are penalised for “slow response times” through low ratings and even financial sanctions.

In their submission to the Inquiry (2020, p. 14), the Australian Services Union highlighted the implications of work-life spill-over for home community support workers who obtain work via digital platforms. The capacity for digital platforms to track worker availability, job acceptances and ratings or rankings make it increasingly difficult for workers to ‘switch off’ from work. This was further demonstrated in the research team’s study of photographers’ participation in digital platform work, which highlighted how the constant fear of missing out on job opportunities necessitated the need to be “constantly on”. Photographers described how they had to respond to opportunities as soon as they “come off my phone and my watch” because “even if you replied within let’s say 15 minutes to half an hour, the job had already been quoted and delivered” (McDonald et al., 2020a, p. 12).

Motivation and Satisfaction associated with Digital Platform Work

Studies on the motivations for undertaking digital platform work have identified the ability and/or need to work from home to balance caring responsibilities (Berg, 2016), gain control over working hours and to earn extra income as factors influencing the decision to register for work with a digital platform (Williams et al., 2021). This is not surprising given the characteristics of digital platform workers and the patterns of participation illustrated in earlier sections.

Differences in motivations of male and female digital platform workers have been identified. Churchill & Craig’s (2019) study of Australian digital platform workers found that men were often motivated by a desire to increase or supplement their income, whereas women’s motivations were more diverse. For example, women sought work on digital platforms as a stopgap while looking for more permanent work and were more likely than men to say that they were looking for work they could accommodate around care work.

Building on the established knowledge that most digital platform workers use platform work to supplement income earned through work outside of the platform economy, Doucette & Bradford (2019) compared the motivations of workers on the platform Amazon Mechanical Turk (MTurk) to that of workers in the traditional employment market who “moonlight” in a second job. They found that the intensity with which men and women participated in digital platform work was driven by different motivations. Men worked more hours on MTurk than women and did so because they could not obtain enough hours in their main job, and/or they wanted to cover ongoing expenses and/or to save for the future (2019, p. 140). However, the additional hours they worked did not always translate into additional income, and hence, did not necessarily address the shortfall in income from their main jobs. Women MTurkers, in contrast, were concerned about the security of their primary jobs and were undertaking digital platform work to ameliorate this sense of insecurity as well as cover ongoing expenses.

Milkman and colleagues’ (2021) survey and interview research in the US that examined the motivations of white working-class women working in platform-based food delivery (e.g. as grocery shoppers and pickers) showed that many participants derived satisfaction from being able to capitalise on previously unpaid skills in grocery shopping and food preparation. This group of women also found this work ‘emotionally rewarding’ when it involved helping those in need (Milkman et al. 2021, p. 358). Significantly, however, the women undertaking platform-based food delivery work described also experiencing stigma and shame associated with such poorly paid work which made them feel demeaned as ‘the help’ at the hands of privileged customers.

The gig and sharing economies are valorised as enabling flexibility, networking, trust, cooperative relationships and communication - things women especially, are thought to value (Bartlett, 2016). Yet many of the studies presented in this report demonstrate that these very features can reify gender stereotypes and harm women’s long-term interests and gender equality (Schoenbaum, 2016).

In the Australian National Survey, the primary motivation for commencing digital platform work for both men and women was income generation,
with most workers seeking to supplement income derived from other sources, such as another job (McDonald et al., 2020). Indeed, four in five platform worker respondents (78.3%) were employed or self-employed in non-platform work at the time of the survey. Consistent with gendered labour market patterns, however, women were significantly more likely than men to be homemakers or unpaid carers, and when they were employed, to be in more fragmented or insecure work that was part-time, casual, or which involved a fixed term contract.

Men and women were equally likely to cite financial factors (e.g. to earn extra income) and flexibility (e.g. the ability to work the hours I want, being my own boss) as motivating factors to participate in platform work. However, women were significantly more likely than men to say that networking (e.g. building networks, and socially connecting) was a motivating factor. Women and men were equally likely to indicate they were satisfied with the flexibility associated with platform work, and there were no gender differences in the extent to which respondents used their previous skills and experience (e.g., formal qualifications, experience from past jobs) when undertaking digital platform work.

Our interviews with care workers seeking work through digital platforms revealed that care workers were motivated by the need to earn “extra income”—for example to pay for specific items, or as a supplement to income earned elsewhere—and by flexible hours. When asked why they sought care work via digital platforms rather than through traditional organisations/employers such as care agencies, participants often described a desire for control over their own working arrangements, including hours and choice of clients.

As evidenced in the quotes below, participants selected a specific platform to work through based on two primary factors: Availability of work and convenience.

### Box 7: Motivations for Platform Work – Excerpts from Care Workers

#### Availability of work

“I get platform ads and it says all the list of these different platforms that are looking for people like you and so then I will tap on the email [Ad] and see the profile of the job, who’s looking for someone on the site.” (Female Carer, Victoria)

“Actually there are quite a few advertisements for nannying or babysitting jobs in my area but—and they were through [platform x] and I couldn’t apply for them unless I signed up for the site.… Then once I was on the site, I realised that there’s so many more options… Then I did the upgraded profile so that I could actually put a picture there so people would actually contact me.” (Female Carer, Victoria)

#### Convenient registration and search functions of the platform

“I was looking for something that was a little bit different in that I could work it around my family schedule and not have to return to do the previous job that I had. Ideally finding something where I could potentially have someone’s children at my home with my children as well.” (Female Carer, Victoria)

“No, the profile was easy I guess, to upload your skills. Yes, not complicated. What are you looking for and what are you offering…” (Female Carer, Victoria)

### Discrimination and Gender Bias on Digital Platforms

As well as gender segregation, studies have uncovered potential and actual experiences of discrimination in digital platform work. Platform work “‘decouples’ work from institutional structures” (Kohlrausch & Weber, 2020), ostensibly increasing the autonomy and flexibility of the worker, but also removing the protections that accompany institutional structures, such as protection from harassment and discrimination and access to leave and benefits.

Recently, the International Labour Organisation (2021, pp. 189–90) reported that significant numbers of platform workers experience, and/or observe discrimination or harassment while working: this is the case for 19% of online web-based platform workers and 20–29% of those in the transport and food delivery sector. Relatedly, a study of workers in the Global South (Graham et al., 2017) found both subtle and blatant discrimination, including...
“statistical discrimination” where it is assumed that workers from marginalised countries produce lower quality work. This research (Graham et al., 2017) further found that level of pay was determined by country of origin/residence and gender, rather than skill and experience. Some job posts explicitly refused bids from workers located in specific countries.

The application of anti-discrimination or equality laws to platform transactions is complicated by numerous factors, including the status of digital platform workers as independent contractors (rather than employees), the complexity and opacity of the algorithms typically used by platforms, and the fact that the relevant discrimination may come from customers providing ratings (Kilhoffer et al., 2020, pp. 272–3). The triangular exchange of capital for labour in digital platform work confounds previously binary assessments of discrimination in law, because it becomes more difficult to discern who did the discriminating (e.g. the client, platform or technology) and how discrimination might be facilitated or institutionalised by platform mechanisms or algorithms (Barzilay & Ben-David, 2017; Kullman, 2018).

Many platforms enable and promote choice. Workers can choose if, and when, to take on a task, and customers can choose who they want to do the work, as well as how much to pay or tip, how quickly the services must be rendered and how to evaluate the services received (Bartlett, 2016, p.1166). Such choice may inadvertently result in the emergence of various forms of discrimination.

Algorithms are used to automatically distribute, allocate, and monitor work on digital platforms, and have been shown to reproduce gender bias. While algorithms are purportedly gender neutral, they rely on an unbiased model or data set. Where the underlying data set is based on gendered social norms and systemic social inequalities that preference male workers, algorithms replicate this bias (Kohrausch & Weber, 2020; Kullmann, 2018). Algorithms identify patterns in data, and thus may inadvertently filter out workers by mirroring patterns of inequality that exist in society or may identify gender through a platform workers’ name or other profile information (Abendroth, 2020; Kullman, 2018).

Studies on the use of algorithms to recruit and select employees in traditional organisations have uncovered such unintended bias and discrimination by algorithms (Kleinberg et al, 2018; Kohrausch & Weber, 2020). For example, the underlying algorithm in the AI used in Amazon’s recruitment process was found to be preferring male candidates for technical jobs such as software developer (Kleinberg et al, 2018).

Existing worker inequalities can be further exacerbated by platform algorithms that preference workers according to skills and experiences that are more likely to be held by men who are already employed, and inbuilt review systems which are susceptible to client bias or discrimination (Pelletier & Thomas, 2018; Wood et al., 2019). Algorithms may distribute work or match workers to tasks based on prior customer ratings and reviews, worker availability, worker location, or how quickly a worker has completed past jobs. The additional care or domestic responsibilities that many women experience will influence their ability to meet such time-based criteria, and thus impact on the amount of work they are algorithmically offered via the platform (Kullman, 2018).

Platform technology and algorithms—for example around verification processes—has also been shown to reproduce white privilege as Rand (2019) shows in her empirical research on sex work on digital platforms so that white women may be advantaged over women of colour. In order for discrimination laws to be effective, it may be necessary for regulators to gain access to, and be able to analyse, source codes for algorithms, which is currently prohibited by a number of trade agreements (ILO, 2021, pp. 253–4).

Schoenbaum (2016) argued that the intimate nature of transactions in the gig economy serves to amplify rather than diminish the salience of gender in the negotiation of work. In the gig economy, the direct interaction between worker and client requires an exchange of private information that may not occur in traditional workspaces and work negotiations.

As highlighted in the Inquiry’s report, the necessity for workers to have online profiles on digital platforms can facilitate discrimination and a reliance on cultural and gendered stereotypes when hiring (Victorian Government Inquiry report, 2020, p.45). Reputational trust in the gig economy is not predicated on the reputation of the company (in this case the platform) but instead is built through the personal profiles of workers and clients and the ratings they have received (Williams et al., 2021). Worker identity characteristics presented in profile text, and sometimes in profile photographs, are used to signal trust or reliability and shape the expectations of the client. Not surprisingly then, some platforms require workers to upload profile pictures or to specify their age or gender when creating a profile. Such “personalisation of the transaction” intensifies the risk of discrimination (Schoenbaum, 2016, p. 1037).

Building trust in digitised interactions between workers and clients has been shown to result in “gender overidentification” by platform workers who ascribe to gender norms and stereotypes to decrease insecurity in online communications.
(Kohrlaush & Weber, 2020, p. 24). Rather than reducing opportunities for discrimination or harassment and removing gender from consideration in the negotiation of work, these aspects of digital platform work may reify gendered social roles and stereotypes associated with work. Such mechanisms may also enable clients to express gender-based preferences that are often consistent with male and female social roles.

Rand’s (2019) study of sex workers provides a further example in a feminised and intimate industry. The study documents a range of ‘new digital vulnerabilities’ experienced by sex workers offering services through digital platforms, including limited control over their online identities and normalised online harassment. Similarly, a substantial study of worker profiles on a large international freelancing platform conducted by found that digital platform workers face active racial and gender discrimination despite the possibilities for the opposite outcome (Beerepoot & Lambregts (2015); see also Rosenblat et al., 2017; Ducato et al., 2018).

In response to client safety concerns, platforms have recognised a demand for female service providers in some sectors such as transport (Tarife, 2017) and home-based service work like cleaning. While the emergence of women-only services in a market is not new (e.g., women-only gyms), segregation of services based on gender has been explicit on some digital platforms. On other digital platforms, the mechanisms for gender-based selection for work exist but the extent to which it occurs may be concealed. Ride-share services such as Sheba for example, employ only female drivers, while companies such as Uber offer the option to select the gender of a driver as a safety measure (Schoenbaum, 2016; Tarife, 2017). This presents both benefits and risks for workers and clients alike.

Safety concerns for women on ride-booking platform services may be alleviated through various strategies and female only services enable women to enter male dominated sectors (Tarife, 2017). Yet, while privacy, trust and safety can be improved through same sex transactions, Schoenbaum (2016) argues that the gender preferences of clients may be rooted in sex or sexuality. They cite the example of Uber’s 2014 marketing campaign in France promoting rides with “Avions de Chasse” – “hot chick” drivers (Greenfield, cited in Schoebaum, 2016, p.1044). In this way, gendered marketing and service offerings by digital platforms may exacerbate safety risks and bolster sexual harassment and gender discrimination.

Reflecting broader social norms, mechanisms of platform control such as customer rating and review systems have been shown in some cases to be profoundly gendered and discriminatory (Kullman, 2018). Experimental work undertaken by Greenwood and colleagues (2020) demonstrated significant gender biases in ratings of ridesharing performance in the US context. Though the study found that female drivers are not disadvantaged in securing customers, nor are they penalised when a rider records a highly satisfactory experience, this is not the full story. That is, in the case of an inferior experience, particularly in terms of vehicle cleanliness and style of driving, female drivers are penalised more so than male drivers. At the same time, female drivers who have historically high ratings are penalised for inferior service more vigorously relative to Caucasian male drivers. This penalty is most evident in ratings provided by Caucasian male customers.

Racial vilification, discrimination and harassment has also been reported in digital platform work (Ticona et al., 2016; Graham et al., 2017). The potential for experiencing “adverse social behaviour” (Kihoffer et al., 2020, p. 89), especially harassment and violence, may be increased for work performed in-person at a place and/or for a client determined by the platform as opposed to being determined by the worker (Eurofound, 2018, p. 31; and see also Schoenbaum, 2018). Significantly, platform workers exposed to situations of harassment or hazards that may negatively impact on their health or wellbeing, tend not to have access to mechanisms for redress that are more readily available in traditional workplaces (Fianagan, 2019). This is further exacerbated by the unequal power relations between the worker and consumer/client buttressed by platform control mechanisms - walking away carries the risk of a poor rating.

Australian studies also suggest bias and discrimination may be enabled via digital platform processes and mechanisms of matching and selecting workers. Some platforms provide the option for clients to filter worker profiles according to preferred characteristics including gender, and the underlying algorithms that “match” clients with workers may recognise gender-based patterns or information (Schoenbaum, 2016; Williams et al., 2020a).

Care workers registered for digital platform work reported that they were required to provide considerable personal information such as age, gender, ethnicity and interests, so that potential clients could filter by these characteristics to shortlist workers who best suited their care needs.

4 The authors conducted a university-approved controlled online experiment using factorial vignettes in which research participants believed they were assisting a new rideshare company understand what makes for a good rider experience; participants also believed that their evaluations would have real impact on real drivers.
This was in contrast to graphic design platforms where filters only offered skill-related options such as coding qualifications. Clients on care platforms were further encouraged to advertise for carers with similar values to their own and select carers based on ‘interests’, ‘personality’, ‘working styles’ or even ‘cultural background’ and ‘religion’.

Consistent with international studies cited above, care workers also described how professional experience and gendered social roles were conflated and exploited in order to gain work via digital platforms.

### Box 8: Gendered Social Roles
- Excerpts from Care Workers

“I’ve only just written about [in my profile] that I’m a childcare - a kinder teacher - well, used to be a kinder teacher. Now, I’m doing childcare.”  (Female Carer, Victoria)

“Well the fact that I’m a registered nurse, I think nurses are generally held as trustworthy and honest people and I think we have a good reputation in the community as being the sort of person that becomes a nurse is a nice person…You couldn’t do the kind of work that we do if in fact you didn’t have a caring attitude.”  (Female Carer, South Australia)

“I looked after my younger sister and brother when they were babies when I was only 10 and 11. I learnt how to hum them to sleep, I learnt lullabies and so I was a mother to them really.”  (Female Carer, New South Wales)

Photographers working in Australia also described how a growing reliance on social media platforms as a means to generate work foregrounds affective labour and soft skills traditionally associated with women (Veijola & Jokinen, 2008). Despite few women in the sample obtaining work through digital labour platforms, almost all photographers we interviewed assumed it was “women”, “newbies” or “wannabes” that were fuelling the growth of digital platform photography businesses (Mayes et al., 2020; McDonald et al., 2020a). Pervasive gendered assumptions negatively impacted on the professional standing of female photographers, and their acceptance as legitimate entrepreneurs in the professional photographic community (Mayes et al., 2020).

### Box 9: Gender Bias
- Excerpts from Photographers

“I’m sure they [digital platforms] get photographers signing up with them, whether they’re new photographers or wannabe photographers or I don’t know, a mum who’s bought a camera and someone told her she’s taking great photos so she signs up.”  (Female photographer, 6-10 years industry experience)

“I would say the profession is in a very crucial stage at the moment. There’s an influx of a new type of photographer. Without sounding sexist, the majority of new photographers coming in are young mothers. I call them mums with cameras. Basically, they’re coming from a household where the kids are at school. They have a husband that has a very good wage or a good job. They’re bored, they want to do something. They’ve always thought that taking pictures is a good idea so they become 9:30 to 2:30 photographers. They’re not educated enough on how to start their business, what it costs … they’re not basing their business on reality because they’ve got hubby’s wage to support them.”  (Male Photographer, 10+ years industry experience)

### Health, Safety & Wellbeing

The lack of and/or uncertainty of regulation characterising platform work exposes workers to risks not typically experienced by employees or agency contractors. A range of studies (e.g. Ticona et al. 2016; Huws et al., 2017; Reid-Musson et al., 2020) document, for instance, rideshare drivers’ experiences of physical and sexual assault, and exposure to illegality in the form of requests to deliver stolen goods and illegal drugs. Women drivers have been victims of sexual assault, in some cases causing women to self-select out of the ride-sharing market (Tarife, 2017). Consistent with findings from our own research (above), workers undertaking platform-mediated cleaning or care work often lack sufficient information about either the client or the task, prior to commencing a job (Ticona & Mateescu, 2018). As Trojansky (2020) points out, this increases worker risk of exposure to potentially hazardous situations and environments.

Online workers too can face both physical and psychological hazards: long hours spent at poorly designed workstations carries risk of injury, just as social isolation is a risk of online work that occurs without human interaction (Huws, 2016; Shevchuk et al., 2019; Wood et al. 2019).
Significantly, platforms do not accept responsibility for ameliorating these risks and workers are often denied access to insurance and compensations (Garben 2019), although they may be entitled to some protections under occupational health and safety laws, at least in Australia.

Returning to the relevance of intersectionality, a study of Uber drivers and digital platform care workers and cleaners in the US demonstrated how race and gender influence the susceptibility of workers to unsafe working conditions. The study used numerous cases to illustrate the racial bias and risks of gender-related violence faced by many digital platform workers providing in-person services (Ticona et al., 2016). Women providing care work through platforms in South Africa have also experienced challenges related to the intimate nature of working in others’ homes, with some reporting abusive treatment by clients (Hunt & Samman, 2020). The need to travel long distances to client homes subjected some workers to additional safety risks, with some reporting instances of “armed and aggressive robbery” (Hunt & Samman, 2020, p. 113).

Consistent with findings in other countries, women in Australia have also expressed hesitancy to work as ride-share drivers, citing safety concerns. A submission to the Inquiry presented the case of a female worker who stopped working as a rideshare driver due to incidents with intoxicated passengers that had made her feel unsafe, while another submission cited similar incidents experienced by the Shebah CEO when driving for Uber (Victorian Inquiry Report, 2020).

Care workers on digital platforms are required to be responsible for their own safety (McDonald et al., 2020b). When asked about how they protected their own safety when going to a job or when meeting a potential client for the first time, the carers we interviewed described how they would choose to meet first in a public place (such as a café) and when they began work they would advise a family member of the location of the job. In most cases, carers would rely on their own intuition or “gut feeling” to judge whether a situation was safe. In at least two cases, carers described situations where they felt that their physical safety was at risk and in one instance, the carer was threatened by the client. In both cases, the carer did not raise their concerns or report their negative experiences with the digital platform because the situations occurred after they were employed by a family. As one carer put it, “that’s between me and the client basically.”

These safety and wellbeing issues cannot be underestimated, especially given that National Survey and other research indicates that women are considerably more likely than men to be undertaking platform mediated work in client’s homes.

Box 10: Health and Safety Concerns

“You just have to be really careful sometimes and just go with your gut feelings, especially when you’re a woman. You just have to be very careful with what you choose to do, and where you choose to spend your time” (Female Carer, Victoria)

Platform Work and the Covid-19 Pandemic

The disproportionate economic and social impact of the COVID-19 pandemic on women in Australia has been evidenced in a comprehensive analysis by Foley & Williamson (2021). They document how women lost more working hours and jobs than men and took on a greater share of the unpaid domestic and caring responsibilities that arose as a result of the pandemic. There is ample evidence that digital platform workers were also affected by the COVID-19 pandemic, and consistent with the impacts in the traditional labour market, women were most negatively affected. In the early days of the pandemic, some digital platforms, particularly the male-dominated food and parcel delivery platforms, saw an intermittent increase in demand for services (Cameron & Fekete, 2020; Hoit, 2020; Sonnemaker, 2020).

Similarly, male dominated online services such as software development and technology remained stable (Stephany et al., 2020; ILO, 2021). Demand for digital labour in sectors that have higher levels of female participation such as clerical, data entry, creative, multi-media, and sales/marketing however declined (Stephany et al., 2020; ILO, 2021). There is limited data on the impact on participation rates in some kinds of digital platform work such as care and domestic cleaning services; however, these are sectors in which the majority of workers are women, and where the risks of exposure to the virus are higher as a consequence of working with multiple clients and the intimate nature of the work (von Alemann et al., 2020).

As is the case in the traditional labour market, women’s constrained participation in digital platform work during the pandemic is likely linked to the gendered distribution of domestic household and childcare duties that increased as a result of the closure of schools and childcare centres and the move to home-schooling (Cao et al., 2020; von Alemann et al., 2020). The effect of a lack of supply of workers was apparent in an exemplar case in the Australian care industry. As part of the Australian government’s COVID-19 response, funding was provided to for-profit digital platforms that provide...
an emergency or ‘surge’ workforce to aged care and disability services (MacDonald & Charlesworth, 2021). When a localised COVID-19 outbreak occurred, the funded digital platform was criticised for being unable to supply sufficient care workers qualified or willing to undertake the required work (Hardaker, 2020; Visontay, 2020).

Digital platform workers in these sectors are exposed to greater risks to their physical safety; however international studies have also shown that digital platform workers experienced higher levels of financial precarity and negative mental health impacts during the pandemic (Apouey, et al., 2020). Few digital platform workers were supported with organisational infrastructure and resources to minimise their health and safety risks, and as independent contractors, were frequently responsible for sourcing and purchasing their own personal protective equipment (PPE) (Herrera et al., 2020). Nor could they access leave entitlements available to employees in traditional organisations.

The impact on the income of digital platform workers globally was tracked by the Fairwork Foundation (2020) which found that gig workers often faced the ‘impossible choice’ between loss of income or risk of infection. The Foundation’s (2020) research shows that on average gig workers around the world experienced a reduction in income to a third of the pre-pandemic level. Covid-19 effects on demand for gig work is contingent on type of industry and country: demand for food, parcel and grocery delivery increased while demand for domestic work and beauty services declined (Fairwork Foundation 2020). At the same time as a result of pandemic effects on the broader workforce, the gig workforce increased in turn increasing competition for work and lowering income (Fairwork Foundation 2020).

While it is not clear if there were gendered variances in the loss of income, given that there was a decline in female participation in digital platform work and in the traditional labour market job losses were greater for women than men (Foley & Williamson, 2021), it could be expected that women have experienced a greater overall decline in income during this time.
Conclusion and Future Research

Digital platform work in Australia and internationally, as demonstrated by empirical research reported in this review, can both reproduce and exacerbate existing gender inequalities in work, just as it can create new modes of gender inequality. The review demonstrates the complexity of women’s participation and the interrelated nature of constitutive elements. Motives and barriers to participation, for example, are profoundly shaped by primary caring responsibilities.

Globally, women are under-represented in the participation and extent of platform work, and more so when more than 20 hours of platform work is undertaken per week. Key reasons for this, shaped by intersecting axes of difference including class and race, are access to technology, geographic location, and socio-cultural norms around gendering of primary responsibility for the work of social reproduction. Structural barriers in the form of recruitment and ratings practices that reproduce gender norms also play a significant role.

Participation in platform work reproduces gendered labour market segregation; for example, men are overrepresented in transport and food delivery work, and women are overrepresented in traditionally feminised work such as care work. The literature highlights an emphasis on self-employment and entrepreneurship as mode of participation with associated gendered inequalities arising from transfer of risks (e.g. under/non-payment; health and safety) and responsibilities (e.g. negotiation of rates, management of the domestic time squeeze) to workers.

Australian data shows gendered patterns of participation consistent with international studies. Data from the National Survey confirms that in Australia men are twice as likely as women to engage in platform work, and that women participate less frequently than men. Gendered divisions by type of work that see greater numbers of women in feminised occupations is consistent with patterns in other country contexts. Women are more likely than men to work in the homes of clients, and thus face risks to their health safety and wellbeing specific to this domestic work environment.

Regardless of experience, qualifications, ratings/reviews and type of work, there exist significant pay disparities—in the order of more than 30%—between men and women. This is linked to gender segregation in employment, ongoing under-valuation of women’s work, level of dependence on platform work and related capacities to negotiate higher rates of pay.

Women undertaking platform work in Australia earn less than men as evidenced in the National Survey. The National Survey did not identify differences between male and female self-reported need to undertake platform work, with both male and female participants reporting that the income derived from this work was not essential but rather ‘was nice to have’. Importantly, this income for both male and female respondents constituted less than half of their annual income.

In the Australian context, as revealed by the National Survey, male respondents worked slightly longer hours doing platform work than did women. Australian empirical data indicates that there is significant erosion of the boundary between work and home life, in particular for those undertaking on-demand work, and domestic time squeeze derived from the disproportionate burden on women to manage the blurring of these spheres.

Empirical research demonstrates that Australian workers set their rates in relation to, platform-provided (and created) norms. Significantly, clients seek to push-down rates, with the risk of workers engaging in a ‘race to the bottom’ to secure work.

Digital platform work is often seen as attractive to women in that it may counter the lack of flexibility in terms of working hours in traditional employment settings. Further, platform work can provide opportunities not otherwise available to those with responsibilities for caring and reproductive labour. However, workers needing to juggle reproductive labour and paid work can be actively disadvantaged in that platform work structures and algorithms reward the most responsive/quickest workers and those who can accommodate higher volumes of work. Australian research shows that platform work can blur the spheres of work and home leading to...
a disproportionate burden and stress on women in terms of managing work and life intersections, and pressures arising from the need to be constantly available to work.

Motivations for taking up platform work are gendered. In the global literature, men sought platform work to increase income, while women used platform work to counteract primary job insecurity and to cover ongoing expenses. Satisfaction for women without professional qualifications can lie in the ability to monetise previously unpaid domestic skills.

Motivations for participating in platform work are also gendered for Australian workers: men are motivated by a desire for increased income while women articulate a range of motivations including requirements for work which can accommodate caring work and also the need for ‘stop gap’ work while looking for more permanent employment. Women are significantly more likely than men to be motivated by networking.

The international literature points to discrimination and harassment as affecting a substantial number of platform workers. Some studies estimate that between a fifth and a quarter of workers experience these problems depending on the industry sector in which they work. Discrimination can be based on assumptions about quality of work in relation to worker country of origin and/or gender and/or type of work. These assumptions are mobilised both by clients and also algorithms designed to match workers to tasks/clients. For example, clients may screen potential workers on the basis of gender, ethnicity and age, while some platform algorithms create a situation in which males are more likely to be matched to ‘technical’ jobs.

Workers are often required to post public profiles including photographs and personal information such as age, gender and ethnicity. This can open them up to both deliberate and inadvertent discrimination along, for example, axes of gender, race and age. The creation of profiles designed to secure work can lead to worker over-identification with normative social categories and amplification of existing inequalities. Client ratings have also been shown to reproduce social stereotypes and expectations, just as public profiles and platform structures can enable if not normalise online harassment.

In comparison to traditional employment, the positioning of workers on digital platforms as self-employed and/or entrepreneurs increases worker risk of exposure to and experience of physical hazards and gendered and racial violence. At the same time, access to mechanisms for redress are much more limited than for those in traditional employment.

Worker concerns about, and responsibility for, personal safety is documented in Australia, particularly for women undertaking rideshare and care work.

While the literature demonstrates that women are disproportionately socially and economically affected by the Covid-19 pandemic (Foley and Williamson 2021), the gendered dimensions of impacts of the pandemic on platform workers are less apparent. However, the literature clearly traces the substantive and wide-spread loss of income for platform workers since the pandemic began, and increased risks associated shouldering responsibility for their own safety, alongside a relative lack of institutional resources and support. The intimate and essential work of transport and care suggests higher risks for these workers, which in turn are likely to be experienced unevenly depending on gender, class and age.

### Agenda for Future Research
(Gendered Dimensions of the Gig Economy)

Additional research is urgently needed to understand the complexities and reach of gendered barriers to participation and experiences of inequality and discrimination in the gig economy in order to inform robust policy responses.

While it has been established that a gender pay gap exists in Australia and internationally, the specific extent and reach of this gap, and how it varies across industries, is currently unknown. The multifarious ways in which workers participate in digital platform work, including platform functions which require unpaid tasks and indirect costs, creates difficulties in collecting robust income data. This should be addressed in future research through dedicated and tailored study design.
Women’s primary responsibilities for social reproduction is an overarching gendered dimension of the gig economy and effective management of the interface between work and life should inform the development of sound labour law and social policy (Women and Family Policy Roundtable 2020). Hence, a core area of future research must centre on understanding how women’s uneven share of responsibility is reinforced in platform work and how it can be ameliorated.

Detailed empirical studies are needed to understand the uneven experiences of the domestic time squeeze and associated burdens on women of different backgrounds and in different industries and types of work. This research is needed to develop policy that supports ‘both men and women to be paid workers and share unpaid work and care’ (Women and Family Policy Roundtable 2020a). Research should also address how the new forms of work facilitated by platforms can be effectively addressed through labour protection frameworks that “promote equal access of women and men to quality jobs and their equal treatment at work” (Piasna & Drahokoupil 2017: 313).

Further research is also needed to understand the gendered participation and lived experiences of specific Australian populations such as student or retiree platform workers and diverse ethnic cohorts, First Nation’s peoples, rural populations, and other groups, with attention to intersectional dimensions such as class, age, sexuality, ableness and race.

The short and longer-term gendered impacts of the Covid-19 pandemic on platform workers in different occupational fields is only beginning to be understood.

 Continued research on the diverse forms and functions of algorithmic management, and the platform architectures of ratings and client/worker matching, is crucial in order to understand and address systemic discrimination and harassment of platform workers. A key aspect of this research is a focus on how algorithmic weightings based on gender, for example, could be used to combat discrimination (following Greenwood et al, 2020).

Extant literature makes clear that discrimination is underpinned by with client/customer assumptions, beliefs and practice, yet there is a dearth of research exploring, from the customer/client perspective, motivations, recruitment practices and expectations around securing services through digital platforms. Relatedly, current harassment and anti-discrimination laws are thought to be problematic in that their primarily application is to workers with a traditional employment contract, thus leaving self-employed digital platform workers without legal recourse to anti-discrimination regulation (see Bartlett, 2016, p.1166).

Finally, a follow-up nationally representative survey is needed both to map shifts in the contours and prevalence of participation in digital platform work generally, and to identify specific gender and intersectional elements of this increasingly common mode of work for Australians. Table 3 summarises an agenda for future research.
Table 3: Future Research Agenda

<table>
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<tr>
<th>Key areas and dimensions</th>
<th>Research gaps and focus points</th>
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| Gender pay gap                           | › Inadequate data on pay gap and varies across industries  
› Unpaid tasks and indirect costs missing from data on income from platform work                                                                                  |
| Work life boundaries                     | › Reinforcement of uneven share of social reproduction responsibilities and associated burdens on women  
› Policy development and labour protection frameworks needed to support equal access to work, shared unpaid work and care responsibilities and equal treatment at work for men and women               |
| Intersectionality                        | › Specific attention to intersectional dimensions such as class, age, sexuality, ableness and race needed, focussing on Australian populations such as student or retiree platform workers, diverse ethnic cohorts, First Nation's peoples, rural populations, and other groups |
| Impacts of COVID-19                      | › Short and longer-term impacts on platform workers in different occupational fields                                                                                                                                             |
| Algorithmic discrimination and harassment| › Continued research needed on influence of form, functions of algorithmic management and platform architectures of rating and client/worker matching to address systemic discrimination and harassment of platform workers  
› Focus on role of anti-discrimination laws in context of platform work, use and application of gendered algorithmic weighting mechanisms to combat discrimination |
| Client/Customers as employers            | › Research needed on customer/client perspective, motivations, expectations and recruitment practices in platform work and influence on interactions with workers  
› Lack of legal recourse to anti-discrimination regulation for self-employed (platform) workers                                                                                                                             |
| Longitudinal research                    | › Follow up longitudinal national survey needed to map the shifts in platform work with specific focus on gendered and intersectional dimensions                                                                                  |
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