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Editorial

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The power of platforms—precarity and place

Anna Davies[a], Betsy Donald[b] and Mia Gray[c]

[a]Geography, School of Natural Sciences, Museum Building, Trinity College Dublin, Dublin, IE, daviesa@tcd.ie
[b]Queen's University, Department of Geography, Mackintosh-Corry Hall, Room D201, Kingston, ON, CAN K7L 3N6, betsy.donald@queensu.ca
[c]Department of Geography, University of Cambridge, UK CB2 3EN, pmg27@cam.ac.uk

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The expanding scale and scope of digital platforms in our lives seem undeniable as they restructure commerce, communication, work, finance, popular culture, and private and public services. However, despite their ubiquity in our lives, platforms' relationship to increasing inequality and precarity and its implications for places, democracies and civil society remains underexplored. Kenney and Zysman (2020) consider the concentrated power of digital platforms arguing that regional scholars have failed to examine the implications of key internet platforms 'connecting massive numbers of users/customers with service providers, advertisers or other users'. Some of these firms create profit by selling a commodity, but many others sell labour, capital and attention within the nation-state or globally (Christophers 2020). Kenney and Zysman (2020) call on researchers to study how platforms wield power, paying particular attention to how the practices of platforms impact on the spatial organization of the economy.

The urgent need to study the concentration of economic, social and cultural power became even more acute under Covid-19 as a range of platform firms (for example, Amazon, Facebook, Google, Apple and Uber) were able to consolidate market power and market valuation under lockdown as mobility and spending patterns changed both rapidly and radically. Around the world, the prevalence of online purchasing and delivery services increased, resulting in fundamental changes to flows of capital, goods, labour and people (Batty et al., 2022). With the economic and social impacts of the pandemic spread unevenly, many people, firms and regions faced increased precarity and uncertainty under lockdown and beyond (Gray et al., 2023; Montgomerie, 2023). At the same time, the major platforms are being publicly scrutinised and criticised over monopoly practices, tax avoidance and poor labour practices, with many questioning their role and the lack of regulatory oversight.

Recently, scholars have begun to theorise this form of capitalism, arguing that these platforms represent new forms of rentier capitalism (Christophers, 2020), labour precariousness (Sadowski, 2020) and surveillance capitalism (Zuboff, 2019). The platforms' role in reshaping, reorganizing and possibly reclaiming civil society and democratic access is also becoming an urgent question (Diebert, 2020). Lyon (2023) explores these issues and raises troubling questions about platform companies' ability to create new kinds of infrastructures that challenge both the democratic state and capitalist economy.

Alternatives to the dominant commercial orientation of platforms are being articulated and explored by scholars and practitioners through the concept of platform cooperativism (Scholz, 2016a). These clone the technical core of platforms and operate within a cooperative model in relation to ownership and governance. Within platform cooperativism, there is a range of different models, from producer-owned platforms to those owned by cities or backed by unions; the latter emerging in relation to increased pressure for fair working conditions for those labouring in platform economies (Graham et al, 2020).

However, as Sandoval (2020) points out, while the ideas of platform cooperativism aim to subvert digital capitalism from the inside, there is always the danger of co-option. Beyond this, calls for even more radical shifts to platform commoning are appearing (Papadimitropoulos, 2021), which argue for a broader model of open cooperativism, premised on the principles of commons-based peer production that aspire to more circular and sustainable models of production, consumption and disposal.

Certainly, whether commercial or cooperative, these changes raise serious questions about the urban, social and economic geography of platforms; the power they wield and their regional economic, social, environmental and spatial impacts (Feldman et al., 2020). For instance, how will platforms affect the ways in which people and institutions re-engage locally with regional economies in a post-pandemic future? What new challenges will arise with respect to platforms' access to data and embeddedness in urban infrastructures? In what ways do platforms challenge the notions of place-making, including democratic access and civic engagement? How does the power of platforms affect the distribution and regulation of work? What are the issues in regulating platforms? Are new regulatory powers needed? If so, at what scale? Can labour organise around a global platform structure? Are platforms accelerating a global 'race to the bottom' or are there ways to regulate platform labour markets?

This paper begins by reviewing key definitions of platforms and how their power can be defined. It then examines the emerging regulatory approaches to digital platform firms in what Cioffi et al (2022: 821) refer to as a new 'pro-intervention swing of the governance pendulum' before considering evidence of emerging precarity and place-based impacts from Spain, China, USA, the Philippines, India, UK, Germany and Portugal on precarity and place-based impacts. It concludes by examining alternative models of platformism and discussing directions for future research.

Defining platforms and the platform economy

According to Gillespie (2010), the term platform is a metaphor that has been imbued with multiple meanings. It has been employed variously in populist appeals and marketing pitches by advocates of emerging sharing economies (Davies et al., 2017). At times it is used to refer to the hard and software of digital 'platforms', on other occasions it is used to evoke 'platforms' of opportunity (Mansell and Steinmueller, 2020). Digital platforms, the focus of this paper, are of interest because they have characteristics that include the retention of information about exchanges, including customer purchases, as well as information on patterns of online behaviour whether they lead to a purchase or not. According to Mansell and Steinmueller (2020: 6) platform companies utilize customer and other user-created content to elicit revenues through network effects associated with 'digitization, mobile communications, datafication and artificial intelligence'. It is widely recognised that digital platforms have been technical and economic disrupters, but they are also exerting significant forces on a range of social processes and practices, from business models to academic models and to public debates on governance, privacy and justice.

Fundamentally, then, these digital platform firms make up what Kenney and Zysman (2016) call the platform economy, consisting of a distinctly new set of economic relations that depend on the internet, computation and big data in the context of new labour relations. It is essentially an ecosystem with its own source of value that sets terms by which users can participate. Platform economies have changed the way value is derived within the capitalist system. In previous iterations of capitalism, goods and services were produced and capital value was derived from them. This was often dependent on the ownership of the means of production. In the platform economy, however, the production of a goods or services is not dependent on ownership of the means of production, but rather on the development of a digital network that provides a matching service, made possible through technology. The platforms pass all the risks onto the owners of the good or service being produced and extract value through the means of organizing the production. As a result of digitalisation, platform economy firms can grow rapidly on an international scale, make minimal local investment and cause significant local disruption. Fields (2022) argues that without digital technologies to facilitate, platform economies would be unable to reach such geographically extensive areas in their quest for capital accumulation.

Platform power

Digital platform companies—such as Facebook, Google, Amazon, Airbnb and Uber—exert enormous market power in the global economy. Their scale and scope mean they have little competition and can increasingly define the internet and the structure of the digital ecosystem. Nielsen and Ganter (2022) present three ways these digital platform companies exert their power. Their framework is very useful because it sets the stage for how these companies are influencing the structure of regions, economies and society (see Table 1 for the summary). First, platform companies have *hard economic and political power* enabling them to influence or prevent political decisions. They do this by spending very large amounts of money on marketing and advertising, lobbying against state regulations and public relations. Examples include Amazon refusing to collect state taxes in the USA until it suited them, Airbnb ignoring local zoning regulations throughout the world and fighting regulations, Uber and Lyft ignoring taxi regulations and

Table 1. Forms of platform power.

Platforms—forms of power	Elaboration	Examples
1.Hard power	Economic and political power allows them to influence or prevent political decisions.	Amazon refusing to collect US state taxes; Airbnb ignoring local ordinances, Uber ignoring taxi regulations;
2.Soft power	Cultural power attracts political actors and other partners given prestige and power associated with technological progress.	The celebrity status of wealthy Silicon Valley CEO start-ups of major platform firms. Platforms shaping ways of speaking and communicating.
3.Asymmetrical power	The asymmetry of power is enabled by the platform scale and tied to their institutional and strategic interest	1) Power to set standards 2) Power to change community standards 3) Power to automate action at scale 4) Power to hold information relative to others 5) Power to operate across domains

Source: Adapted from Nielsen and Ganter, 2022 and Cioffi et al., 2022.

fighting in US courts their designation as a transportation company (Cioffi et al., 2022).

Second, platforms exert *soft forms of cultural power* because they can attract political actors and other partners given their prestige and power associated with technological progress. The CEOs of platforms are often well-known public figures with celebrity status with admirers who embraced their libertarian approach to business. At the zenith of their cultural power during the height of US-inspired neoliberal capitalism, iconic statements like Facebook (now Meta)'s CEO Mark Zuckerberg's 'move fast and break things' and Uber's co-founder Travis Kalanick, 'it's better to beg forgiveness than ask permission' were illustrative of the free market neoliberal corporate business approaches to achieving fast rates of growth and market value. Since that time almost a decade ago, however, major backlashes against this libertarian approach have focused on these companies' role in invasive data collection, anti-competitive behaviour and fuelling misinformation. Nevertheless, despite growing criticism, these companies still find themselves in favour of large swathes of the public. This is because these platforms are easy to use and offer a service making life easier for billions of people around the world to connect with friends, rent accommodations or conduct day-to-day services (Lyon, 2023).

ChatGPT, and other firms using large language models, are further examples of firms now exerting soft forms of cultural power especially. The platforms offer the potential to make writing easier for millions of non-English (and English-speaking) users and to reduce repetitive tasks in many research and labour practices (Eloundou et al., 2023; Grove, 2023). However, these large language models can exacerbate an (often American) cultural hegemony in terms of privileging certain linguistic modes over others, eliminating idiosyncratic language and original voice.

Third, these platforms companies exercise *specific forms of asymmetrical power* that are enabled by their scale and tied to their institutional and strategic interest. Nielsen and Ganter (2022) provide five specific examples of how this kind of power enables. These are: (1) the power to set standards by which others must abide, (2) the power to make and break connections by the networks changing social rules (that is, 'community standards'), (3) the power of automated action at scale, (4) the power of information asymmetry relative to users, competitors, regulators, other outside actors and (5) the power to operate across domains, that is, the data collected through one app and used to target advertising across an entire ecosystem. Nielsen and Ganter (2022) explain how these forms of power are deeply relational and depend on the digital platforms' ability to maintain and sustain relations over time. However, despite their power and oligopolistic position, these platforms can still lose market position —as illustrated by once-dominant platforms that have since declined (for example, MySpace and Yahoo, etc.). Finally, these authors underscore the point that platform power is almost always exercised in the shadow of the state. No platform, they argue, is 'beyond regulatory reach'.

Evolving regulatory approaches

The regulation of platform firms is highly contested. We can see that in many ways the growth of platforms in the private sector creates new forms of digital-mediated infrastructure. Traditionally, public economics considered most infrastructure a 'natural' monopoly—in which state regulation or ownership was justified because of the lack of meaningful competition. The political ascendency of neoliberal thought created 'markets' from many infrastructural systems across the globe—such as roads, water and electricity—and normalised private sector provision of new infrastructure, such as our digital infrastructures with varying powers of state regulation.

The rise of powerful platforms infrastructures function like many other forms of privately controlled infrastructure and are interwoven with monopolistic practices

(Frenken and Fuenfschilling, 2021) and profit rates or rents (Christophers, 2020). Christophers show how viewer or user aggregation in the digital infrastructure is costly to reproduce which enables monopolistic practices which produce extraordinary rentier profits. The emerging monopolies amongst platforms are then both technologically and ideologically driven. Mazzucato and colleagues highlight two distinct forms of rent which platforms can extract— 'network monopoly rents' or economic rents which are derived from the network's gatekeeping functions and 'algorithmic rents' which are derived from the power of platforms' opaque algorithmic match-making systems (Mazzucato et al, 2020). Likewise, Frenken and Fuenfschilling (2021) highlight the asymmetric power that is afforded to platforms because of their monopoly position and their allocative rents. They argue that platforms' power is comprised of 'the participants they connect, the ability to govern the actions of market participants through their infrastructural power to disconnect them, the algorithmic power to rank participants depending on past behaviours, and the financial power from the ability to track and commodify data produced by interactions on the platform'. (Frenken and Fuenfschilling, 2021: 103). Vallas and Schor (2020: 273) also focus on the tension between the concentration of platform power and fragmentation of responsibility as they describe platforms 'as permissive potentates that externalise responsibility and control over economic transactions while still exercising concentrated power'. In this way, scholars argue that the monopoly power makes platforms powerful in and of themselves, but that they also gain power 'as technology model diffusers, validators and maintainers … shaping the model of the user and firm behaviour in the digital economy through fear of exclusion and the dependency on platform-offered services' (Mazzucato et al, 2020: 13).

As this suggests, platforms' have displayed often-contested power over other firms, customers and labour, and this has led to numerous calls for regulation. Institutions, from the supranational, to nation states, to municipalities have called for and/or instituted, different forms of platform regulation. This includes legislative changes, banned intermediated services, industry self-regulation and regulatory 'sandboxes' intended to promote new business models or technologies while applying minimal regulatory oversight (Jacobides and Lianos, 2021). Many early attempts at regulation were based on competition law which assumes a problem is a form of market failure and challenges the unprecedented scale of platforms. Many countries brought legal action against the largest platform firms for anti-competitive behaviour, only to reveal the inadequacy of the existing regulatory structure to constrain either the market concentration, rentier profits or growth of platform firms. Critics argue that antitrust legislation is unlikely to be successful because of its overly narrow focus on a market scale. They argue that to understand the influence of platform firms in shaping markets, regulators had to focus on the increase in vertical scope—or 'stickiness' as platforms offer ever more services to users to cement their market position.

Furthermore, the focus on competition policy and regulation does not capture the *reframing* of competition among platforms—where the aim is not necessarily to prevail within a sector, but to reshape the structure of the sector—or expose the extent of corporate power and exploitation of this enables (Mazzucato et al., 2020). Mazzucato and colleagues emphasise this change and argue that platform regulation should focus on the social and political implications of the increasing consolidation of both the function and usage of platforms. They argue that regulatory oversight must not only curb industry concentration but also actively shape the business model and behaviour of platforms as well as the firms which rely on them.

Following this line of reasoning, alternative regulatory efforts focus on challenging the business model directly. Cioffi and colleagues (2022: 826) argue that 'the shift towards regulation in the context of platform firms and markets is as undeniable as it is dramatic, highly visible and increasingly politicised'. Governments at different scales have commissioned studies and introduced legislation to affect the legal and regulatory environment within which platform firms function. For example, the European Union passed the EU Digital Services Act in 2022, which sets out a common set of rules for platform intermediaries including a ban on certain types of targeted adverts; data sharing with authorities and researchers; and the need to publish information on policies, procedures, measures and tools which are used for content moderation, algorithmic decision-making and human review. The EU also plans to create a new oversight institution, the European Board for Digital Services, to coordinate and monitor the regulation. While it is too early to identify how effective the EU's regulatory structures may be, we can see from the structure that it is meant to increase transparency, enable challenges to algorithmic decisions and safeguard users. Although many scholars and industry watchers have critiqued the biases embedded within AI's models (Clifton et al, 2020; Dignam, 2020) as well as their use in distributing and managing work, it is unclear the extent to which the Act may allow an examination of these larger issues. Certainly, Cioffi and colleagues frame the EU's regulatory approach to platforms—as well as growing platform regulation in China, the USA and India—as part of a Polanyian 'second movement' where 'societal forces mobilise against the growing and increasingly concentrated power of private firms and markets by enlisting state power through economic governance and regulation' (Cioffi et al., 2022: 823).

Here, we examine two examples—FinTech and labour—to highlight how effective such regulation might be and how power and regulation are interwoven in place. FinTech is involved with the re-intermediation of money and finance through new infrastructures, socio-technical configurations and business models of platforms (Langley and Leyshon 2021). The new business models can be seen in platform-based systems involving payments, credit, saving and investment, insurance, and crowdfunding and peer-to-peer lending. The sectors' new business models and industry configurations mean that regulators must quickly grasp and respond to these changes (ibid). Regulation of platforms involved in Fintech has varied between jurisdictions and has changed in response to periods of growth and recession and state strategy towards the sector. Langley and Leyshon (2023) point out that UK financial regulators themselves are not only regulating FinTech, but have increasingly become active in developing the industry, and are keen to see FinTech platforms develop their own regulatory capacity through 'RegTech'.

Langley and Leyshon (2023) explore divergent approaches taken by national financial regulators and find great variation. They argue that FinTech platforms are 'provoking significant, wide-reaching and divergent changes in national financial regulations'. (Ibid: pg x). They capture this difference in regulatory approach in China and the UK as they explore how economic and geopolitical competition, varieties of capitalism and variegated regulatory apparatus creates distinct relational and sovereign-territorial geographies. That is to say, 'variegated institutional structures shape the ways in which platform economies are absorbed into existing national regulatory practices'. (Ibid: pg at the end).

Attempts to regulate labour platforms are another example of how heterogeneous and overlapping institutions approach platform regulation in very different ways which reflect the specificities of labour markets and existing national regulatory practices. Digital platforms that mediate work can reduce labour to its most basic commodity form that can be bought and sold, digitally directed and/or algorithmically managed (Graham, 2020). As this suggests, the platforms digitally allocate, organise and evaluate work. While there are important distinctions between work that are offered remotely or 'on-location', many of the same regulatory issues are prominent in both broad types of platform work around worker classification, the construction of algorithms which distribute and reward work and the right of workers to organise (Aloisi, 2022).

We can see an increasing number of regulatory battles over the legal status and classification of workers as employees or independent contractors (self-employed workers have few employment rights) and the contours (legal and otherwise) of the relationship between the platform and the worker. Both the courts and many governments have been active in shaping and initiating regulations around platform worker classification (Aloisi, 2022). European and several national court cases and new national regulations have determined that some platform workers are legal 'employees'. An example of this is Spain's *Ley Rider* law which clarified the legal status of delivery riders and introduced the right to be informed about the logic of algorithms that govern the distribution and rewards of work (ibid). However, scholars also point to the limitations of this type of regulation. Niebler and colleagues highlight how delivery platforms, faced with new legal responsibilities for their employees, often respond by using alternative subtracting arrangements to subvert the intention of the new regulations. This continues to deny platform workers basic labour rights, social security and a more predictable income (Niebler et al, 2023). Furthermore, Aloisi (2022) also points out that while the *Ley Rider* law provides workers with the possibility to learn more about the parameters and construction of the AI systems, the law does not introduce any additional rights which might empower workers to co-determine such metrics.

Of course, institutions other than the state can also structure and regulate labour markets (Gray, 2004). Labour unions, worker centres and other labour institutions can play similar roles in trying to regulate and construct the norms of specific labour markets (Benner et al., 2007). There have been numerous attempts to self-organise or unionise platform workers, with some success in countries like Denmark (Countouris and De Stefano, 2020). However, most platform workers are not organised or covered by formal collective agreements. The International Labour Organization (ILO (2022)) estimates that there were 1271 worker protests around the world between January 2017 and July 2020 in just four platform types—ride-hailing, food delivery, courier services and grocery delivery. Some of the difficulty in organising arises from the fragmentation resulting from differences in nationality, occupation and platform (Wood et al, 2018). Additionally, in some countries, further complications come from the uncertain legal status of platform workers—EU competition law itself has been used to argue that organised association amongst self-employed contractors is a form of price-fixing or cartel agreement (Countouris and De Stefano, 2020; Hauben, Lenaerts, and Waeyaert, 2020).

There are other critiques of how we understand the contested nature of platform regulation which centre on the overly uniform treatment of platforms—as if their ability to function in markets with the same platform infrastructure around the world makes them more homogeneous than 'bricks and mortar' firms. There are long-established critical accounts of globalization whereby transnational firms are portrayed as able, unhindered, to roll out their business models around the world (Peck and Theodore, 2007). Instead, authors focus on the heterogeneity necessitated by the variation in the political and regulatory influences in the country of origin (Christopherson and Lillie, 2005) and in the markets, institutions and culture where they produce and sell (Tilly, 2006). Platform scholars make a similar argument about *platform* firms. They show how platforms are also forced to adapt to the regulatory institutions in which they develop (Söderqvist, 2017; Thelen, 2018) and display behaviour which arises from the places they originate (Kenney and Zysman, 2020). For example, Thelen (2018) shows how differences in regulatory, institutional and political environments forced Uber to follow different business models in Germany, Sweden and the USA.

So, to what extent are we seeing what Cioffi and colleagues call the 'great regulatory transformation of the platform economy' (Cioffi et al., 2022: 832)? Despite numerous efforts from national and international legislative bodies and the courts, effective regulation of platform firms remains elusive with a long litany of evasions, legal battles, circumvention and targeted political pressure. Kenney and his colleagues highlight the difficulties when they point out, "platform firms have at times circumvented or simply ignored regulation and have consistently deployed growing political influence to protect and advance their command of increasingly concentrated market power and control over resources (Kenney et al., 2020).

However, the contours of the new economic-political landscape are not always clear when exploring regulatory attempts to curb the power of platform firms. For example, Ford highlights the difficulties of determining '…who the regulator should be, which players or activities fall within this space and what effective regulation would look like' (Ford, 2017: 25 in Langley and Leyshon, 2023). Thus, we are witnessing many experiments within regulatory approaches to platform power. Further, it may be a mistake to homogenise our conception of monopolistic platform firms. Each round of regulatory activism brings differentiated responses from the big platform firms. As Cioffi et al (2022: 831) put it, 'the new wave of regulation produces a new politics. New alliances were made and new divisions amongst platform firms, which once jointly opposed all regulatory attempts'.

Emerging politics, precarity and placed-based impacts

Another form of politics to consider is populism and its connection to social networks like Twitter and Facebook. These social media platforms can facilitate disinformation networks, conspiracy theories, troll farms and the work of political consulting firms like Cambridge Analytica because these platforms take no responsibility for the content. In other words, there is no benchmark of truth or fact. Democracy scholars are increasingly citing digital platforms, particularly social media, for their role in politics that thrive in emotive rather than factual content or what Deibert describes as a 'descent into neo-fascism' (Deibert, 2019). Disinformation researchers are also raising alarms about AI Chatbots like ChatGPT for their ability to produce clear and convincing texts that repeat conspiracy theories and misleading information (Hsu and Thompson, 2023). These large language models also have the capacity to scale up all this misinformation at an alarming speed.

According to Fortunato and Pecoraro (2022:1), 'it is not the use of the internet per se that matters, but the specific use of social networks, like Twitter and Facebook, for obtaining information about politics'. Their research on social media, education and the rise of populist Euroscepticism drew upon European-wide and national surveys and found a strong relationship between exposure to online political activity and populist attitudes towards Euroscepticism especially among individuals with lower formal education.

It also seems a link can be made between populist political views and the rise in precarious services classes linked to the growing platform economy. Cruz and de la Cruz (2023) make this case in the context of the rise of illiberal populism in the Philippines. They argue that most existing research on the negative impacts of digital platforms on democratic politics has focussed on the supply side. However, they show that the platform economy 'has also been implicated on the demand side of the global populist upsurge, by fostering new insecure classes as well as precarious urbanization patterns'. Their work on the political effects of the changing economic geography of the service economy and of digital platforms has wide-ranging implications for places around the world.

Indeed, the myriad of ways in which the power of platforms is interwoven with place remains under-researched. The technological innovation in digitisation enables platform firms to grow rapidly on an international scale—often making minimal local investment and causing significant local disruption. In a bid to empirically explore how platforms can disrupt the existing economic and social structures of cities, Hidalgo focuses on the economic, political and social health of Madrid as Airbnb's dominance negatively affects local businesses (Hidalgo et al., 2023). In another context, Krishnan (2023) examines the impact of top-down platform interventions in the city of Varanasi in Uttar Pradesh, India and the impact of these surveillance technologies on marginalised populations, especially women's groups and healthcare workers in the frontline of India's Covid response. A parallel story of marginalization is told by Johnson et al., (2023) in their story of unbelonging in places among US platform parcel delivery workers. Their story seems rooted in the particular geographies of gated communities and racial segregation that mire many US spaces. By contrast, Chu et al. (2023) research on the upgrading of Taobao Villages as a platform-based place-making phenomenon in China underscores another, more positive and potential in the interaction between platform and place. According to Hassink (2023), the study of China's platform economy is still very much embedded in the local life, local regulations and local places of China. These phenomena of course have emerged under a much stronger state interventional approach.

What is needed to complement these empirically documented impacts of platforms on place is more conceptual reflection on the meaning of place in an increasingly platform-mediated world. Here the work of Agnew (2016) on place, experience and identity in contemporary society could serve as a springboard for considering how interactions with and through platforms may shape connections with physical places. Productive conceptual synergies may also be forged by connecting platform-place interrogations with other critical research exploring diverse issues such as justice, gender, development and technology (Chang et al., 2022; Sørensen & Lagesen, 2022).

Diverse forms and impacts of platforms

The emergence and persistence of uneven power relations within and around platform economies, and the varied expressions this takes, are clear in the for-profit sectors of well-established production and consumption systems, such as accommodation, transport parcel and food delivery. However, platforms may not be organised only or solely for profit. Some platforms are creating new conventions of exchange in emergent sectors from house-sitting to land and food sharing, which are drawing the attention of scholars and practitioners alike (Davies and Evans, 2019). Research examining these activities is diverse, from studies exploring the means and mechanisms needed for creating fairer remuneration of platform work (Graham et al, 2020) to others which reflect on broader shifts in the political economy of platforms through platform cooperativism (Sandoval, 2020).

Platform cooperativism

Platform cooperatives adopting a ‘commons-oriented postcapitalist ethical economy’ (Papadimitropoulos, 2021: 246) approach, have been heralded as overcoming some of the challenging aspects of platform capitalism for people and the planet. Such an approach, following Scholz (2016a, 2016b), elevates principles of practice that seek to democratise ownership, governance and value distribution.

The concept of platform cooperativism—defined broadly as efforts to create online platforms based on co-operative structures—is intuitively appealing in terms of reducing the number of corporate intermediaries involved in transactions and ensuring more resources flow to those who undertake work. In the automobility space, for example, such cooperativism would involve removing the Ubers of this world from the travel transaction equation and providing services owned and managed by drivers themselves. The burgeoning activity in this area has led to several efforts to map, locate and support platform cooperativism. For example, the Platform Cooperative Consortium (PCC) asks:

> “What kind of new economy do we want to create?” Instead of optimizing the online economy for growth and short-term profits for the few, we need to optimize the digital economy for all people” (PCC: https://platform.coop/).

To fulfil its goal, the PCC provides links to tools and other resources aimed at supporting the design and development of platform cooperatives. In January 2023, their directory listed 542 related projects across 49 countries. Meanwhile, the Internet of Ownership Project Council (https://ioo.coop/directory/) listed 312 platform cooperatives in its directory of platform cooperativism. Within this list is a range of co-ops at different stages of development and with differing motivations and goals. Some, as Sandoval (2020) notes, articulate and embody a radical vision for a degrowth-based economy. Others are reformists; optimistic that cooperativism can lead to a fairer, more ethical version of capitalism. It is therefore a dynamic field of experimentation (Schneider, 2018). Nonetheless, across these diverse activities and ideological standpoints, there is a consistent focus on improving working conditions and reducing precarious labour by removing the distinction between workers and owners.

However, platform cooperativism’s potential for subverting the negative effects of digital capitalism from within is by no means guaranteed. As, Sandoval (2020) notes, platform cooperativism as a movement connects social activism with business enterprise, which brings into sharp relief tensions around the balance of commons versus commercialization, democracy versus the market, activism and entrepreneurship. Certainly, there remains a politics of platform cooperativism to be untangled around the extent to which drives for entrepreneurialism align with goals for fair remuneration and greater social solidarity in areas which are often hyper-competitive due to the reach of capitalist platforms. Indeed, Rafélis de Broves (2022) argues that cooperatives operating in such spaces are likely to face contradictions between their social and economic goals. As illustrated by the experiences and impacts of their offline cooperative counterparts, there remain formidable challenges to scaling up and out-platform cooperatives in relation to finance, markets, education, governance and competition.

Setting out a cautionary tale for platform cooperatives, van Doorn (2017) warns against a blind and aspatial technological solutionism with a one-size-fits-all approach to technical and organisational infrastructure development. Instead, platform cooperatives must resonate deeply with *local* contexts ‘…and their affective, moral and political infrastructures, all of which are deeply gendered and racialised’ (van Doorn, 2017: 910). Linked to this, and as discussed in the earlier sections of this paper in relation to the disruptive impacts of commercial platforms in sectors from accommodation to finance, is the need to consider more carefully the relationships between platform cooperativism and state regulatory authorities at multiple scales (Foramitti et al., 2020). There are then interesting geographies to the challenges faced by platform cooperativism which seeks to support local economies in multiple ways and not least with a fairer redistribution of value for labour. These geographies deserve further collective scrutiny.

Fair platform work

While platform cooperativism attempts to change the structures of the platform economy, others have focused on revealing the extent of the challenges platforms can create, for example, in relation to precarious work. The need to address the challenges around labour that platforms generate, and which have been elucidated earlier in this paper, has been taken up by a range of actors and initiatives. By 2021 the Fairwork Project had undertaken action-based research across twenty countries focused on developing 'fairness ratings' for digital labour platforms (Bertolini et al, 2021). Their research found that even in highly regulated labour markets workers had few employment rights and experienced precarious and insecure work. While some platform workers have secured limited rights such as a minimum wage or certain social welfare provisions as employees, it is still much more common that workers are categorised as self-employed. The resulting 'Fairwork framework' (Heeks et al., 2021) was developed as a systematic means of evaluating platform labour against established benchmarks for decent work. This aims to provide consumers, regulators and the platforms themselves with about the standards in existence; effectively creating a league table of platforms ethical performance. It comprises five principles: fair pay, conditions, contracts, management and representation (Heeks et al., 2021: 267).

Diverse platform economies

However, fair payment for work and labour issues are not the only issues for platform economies. Elsewhere, scholars working on collaboration with other parties, such as local authorities and the European Commission (2020), have drilled down into areas of tension within platform economies. Fuster Morell et al. (2020) and Fuster Morell (2022), for example, calls for platform effects on sustainability (2020), democracy and gender (2022) to be given greater consideration.

Digital platforms affect people, the planet and prosperity in complex ways. Advocates of digital platforms often claim sustainability credentials around improving efficiency and reducing material resource consumption. However, there is rarely clear or significant empirical evidence to back up such promotional claims (Davies et al., 2017, 2022). More research is required to examine how to map, track and monitor the contribution of diverse digital platforms to sustainable development. Linked to concerns around a just transition to sustainability, Loi et al (2020) suggest that platform cooperatives provide the best chances of realising a just society (within a Rawlsian justice framework). While promises of democratizing access to information through online spaces for collaboration and activism in relation to digital platforms have been made (Desiriis, 2019), recent incidences of deliberate interventions in shaping the spread of misinformation in elections have questioned their democratic credentials (Dommett, 2021). As scholars attest, echo chambers, hate speech, filter bubbles and disinformation through platforms all present ongoing causes for concern (Deibert, 2019; Kuehn and Salter, 2020) and will impact sections of society differently according to factors such as age, gender, sexuality, ethnicity and ability.

Drilling down into gender dimensions of digital platforms, Rodríguez-Modroño and colleagues (2022) respond to Fuster Morell's call and assess gender equality across digital labour platforms in Europe, where 38% of platform workers were identified as women (European Commission, 2020). Their research, with others (James, 2018; Schor et al., 2020), reveals pervasive gender inequalities. It shows that women platform workers tend to engage more frequently in feminised spaces such as domestic and care work platforms, work with lower intensity on platforms due to the requirement for many to combine such work with their personal caring responsibilities and have worse working conditions and earnings than men (Rodríguez-Modroño et al., 2022). Rather than seeing the flexibility of platform work as an opportunity to combine work and care, they argue the presence of such care demands often means women have less capacity to allocate to platform work which reduces their potential earnings. While their suggestion that a new set of universal worker's rights might offer a resolution to these inequalities, the limited implementation of the existing rights-based agenda suggests this is no easy matter to enact and enforce. Nonetheless, there is a clear need to develop a stronger intersectional lens to examine the nuances of the platform worker labour force.

Finally, to what extent might other technological approaches create an alternative to corporate platforms? Critics of the concentrated power of platforms point to the promise of alternative technologies such as decentralised distributed ledgers as another possible response to the power of platforms. For example, supporters of cryptocurrencies highlight the ability of blockchain technologies to contest the centralised corporate platform firms in ways which would decentralise power and decision-making and offer greater individualised data privacy. However, Zook (2023) cautions that blockchain and cryptocurrencies are technologies, like all technologies, which are embedded in practice and space and influence the geography of economies and societies. 'Just as platforms have distinct geographies—often headquartered in global technology centres with strategic networks to minimise taxes and oversight—the emerging block chain industry has developed its own spatial footprint based on its requirements and regulatory environments' (ibid).

Conclusion

Digital platforms do not seem to be going anywhere soon. To summarise, this paper has defined digital platforms, highlighting the essential role of the digital network that provides a matching service, made possible through technology. Unlike previous forms of capitalism that derived value from the goods or services produced, platform capitalism derives value through the means of organizing the production of those goods or services. Digital platform firms pass all the risk onto the owners of the goods or services being produced and extract value through the means of organizing that production or service—made possible by technology. The technological innovation in digitization enables platform firms to grow rapidly on an international scale, making minimal local investment and causing significant local disruption. The global or multinational, scale of platforms affords them monopoly power—in market reach, monopoly rents and in shaping the structure of the market. Their power can be expressed in multiple ways, as *hard economic and political power*, expressed through their ability to extract rents and influence or prevent political decisions, but also as *softer forms of cultural power* seen in their ability to attract political actors and other partners as well as how they shape ways of speaking and communicating. The *asymmetry of power* is enabled by their scale and tied to their institutional and strategic interest.

The last decade has seen growing state and another actor backlash against the libertarian approach of many digital platforms. Institutions, from the supranational to nation-states to municipalities have worked for, or instituted variegated forms of, platform regulation. Older, competition-oriented, approaches are being complimented by more targeted regulation aimed specifically at platform firms. However, the extent to which these regulatory approaches can contain the power of platforms is uncertain and there is the threat of regulatory 'capture' through heavy industry involvement in state-initiated regulatory experimentations or 'sandboxes'. Furthermore, it is too soon to know if emergent regulation will be effective and if we are entering what Cioffi et al., (2022) argue is a period of a Polanyian 'second movement' where states and other societal forces mobilise against the growing concentration of power of private digital firms.

In addition to new forms of regulation at multiple scales, the persistent and uneven power relations within and around platform economies have led to the rise of diverse forms of platforms, including a robust platform cooperativism movement that is defined broadly to include online networks based on co-operative structures rather than corporate interests. As this review, demonstrates, however, there are considerable challenges to scaling up these cooperative models in relation to finance, markets, education, governance and competition.

Digital platform firms originating in the Anglo-American neoliberal context still hold great economic and political power. They have succeeded in transforming from initially fast-growing disruptive technologies to a digital establishment whose interests are protected by a dominant neoliberal legal and political framework. Their impacts on all aspects of life have been profound and multifaceted. They have reshaped urbanization and transportation, created and solidified new manufacturing sites, and changed the nature of work for millions around the world. Not only have digital platform firms created the conditions for the supply of rising populism through misinformation through their algorithmic logics of echo chambers and silos, but as Cruz and de la Cruz (2023) show, they can be implicated on the demand side of the global populist upsurge by fostering new insecure classes, precarious urbanization patterns and political divisions.

One of the common conditions across all of these digital platforms is that they take little to no responsiblity for the social, spatial, environmental and political consequences that flow from their use. Whether that continues to be the case remains to be seen, owing to the shifting era towards regulation and legal challenges of platform firms and markets across the world. At the time of writing, The US Supreme Court heard a case in February 2023 about challenging a law that shields social media companies from responsibility for the content [Gonzalez v. Google LLC and Twitter, Inc. v. Taamneh]. The decision will either reinforce the status quo or will be a major game changer for all platforms where content is fuelling politically divided and populist regimes. Until social media is no longer an elaborator of misinformation in its silo chambers it may be difficult for regions, economies and societies to embrace efforts to create online platforms based on alternative cooperative structures. These structures will still cut across diverse activities and ideological standpoints, but at the heart lies an effort to focus on improving working conditions, reducing precarious labour and moving towards a fairer, healthier and more ecologically just world.

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