Riders on the Storm: Amplified Platform Precarity and the Impact of COVID-19 on Online Food-delivery Drivers in China

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ABSTRACT
The global COVID-19 pandemic has disproportionately intensified the precariousness of insecure work. This article examines the impact of the COVID-19 crisis on platform-based food-delivery drivers in China, particularly focusing on labor conditions. Drawing on 52 in-depth interviews with drivers from top Chinese food-delivery platforms, this article shows that the precarity of drivers’ work and life is dramatically amplified by the pandemic, resulting in escalating work insecurity, financial instability, and subservient class identity. More specifically, drivers struggle with increased physical risks, livelihood crisis and inflamed racism. All this results from the reorganization of algorithmic labor process and management facilitated by the coalition of food-delivery platforms and Chinese states, which results in surged workload, unpaid labor, uncompensated prolonged production time and extra investment in production assets.

Introduction
One winter night in February 2020, in the middle of COVID-19 pandemic in China, Lee and his two male, fellow-villagers sneakily started a 600-km trek from a countryside village in Hebei to Beijing by motorcycle. After a short reunion with their families during Chinese New Year, Lee and his two friends came up with this way of returning to work as food-delivery drivers in Beijing to avoid strict local government surveillance of travel restrictions during the national lockdown. When Lee shared his story, he said: ‘Certainly, we were definitely terrified about being infected with virus. But compared to the risk of catching virus, it was more urgent for us to make money to survive … Even if during the time before pandemic, I can almost read the news that that my fellow drivers got into a crash and became disabled or even died every day, but we never gave up with our deliveries’. Lee’s description of dangerous working conditions and struggles to survive is a microcosm of multitudes of drivers across China, which epitomizes the problems faced by platform food-delivery industry in the era of China’s digital transformation.

In conjunction with China’s industrial upgrading and digitalization policy, the platform economy underpinned by digital technology is booming in China.1 The platform food-delivery industry, in particular, has absorbed millions of drivers selling their labor as platform workers. Nearly all drivers are middle-aged, ex-factory-workers from rural China, ejected from the shrinking, low-value added and labor-intensive industry they previously worked in and forced into the expanding urban surplus population who depend on hyper-precarious gig work to survive.2 These migrant drivers,
accustomed to rushing across cities such as Beijing at a risky speed to make deliveries, often veterans of flights in factory jobs under dormitory labor regime, seem to end up grappling with new forms of work intensification, labor exploitation, low wages and safety issues under platform labor regime.\(^3\) The food-delivery industry in China is dominated by two large platform-based start-ups, Meituan Waimai and Ele.me, who are backed by China’s duo of tech titans, Tencent and Alibaba. According to their self-reported statistics, Meituan Waimai has 3.98 million food-delivery drivers.\(^4\) And Ele.me has 3.1 million.\(^5\) This sheer volume of drivers constitutes the ‘new army of precariat’ in China.\(^6\)

The fast-growing platform food-delivery industry has garnered much scholarly attention. A rising amount of work has studied the novelty of platform work regarding contractual relations, labor organization and control system, labor conditions, and workers’ resistance.\(^7\) However, there is a dearth of literature using the precarity approach to examine the labor conditions of food-delivery work. In addition, while the concept of precarity has been widely discussed and deployed to analyze a diverse range of traditional forms of insecure and non-standard employment, to date, little research has been conducted focusing on platform food-delivery work. More importantly, precarity scholars claim that precarious work is intertwined with income instability, job insecurity and racialized identity.\(^8\) However, there have been few chances to utilize representative cases to examine how this type of instability and insecurity operates. Moreover, the existing discussions regarding platform food-delivery work are situated in advanced economies context, with little research focusing on developing countries.\(^9\) Therefore, this article takes China’s operation of platform food-delivery work during pandemic as a case study, adopting precarity approach to investigate drivers’ labor conditions.

The structure of this article is as follows. In the following section, a review of literature about precarity of non-standard work is provided. This is followed by a section that situates the precarity in platform food-delivery work. Then, the research method and data collection and analysis are clarified. To better understand the changes in labor conditions of drivers in the COVID-19 pandemic, the context of food-delivery work in China is elaborated after methodology section. The finding section is organized by two parts: the response of food-delivery platform amid the pandemic and the role of Chinese states, and the abject labor conditions of food-delivery drivers. Finally, the contributions and the implications of global pandemic on labor conditions of insecure work are discussed. This article provides vivid insights of lived experiences of drivers during the pandemic, which contributes to extending our current understanding of work precarity into the emerging platform-based gig economy.

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\(^{1}\) Pun Ngai, Migrant Labor in China: Post Socialist Transformations (Cambridge: Polity, 2015), pp.83–105.

\(^{2}\) 2019nian ji 2020nian zhongguo waimai chanye fazhan baogao [“China’s online food-delivery development report in the year of 2019 and 2020”], Meituan Research Institute, accessed 20 March 2021.

\(^{3}\) https://about.meituan.com/research/report

\(^{4}\) 2020 Ele.me lanjishi duoian baogao [Ele.me food-delivery drivers survey report 2020], AliResearch, accessed 20 March 2021.

\(^{5}\) http://www.aliresearch.com/cn/presentation

\(^{6}\) Cant Callum, Riding for Deliveroo-Resistance in the New Economy (Cambridge: Polity, 2019), pp.130

\(^{7}\) For example, see Stefano Valerio De, ‘The Rise of the “Just-in-Time Workforce”: On Demand Work, Crowded Work, and Labor Protection in the “Gig Economy”’, Comparative Labor Law & Policy Journal 37 (2), (2016), pp. 471–504; Veen Alex, Tom Barratt and Caleb Goods ‘Platform-Capital’s “App-etite” for Control: A Labour Process Analysis of Food-Delivery Work in Australia’, Work, Employment and Society 34(3) (2020), pp. 388–406; Goods, Caleb Alex Veen and Tom Barratt, “Is Your Gig Any Good?” Analysing Job Quality in the Australian Platform-Based Food-Delivery Sector, Journal of Industrial Relations 61(4) (2019), pp. 502–27; Lei, ‘Delivering Solidarity’; Cant, ‘Riding for Deliveroo’, pp. 103–40.

\(^{8}\) Standing Guy, The Precariat-The New Dangerous Class (London: Bloomsbury, 2011), pp. 1–29; Alberti Gabriella, Ioulia Bessa, Kate Hardy, Vera Trappmann and Charles Umney, ‘In, Against and Beyond Precarity: Work in Insecure Times’, Work, Employment and Society 32(3) (2018), pp. 447–57; Kalleberg Arne L., ‘Precarious Work, Insecure Workers: Employment Relations in Transition’, American Sociological Review 74(1) (2009), pp.1–22.

\(^{9}\) Doorn Niels van, ‘Platform Labor: On the Gendered and Racialized Exploitation of Low-Income Service Work in the “on-Demand” Economy’, Information Communication and Society 20(6), (2017), pp. 898–914.
Work Precarity of Non-standard Employment

Work precarity is often linked to the negative consequences of non-standard employment on workers. Compared to standard employment, which provides work-related entitlements and social welfare, non-standard employment directly exposes workers to unsafety and uncertainty, both vocationally and economically. This situation is generally well applicable to those workers who are either self-employed or are employed as independent contractors on zero-hours contacts, including but not limited to freelancers, gig workers and contingent workers. In traditional perceptions, those informal engagements of work are simultaneously associated with being low-paid, low-quality, lower-skilled jobs. In addition to general precariousness as economically and physically vulnerable, Motakef argues that the feeling of precarity constituted by a sense of lost recognition and social integration is an important force in the construction of precarity. In this regard, precarity should be understood as increasing insecurity in both subjective and objective respects. In most cases, people who are political and socio-economic vulnerable are more easily trapped in precarious work. For instance, substantial studies reveal that the migrant workers, especially who are less educated and from underdeveloped areas, face persistent precarity in non-standard employment.

In traditional non-standard work settings, precarity scholars have had considerable debates about drivers, patterns and consequences of precarization. Since Bourdieu coined the term précarité to characterize workers with casual employment, the concept of precarity has triggered fierce debate and has been adopted to illuminate a range of contingent structures of employment. At the macro level, the neoliberal transformation of work, that pursues a flexible and autonomous labor market in the context of globalization, results in the de-standardization and causality of labor relations. Briken et al. argue that this process is facilitated by the Post- or Neo-Fordist revolution of work, wherein advanced technology plays a critical role in the deskilling of workers and degradation of work by a high degree of automation. At the micro level, Alberti et al. reveal that management and state are the key players in stimulating precarization. Specifically, management drives precarization by imposing insecure contractual types, including temporary agent work, zero hours contracts and sub-contracting under multiple-employer settings. Accordingly, the state enforces precarity by limiting the access of certain groups of the population to social welfare and institutional protections. In other words, precarity results from an unequal distribution of protection within society.

Alberti et al. identify four patterns of precarization, which includes ‘explicit’, ‘implicit’, ‘productive’ and ‘citizenship’. Explicit precarity refers to an insecure contractual status, which is normalized to workers through the processes of decommodification. Implicit precarity is a subjective feeling of insecurity and of being disposable. Productive precarity encapsulates the utilization of technology to

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10Rubery Jill, Damian Grimshaw, Arjan Keizer and Mathew Johnson, ‘Challenges and contradictions in the “normalising” of precarous work’, Work, Employment and Society 32(3) (2018), pp. 509–27.
11Motakef Mona, ‘Recognition and precarity of life arrangement: towards an enlarged understanding of precarious working and living conditions’, Distinktion 20(2) (2019), pp.156–72.
12Alberti et al, ‘In, Against and Beyond Precarity’.
13Kalleberg, Arne L, ‘Precarious Work’, Standing Guy, A Precariat Charter: From Denizens to Citizens (London: Bloomsbury, 2014), pp.12–57
14Bourdieu Pierre, Travail et Travailleurs En Algerie (Mouton & Co., 1963).
15Kalleberg, ‘Precarious Work’: Standing Guy, ‘Understanding the Precariat through Labour and Work’, Development and Change 45(5) (2014), pp.963–80; Zwick Austin, ‘Welcome to the Gig Economy: Neoliberal Industrial Relations and the Case of Uber’, GeoJournal 83(4) (2018), pp.679–91.
16Briken Kendra, Shiona Chillas, Martin Krzywdzinski and Abigail Marks, The New Digital Workplace: How New Technologies Revolutionise Work (London: Palgrave Macmillan, 2017), pp.1–20.
17Alberti et al, ‘In, Against and Beyond Precarity’.
18Forde Chris and Gary Slater, ‘Labour Market Regulation and the “Competition State”: An Analysis of the Implementation of the Agency Working Regulations in the UK’, Work, Employment and Society 30(4) (2016), pp.590–606.
19Smith Chris and Ngai Pun, ‘Class and Precarity: An Unhappy Coupling in China’s Working Class Formation’, Work, Employment and Society 32(3) (2018), pp.599–615; Simola Anna, ‘Lost in Administration: (Re)Producing Precarious Citizenship for Young University-Educated Intra-EU Migrants in Brussels’, Work, Employment and Society 32(3) (2018), pp.458–74.
20Alberti et al, ‘In, Against and Beyond Precarity’.
21Rubery et al, ‘Challenges and Contradictions’.
deskil workers and obscure labor value. Citizenship precarity points to the differentiation occurring at the juridical level relating to classifications of the citizen-worker. Standing accounts of the formation of precariat, a class-in-making, which is constituted by three dimensions: distinctive relations of production (flexible contractual relations), distinctive relations of distribution (money wages without non-wage benefits), and distinctive relations to states (denizens).22 The precariat class is the consequence of an increasingly number of workers forced into the non-standard work arrangements in the age of great transformation, while the notion of precariat is intensively critiqued for various reasons. For example, Smith and Pun refute precariat as a class, arguing that class should be defined from the mode of production, control and ownership, rather than employment relations, work identity and legal rights.23 Albeit the class of the precariat is arguable, there is a consensus that workers in informal employment face increasingly and persistent job insecurity, financial instability and ambiguous identity, as a result of precarization.24

**Situating Precarity in Platform-based Food-delivery Work**

The concept of precarity has been widely employed as an analytical tool to examine the insecure work in the post-capitalism era. Kalleberg claims that the neoliberal transformation of new workplace arrangements generates new forms of work precarity and insecurity.25 The food-delivery work, an important segment of platform work, represents a contractual reclassification and technological repacking of traditional food-delivery work in the context of platform economy.26 Zwick views this type of platformization of work as a continued trajectory of neoliberalism, which produces new ultra-precarious labor relations.27 Vallas and Schor also ascertain that platform work is the 'accelerants of precarity'.28 To understand how platformization facilitates the reconfiguration of work precarity which exhibits new dynamics that characterize precarity in platform economy—what I term platform precarity, it is pivotal to conceptualize the precarity in platform work.

In the era of platform capitalism, the burgeoning digitally facilitated platform work, which goes in tandem with the dismantling of standard employment, has engendered various types of non-standard work arrangements.29 In general, platform work is understood to mainly comprise two categories of work: remote crowdwork and geographically tethered on-demand work.30 The former is usually referred to as the labor process commissioned and carried out virtually through the Internet, exemplified by the platforms as Upwork and Amazon Mechanical Turk. This category of work usually requires workers to have some professional skills, study finds that most workers engage in this category of work on part-time basis for a supplementary income. In other words, workers are less platform-dependent economically. The second term represents a type of platform work, which the labor process is organized via mobile applications and implemented locally, with the platform-mediated work of ride hailing, food-delivery, and housekeeping of this category. This category of work is less-skilled, labor-intensive and most workers are dependent on platform to survive with full-time involvement.31 Therefore, workers in this category appear more precarious working conditions. Although the types of platform work vary, it stands for a same labor market activity that is

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22Standing, ‘The Precariat’.
23Smith and Pun, ‘Class and Precarity’.
24Standing, ‘The Precariat’, pp.69–133.
25Kalleberg, ‘Precarious Work’.
26Veen et al., ‘Platform-Capital’s ‘App-Elite’ for Control’.
27Zwick, ‘Welcome to the Gig Economy’.
28Vallas Steven and Juliet B. Schor, ‘What Do Platforms Do? Understanding the Gig Economy’, *Annual Review of Sociology* 46 (2020), pp.273–94.
29Srnicek Nick, Platform Capitalism (Cambridge: Polity Press,2017), pp.36–93.
30For example, see Gandini Alessandro, ‘Labour Process Theory and the Gig Economy’, *Human Relations* 72(6) (2019), pp.1039–56; Howcroft Debra and Birgitta Bergvall-Kåreborn,‘A Typology of Crowdwork Platforms’, *Work, Employment and Society* 33(1) (2019), pp.21–38; De Stefano,‘The Rise of the ‘Just-in-Time Workforce’; Gandini, ‘Labour Process Theory and the Gig Economy’.
31Schor Juliet B., William Attwood-Charles, Mehmet Cansoy, Isak Ladegaard and Robert Wengronowitz, ‘Dependence and Precarity in the Platform Economy’, *Theory and Society* 49(5–6) (2020), pp.833–61.
coordinated via digital platforms, wherein the platform plays a role of intermediary, matching customers’ timed and monetized demand and gig worker’s employment supply. This novelty in the organization of labor and management creates an incubator for generating precarity. Kahancová et al. argue that platformization is the process of precarization. While Schor et al. state that platform labor is weakly institutionalized, and that those who are less skilled and in full-time engagements show more economic dependence on platform work than part-time participants with professional skills. Hence, this article focuses on food-delivery work, which seems to representative of precarization.

In settings with platform work is intertwined with non-standard work, what features the platform work that generate precarity which exhibits homogeneity and heterogeneity in comparison to other types of precarious work? Howcroft and Bergvall-Kåreborn identify four key characteristics of platform work that distinct from conventional non-standard employment. First, ‘platform serves as a production point’ that configures a digital labor process of enabling interactions between external laborers and customers. Second, the organization of platform work predominantly features digital microtasks, which is menial, monotonous, tightly bounded and usually underpaid. Third, the majority of platform workers are classified external contributors as independent contractors in current legal conundrum, which disembodies workers from work-related welfare and social entitlements. Finally, algorithmic control of the labor process and digital evaluation of work performance. In short, the informal contractual status, and the fragmented, low-quality and low-paid work of platform remains homogenous with other types of informal work that are not platform-based, while the digital organization and algorithmic management of working process and performance evaluation are novel, which produce new dynamics of precarity particular to platform work.

The extant literature provides considerable evidence of the precarious ramifications of these characteristics embedded into platform work, to a varying extent. Some scholars examine the bogus employment relationship between platform and workers, claiming that platforms utilize this contractual vacuum to mitigate the burden of management and transfer risks to workers, thus turning workers into ‘a radical responsibilization of the workforce on an individual level’. Scholar also finds that the spatial-fragmentally nature of platform work disadvantages workers in terms of solidarity and mobilization, which means that their collective power for bargaining is further weakened under platform labor regime. Increasing number of studies focuses on how the ‘ubiquity’ of work impacts workers, mainly from the perspectives of capital and labor relations, indicating that algorithmic management of the labor process causes information asymmetry, which furthers workers’ subordination to capital. In more detail, algorithmic

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32 Gandini, ‘Labour Process Theory and the Gig Economy’: De Stefano,’ The Rise of the ‘Just-in-Time Workforce’.
33 Kahancová Marta, Tibor T. Meszmann and Mária Sedlákova, ‘Precarization via Digitalization? Work Arrangements in the On-Demand Platform Economy in Hungary and Slovakia’, Frontiers in Sociology 5(February) (2020), pp.1–11.
34 Schor et al., Dependence and Precarity in the Platform Economy.
35 Howcroft and Birgitta, ‘A Typology of Crowdwork Platforms’.
36 Gandini, ‘Labour Process Theory and the Gig Economy’.
37 De Stefano,’ The Rise of the ‘Just-in-Time Workforce’.
38 Vallas et al., ‘What Do Platforms Do?; Wood Alex J., Mark Graham, Vili Lehdonvirta and Isis Hjorth, ‘Networked but Commodified: The (Dis)Embeddedness of Digital Labour in the Gig Economy’, Sociology 53(5) (2019), pp.931–950.
39 Rosenblat Alex, and Luke Stark, ‘Algorithmic Labor and Information Asymmetries: A Case Study of Uber’s Drivers’, International Journal of Communication 10 (2016), pp.3758–84.
40 Fleming Peter, ‘The Human Capital Hoax: Work, Debt and Insecurity in the Era of Uberization’, Organization Studies 38(5) (2017), pp.691–709; Gandini, ‘Labour Process Theory and the Gig Economy’.
41 Tassinari Arianna and Vincenzo Maccarrone, ‘Riders on the Storm: Workplace Solidarity among Gig Economy Couriers in Italy and the UK’, Work, Employment and Society 34(1) (2020), pp.35–54; Lei, ‘Delivering Solidarity’; Cant, ‘Riding for Deliveroo’.
42 Fleming, ‘The Human Capital Hoax’; Zwick, ‘Welcome to the Gig Economy’; Rosenblat and Stark, ‘Algorithmic Labor’.
based management system remains ‘a black box’ for workers.\(^{43}\) This results in platform despotism.\(^{44}\) Relatively, workers lost control over labor process and trapped in endless labor exploitation by capital.\(^{45}\) In this regard, the re-arrangement of capital through new online technologies can reproduce new types of dependency, surveillance and subjugation.\(^{46}\)

For food-delivery work specifically, the precarity of food-delivery drivers has been partially revealed by scholars, whose analysis is situated in diverse country contexts. Apart from the essential features of platform work, online food-delivery work is characterized by being highly transportation-reliant, piece-rate remuneration, emotional labor and labor-intensive.\(^{47}\) A certain amount of literature draws from labor process perspectives to understand the impact of algorithmic control system over drivers. Cant’s ethnographic thesis looks into the operation of Deliveroo in southern UK, finding that a system of algorithmic control, conducted as ‘real-time dispatch algorithm’ which partially automates labor process supervision and coordination, and which is a black box that remains opaque to workers, resulting in indeterminate labor power through deskilling and labor intensification.\(^{48}\) He also finds that the ‘embryonic resistance’ of drivers against platform capitalism and obstacles of mobilization, because drivers are a continuation of ‘precarious Militants’, most of whom are migrants and university students. Cant’s work echoed by Alex and his colleagues, they argue that labor process controls goes beyond the algorithmic management, showing as three distinctive features: the panoptic disposition of the technological infrastructure, the use of information asymmetries to constrain worker choice, and the obfuscated nature of their performance management systems.\(^{49}\) They also illustrate the drivers are in precarious labor markets position in Australia context. Griesbach finds that platforms exert a more stringent type of ‘algorithmic despotism’ to regulate the time and activities of drivers.\(^{50}\) In contrast to despotic control of platform, the power of resistance of drivers is petty and even generates consent to algorithmic management.\(^{51}\) Prior studies also reveal that the resistance of drivers triggered by precarious labor conditions, including against insecure contractual jurisdiction, poor pay, and risky working conditions.\(^{52}\)

Another strand of literature assesses the labor conditions of food-delivery work. Goods, Veen, and Barratt investigate the job quality according to three dimensions, including economic security, autonomy and enjoyment.\(^{53}\) They conclude that the young and temporary migrant workers downgrade job quality across the country in Australia. Gregory explores how platformed labor creates a range of risks, including physical risk and bodily harm, financial risks and epistemic risks in Edinburgh.\(^{54}\) Cant’s work also exposes that drivers face high rents, low wages, and a competitive unskilled labor market and demonstrates that workers’ precarity is utilized by platform capital to intensify labor exploitation.\(^{55}\) In the Chinese context, Sun examines the labor conditions of drivers

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\(^{43}\)Moore Phoebe V. and Simon Joyce, ‘Black Box or Hidden Abode? The Expansion and Exposure of Platform Work Managerialism’, *Review of International Political Economy* 27(4) (2020), pp. 926–48; Cant, ‘Riding for Deliveroo’; Vallas et al., ‘What Do Platforms Do?’.

\(^{44}\)Pfeiffer Sabine, ‘Industry 4.0 in the Making-Discourse Pattern and the Rise of Digital Despotism’, in The New Digital Workplace, ed. Briken et al (London: Palgrave Macmillan, 2019); Wood Alex J, Despotism on Demand: How Power Operates in the Flexible Workplace (Cornell University Press, 2020), pp.1–24.

\(^{45}\)Doorn, ‘Platform Labor’.

\(^{46}\)Todoli-Signes Adrián, ‘The “Gig Economy”: Employee, Self-Employed or the Need for a Special Employment Regulation? Transfer 23(2) (2017), pp.193–205; Briken et al., ‘The New Digital Workplace’.

\(^{47}\)Wood et al, ‘Networked but Commodified’.

\(^{48}\)Cant, ‘Riding for Deliveroo’.

\(^{49}\)Veen et al., ‘Platform-Capital’s “App-Elite” for Control’.

\(^{50}\)Griesbach Kathleen, Adam Reich, Luke Elliott-Negri and Ruth Milkan, ‘Algorithmic Control in Platform Food Delivery Work’, *Socius* 5 (2019), pp.1–15.

\(^{51}\)Galière Sophia,‘When Food-Delivery Platform Workers Consent to Algorithmic Management: A Foucauldian Perspective’, *New Technology, Work and Employment* 35(3) (2020), pp.1–14;

\(^{52}\)Tassinari Arianna and Vincenzo Maccarrone, ‘The Mobilisation of Gig Economy Couriers in Italy: Some Lessons for the Trade Union Movement’, *Transfer* 23(3) (2017), pp.353–57

\(^{53}\)Goods et al. ‘Is your gig any good’.

\(^{54}\)Gregory Karen, 2021. “My Life Is More Valuable than This”: Understanding Risk Among On-Demand Food Couriers in Edinburgh’, *Work, Employment and Society* 35(2) (2021), pp.316–331.

\(^{55}\)Cant, ‘Riding for Deliveroo’.
across three main food-delivery platforms in China with respect to how labor interacts with algorithms, finding that drivers are subjected to digital panopticon and claiming that digital labor become more precarious in China.\(^{56}\) Chen and Sun also investigate the struggles of drivers under time politics of digital workplace, indicating that the algorithmic evaluation and performance system is used by platforms to intensify labor effort.\(^ {57}\)

In short, an increasing amount of work has involved the study of drivers’ precarity from various theoretical and analytical frameworks, but there is a dearth of research systematically framing the labor conditions of platform drivers within precarious analysis. Notwithstanding, three critical and distinctive factors can be identified as producing platform precariousness in the existing literature: bogus employment relationship, algorithmic management of labor process, and the vulnerable citizenship. In addition, as discussed above, most precarious workers face insecure job, instable income and racialized identity. This article will use this analytical framework to explore the labor conditions of platform food-delivery work and the consequence of platform precariousness over workers. The COVID-19 pandemic undoubtably offers a unique platform to examine this type of insecurity and instability.

**Methods**

To understand how the precarity is intensified by pandemic and driver’s labor conditions within it, in-depth interviews with 52 on-work and off-work drivers were conducted from March 2020 to July 2020. The participants were employed through acquaintances and snow-ball sampling. Before the pandemic, this author had several months of fieldwork experience by working a food-delivery rider in China, which enabled the author to easily access to some of my previous food-delivery fellows. Hence, the snow-sampling was carried out to recruit the remaining respondents with the help of former driver colleagues of author, through their social networks. The author aimed in the variation about participants both their Hukou origins (Household registration provinces) and current working status. Each interviewee was compensated with approximately 15 US dollars for their time and participation.

Table 1 shows the demographic information of participants. The gender division and age distribution of participants reflects the labor-intensive and risky nature of food-delivery work, as masculinity and youth provide the possibilities to negotiate heavy workload and traffic risks. All drivers are from poor areas with rural Hukou, spanning five provinces (Shanxi, Shandong, Henan, Hebei, Liaoning), which resonates Lei’s findings that Chinese platforms take advantage of migrant drivers’ precarious citizenship for labor exploitation.\(^ {58}\) Most drivers are less educated and rely on the food-delivery work as their sole source of income.

The interviews are semi-structured, carried out in an online form through WeChat (the most popular social media application in China, equivalent to WhatsApp), with questions revolving around participants’ working conditions, income, perceptions of work during pandemic and their most impressive experiences. Each interview is about one hour long, conducted in Mandarin Chinese, has all been transcribed in full. Data are organized by descriptive codes and in-vivo codes and further analyzed via thematic analysis, using inductive and deductive approaches to identify themes with respect to three dimensions of precarity: work security, income stability, and racialized identity. Data are supplemented by news, online opinions, statistics, and business report from food-delivery platforms.

\(^{56}\)Sun Ping, ‘Your Order, Their Labor: An Exploration of Algorithms and Laboring on Food Delivery Platforms in China’, *Chinese Journal of Communication* 12(3) (2019), pp.308–23.

\(^{57}\)Chen Julie Yujie and Ping Sun, ‘Temporal Arbitrage, Fragmented Rush, and Opportunistic Behaviors: The Labor Politics of Time in the Platform Economy’, *New Media and Society* 22(9), (2020), pp.1561–79.

\(^{58}\)Lei, ‘Delivering Solidarity’.
The Context of Food-delivery Work in China

To examine how the precarity of food-delivery drivers is inflamed by the pandemic, it is essential to introduce the labor conditions of drivers before the pandemic. In the dimension of contractual relations, the food-delivery companies identify themselves as technological innovation platforms and hence outsource the labor service of food-delivery to third-party supply companies. In other words, the platforms purchase labor services from a specialized company rather than directly building employer-employee contracts with their drivers. This subcontracting work arrangement is insecure for drivers as the third-party labor companies are shadow companies, with many of them in an informal, illegal and virtual existence. Without work-related benefits and entitlements, drivers are also responsible for their production assets such as electric bikes, helmets and containers, which are compulsorily bought from the platforms at a higher price. Drivers’ salaries are a combination of piece-rate income and point-based rewards. The platforms use a surging rate for each delivery to intensify labor. This means that if drivers want to gain a relatively higher income, they must complete a certain number of deliveries each month. In addition to quantity, drivers’ incomes also depend on quality of work as evaluated by customer reviews. Positive reviews and points result in extra rewards for drivers and vice versa.

In the dimension of algorithmic control of labor process, drivers’ working process is strictly monitored and regulated by platforms’ algorithmic architecture. A series of regulations and rules are embedded into the algorithms that drivers use for work. Specifically, a real-time dispatching system, artificial intelligence-powered delivery assistant, and algorithm-based performance management system, which are utilized by platforms to control the workflow of the food-delivery process and performance management. This algorithmic system exerts a strict and sometimes unreasonable time control over workers, which results in a high percentage of crashes as drivers race to make each delivery to avoid a late delivery penalty. In terms of citizenship dimension, drivers are mainly made up of inner-migrant workers from rural China, who have been historically marginalized as underclass denizens. Their citizenship rights in urban areas are deprived, including permanent residency and access to social welfare and benefits. This institutional demarcation transforms the

| Table 1. Participants’ information. |
|------------------------------------|
| Gender                             |
| Male                               | 51 |
| Female                             | 1 |
| Age                                |
| Mean                               | 28 |
| 18–30                              | 32 |
| 31–40                              | 16 |
| Above 40                           | 3 |
| Hukou (Household Registration system) status |
| Urban                              | 0 |
| Rural                              | 52 |
| Working status                     |
| On duty                            | 41 |
| In quarantine                      | 11 |
| University degree                  | 2 |
| High School                        | 26 |
| Middle school and below            | 24 |
| Educational level                  |
| Full-time work                     | 45 |
| Part-time work                     | 7 |
| Economic dependence                |
| Main income                        | 46 |
| Supplementary income               | 6 |
| Transportation                     |
| Electric bikes                     | 50 |
| Motorbikes                         | 2 |
| Total                              | 52 |

59 Lei, ‘Delivering Solidarity’.  
60 Chen and Sun, ‘Temporal Arbitrage’.  
61 Sun, ‘Your Order, Their Labor’.  


millions of Chinese rural migrants into a cheap labor pool for industrialization and urbanization. In short, the coalition between neoliberal states and monopoly platform capitalism engages in race-to-the-bottom practices, which create precarious labor conditions for drivers in the digital age.

The outbreak of the COVID-19 pandemic severely disrupted the normal routines of food-delivery workers and their labor process. In particular, the emergent national lockdown policy suspended transportation across the country since the Chinese Spring Festival in 2020. At the time, some drivers were stuck in the countryside in their home provinces under the strict surveillance of local governments, while the drivers left behind in cities were still required to work by all means. For millions of urban citizens compulsorily quarantined at home, ordering daily essentials online has become a safe alternative to shopping in-person. To maintain the normal functions of the city, both states and platforms have implemented a raft of policy and measures, which are elaborated upon in the following section.

Platforms’ Responses to Pandemic and the Role of States

The sudden outbreak of the COVID-19 pandemic poses unprecedented challenges to the conventional labor process and algorithmic control systems of the platform food-delivery industry. On the one hand, many urban dwellers are strictly ordered by local governments to stay at home and shopping for essential items is limited. Hence, there is an urgent demand for grocery support for quarantined citizens. On the other hand, as drivers contact a wide range of people during their deliveries, there is the potential that they may facilitate the spread of the virus. To respond to these issues, both platforms and Chinese governments have adopted a package of policies and measures to address the changing circumstances.

For platforms, two main transformations in their business can be identified. The first is the reorganization of business through upgrading their algorithm-mediated labor process, shown in the shift to using food-delivery drivers for groceries and general deliveries. The second is the rearrangement of algorithmic management by incorporating COVID-related hygiene standards, such as ‘contactless delivery’ and algorithm-supervised hygiene requirements for drivers. Contactless delivery entails three steps in the labor process: the driver leaves the delivery on the doorstep; knocks on the door and retreats two metres away; waits for the customer to retrieve the delivery and asks for confirmation of the delivery on the app. The hygiene requirements include the wearing of a face mask when on duty, disinfecting the containers and the body after the completion of each order, and reporting their temperature on the app. These requirements are randomly inspected by the platform algorithms.

The measures implemented by different levels of government are contradictory. At the level of central government, local governments have been required to implement stringent quarantine policies to prevent population movement. Therefore, local governments, especially the places where the drivers are originally from, have round-the-clock surveillance on migrant workers to prevent them from moving to cities for work. While in cities, there is a shortage in labor demand for work such as delivery drivers. For this reason, the state-controlled media extoll drivers to work during the pandemic and portray drivers as heroes in society, as drivers are risking their lives to feed urban citizens.

The Labor Condition of Drivers during Pandemic

The model, as depicted in Figure 1, starts with the response of platforms and states to the containment of the pandemic, which incurs a range of shifts in platforms’ algorithm-enabled labor process, algorithmic management standards, and the social environments of labor. Further, these changes, to a varying extent, exacerbate the precarious working conditions of drivers. By analyzing the specific

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62 Pun, ‘Migrant Labor in China’. 
impacts, including uncompensated prolonged working time and surged workload, extra investment, health risks and inflamed racism, this model indicates the transmission mechanism of how platforms, in conjunction with states’ conflicting policies, contribute to amplified precarity of drivers. This includes insecurity of job, instability of income and discriminated citizenship.

‘Virus Fights’: Work Insecurity

An important theme that emerged from the interview data health risks and insecurity encountered by drivers. In conventional periods, drivers face a high level of traffic accidents under the algorithm-controlled labor process. Amid the pandemic, apart from the perceived high possibility of being infecting with COVID, platforms’ reconfiguration of the labor process such as introducing grocery orders also worsening the security of their delivery environment.

As the algorithmic food-delivery process remains a ‘black box’ for drivers, drivers are limited in terms of knowing where they will deliver to and who they will offer a service. This algorithm-enabled power asymmetry between the platform and labor increases the risks of catching the virus among drivers. In the context of pandemic, the possibility of infection among delivery drivers is much higher than among people isolated at home as delivery drivers put themselves at risk to deliver orders by potentially exposing themselves to the virus through frequent interactions with scattered customers in different locations. Under these ‘single-blind’ delivery systems, drivers inevitably travel to high-risk locations and encounter high-risk customers. Indeed, some drivers frequently shuttle between hospitals and infected customers. This insecure working condition fills delivery drivers with panic. One driver said:

To be honest, I feel anxious and worried every day. The delivery requests are allocated by the algorithms automatically; I never know if my customer is infected ... At this time, no one dares to travel to the hospital, but I am forced to do so by my job ... Once I had a sudden cough and dizziness ... I immediately thought that I might be infected by the virus.
While the algorithm-supervised labor process is fixed and mechanically regulated without the consideration of unforeseen external accidents, the disposition of delivery work situates the drivers outdoors and their work is traffic-based, and they must deal with external unforeseen environmental elements everyday as part of their job. Even during the pandemic, drivers’ still need to complete each order within thirty minutes. Since the outbreak of the pandemic, heavy snow has hit Beijing twice and for long periods the temperature has stayed at around minus 10 degree Celsius. In fear of receiving a penalty for late delivery, drivers race the algorithms by exposing themselves to more health risks. One driver described their condition poignantly as follows:

It’s like walking on the edge of a blade! My body is full of frostbite. I must stay vigilant all the time as the roads are slippery. Even slight negligence on my part may not only be penalized by the platforms, but also cause a crash.

In addition to the health risks caused by external factors, the grocery orders lead to increased workloads, which pose new challenges for drivers physically. As platforms have expanded their traditional services beyond cooked meals to providing deliveries of groceries and general goods, people have started stockpiling and tend to purchase too many items in a single order during the pandemic. Each delivery does not have a weight limit. Hence, deliveries are usually too heavy for drivers to carry. This shift in the labor process has sharply increased the workload for drivers and lowered their efficiency. One driver described their experiences vividly: ‘Sometimes I almost can’t breathe when my hands are fully loaded with packages … and my arms and legs are often stiff and painful after work’. Despite the crushing workload, delivery drivers still insist on working as much as possible under piece-rate remuneration. Almost all participants claimed they needed to work ‘as long as the machines’ to earn as much as they could.

Delivering a bundle of yam, bags of flour, a sack of rice, a barrel of oil, or a box of mineral water in one order makes me feel exhausted … I used to deliver four to five orders per delivery, but now I can only do one at the most.

Importantly, the changes to the labor process in the abject external environment under paint-by-numbers algorithms regarding the requirements and penalty rules further escalate the rate of crash involvement between drivers compared to normal times. According to the statistics, drivers accounted for 60 percent of traffic accidents in 2019 in Beijing. Platforms manipulate their sophisticated algorithms to maximize the driving speed of drivers. Drivers are remunerated piece-rate, and hence their income is wholly dependent on the quantity and quality of orders they can deliver. A penalty, the amount of which is evaluated at the discretion of the algorithms, normally represents the income of thirty to fifty deliveries. To gain more deliveries and avoid penalties incurred by customer complaints and late deliveries, drivers struggle to balance work efficiency and their own safety, which mainly ends up with risking healthy to exchange the efficiency. During the pandemic, the combination of ‘work with panic’, ‘work with fatigue’ and ‘time pressure’ has created a dangerous working environment for drivers. As drivers rush to deliver to customers on time, safety becomes an issue that goes beyond the virus. Many of the interviewed drivers reported that they must violate traffic rules to meet their delivery goals for the day, including driving against the direction of traffic, driving in motor vehicle lanes and driving through red lights. One driver’s statement reflects these tough working conditions:

Each delivery is an adventurous journey. If you want to make money, you must not be afraid to die.

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63 Zheng Yubing, Yang Ma, Lixin Guo, Jianchuan Cheng, and Yunlong Zhang, ‘Crash Involvement and Risky Riding Behaviors among Delivery Riders in China: The Role of Working Conditions’, Transportation Research Record 2673(4) (2019), pp.1011–22.
'Virus Victims': Livelihood Crisis

Another pivotal theme crystallized from the data is what I coded as livelihood crisis. As drivers are classified as independent contractors, they exhibit a high level of economic dependency on platform work. The pandemic has brought detrimental economic ramifications both on drivers’ who are currently quarantined in their hometowns and those working in the cities, to varying extents.

The impact of drivers’ citizenship precariousness on their economic stability was exposed apparently during pandemic. Since the outbreak of the pandemic, the central government urgently requests every province to implement a lockdown policy. To fulfil ‘political tasks’, each local government, especially the drivers’ home provinces, uses rigid methods to control migrant workers to move to work in cities without taking migrants’ life chances into consideration. As drivers are migrant workers, they are traditionally treated as a ‘floating population’ who have great potential to spread the virus. In addition, drivers are denied access to pandemic-related benefits and work-related support as they are not in formal employment. For those who are quarantined at home compulsorily under strict surveillance, many are breadwinners for their family, so they are encountering a livelihood crisis without any sources of income. One driver said hopelessly:

I do feel hopeless. If the lockdown continues, I really don’t know how the lives of my family can go on without money. They (government officials) visit my home to check if I am staying at home every day. I say to them how hard my financial situation it is. But they pay no attention to it.

While for those left-behind drivers in cities, their income is still barely enough to maintain their life or the lives of their families. The changes in the labor process of grocery orders, contactless delivery and the strict hygiene standards, to a large extent, reduce their work efficiency and increase their time of unpaid labor. The income of drivers has dropped to less than half in a surviving level. Many drivers claim that, before the pandemic, they could complete forty to fifty orders on an average day. But now they can only complete twenty at most.

During the pandemic, most orders are grocery deliveries, which means that it is impossible for drivers to take multiple meal order deliveries at once as the grocery orders tend to be heavy and large. One driver said, ‘I am not a food delivery driver, but more like a removal man now. I can only carry one order per delivery’. Apart from the grocery orders that reduce their income, the algorithm-supervised hygiene standards contribute to increased uncompensated time for each delivery and increases drivers’ costs. This is because drivers are required to buy hygiene products by themselves, including face masks and disinfectant, otherwise they are not allowed to work. This means that the cost of production assets is relatively increased. The following passage from participants shows this situation.

I have a new routine now which involves lots of disinfectant and temperature checks. Before I start to deliver, the app requests me to take a health test each morning and spend twenty minutes disinfecting my scooter and clothes to avoid spreading germs. Then I must get my temperature checked dozens of times and report it on the app, which is randomly monitored by algorithms. I estimate one third of my working time is now wasted on things like this.

There is no free PPE. I need to buy everything by myself. The thing is that the price of these goods during the pandemic is not affordable.

In addition, contactless delivery also results in the extension of unpaid working time and the risk of penalty for late delivery. After the pandemic outbreak, massive gated apartment complexes in cities began to block their entrances to delivery drivers, making it difficult for drivers to find their designated delivery site. Instead, drivers are asked to wait at a designated location until the customer comes to confirm the order. This can mean an increase in the time it takes drivers to deliver and a potential pay cut if they do not work quickly enough. One driver’s experience discloses this condition:

64Todolí-Signes, ‘The gig economy’; Schor et al., Dependence and Precarity in the Platform Economy.
I once received an order that came with a note saying that the customer was an 82-year-old who lived alone and couldn’t get downstairs to pick up the food so the driver needed to enter the residential community and deliver the food to the door. I had to spend a great deal of time communicating with the security guard on this delivery who still refused to let me in. Ultimately, the customer canceled the order and I had to pay the bill. It was definitely a waste of my time and delayed my next order, causing me to get a penalty for late delivery.

‘Virus Carriers’: Inflamed Racism

The final theme that emerged from the interview data is coded as inflamed racism. The pandemic inflamed occupation-based racism against drivers, which is mixed with geographically based racism, which resulted in a racialized working condition for drivers. As drivers are migrant workers who are an institutionally entangled underclass with subservient citizenship, they persistently suffer from social alienation by urban citizens. Drivers during the pandemic are labeled as virus carriers. The consequence of this inflamed racism further deteriorates the labor conditions for drivers, epitomized by frustration, anxiety, and alienation.

The state-controlled media engages in a way of ‘culture cover-up’ to hide drivers’ precarious citizenship and labor conditions. Rather than lobbying governments to improve the labor conditions of drivers during the pandemic, the state-controlled media collaborates with platforms, using powerful propaganda to extol food delivery workers as national heroes. This hero profiling makes drivers believe that working during the pandemic is a ‘glorious duty’, a belief that imposes a moral pressure on them to risk their life to work during the pandemic. Of this, one driver said:

Because they (governments and platforms) need us to sacrifice ourselves during the pandemic. They treat us as heroes in media, but slaves in reality.

Although the media overwhelmingly features heroic language that links drivers to sacrifice, it does not help to develop urban citizen’s gratitude and show sympathy for drivers. In contrast, drivers are being shunned by the public as potential carriers of the coronavirus. Incidents of inflaming bigotry against drivers have been common during the pandemic, disturbing the work and life of drivers. For example, the gates of many buildings and public places has a warning of ‘No access for drivers’ and every drop-off spot now has a sign reading ‘No Touch for Drivers’. In the interviews, some drivers reported that their fellow delivery drivers were forced to leave their homes by their landlords. Without a place to shelter, these drivers must pay a high price to live in a hotel and hide their occupational identity. The following passages portray the agony of drivers’ condition during the pandemic.

I feel so bad and helpless, they (customers) barely open the door for me and even avoid eye contact.

It is so irritating. We used to be derogatorily labeled as Xiangbalao (roughly means county bumpkins). Now, a new term has been added, ‘virus carrier’! I feel like I am not human.

Conclusion

Drawing on the lived experiences of platform food-delivery riders during the COVID-19 pandemic, this article presents a survey on how the pandemic impacts the labor conditions of insecure and non-standard employment in the digital age. By discussing the key elements that characterize platform food-delivery work to generate precarity, this article argues three key forces in producing platform precarity, which is the bogus employment relationship, algorithmic management of labor process, and the vulnerable citizenship. By situating the discussions of precarity in the context of the global pandemic in China, this article examines how the insecurity of work, the instability of income and drivers’ racialized identity is performed and exercised by the coalition of platform management and Chinese states. Specifically, this article finds that anti-pandemic initiatives and measures adopted by
food-delivery platforms and states, which incur shifts in the conventional algorithmic labor process and management, have created amplified precarious working conditions and job insecurity, a livelihood crisis and inflamed racism against drivers. This article has several contributions.

First, the findings provide new empirical evidences on the role of management and states in generating the precarity. Alberti et al. claim that platform management and states are the key forces in manufacturing work precariousness.\textsuperscript{65} In this case, the reorganization of the algorithmic labor process by platforms, including adding a grocery delivery service, contactless delivery, and hygiene standards, not only increases the time of unpaid labor and other economic burdens but also doubles drivers’ physical risks. The governments conflicting policies towards drivers, even though ‘cultural covered-up’ by the state-media’s hero profiling of drivers, simultaneously exposes drivers’ citizenship precarious.\textsuperscript{66} Finally, racism and alienation against drivers has been inflamed during the pandemic because of their subservient citizenship, which also consolidates drivers’ feeling of implicit precarious.\textsuperscript{67}

Second, the analysis further underscores the nexus between the generation of precariousness and the specific political-economic context. Kalleberg argues that precariousness should be considered and assessed in the individual country context.\textsuperscript{68} In contemporary China, two dimensions are critical in understanding the formation of abject work and life conditions of drivers during the pandemic. First, platforms transfer the economic and managerial risks to drivers by classifying drivers as independent contractors, which creates explicit precariousness among drivers. In this condition, even during the pandemic, drivers are not entitled to enjoy formal-employment-related pandemic emergency social protection, and hence still rely on ‘piece-rate work’ and ‘wage labor’ to sustain themselves. Second, the Chinese government is engaging in a race-to-the-bottom labor policy to achieve its goal of industrial digitalization. Through the deprivation of the citizenship rights of rural migrants in urban areas and offering a flexible regulatory environment for platforms, drivers are transformed into a commodity of the cheapest labor on the market.\textsuperscript{69} In this regard, the precariousization of platform drivers is embedded into the political and economic structure during China’s great digital transformation.

Third, the analysis further contributes to extending our understanding of precariousness in platform work. Platform work can be viewed as a re-arrangement of capital through algorithmic technology, while technological repackaging of low-skilled food-delivery work not only retains the precariousness produced in traditional insecure work but also brings about new platform precariousness which seems to worsen the labor conditions for drivers.\textsuperscript{70} In this case, in response to pandemic, platforms can easily reconfigure their labor processes by upgrading their algorithms and adjusting algorithmic management for labor exploitation and intensification, while drivers are helpless in negotiating these changes and forcefully bear the consequences. In line with the insights of Schor et al., claiming that ‘platforms are hierarchically ordered, in terms of what providers can earn, conditions of work, and their ability to produce satisfied workers.\textsuperscript{71} The finding that low-skilled drivers are heavily economically dependent on food-delivery platforms and suffer from adverse working conditions validate these claims. Distinct from the rhetorical framing of platform work promising workers flexibility and autonomy, platform work, especially for those that are low-skilled, can still produce the platform type of precariousness.\textsuperscript{72}

\textsuperscript{65}Alberti et al, ‘In, Against and Beyond Precarity’.
\textsuperscript{66}Simola, ‘Lost in Administration’; Smith and Pun, ‘Class and Precarity’.
\textsuperscript{67}Alberti et al, ‘In, Against and Beyond Precarity’.
\textsuperscript{68}Kalleberg, ‘Precarious Work’.
\textsuperscript{69}Butollo et al, ‘Made in China’.
\textsuperscript{70}Alex J. Wood and Vili Lehdonvirta, ‘Platform Precarity: Surviving Algorithmic Insecurity in the Gig Economy’ (Paper presented at AI at Work: Automation, Algorithmic Management, and Employment Law, October 21, 2020); Kahancová et al, ‘Precarization via Digitalization?’.
\textsuperscript{71}Schor et al., Dependence and Precarity in the Platform Economy
\textsuperscript{72}Rosenblat and Stark, ‘Algorithmic Labor”; De Stefano, ‘The Rise of the ‘Just-in-Time Workforce’.
Last, the findings empirically demonstrate the uncertainty of precarious work and contribute to shedding light on the impacts of the COVID-19 pandemic on the labor conditions of informal employment. Previous literature includes ample predictions and subjective assertions that precarious work faces the problems of uncertainty, but little research has examined this type of uncertainty, particularly placing this certainty in the context of crisis such as one brought about by the COVID-19 pandemic.\textsuperscript{73} By utilizing the pandemic as a valuable platform, this article reveals the specific process of uncertainty created by the pandemic, which exerts dire working experiences on workers. Rubery et al. state that precarious work has increasingly evolved to become the new ‘norm’ to which employment and social protection systems must adjust.\textsuperscript{74} The pandemic obviously impacts all types of employment, to varying extents but workers in insecure work arrangements are more vulnerable without the buffer of institutions. The pandemic has exacerbated their precarious working conditions, including creating new health risks both physically and mentally, and increasing uncompensated production time and unpaid labor. Thus, there is an urgent need to standardize the non-standard employment of platform work, to protect labor rights in the post-pandemic age.

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\textsuperscript{73}MacDonald Robert and Andreas Giazitzoglu. ‘Youth, Enterprise and Precarity: Or, What Is, and What Is Wrong with, the “Gig Economy”?’, *Journal of Sociology* 55 (4) (2019), pp.724–40; Vallas et al., ‘What Do Platforms Do?’

\textsuperscript{74}Rubery et al, ‘Challenges and Contradictions’. 