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platform economy, gig work, precarious work, digital revolution, sharing economy

Abstract

The rapid growth of the platform economy has provoked scholarly discussion of its consequences for the nature of work and employment. We identify four major themes in the literature on platform work and the underlying metaphors associated with each. Platforms are seen as entrepreneurial incubators, digital cages, accelerants of precarity, and chameleons adapting to their environments. Each of these devices has limitations, which leads us to introduce an alternative image of platforms: as permissive potentates that externalize responsibility and control over economic transactions while still exercising concentrated power. As a consequence, platforms represent a distinct type of governance mechanism, different from markets, hierarchies, or networks, and therefore pose a unique set of problems for regulators, workers, and their competitors in the conventional economy. Reflecting the instability of the platform structure, struggles over regulatory regimes are dynamic and difficult to predict, but they are sure to gain in prominence as the platform economy grows.

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INTRODUCTION

Although it is only a decade old, platform-mediated gig work has insinuated itself into many sectors of economic life, provoking debate about how this form of work organization can be understood. The early literature tended toward sweeping claims such as predictions of an end to employment (Sundararajan 2016) or a shift to a regime of predatory platform capitalism (Lobo 2014, Srnicek 2016). However, a growing literature now provides a more empirically grounded and complex account of platform labor. Key questions have come into view. Does it represent a continuation or acceleration of ongoing trends, such as precarization and outsourcing? Are platforms organizing a new type of algorithmically controlled labor process? Precisely how is the platform distinct from the conventional firm in its labor management? We are now in a position to answer these and related questions. That is the task we set ourselves in this review.

We begin by providing a brief overview and taxonomy of labor platforms and the kinds of work statuses they enable. We then turn to the four major metaphors that underlie scholars' conceptualizations of this new phenomenon: the entrepreneurial incubator, the digital cage, an accelerator of precarity, and the firm as chameleon. Subjecting these images to critique, we find that while each contains a partial truth, each also exhibits elements of distortion concerning the affordances that platforms actually exhibit. We argue that platforms represent a distinctive form of economic activity, influenced by but different from markets, hierarchies, and networks. We identify their unique characteristics, which reside in the selection, control, and evaluation of the labor that service providers perform. In particular, we focus on the shift from closed to open employment and the consequent retreat (Schor 2020) from direct control that platforms represent. We then provide an overview of the legal and regulatory struggles currently unfolding over the platform economy and end by identifying themes that have yet to receive sufficient attention in the literature. These include systemic relations between traditional firms and platforms, the role of platform designers and managers, possibilities of collective action by platform workers, and the struggle over the regulatory regime that will govern platforms.

ADVENT OF THE PLATFORM REVOLUTION

Major platform-based companies such as Airbnb and Uber are now a decade old. Their emergence coincided with the Great Recession, which facilitated the companies' expansion by creating a ready pool of workers, especially among recent graduates, who could be matched with value-seeking consumers. The platform economy has experienced rapid growth since then and now encompasses a wide array of digitally mediated economic transactions involving the exchange of goods and services. It has grown in two ways (Davis 2016a,b; Kenney & Zysman 2016; Srnicek 2016). 9]TJ Tarof

A fourth type of platform work is performed entirely online, involving what is termed micro-tasking, as represented by workers engaged on Amazon Mechanical Turk (AMT) or Figure Eight (formerly CrowdFlower). These workers undertake human intelligence tasks that computers cannot perform and that are part of the process of machine learning. These jobs generally require less training and experience than the work of cloud-based consultants and freelancers. Examples include describing or classifying the content of images, editing computer-generated text, validating user accounts on social media, or transcribing brief audio clips (Wood et al. 2018). Payment is on a piece-rate basis. Partly because microtasking encompasses a large, highly varied group of workers living in both the Global North and South, tasks are priced under extremely competitive conditions, and the ability to earn a living wage in wealthy countries through microtasking is limited (Berg 2016, Berg & de Stefano 2018, Gray & Suri 2019). Crowdfunding sites have great

groups, with architects and technologists being in chronically short supply and gig, microtasker, and unpaid content producers suffering from chronic excess supply, conditions that platforms often exacerbate with ongoing recruitment. Furthermore, workers stand in different relations to the platform architecture, with architects serving as active designers (digital orthopedists), while others (microtaskers and many gig workers) are mainly passive recipients or users of the platform's affordances. Moreover, although the conditions of existence each type supports are likely to vary, they may develop certain similarities. Workers engaged as architects and technologists, cloud-based consultants, and even content producers and influencers vary in terms of their earnings levels, the latter are frequently unpaid, yet they often exhibit an entrepreneurial orientation toward work and identity (Neff et al. 2005, Pugh 2015, Vallas & Christin 2018). Platform work also varies over time, owing to frequent changes in algorithmic designs, market conditions, and regulatory policy. These and other considerations provide abundant reasons for caution when generalizing about the nature and organization of platform work.

Theorists have responded to the advent of platform work by developing several different approaches toward the phenomenon. In the next section, we identify four of the most prevalent approaches in the literature, briefly discussing the shortcomings of each and comparing their key features and assumptions.

IMAGES OF PLATFORM WORK

Incubators of Entrepreneurialism

While some of the types of work situations identified above have existed for decades, the debate about labor platforms intensified with the emergence of the sharing economy in 2008...2009. In their original incarnation, sharing platforms referred to peer-to-peer structures that mobilize idle resources, such as renting spare rooms or offering rides in cars (Frenken & Schor 2017). Economists emphasized the ability of algorithms and crowd-sourced ratings and reputational information to reduce transaction costs and foster trust, enabling peers to compete in these new markets (Einav et al. 2016, Horton & Zeckhauser 2016, Sundararajan 2016). Although the sweeping claims identified with the early platform economy lost plausibility as for-profit platforms scaled, some theorists continue to emphasize the transformative power of the platform revolution (Brynjolfsson & McAfee 2014, Parker et al. 2016, Sundararajan 2016) and the ability of peer-to-peer connections to erode the dominance of the conventional corporate model. The argument is that platforms offer an array of advantages over the traditional corporate form. By reducing the need for bureaucratic intermediaries, platforms reduce transaction costs and eliminate barriers that have constrained labor force participation by rural residents, people with disabilities, or those with care-giving obligations. Moreover, owners of cars, homes, tools, and other goods can monetize these assets, unlocking their latent value in ways that reduce their dependence on labor income. Some argue these opportunities will be especially advantageous to low-income households (Sundararajan 2016). And because platforms can crowdsource reputational scores for participants, they foster trust among potential transactors without the need for costly advertising. In this view, many of the rigidities of the corporate economy are destined to recede in favor of a more egalitarian form of crowd-based capitalism in which corporate hierarchies no longer represent the dominant structure of economic activity. Crucially, the employment relation itself loses its predominance in the wake of an emerging networked society of microentrepreneurs (Sundararajan 2016, p. 176). One indication of this shift is that many platform workers are afforded flexibility and choice that are not common among nonprofessionals in conventional jobs, as we discuss in the section titled Permissive Potentials (Schor et al. 2019).

While there is little doubt that platform technology has reduced transaction costs and made stranger sharing (Schor 2014) more viable, it is unlikely that platforms will foster crowd-based capitalism or lead power and control to assume horizontal, peer-based configurations. Nor have they to date. In the presence of network effects, platforms can scale, dominate markets, and gain enough monopoly power that they can dictate conditions of exchange or develop monopsonistic positions in their labor markets (Dube et al. 2018, Khan 2017). In this case, the crowd may not resemble an assemblage of freely acting entrepreneurs but rather a herd that, like livestock, can be milked or sheared to extract revenue. Political factors are also relevant, as powerful platforms have exercised influence over state legislatures, passing preemption laws that forbid cities from regulating app-based services (Borkholder et al. 2018, Collier et al. 2018). Political power has been especially prevalent in ride-hail and delivery, which are local services that lack network effects. The growing literature on deteriorating conditions for workers in ride-hail and delivery (Attwood-Charles 2019, Mishel 2018, Parrott & Reich 2018, Robinson 2017, Rosenblat 2018, Shapiro 2018, UCLA Institute for Research on Labor and Employment 2018, Wells et al. 2019) suggests the exercise of power, rather than a shift to a new kind of peer-based capitalism.

The Digital Cage

If the first, entrepreneurial view exhibits elements of utopian thinking, the opposite charge can be leveled at the second approach to platform work. Scholars adopting this view also see platforms as exhibiting distinctive effects but perceive these in more starkly dystopian terms. Max Weber's fears regarding bureaucratic subordination (the iron cage, however translated) pale in comparison with the prodigious powers over human labor that digital technologies are thought to enjoy. This camp ominously questions what happens when the boss is an algorithm. Indeed, this literature on workplace control is only a subgenre of a larger critique of algorithms that has identified their role in surveillance (Zuboff 2015, 2019); in people analytics in corporate human resource management (Ajunwa & Greene 2019, Bodie et al. 2016); in racist outcomes in evaluation or ranking systems (Eubanks 2018, Noble 2018); in a private-sector version of the Chinese social credit system (Chen & Cheung 2017); and, more generally, as a development that undermines transparency (Pasquale 2015). In the case of labor platforms, the argument is that algorithms are now fully managing workers, thus empowering firms to an ever greater extent.

Early studies of the assembly line made similar claims regarding the capacity of machines to control the rhythms and methods of human labor (Chinoy 1992, Edwards 1980, Walker & Guest 1956). Yet as industrial sociology eventually revealed, workers often devise tactics that enable them to evade, defy, or subvert the dictates of the assembly line (Hamper 1991). This capability is now being attacked by digital technology, which can encode workplace rules into the digital tools that workers must use to complete their tasks. Although the precise contours of algorithmic regimes or algocracy (Ajunwa & Greene 2019, Aneesh 2009) vary according to the type of platform, the general theme is that platforms reduce the workers' capacity to resist, elude, or challenge the rules and expectations that firms establish as conditions of participation. Platforms are said to do this in several ways. First, by generating a wealth of data about their internal operations but sharing this information unevenly, they foster information asymmetries within the firm (Calo & Rosenblat 2017). For example, in ride-hail and delivery, platforms blind providers by withholding information about incoming jobs, which reduces worker autonomy and income (Rosenblat & Stark 2016, Shapiro 2018). Data capture by platforms also enables employers to specify work rules in greater detail, for example, by stipulating the proportion of jobs workers must accept, how much of their time they must make available, and the rating levels they are expected to achieve (Rahman

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& Rosenblat 2017, Fourcade & Healy 2017, Rosenblat & Stark 2016). Second, as ethnographic research has shown, platforms rely not only on the calculative mechanisms of control that metrics afford but also on normative mechanisms in the form of games, symbolic rewards, and other inducements that strengthen user attachment to the site (Cameron 2018, Gerber & Krzywdzinski 2019, Rosenblat 2018, Scheiber 2017), using carefully engineered tactics that one scholar has called soft biopolitics (Cheney-Lippold 2011). Third, platforms individualize their labor forces, depriving workers of the relational spaces (Kellogg 2011) that have traditionally made it possible for

workforce heterogeneity may be one of the most distinctive structural attributes of platform labor. To neglect this feature of platforms is to misspecify their effects on work and employment.

Institutional Chameleons

A fourth image of platform work is the least empirically developed and the least deterministic in its outlook. In this view, platforms represent a form of work organization whose meaning, nature, and impact are not a function of platforms as such but instead reflect the institutional landscape that surrounds them. Platforms are conceptualized as chameleons or as entities whose effects are contingent on the institutional environments within which they operate. For example, Thelen (2018) found that the disruptive effects of Uber varied markedly across Germany, Sweden, and the United States, with different interests and concerns arising in each society. While platforms almost always classify workers as independent contractors, this feature was most problematic in the United States, where social insurance is directly tied to employment status. Elsewhere, Uber posed a threat not to employment status but to the long-established systems for urban transportation (as in Germany) or to the flow of tax revenues needed to support the welfare state (Sweden) (Thelen 2018, Zanoni 2019). The point, made forcefully in arguments advocating a Nordic ap-

represent a distinctively new form of economic activity. In advancing this argument, we caution that platforms represent a nascent and highly dynamic economic form characterized by high levels of instability whose future is difficult to foresee.

While platforms incorporate many of the features of prior economic structures, markets, hierarchies, and networks (Powell 1990), they do so selectively, generating a type of governance mechanism that is qualitatively distinct from its precursors (Aneesh 2009, Kornberger et al. 2017). Just as Powell (1990) stressed the emergence of networks as providing a novel basis for the coordination of economic activity, we argue that platforms constitute a new type of governance mechanism with which employers can conduct economic transactions. In contrast to hierarchies (which centralize power), markets (which disperse it), or networks (which parcel it out to trusted collaborators), platforms exercise power over economic transactions by delegating control among the participants. They do so by establishing a digital infrastructure with which to govern the service triangle that links employers, workers, and customers (Leidner 1993). The effect allows the platform to play the role of *tertius gaudens*, the third who rejoices, as in Simmel's classic theory of the triad (in Wolff 1950).

We argue that platforms govern economic transactions not by expanding their control over participants but by relinquishing important dimensions of control and delegating them to the other two parties to the exchange, hence the term *permissive*. The platform firm retains authority over important functions, the allocation of tasks, collection of data, pricing of services, and of course collection of revenues, but it cedes control over others, such as the specification of work methods, control over work schedules, and the labor of performance evaluation. This is why few platform earners are required to enact workplace scripts, a common feature of interactive service work (Leidner 1993). In effect, the labor process acquires a new geometry, in which control is radically distributed, while power remains centralized (Kornberger et al. 2017, p. 79, emphasis added). The extraction of value rests on a new structural form in which platforms remain powerful even as they cede control over aspects of the labor process. Furthermore, they can also take the form of *permissive predators* when they use their power to exploit their labor forces, as has grown especially apparent in ride-hail and delivery.

We are not the first to argue along these lines. In addition to Kornberger et al. (2017), Davis (2016a,b), using the term *Uberization*, has argued that platforms are the next stage in an evolution away from the modern corporation, although his account is more teleological than ours. Kirchner & Schüßler (2020) use a similar formulation, although they place more emphasis on efficient market dynamics. Watkins & Stark (2018) develop a kindred notion of the platform as a novel Möbius basis of economic activity that valorizes aspects of its environment that it does not itself own. Our formulation uses a mixed term, *permissive potentates*, to capture the complex and contradictory nature of the new economic architecture that platforms represent. Furthermore, our focus is on labor control, which is less prominent in the foregoing accounts. We should also note that by identifying what platforms permit, or have ceded control over, we are not making a normative statement about their benevolence or treatment of workers. We are drawing an analytic distinction between platforms and other economic forms.

In our view, platforms manifest at least four distinct features in this regime of *permissive power*. The first is the adoption of a business model in which firms capture profits through digital intermediation, thus avoiding the encumbrances that ownership of fixed capital or the direct employment of labor usually entails. Although platforms do create value, for example, by enabling more efficient operations and exchanges, their profits often depend on the ability to externalize the costs that conventional firms must pay (a form of free riding; see Schor et al. 2019). Some platforms also benefit from network effects, producing the concentrated markets and user lock-in that

REGULATORY AND LEGISLATIVE STRUGGLES

The emergence of the platform as a novel governance mechanism has led to considerable sociopolitical conflict as actors have sought to define the playing field on which platforms operate. Key stakeholders include platform firms and their investors, workers, customers, cities, and the wider public, represented by advocacy groups, regulators, legislators, and the courts. A growing body of literature has analyzed the arguments for regulation and the conditions under which this conflict is playing out. Here we provide a brief discussion of these issues.

A key point of contention is the classification of gig workers as independent contractors (Cherry 2016, Dubal 2017a, Rogers 2016). Until recently, misclassification lawsuits against platforms failed

With notable exceptions (Farrell & Greig 2016, Kenney & Zysman 2016, Schor et al. 2019, van

frames through which programmers understand their work? Studies of platform work have been lopsided: There is an abundance of research on the service providers, yet much less on architects and technologists. How do programmers relate to the manipulative, invasive, and harsh aspects of algorithmic design? Do they view the algorithms they help create as occasions for social choice or as ethically neutral vehicles of economic efficiency? Kelkar's (2018) study of the transformation of edX from a collaborative educational project into a platform company shows how a new organizational discourse shifted educators from a position of pedagogical authority to the routinized and formulaic role of user. Are there analogous changes for gig workers who join platforms?

A third understudied area is the prospects for collective action for platform workers. Is unionization possible, or is a strategy of legal enactment of workers' rights more likely to succeed (Joyce et al. 2019)? Can workers gain support from the consumers and customers they serve, altering the power in this triadic relationship? What forms of governance will be needed to protect workers' voice in lieu of the labor relations systems first enacted in the 1930s? Believing that robust collective organizations are not likely to form soon, some researchers are exploring other avenues. One strategy is a voluntary code of conduct, which platforms sign on to in order to compete for labor (Graham et al. 2019, Gray & Suri 2019). Another approach, taken by Coworker.org, is the use of digital organizing and media exposure to force platforms to improve policies. Some labor groups have constructed apps for day laborers, to report untrustworthy employers and guard against wage theft (one example is Jornaler@, an app available on Google Play and the App Store). In contrast, as this article was being written, a small union of rideshare drivers in California emerged as a powerful actor in the successful fight for Assembly Bill 5, raising the possibility that early views about the potential for collective action have been too negative.

A more ambitious strategy is to create worker-owned and worker-governed platforms (Benkler

(Rahman 2016, Rahman & Thelen 2019). This vision is more like the current situation in some European countries, where platforms have been forced to conform to existing laws. A third possibility is that labor and social media platforms will grow more intertwined, fostering contention that heightens platform instability, perhaps generating pressures for the empowerment of users more generally. A fourth, more visionary possibility, is that platforms come to be governed and even owned by their users, as cooperatives and commons expand to compete with capitalist firms (Benkler 2017, Schneider 2018, Scholz 2016a, Schor 2020). We will not speculate on the likelihood of these four options. Whatever path unfolds will provoke far-reaching change, raising a broad array of questions that will engage social scientists for years to come.

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