

6. Dual value production as key to the gig economy puzzle¹

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THE GIG ECONOMY PUZZLE: THIN MARGINS AND OUTSIZED EXPECTATIONS

The puzzle we attempt to solve in this chapter is how gig economy companies can continue to grow their business despite regularly incurring huge losses.² While the first step towards solving this puzzle is easily made, by bringing into focus the crucial role of venture capital and investment firms, this immediately requires us to confront a more puzzling reality: that these firms have continued to fund loss-making gig companies operating in industries with extremely thin margins. To make sense of investors' high expectations, we believe it is necessary to start by asking a deceptively basic question: what type of work is platform-mediated gig work? Phrased differently: what types of value are created through platform labour?

To answer this question, it may be strategically useful to momentarily accept the position defended by gig economy companies in various court cases, namely, that they merely provide the technical platform on which service providers find access to their customer base (for example, Tomassetti 2016). From this perspective, these companies provide an informational service that is categorically distinct from the service provided by the gig worker and therefore they should not – indeed cannot – be legally held accountable as employers (for discussion of this, see Aloisi 2015; Meijerink and Keegan 2019; Stewart and Stanford 2017). In return for this service, the argument continues, gig

¹ This chapter is a partly reworked version of the following article previously published in *Antipode*: Van Doorn, N. & Badger, A. (2020), Platform capitalism's hidden abode: producing data assets in the gig economy. *Antipode*, 52(5), 1475–1495.

² See for example, Hawkins (2019) reporting Uber's \$5.4billion loss in a single quarter, or Butler (2019) reporting Deliveroo losses of £232million in the same period. Neither company has ever turned a profit.

economy companies charge a commission on each transaction conducted via their platform.

Crucially, however, in addition to extracting rent from each transaction they orchestrate, platforms also extract data about these transactions, and usually about a lot more, which means that gig workers can likewise be understood to provide an informational service to the platforms they use. That this service is neither optional nor remunerated suggests that the data extraction ‘continues to open up new frontiers for the expansion of the logics of property and to blur the borders between processes of governance and dynamics of capitalist valorisation’ (Mezzadra and Neilson 2017, p. 195). That is, gig work is a form of data work and the gig economy should be understood as one salient phenomenon within the broader framework of financialised platform capitalism (Langley and Leyshon 2017; Srnicek 2017).

In our view, the digital platform is one of capital’s new frontiers in its ongoing expansionist drive amid decreasing interest rates, allowing it to expand into previously uncharted areas of life through data- and finance-driven modes of accumulation. Platform capitalism forms a (provisional) solution to the problem of capital appreciation facing the investor class. Yet one class’s solution is another class’s problem, given that an economy governed by platforms is ultimately realising a massive redistribution of wealth and risk; the former from the working class to the investor class and the latter from employers to workers. Moreover, what exacerbates this problem is that not enough is done to counter it. There is a serious lack of robust and effective regulation in respect of the gig economy, which is largely the result of a chronic lack of expertise and political will among public officials. While we cannot solve the problem of political will, scholars can assist policy-makers as regards building expertise, and it is with this goal in mind that this chapter has been written.

To begin solving our puzzle, then, we introduce the notion of ‘dual value production’, which describes how platforms capture two types of value from gig work: the monetary value associated with the service transaction, and the more speculative and volatile types of value associated with the data generated during service provision. We then elaborate on the construction of data as a specific asset class and consider the process and consequences of data assetisation. Shifting our perspective from the platform to gig workers, we subsequently discuss two grassroots initiatives that resist the unbridled data extraction from gig work and attempt to reclaim their data assets. The next section takes another step towards solving our puzzle, as we move up the value chain and examine the role of what we term ‘meta-platforms’. It is on this level that we are confronted with the true power brokers of the platform economy – as well as with the magnitude of the puzzle at hand – and we therefore end our chapter by proposing an ambitious set of regulatory and policy measures that could curb this unprecedented power. First, however, we offer a brief

discussion of how our study positions itself vis-à-vis existing gig economy research, what research puzzle – that is, knowledge gap – we aim to solve, and what methods we have deployed to accomplish this.

THE RESEARCH PUZZLE

Our approach to platform-mediated gig work deviates from, while remaining indebted to, what we take to be the two main strands of gig economy research that have so far shaped this field: (1) labour process theory-inspired scholarship concerned with algorithmic management and information asymmetries (for example, Gandini 2019; Rosenblat and Stark 2016; Veen et al. 2020) and (2) legal scholarship primarily focused on the social costs of worker misclassification (for example, Aloisi 2015; Prassl 2018). Both research strands share a similar analytical scope, in so far as associated studies critically attend to how the precarious conditions and misclassification of gig workers are enforced through technological and legal means. That is, gig economy research, including our own contribution, has so far mostly restricted itself to the sphere of the platform as both a business model and work environment. In contrast, here we aim to expand this purview in order to examine the broader political economy of data and finance capital that not only keeps gig platforms open for business, but also demands increasingly strict discipline over how such business is conducted, resulting in progressively worse working conditions and decreasing wages.

The specific research puzzle we aim to solve in this chapter thus pertains to a knowledge gap left by current gig economy scholarship: what happens in the space between the intensifying exploitation of gig workers and the massive market valuation of non-profitable gig economy companies? To solve this puzzle, it is necessary to take a multidisciplinary approach that draws on insights from political economy, platform studies, critical data studies and the (digital) sociology of work. Our analytical perspective follows the contours of our respective research projects, which both examine platform-mediated labour. We have each spent substantial periods conducting (auto-)ethnographic research, during which we not only studied gig workers, but also engaged in gig work ourselves. Van Doorn spent two years studying application (app)-based food delivery and domestic cleaning services in New York, Berlin and Amsterdam (spending eight months in each city), also working as a courier and cleaner in the latter two cities.³ Badger has similarly undertaken

³ This fieldwork consisted of participant observation on city streets, in homes and offices, and in online spaces. It also resulted in 158 formal semi-structured interviews, primarily with couriers and cleaners, but also with some entrepreneurs in food delivery,

food delivery work for two platforms in London over a period of nine months, in addition to carrying out 18 months of ethnographic research within a grass-roots trade union responsible for organising gig workers.⁴

In addition to our long-term ethnographic studies of gig workers' everyday experiences, we have also conducted extensive desk research on the institutional, financial/economic and technological conditions enabling the platformisation of low-wage service work across local and national settings. These analyses extended beyond the Global-North purview of our respective ethnographies and allowed us to identify similar dynamics and developments in other parts of the world. Our shared interest in the political economy of low-wage gig work, crystallised in app-based food delivery, is what brought us together and pushed us to jointly examine in more detail the role that data plays in the daily operations and business models of gig platforms. We focus on data extraction in low-wage gig work as this is a phenomenon that spans several quickly growing global industries, where it serves to increase the rate of exploitation of often vulnerable, migrant workers who have no say over how their data is used and valorised.

THE KEY TO THE PUZZLE: DUAL VALUE PRODUCTION

In this chapter we argue that gig work under conditions of platform capitalism is characterised by a process that we term 'dual value production': the monetary value produced by the service provided is augmented by the use and speculative value of the data produced before, during and after service provision.⁵ Platforms capture part of this monetary value by charging rent, in the form of a commission, while capturing all of the value produced by gig workers' data

cleaning and adjacent industries in the three cities. Many more informal conversations took place during this two-year period.

⁴ This fieldwork consisted of participant observation across a range of digital and urban spaces. Beyond regular informal workplace conversations, 14 formal semi-structured interviews were conducted. Beyond participant observation and interview methods, data collection included a mix of video, photography and audio recordings, creating multi-media diary entries that express the complexity of the workplace.

⁵ What distinguishes the business model of labour platforms from that of other platform companies, such as Facebook or Google, is that the latter's revenues are primarily dependent on the advertising-driven ecosystems they create and manage. In contrast, the revenues of labour platforms depend primarily on worker exploitation and rent-seeking (cf. Srnicek 2017). While data capture is crucial to both platform business models, dual value production is a unique characteristic of labour platforms because gig workers produce data while providing paid services via the platform, whereas users of Google or Facebook produce data as consumers of these platforms.

labour. That is, using Sadowski's (2019, p. 10) pithy formulation, 'platforms collect monetary rent and data rent'. Yet, whereas the value of this monetary rent can be dynamically determined by the platform, the value of data rent is fundamentally indeterminate in so far as it derives from speculative and performative practices.

Platforms engage in constant data accumulation because of the potential value this data, once processed by their analytics software, might embody or give rise to.⁶ This value derives, in part, from data's expected or actual practical utility in operational processes (that is, achieving functional goals and systems optimisation). Yet captured data also attracts venture capital and grows financial valuations, to the extent that investors expect data-rich platform companies to achieve competitive advantages by creating data-driven cost efficiencies, cross-industry synergies and new markets. In this way, it becomes possible 'to convert data into money' (Sadowski 2019, p. 11), which is then again invested in activities and technologies that increase the capture of data.

While data may at first seem like a supplementary component of the service provided, it is in reality key to understanding what gig platforms are about. Focusing on datafication allows us to grasp how app-governed gig workers function as pivotal conduits in software systems that combine distributed data generation and centralised analytics, depending on layers of existing (public and private) urban infrastructure, from free Wi-Fi networks to roads and bike lanes (Shapiro 2017). In practice, a courier's smartphone and physical labour become a site of translation through which complex urban environments are formatted into machine-readable data streams. These apparatuses thereby produce digital data as a particular asset class (Sadowski 2019, 2020), which is central to platform capitalism 'as a mode of accumulation that is simultaneously a system of domination' (Fraser 2016, pp. 164–5). In the next section we explain what this means.

⁶ As Sadowski writes (2019, p. 10): 'the value of data is uncertain; the valuation of data is complex'. Moreover, as he notes elsewhere, '[t]he conditions needed to convert data capital into economic capital may never arrive, but that does not stop the cycle of accumulation' (Sadowski 2020, p. 572). This is because the costs associated with the capture, storage and processing of data are relatively insignificant for platform companies flush with investment capital, especially compared with the funds required for marketing (for example, advertising, discounts and promotions), lobbying and litigation.

DATA ASSETISATION: A PREDATORY PLATFORM SOLUTION

What type of asset is captured data? A main distinguishing feature of the data asset is its high-value elasticity, that is, both its operational use value and its speculative financial value tend to increase significantly as it scales. To elucidate this elasticity, it is helpful to return to our notion of dual value production on food delivery platforms. On the level of service provision, a platform company's bottom line (that is, net income) consists of the rent the platform extracts from each completed food order (that is, the commission it takes from the restaurant plus the delivery fee it charges the customer, together forming its top-line revenue) minus the piece-rate labour costs associated with each order and other expenses, such as price discounts for consumers to grow market share. In traditional Marxist analyses, this is the scene of exploitation: 'recompensed only for the socially necessary cost of their own reproduction, [food delivery workers] have no claim on the surplus value their labour generates, which accrues instead to the [platform company]' (Fraser 2016, p. 164). However, as Fraser argues, the problem with this perspective is that, by focusing on 'capital's exploitation of wage labour in commodity production' (Fraser 2016, p. 165), it marginalises another fundamental process that is both entangled with exploitation and operates as its racialised condition of possibility: expropriation, or what David Harvey (2005) has termed accumulation by dispossession.

Expropriation 'works by *confiscating* capacities and resources and *conscripting* them into capital's circuits of self-expansion' (Fraser 2016, p. 166, original emphases), which accurately describes the globe-spanning capture of data assets produced by mostly (im)migrant food delivery workers who lack ownership or meaningful control over these assets (cf. Couldry and Mejias 2019). Moreover, data expropriation makes it possible for food delivery platforms to continually optimise their accumulation strategies based on exploitation, for instance, by dynamically adjusting – while progressively decreasing – riders' delivery fees based on aggregated market data in order to increase profit margins (Van Doorn and Chen forthcoming). Data expropriation is a practice characterised by alienation and unfreedom, which forms the condition of possibility for the exploitation of food delivery workers who, as independent contractors, are nominally free to choose when or for how long they work and which orders they accept. It is precisely these sequences of decision-making activities from which data assets can be derived, which means that couriers' freedom of choice can be strategically leveraged as a behavioural informational service that can be used against their best interests.

However, whereas the unit economics of courier exploitation expands in a linear fashion, the captured data assets expropriated from each courier only become actionable once their accumulation reaches scale, after which their value grows exponentially.⁷ This, then, is what it means to say that captured data is a highly elastic asset class: the value associated with its expropriation is much more sensitive to the qualities of scale than is exploitation of labour. We should be careful here, however, not to naturalise the notion of scale and to avoid conflating it with volume or size. It would be more accurate to say that scale is an effect of a platform company's data analytics capacities. That is, ownership and control over the computational architecture built for data capture is essential.

This is illustrated most clearly in the initial public offering (IPO) filings of established gig-economy companies. For example, Uber Technology, Inc.'s (2019, pp. 155–6) filing states:

Managing the complexity of our massive network and harnessing the data from over 10 billion trips exceeds human capability, so we use machine learning and artificial intelligence, trained on historical transactions, to help automate marketplace decisions. We have built a machine learning software platform that powers hundreds of models behind our data-driven services across our offerings and in customer service and safety.

In this constellation, data capturing sensors, machine learning algorithms and gig workers do not function in isolation. Instead, they form vital interlocking components that converge into one system and allow it to (operate at) scale.

This positive feedback loop, between a data-producing labour process and algorithmic systems that self-optimize as they analyse this data, is at the heart of machine learning's promise of full automation. Importantly, this promise drives the operational practices and investor pitch decks of food delivery startups and other gig economy companies worldwide. In their shared vision, one of the key value propositions of digital platforms is that their data analytics capacity will eventually enable the automation of all fungible forms of gig work, thus diminishing contracted labour costs to zero. The platform company to first accomplish this goal will subsequently conquer the market and reach

⁷ Reaching scale is a constantly moving target. It is a dynamic site of experimentation that is contingent not just on a company's evolving operational goals, but also on environmental variables such as the nature, prevalence or relative significance of the activity being captured and datafied. Data analytics is not an exact science and, although the accumulation of more data generally increases the accuracy and versatility of predictive calculations, it is impossible to predict in advance at which threshold an expanding data set, or combination of data sets, will increase in value by becoming more actionable.

monopolistic status. Gig workers, within this speculative vision, will have (unwittingly) contributed to their own inevitable obsolescence.

SOLUTIONS FROM BELOW: GIG WORKERS RECLAIMING THE DATA ASSET

Not so fast. Gig workers are not the hapless exploitable dupes that Silicon Valley too easily takes them for, and their data assets have recently emerged as a new frontier for organised resistance. Fed up with decreasing wages, degrading working conditions and persistent information asymmetries, workers are seeking new ways to access, own and leverage their data in order to win back power in the gig economy. Here we discuss two important and inspiring grass-roots initiatives, addressing both their potential and their limitations.

The Worker Info Exchange: Weaponising the General Data Protection Regulation

The Worker Info Exchange (WIE⁸) is an initiative led by former Uber driver James Farrar, who is also a lead claimant in an ongoing UK court case against the company's alleged misclassification of its workforce. The WIE brings together workers, academics, lawyers and computer scientists in an effort to not only gain legal access to driver-generated data, but also to build a computational infrastructure capable of mining this data for useful insights. To accomplish this, Uber drivers are encouraged to submit subject access requests (SARs) and then contribute the data they receive to a larger data pool collected, managed and analysed by the WIE. Although the computational power available will remain vastly limited in comparison to Uber's capture apparatus, the hope is that the collected data will nevertheless reveal information on topics such as payment, management of driver supply, worked hours and the company's use of reputational data. This information could then be utilised in court to establish inconsistencies and falsehoods in Uber's claims, thereby poking holes in its legal defence and challenging the contractual arrangement that currently deprives drivers of (collective) power (Holder 2019). The key move here is not just the computational analysis of SAR-acquired data sets, but the organised collection of these data sets at a scale previously unseen.

The WIE's efforts, while enabled by Europe's General Data Protection Regulation (GDPR), are inspired, in part, by New York City's pioneering new ride-hail legislation, whose licence cap and accompanying minimum wage

⁸ See <https://workerinfoexchange.org/> for more information (accessed 23 April 2021).

regulations could not have been accomplished without the city government's sustained pressure on Uber and Lyft to turn over detailed trip data (Holder 2019). In both cases, data is understood as integral to challenging corporate platform power and ensuring public welfare, especially the welfare of precarious ride-hail drivers who have seen their wages decrease over the past few years. However, a critical limitation of these efforts is their reliance on access and transparency, both of which are dependent on private companies' readiness to accommodate requests and their compliance with existing regulatory frameworks, something these companies do not have a great track record on. Meanwhile, the fundamental power imbalance that subtends (platform) capitalism, predicated on asset ownership, is left intact.

Coopcycle: From Data Access to Ownership

The issue of ownership brings us to our second example. Coopcycle, based in France, describes itself as 'the European federation of bike delivery coops. Governed democratically by coops, it enables [these coops] to stand united and to reduce their costs thanks to resources pooling. It creates a strong bargaining power to protect the bikers [*sic*] rights'.⁹ The resources it pools include services such as a software platform (distributed under Coopcycle's custom-made CoopyLeft licence, which prohibits use by non-cooperative businesses), a delivery app, administrative and legal support, and shared drafting of funding proposals. Whereas the WIEx focuses on the piecemeal collection of driver data made accessible by GDPR legislation, Coopcycle moves several steps ahead, taking the production, analysis and monetisation of delivery data into its own hands by building a collectivised computational architecture that could grant durability and scale to associated bike delivery cooperatives.¹⁰ This endeavour begins to address a problem that has so far hindered the success of individual platform cooperatives, namely, their struggle to compete with the scaling capacities and seemingly unlimited resources of corporate platforms (Van Doorn, 2017).¹¹

Sidestepping conditional and/or limited access to private data assets, Coopcycle prioritises collective ownership of data assets as a means to achieve worker power and autonomy. These commonly owned data assets can be leveraged in various operational and commercial activities, from the optimisation

⁹ See <https://coopcycle.org/en/> for more information (accessed 23 April 2021).

¹⁰ For a more comprehensive discussion of platform cooperatives, see Chapter 9 in this volume.

¹¹ Coopcycle shares this function and mission with the Platform Cooperativism Consortium, an international 'hub that starts, grows, and converts platform coops' (see <https://platform.coop/who-we-are/pcc/>, accessed 23 April 2021).

of the delivery process to the negotiation of transactions with clients, funders and other third parties. Currently, however, the key challenge is market penetration, given that one large group of potential clients – restaurants – remains tied to application programming interface (API) connections and service contracts with corporate delivery platforms. This is further hindered by the continual update cycle of mobile operating systems (that is, iOS and Android). That is, each time these operating systems are updated, the apps that rely on them need to be updated accordingly. While this is a relatively simple task for companies with large technology teams, such as Deliveroo and Uber, it poses a more substantial challenge when sustained access to technical resources is limited. The consequent impact on user experience, combined with a minimal operating budget, are likely to have a negative impact on user retention and growth. Without a growing portfolio of clients that can be served on a daily basis, data assets cannot be accumulated or exploited in the first place.

THE PUZZLE EXPANDS: FROM PLATFORM TO META-PLATFORM

Ultimately, as valuable as Coopcycle's efforts to socialise bike delivery coops undoubtedly are, its development of worker-owned economies of scale and collaborative software synergies pales in comparison to the type of massively bankrolled synergetic activities taking place elsewhere, at a scale that exceeds the purview of any individual platform company. To solve our gig economy puzzle and grasp what keeps deeply unprofitable platform companies afloat, we have to move up one tier in the rent-seeking value chain of financialised platform capitalism. This tier is the domain of what we term 'meta-platforms'; venture capital firms and investment funds looking to exploit the network effects and synergetic possibilities that emerge when managing a large and varied portfolio of investments in platform companies and other data-centric businesses, each intent on disrupting different industries by leveraging their analytics capacities.

We use the term 'meta-platform' because the growing power of these financial institutions stems from how they effectively operate as higher-order platforms whose profits are constituted by the rents extracted every time it matches investors, including institutional investors, such as pension funds and sovereign wealth funds, with technology companies looking for capital injections that will allow them to continue to scale quickly.¹² Paying critical

¹² For instance, during Lyft's recent IPO roadshow, the company repeated its assertion that prioritising data-driven growth and innovation over short-term profits is the right business strategy (Lyft, Inc. 2019). As long as potential investors can be

attention to meta-platforms also moves us beyond a narrow concern with shareholder value, in so far as the stakes of our analysis do not just pertain to the influence of shareholder objectives on a company's daily operations, but demand that we account for the strategic governance of mutually reinforcing monopoly formations across sectors.

The meta-platform par excellence is SoftBank, the conglomerate that manages the \$100 billion Vision Fund, nearly half of which is financed by Saudi Arabia's sovereign wealth fund. According to SoftBank's founder and Chief Executive Officer, Masayoshi Son, Vision Fund's portfolio companies control 90 per cent of the ride-hailing market worldwide (Alpeyev 2019), which is a percentage that should give us pause for thought. Son's approach, especially since the inauguration of the Vision Fund, has been to over-invest in particular platform companies and thereby aim to pre-ordain a winner in various competitive markets. This then sets up Son's 'cluster of number ones' strategy, which revolves around the creation of productive synergies between portfolio companies 'whose whole is theoretically greater than the sum of its parts – an added value derived from the partnerships and business opportunities that come with being a part of the SoftBank family' (Medeiros 2019). These partnerships and business opportunities largely focus on finding ways to actualise the potential of immense amounts of data captured from a great variety of sources. A recent *Wired* article summarises Son's vision as:

a future where every time that we use our smartphone, or call a taxi, or order a meal, or stay in a hotel, or make a payment, or receive medical treatment, we will be doing so in a data transaction with a company that belongs to the SoftBank family. And, as Son likes to say: 'Whoever controls data controls the world.' (Medeiros 2019, n.p.)

Meta-platforms seek to control the world, or at least the platform ecosystems that increasingly reshape the world in their image. Having learned expensive lessons in the wake of the dot.com collapse, during which Son suffered a stunning \$70 billion loss (Sherman 2019), meta-platform executives now aim to construct data-centric architectures of durability that will protect them in case the next technology bubble bursts – a bubble that they themselves will have helped to create. Even in the event that Uber folds (for instance, because governments around the world finally agree that the company is an employer and investors would consequently lose interest in its shares), its IPO has offered SoftBank an opportunity to cash out some of its equity and use these returns to invest in, and thereby anoint, the next Uber.

convinced that a platform company could at one point attain monopoly-like status, it can expect new capital injections that subsidise its ongoing efforts to gain market share and improve its financial performance.

It seems likely, however, that SoftBank would abstain from further investments in risky gig economy companies, instead opting to invest in the next Palantir (Peter Thiel's data-mining firm), or a startup that would complement its current investee, Arm (a British semiconductor and software design company that has become a major player in artificial intelligence, AI, development). While SoftBank's shock-and-awe investment strategy has generated both frustration and marvel among investors and analysts, its recent mishandling of the WeWork debacle, which resulted in the cancellation of the firm's IPO, painfully illustrated the fallibility of its model or vision (Alpeyev et al. 2019). Since then, SoftBank and its Vision Fund have been under increased financial pressure and scrutiny, as the firm seeks to stay afloat by selling up to \$41 billion of assets at a discount in order to buy back its shares (Nussey 2020). In this shift 'from long-term domination to short-term survival' (Sherman 2019), SoftBank demonstrates its fealty to shareholders at the expense of its startup portfolio, as platform companies are increasingly expected to show a road to profitability by cutting costs, laying off employees and selling off operating units (Ongweso 2020).

SOLUTIONS FROM ABOVE: POSSIBLE PUBLIC RESPONSES

While platforms come and go, meta-platforms allocating the wealth of nations are becoming too big to fail. It is this massive privatisation of public wealth that returns us to the position and plight of gig workers under conditions of financialised platform capitalism. While it is true that finance capital subsidises a large share of gig workers' daily wages, it is equally true that it ultimately seeks to render their labour obsolete. Meanwhile, its investment comes with stipulated expectations and constraints in respect of how a platform company can run its business, pushing a high-risk/high-gain model that has valued rapid growth and limited liability. In times of crisis, as this model becomes destabilised, we see how platforms that cannot weather the strain become expendable in a manner that mimics the disposability of gig workers, just further upstream.

These dynamics demonstrate the need for regulatory measures that likewise have a forceful upstream impact. In order to organise a concerted pushback against the massive power of meta-platforms, we need regulatory intensification as well as policy innovations that hit platform capitalism's investor class where it hurts. To pave the way for such interventions, policy-makers and academics alike should develop coordinated research projects that take both a top-down and bottom-up approach. By bringing into productive conversation political economy research, platform studies and ethnographic fieldwork, the different operative scales (and their interrelated puzzles), explored above, become more knowable and therefore actionable. That is, we should simulta-

neously follow the money and the worker if we are to fully grasp and regulate the gig economy. Ultimately, we think, this should result in the abolition of the gig economy as we know it, so that from its ashes may rise an economy built on solidarity instead of exploitation and expropriation. To conclude this chapter, we briefly suggest some proposals that should take us in this direction, moving from forms of regulatory intensification focused on existing (meta-) platforms, toward public policies and investments that could foster new platform-based initiatives.

Regulatory Intensification

The first, most straightforward progressive move is to more strictly regulate existing platform companies and to enforce this regulation across the board. Any rule or law is only as good as its enforcement and, owing to a structural lack of institutional capacities and political will, gig economy platforms have for too long been able to determine the rules of the game. While gig worker reclassification and its enforcement will be one part of the solution, it will not be an adequate measure if divorced from a broader set of regulations that seek to curb the widespread commodification of low-wage labour across industries (Van Doorn et al. 2020). Improving wages, working conditions, and social protections for all workers, regardless of employment or residency status, will create a redefined and more equitable playing field in which workers (particularly migrants and minorities) have access to better jobs and will no longer have to resort to platform-mediated gigs.

In addition to labour regulation, stricter tax legislation is also a crucial weapon in the public arsenal. Here we should not only think of higher corporate taxes for platform companies in general terms, but more specifically consider frameworks for international coordination that aim to close global tax loopholes and end the rampant regulatory arbitrage that companies such as Uber engage in (Browning and Newcomer 2019). Countries such as the Netherlands, Ireland and Singapore should be forced to eliminate their tax havens and stop luring technology companies with tax breaks and other forms of corporate welfare. Moreover, instead of rewarding platform companies for their losses, by tying corporate income taxation to profits, this taxation should instead be based on a company's revenues. Another strategy is to create a special tax on big data-generated revenues (Madsbjerg 2017), although it is notoriously difficult to assign monetary value to data and it would likewise be challenging to ascertain how much data gig platforms sell to third parties or otherwise leverage toward revenue generation.

The topic of data leads us to another area where more forceful regulation is needed, namely, data rights pertaining to access, control and ownership of data by platform workers as well as other end users. We have already seen

that initiatives such as the WIEx are pushing this agenda among gig workers, but much more could be done to support these efforts. While the GDPR offers a transnational framework for pursuing the data rights of gig workers, its focus on personal data posits severe limitations on its applicability and thus a more comprehensive and synthetic approach is required that leverages the most useful elements from various other legal frameworks currently operative within the European Union (Gallagher et al. 2019). Beyond data rights, we should also regulate for increased transparency and oversight of platform companies' software systems, in order to foster accountability not only with respect to algorithmic decision-making processes (which data rights legislation would not fix), but also to business operations more generally. Here we suggest a combination of company and platform or software audits conducted by teams of elected public officials and experts, as well as due-process protocols that grant gig workers the ability to appeal their deactivation and that ensure a speedy and fair arbitration or tribunal review process.

All these measures are ultimately geared toward increasing the operational costs of predatory platform businesses and thereby increasing the risks (which are also costs) of investing in these businesses. In this way, they are likely to have an upstream impact. Yet we could move further up the value chain and think of even more ambitious regulatory schemes that directly affect the operations of meta-platforms. One disincentivising measure is to increase capital gains tax on the sale of gig economy-related assets, which would make it costlier for a firm such as SoftBank to sell its shares of a platform company. A similar measure is to tighten financial regulations to raise the costs of investing in gig economy platforms, for instance, by more robustly taxing private equity transactions. As Rahman (2018, p. 249) has argued, 'such structural regulations would change the incentives in a way that makes the more problematic downstream practices less profitable and thus less likely'. Finally, following Rahman, we 'might impose antitrust-style limits on mergers and acquisitions', which could, for instance, block Uber's pending acquisition of Grubhub, or 'prevent the concentrated ownership over multiple ... platforms and related services into too few investor hands' (Rahman 2018, p. 249). This type of legislation would effectively make the data empire-building ventures of meta-platforms a great deal more onerous.

Policy Innovation and Public Investments

It is important to highlight here that private costs can be public gains. Building on expanded and intensified regulations targeting corporate (meta-)platforms, we should extend this radical ambition to the realm of public policy in order to foster novel and emerging platform-based initiatives, which can be funded by newly obtained tax revenues. Coopcycle, for instance, could hugely benefit

from state subsidies, which would be more effective and sustainable than relying on crowdfunding or social impact investors whose support is usually contingent on particular deliverables. These subsidies could be managed by local governments, which would enable new public-private or common partnerships that encourage collaboration between platform cooperatives, their stakeholders or shareholders, and municipalities that would consequently be reinvigorated after years of budget cuts to social services. This would, however, require an openness to this type of collaboration on the part of the platform cooperativism movement, whose entrepreneurial and activist inclinations have so far resulted in a reticence to depend on (and report to) the state.

Furthermore, local governments could use new tax revenues to initiate ‘public options’ that ‘would provide alternatives for users [including workers], while also exerting competitive pressure on otherwise dominant ... platforms, forcing those platforms to take seriously the need to provide services in a different way’ (Rahman 2018, p. 249). One significant advantage of publicly initiated platforms, compared with the nationalisation of corporate platforms, is the ability to build new software architectures and platform ecosystems that are not rooted in exploitation or accumulation by dispossession. Public ownership of Deliveroo does not automatically entail a more equitable platform, given that the machine learning algorithms Deliveroo has developed are trained by data captured from a labour process that is specifically engineered for the purpose of revenue optimisation and worker subordination. The decisions that these algorithms execute are not in the public interest nor do they serve the common good, and corporate algorithmic systems should thus at the very least be de-programmed and re-programmed. It may be preferable, however, to build new publicly governed systems from the ground up.

Ultimately, new policies and platform-based initiatives should first and foremost be committed to the affirmation of public values on a regional, national and supranational level (Van Dijck et al. 2019). These values are vital for a platform society in which data exists as a public asset that can be leveraged by all stakeholders participating in its collective governance. Truly solving our puzzle demands that we imagine a future beyond the gig economy and platform capitalism, by embedding labour advocacy within a redistributive social policy framework and a broader transnational politics of social justice.

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