Unpaid labour and territorial extraction in digital value networks

Article (Published Version)


This version is available from Sussex Research Online: http://sro.sussex.ac.uk/id/eprint/110131/

This document is made available in accordance with publisher policies and may differ from the published version or from the version of record. If you wish to cite this item you are advised to consult the publisher’s version. Please see the URL above for details on accessing the published version.

Copyright and reuse:
Sussex Research Online is a digital repository of the research output of the University.

Copyright and all moral rights to the version of the paper presented here belong to the individual author(s) and/or other copyright owners. To the extent reasonable and practicable, the material made available in SRO has been checked for eligibility before being made available.

Copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational, or not-for-profit purposes without prior permission or charge, provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.
Unpaid labour and territorial extraction in digital value networks

Kelle Howson1 | Hannah Johnston2 | Matthew Cole1 | Fabian Ferrari3 | Funda Ustek-Spilda1 | Mark Graham1

1Oxford Internet Institute, University of Oxford, Oxford, United Kingdom
2School of Human Resources Management, York University, Toronto, Canada
3Department of Media and Culture Studies, Utrecht University, Utrecht, the Netherlands

Correspondence
Kelle Howson, Oxford Internet Institute, University of Oxford, Oxford, United Kingdom.
Email: kelle.howson@oii.ox.ac.uk

Abstract
Production in knowledge and data-intensive industries is powered by work that can, in theory, be done from anywhere, via cloudwork platforms. Cloudwork platforms govern data value chains in distinct ways to concentrate power and extract value at the global scale. We argue that unpaid labour is a systemic mechanism of accumulation in these digital value networks. In this paper we demonstrate how it is tied to platform business models and facilitated by elements of platform governance including monopsony power, a high degree of spatial flexibility in sourcing labour, regulatory unaccountability and digital enclosure. We draw on a survey of 699 workers on 14 platforms in 74 countries to show that unpaid labour is an engine of South–North value extraction, and workers in the global South perform more unpaid labour than counterparts in the global North. Our findings have important ramifications our understanding of the changing international division of labour and platform capitalism.

KEYWORDS
ICT, global commodity/value chains, global production networks, governance, survey

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2022 The Authors. Global Networks published by John Wiley & Sons Ltd.
INTRODUCTION

Cloudwork is absorbing an increasing proportion of the world’s labour and has been significantly boosted by the COVID-19 pandemic (ILO, 2021). We use cloudwork to refer to remotely performed labour mediated by digital labour platforms – companies that connect workers with clients through a digital interface, exert control over and extract value through the labour process (Howson et al., 2022). Recent estimates put the registered workforce on cloudwork platforms at 163 million (Stephany, 2021). Cloudwork encompasses a broad array of tasks and skillsets; however, it is united by two characteristics; the labour process is not intrinsically tied to location (i.e., can be carried out anywhere with an internet connection), and labour relations are enclosed within a digital platform infrastructure (platform), which defines the terms of engagement, usually to the exclusion of any other form of oversight (such as national or international regulation). Although the cloudwork labour process can technically be carried out anywhere, the majority of cloudwork takes place in the global South, serving corporate and individual clients disproportionately based in the global North (Gray & Suri, 2019; Graham et al., 2017; ILO, 2021; Jones, 2021). In 2020, nearly 35% of the labour supply on major English-language cloudwork platforms was located in India alone, followed by Bangladesh and Pakistan, while nearly 40% of the demand emanated from the US, followed by the UK (ILO, 2021). Yet, despite these unequal territorial relations, scant research has emerged from economic geography to probe the impact of cloudwork platforms on unequal historical geographies. This paper provides an intervention to address this gap. We draw on two methodological approaches: the global value chains (GVCs) framework to explain the uneven power relations produced by cross-border economic activities; and Marxist political economy to analyse the dynamics of exploitation instituted by cloudwork platforms through the extraction of unpaid labour.

Cloudwork platforms engage armies of workers in data-commodity production. This data production is often part of a longer value chain providing raw material for artificial intelligence and other machines (in the case of microwork) or business process outsourcing. Like traditional value chains driven by multinational corporations, the relations involved in cloudwork – which we refer to as digital value networks (DVNs) – are governed by a central lead firm. However, the power of digital labour platforms, including cloudwork platforms, as lead firms is underpinned specifically by digital forms of governance that have not been fully investigated by scholarship on GVCs or global production networks (GPNs). The literature on value chains as well as on the platform economy and cloudwork rarely intersects with the growing research on unpaid labour, wage theft and labour market violations (see Bernhardt et al., 2009; Fine et al., 2021; Galvin, 2016; Papadopoulos et al., 2021). Marxist political economy provides specific conceptual tools to explain how the capitalist labour process relies on unpaid labour-time by design and therefore incentivizes managers to find ways of extracting ever more unpaid labour-time – through contractual means or wage theft (Cole et al., forthcoming). With few exceptions (see Pulignano et al., 2021), there is a lack of academic research on the intersection of unpaid labour and digital labour platforms, especially cloudwork. In this paper, we therefore examine the governance characteristics of cloudwork platforms as lead firms, specifically their use of spatial, digital and monopsony power to increase the ratio of paid to unpaid labour-time and to drive concentration through digital arbitrage.

The paper begins by critically engaging with GVC/GPN approaches and extending them to better describe global platform capitalism, especially its power regimes and spatially uneven outcomes. We elaborate on the concept of the DVN and situate cloudwork platforms as lead firms in these networks. This enables us to zoom in on the dynamics of DVN governance which we unite conceptually as digital arbitrage. We then turn to unpaid labour as a fundamental part of the capitalist labour process using a Marxist approach to elucidate the particular ways in which it manifests in cloud production. Having laid out these conceptual foundations, we elaborate on our methodological approach and present our key findings, showing that unpaid labour is systematically embedded into the governance of studied DVN. We draw on a survey undertaken by the authors in 2020, with 699 workers on 14 cloudwork platforms in 74 countries to demonstrate how workers in the global South perform a disproportionate amount of unpaid labour on cloudwork platforms. This reveals a key process by which cloudwork platforms enable territorially uneven value extraction.

---

1 This survey was undertaken as part of the University of Oxford’s Fairwork Project; an action research project that rates digital labour platforms against five co-developed principles of fair work.
GVCs, GPNs and DVNs

Various typologies of cloudwork platforms have been proposed (see Maffie, 2020; Schmidt, 2020). The main two subcategories are microwork or crowdwork, where projects and business processes are broken up into hundreds or thousands of discrete tasks that take seconds or minutes to complete, and usually pay fractions of a dollar; and online freelancing, where creatives and knowledge workers usually with a higher level of specialist training contract with clients for slightly longer-term tasks. A handful of multinational companies dominate these sectors. Prominent microwork platforms include US-based Amazon Mechanical Turk, Germany-based Clickworker and Australian Appen. The millions of workers on these platforms perform a wide array of tasks in the course of a day, which may include completing surveys, tagging or categorizing data or moderating social media content. Much of this work happens in the service of providing the vast quantities of data required to train machine learning or AI systems. Prominent online freelancing platforms include Upwork, Fiverr and freelancer.com, on which workers undertake design, translation, illustration, business consultancy, copy editing, software development, counselling and much more. While there is a good deal of occupational segregation between microwork and online freelancing, with the latter frequently associated with higher pay and better conditions, workers across both categories experience harms and precarity arising from the nature of the cloudwork business model. Thus, we refer to both microwork and online freelancing as ‘cloudwork’ due to their particular unbounded geographical form, which gives rise to a ‘planetary labour market’ (Graham & Anwar, 2019).

Economic geography has long been concerned with the ways that economic processes reproduce territorial inequalities. Globalization has, in recent decades, been characterized by powerful multinational corporations leading global value chains. These have proved extremely effective at extracting surplus-value and have, in part, driven de-industrialization in many wealthy countries, while maintaining dependency in low and middle-income countries. Much of the literature on value chains focuses on how marginalised participants such as primary producers or workers can increase their representation in various value chain activities and therefore ‘upgrade’ their share of governance and value (see Bair, 2005; Humphrey, 2004; Lee & Gereffi, 2015). However, this literature suffers from a notable lack of critical engagement with concepts of unpaid labour and wage theft as central to value chain reproduction. Moreover, as data commodities form a growing share of production and cross-border exchange, economic geography confronts the question of whether and how territorial inequalities are maintained in the production and exchange of intangibles that can, in theory, take place from anywhere with an internet connection. In answering this, we need to pay greater attention to spatial dynamics, and value chains, in the digital economy.

We have previously made the case for the need for researchers of digital labour platforms to engage with GVC/GPN literature, and vice versa. In Howson et al. (2022), we show that digital labour platforms (including cloudwork platforms) sit at the centre of cross-border relations of the production and exchange of data commodities. From this central position, they mediate the valorization process. However, due to the affordances of digital infrastructures and algorithmic management systems, the cloudwork labour process is much more fragmented and geographically distributed than conventional value chains. This allows platforms much greater governance capabilities, to concentrate coordination and accumulation (Howson et al., 2022). Though these network relations do not wholly conform to already described GVC and GPN frameworks, these approaches can provide critical insights into the social and economic relations instituted by digital labour platforms.

We draw on two key conceptual elements of the GVC/GPN literature. First, the typology of governance introduced by Gereffi et al. (2005) is integral. Gereffi et al. (2005) hold that the degree of power asymmetry (or ‘drivenness’) in a value chain is predicated on a set of variables including the complexity of production information, the codifiability of production information, and the level of capability in the supply base. In their model, the extent of governance or ‘explicit coordination’ emanating from the lead firm in a value chain, is a direct indicator of the asymmetry of value accumulation in that chain. This is a key insight for us in advancing our understanding of DVN. Applying the above variables to cloudwork platforms and their networks of production, we see that the platforms’ proprietary digital
infrastructures and algorithmic management systems allow for extremely complex production information to be easily broken down, codified and frictionlessly outsourced to a vast reserve supply of labour – leading to ‘captive’ value chains, with high levels of explicit coordination from lead firms (Gereffi et al., 2005). This informs our discussion of characteristics of platform governance, including monopsony power and digital enclosure. Yet, the authors do not substantively engage with systemic labour exploitation as integral to governance strategies, or with Marxist insight that the capitalist labour process encourages the increasing extraction of unpaid labour-time, which accumulates up the value chain. We contend that this must form part of our understanding of value chain governance – especially due to its prevalence within fast-growing data-commodity value chains.

Second, we draw on Yeung and Coe’s (2015) concept of the ‘cost–capability ratio’ as key to understanding how power is exercised in production networks. We show that many digital labour platforms, perhaps more than any other type of lead firm, have succeeded in externalizing almost all costs and risks associated with production (such as ownership of fixed physical assets, regulatory and tax compliance in production locales, costs associated with the movement of goods), largely by transferring them to workers, while extending unprecedented control over detailed aspects of the production process (optimizing capabilities) (Howson et al., 2022), thus optimizing their cost–capability ratio for maximum value extraction. These frameworks from GVC and GPN scholarship provide new insight into how cloud-work platforms concentrate power and value at the global scale. However, Yeung and Coe also do not centre labour in their analysis, or engage in more than a cursory way on the connection between cost–capability optimization, and fundamental insights from Marx (1976) on the capitalist imperative to pay labour less relative to the total value produced by that labour – that is, to increase unpaid labour-time as a proportion of total labour-time. We contend that cost–capability optimization in GPNs is always wrapped up with downwards pressure on labour.

Despite sharing a theoretical lineage with 1960s and 1970s Marxist theory from the global South on colonialism, dependency and underdevelopment (e.g., Rodney, 2018; Frank, 1967), GVCs have become an institutionalized development paradigm and a mainstay of global business and international development institutions’ prescriptions for industry-led growth. For instance, the World Bank’s, 2020 World Development Report identifies increased integration in GVCs as the key pathway for development in the twenty-first century (World Bank, 2020). Yet, these institutions largely ignore rampant labour arbitrage, exploitation, unpaid labour and wage suppression as structural features – rather than anomalies – of the value chains that comprise global capitalism (see Selwyn & Leyden, 2022). The academic literature on GVC and GPN is concerned with uneven accumulation, but this is usually not explicitly connected with the extraction of surplus-value from workers. This risks concessions to a depoliticized technocratic view of GVCs as a roadmap to development, rather than a framework for the critique of capitalist extraction and exploitation.

Some recent contributions have addressed this gap by positioning labour exploitation as critical to understanding the ways in which value chains perpetuate imperialism (for instance Baglioni et al., 2022; Smith, 2016; Suwandi, 2019; Selwyn, 2019; Kumar, 2020). These authors aim to reunite GVC and GPN with Marxist political economy and to bring an analysis of class relations back to geographical approaches to production. Our paper builds on this literature by bringing greater focus on the relationship between imperialism and unpaid labour-time in chain and network studies.

In particular, we explore an area that as yet has received little attention in the GVC or GPN literature – the economic and spatial relations of production of entirely digital commodities. Much has been made by development institutions of the potential of technological change and specifically digitalization to reduce costs and friction and thus improve value chain outcomes for poorer countries. The World Bank (2020: 136) tells us that ‘New digital technologies enhance opportunities for global value chain (GVC) participation. Developing countries, which exhibit the highest costs and biggest impediments to trade, stand to gain the most.’ The Bank goes on to concede; however, that platform commerce has been characterized by greater concentration – or what we might understand as institutional disembeddedness from production sites (Katta et al., 2020; Wood et al., 2019). Questions of the impact of digital technologies on distributive outcomes in value chains intersect in interesting ways with discourses of embeddedness. The importance of local embeddedness to upgrading has emerged as a key claim in value chains research (Barrientos et al., 2016; Morris et al., 2011). Local ownership of production processes and societal embeddedness of commodities through labelling and certification schemes, for instance, have been identified as pathways to improved standards and returns to workers and
producers in the global South (Hughes et al., 2008; Ponte & Ewert, 2009), though evidence as to the effectiveness of these strategies has been mixed.

Nevertheless, the social and environmental embeddedness of commodities in the conditions of their origin is understood to improve bargaining power for marginalized value chain participants and reduce governance asymmetry. Somewhat counterintuitively to this, the reflexive assumption of some people in policy and industry has been that the digitalization of the economy reduces the importance of place in determining participation in and outcomes of economic activity, and therefore, will naturally reduce territorial inequality. Embracing the so-called 'fourth industrial revolution' or 'industry 4.0' through participation in data value chains has been touted as a solution for fast-tracking development and combatting unemployment in poorer countries (Gino & Staats, 2012; Mulas, 2016). In light of this, economic geographers need to ask whether institutionally and societally disembedded data value chains increase the share of value retained by workers in the global South.

However, the relations instituted by cloudwork platforms display characteristics that reveal further shortcomings in the capability of GVC/GPN to fully describe global platform capitalism. One of the main complicating factors for applying the traditional GVC/GPN framework to cloudwork is that the profit cloudwork platforms pursue often involves the production of intangible capital or assets, which have different properties from tangible assets. Accumulating data stores and establishing information asymmetries is more and more an end in itself for many powerful players in contemporary platform capitalism (Haskel & Westlake, 2017). Digital labour platforms profit not only from the extraction of surplus-value through unpaid labour-time, but also in the form of data assets, which hold speculative value and facilitate rent-seeking through expanded monopsony control over economic activities that require the use of the platform (Van Doorn & Badger, 2020). The composition of these data assets and how they can be valorized is discussed further in the next section.

The production of intangible assets via cloud platforms typically involves large scale data extractivism, which Couldry and Mejias (2019) refer to as data colonialism. They challenge researchers to foreground the contemporary interplay between capitalism and colonialism unfolding in data production networks. Through a decolonial lens, the epistemic questions of data production, extraction and valorization come into greater relief: Data about whom, and for whose purposes? How do assumptions of European objectivity shape the relations of data production? (Mumford, 2021). Other scholars have recently engaged with questions of colonialism and control in contemporary value chains through analyses of racialized and gendered labour regimes (see Baglioni et al., 2022), and the role of racialization and feminization of labour is of vital importance to understanding platform capitalism and uneven outcomes in cloudwork.

Yet, another complicating factor for GVC and GPN approaches to cloudwork, is the fluid, shifting and fragmented nature of inter-actor relations on the platforms, and the murkiness of platform inputs and outputs. On microwork platforms, workers might produce dozens of data commodities in a day, each for a different client, in an unknown location, for an unknown end use. These data commodities may then be used as inputs (means of production) in the production of future goods and services. Hundreds or thousands of workers in different locations may contribute to completing one data task for one client in a very short space of time. It is possible (though difficult) to identify the value chain linkages for a specific input into a project like this – we propose an example in Figure 1 – but mapping the entirety of the input-output structure, institutional dynamics, geographical distribution and actor linkages in cloudwork networks is extremely complex. For this reason, we find it useful to conceptualize the economic activities and relations which have cloudwork platforms at their centre as a DVN, made up of very many data value chains.

GVC and GPN approaches have not grappled with the above dynamics, yet they are best positioned to do so. GVC and GPN frameworks are our point of departure for economic geographers to analyse the concentration of power and reproduction of territorial inequities through global capitalism. GVC and GPN approaches call for ongoing attentiveness to the uneven development outcomes of globalized economic activities. This must also include value production and accumulation coordinated within DVN. We maintain a focus on the materiality of these relations precisely through the intangibility of the commodities they circulate – the value extraction and concentration that they facilitate, the poverty and immiseration that they exploit, and the governance apparatuses supporting these ends – hence the ‘value’ in DVN. Having outlined above how GVC and GPN approaches can advance our understanding of power relations...
in cloudwork, the next section explores governance characteristics of DVN in closer detail, illustrating how cloudwork platforms engage in digital arbitrage by exploiting uneven economic geographies through digital enclosure and monopsony power.

**DVN GOVERNANCE: EXPLOITING UNEVENNESS THROUGH DIGITAL ARBITRAGE**

In probing the governance dynamics we observe in DVN, we pay close attention to the distinct geographical configurations of cloudwork value chains, and how these inform their power relations. As we have shown, and contrary to what their nomenclature suggests, ‘platforms’ do not simply provide a level virtual terrain upon which economic activity is built. Instead, they reproduce social relations as capitalist agents, in pursuit of the extraction of surplus-value produced by human labour-power. Moreover, their relations are not liberated from space and released into an untethered virtual plane. They remain embedded in and produce distinct spatialities. Central to recent discourses in economic geography has been Harvey et al.’s (1989) popularization of Marx’s (1993, p. 539) notion that capital accumulation today is characterized by the ‘annihilation of space through time’. This sums up the capitalist imperatives to both expand markets and move commodities to market faster, thus lessening the turnover time in cycles of accumulation. The faster the turnover time, the more cycles that can be completed and more profit that can be generated. In Harvey’s (2003, p. 98) work on imperialism, he argues that globalization is driven by ‘round after round of time-space compression’. The digitalization of communication, logistics and labour relations has enabled capital to increasingly transcend the constraints and temporal lag of distance.

Against this approach, neoliberal and technologically determinist arguments hold that a planetary labour market enabled by cloudwork platforms will reduce barriers to participation and inequitable outcomes, allowing workers who have been marginalized in historical geographies to engage on a more equal playing field, and leverage their competitive advantage to better balance terms of trade between regions. However, Marxist political economy shows that the annihilation of space through time in global chains and networks facilitates greater concentrations of capital accumulation in centres of wealth and power, thus producing geographically uneven outcomes in a planetary labour market (Graham & Anwar, 2019). Kumar (2020) captures the dynamics of such unevenness in relation to bargaining power with the concept ‘degree of monopsony power’ (DMP). DMP refers to the balance between buyers and sellers of labour power and/or its products. A high DMP means that there are many sellers and only a few or even one buyer, which
means they can dictate the terms of engagement. DMP is the ‘principal variable in bargaining, such that higher DMP necessarily leads to a higher share in value obtained by the lead firm’ (Kumar, 2020, p. 176). Cloudwork platforms have monopsony power, since they are buyer-firms that are able to ‘capture more value from suppliers and labour through downward pressure’ on labour (Kumar, 2020, 181). Drawing on this theory, we argue that cloudwork platforms achieve monopsony power by instituting very low barriers to entry, and tapping into a planetary labour market, allowing workers from anywhere to enrol. This high degree of spatial flexibility, that is, ‘the scope of geographic possibility within which production can take place’ (218) allows them to maintain a vast reserve labour pool. At any given time, there will be a high number of workers searching and competing for a small number of tasks. This allows clients’ orders to be fulfilled very quickly, but also facilitates a race to the bottom in wages and labour standards. With the market dominated by a small handful of lead firms, this unchecked monopsony allows for more extreme exploitation and value extraction.

In light of the high degree of spatial flexibility and access to a planetary labour market, processes of economic production and exchange which colloquially take place ‘online’, like cloudwork, may initially appear to have transcended many traditional spatial and temporal constraints (Graham & Anwar, 2018). Yet, there are several geographically contingent features of the cloudwork economy that continue to produce uneven economic outcomes. First, social and cultural artefacts which are embedded in and derived from distinct places, like traditions, epistemologies, even accents (i.e., belonging to voice artists) and so on, are subsumed into the labour process and sometimes even commodified in cultural artefacts which are embedded in and derived from distinct places, like traditions, epistemologies, even accents (i.e., belonging to voice artists) and so on, are subsumed into the labour process and sometimes even commodified in cloudwork. Spatially distributed attributes such as language exert significant influence on how relations are formed, especially in the service, knowledge and creative labour processes represented in cloudwork. Second, fixed capital assets are still required to facilitate economic exchange even in the cloud – for instance, internet connectivity infrastructure such as servers and undersea cables. Internet geographers (Thatcher et al., 2016) have argued how these assets are distributed unevenly due to existing post-colonial patterns of accumulation by dispossession. Moreover, these spatially fixed information infrastructures form part of the means of production, conferring power on their owners and locations (Sadowski, 2020). Third, the relative costs of labour, skills and training, variation in the relative purchasing power and costs of living are carried through into the cloudwork economy influencing specializations and geographical divisions of labour. Fourth, racist colonial attitudes and biases persist in cloudwork economies, influencing clients’ assumptions about the suitability and capability of workers from specific places. A planetary labour market allows for discrimination on the basis of geographical location, in addition to race, gender and a myriad of other categories of exclusion (Fairwork, 2021a). Finally, other material realities such as time zones, as well as state politics and geopolitics (e.g., Venezuelan workers’ ability to receive payment in foreign currency, or national supply chain regulations) also influence the spatial outcomes of cloudwork markets.

Platforms expand capitalist accumulation by formalizing previously informal labour as well as transforming the organization of the labour process via algorithmic and datafied technologies (Joyce, 2020). This process of expansion and subsumption (see Das, 2012), of labour is not unique to platforms or DVNs; however, platforms have more powerful means at their disposal to drive accumulation. One aspect that is especially characteristic of platforms is the use of rents as means of accumulation, as illustrated in Figure 1. By limiting access to the DVN, they can charge fees to both workers and customers. By enclosing the entire chain of transactions within a proprietary infrastructure in which they set the rules, platforms control the labour of producers/workers on the one hand and the behaviour of buyers on the other. Across the cloudwork landscape, platforms may cement control and accumulate greater value through industry-level market manipulation without the need for ownership of assets or vertical integration (described by Jacobides et al. (2006) as architectural manipulation). On platforms, this manipulation is extended to actively create inequalities by facilitating the entry of workers whilst favouring clients’ interests. The near despotic digital governance capabilities wielded by platforms allow them to adjust supply and labour conditions to both extract surplus-value from labour and rents from access (Grabher & van Tuijl, 2020). They achieve this through leveraging an oversupply of labour, panoptic oversight of the labour process, the creation of information asymmetries, and algorithmic control. Taken together, this suite of governance mechanisms allows platforms to pursue simultaneous cost-reduction and capability optimization logics as described by GVC and GPN scholars (Gereffi et al., 2005; Yeung and Coe, 2015; Howson et al., 2022). One key
outcome of these manifestations of platform power is pervasive unpaid labour and wage theft in the platform economy (see Fairwork, 2021a, 2021b).

As a result of the mismatch between the national scales of labour regulation regimes and the planetary scale of cloud production, we argue that there is a need to problematize extravist mechanisms within the global platform economy by rethinking a key notion in outsourcing and offshoring literature: labour arbitrage. In the mainstream business literature, labour arbitrage refers to ‘the savings an organisation may make by hiring labour in a location where it is cheaper than domestically’ (Hollinshead et al., 2011). Another definition emphasizes the ability of firms to ‘pay one labour pool less than another pool for accomplishing the same work, typically by substituting labour in one geography for labour in a different locale’ (Simonson, 2002). In other words, labour arbitrage seeks to optimize the productivity of labour in relation to its cost, based on location substitution. From a critical political economy perspective, global labour arbitrage can be understood as reproducing ‘geographic asymmetries on an expanding scale’ by combining ‘dispersed production and often involuntary labour migration with an increasingly centralised control by capital’ (van der Pijl, 2015: 4). Labour arbitrage has long been associated with the structural exploitation of uneven spatial relations as part of transnational production arrangements, with lead firms economically benefiting from reduced barriers to international trade (e.g., import and export taxes, increased mobility of workers, etc.).

However, conventional articulations of global labour arbitrage are empirically grounded in the production and distribution of physical or tangible commodities. Thus, theoretical assumptions about the ways in which firms exploit uneven geographies rest on the notion that the production of a clearly identifiable (and typically tangible) commodity, such as a car, is at the centre of labour arbitrage. For cloudwork platforms, by contrast, there is no need to overcome trade barriers because no comprehensive legislative frameworks to govern the planetary labour market exist in the first place. Moreover, the affordances of their digital infrastructure allows platforms to engage in constant and continuous location substitution in real time in rapid response to market conditions. We define digital arbitrage as the ability of lead firms to utilize digital platform infrastructure to accumulate surplus-value through the exploitation of uneven economic geographies. As we outline in Table 1, digital arbitrage is an umbrella term for three features of platform-driven labour governance: monopsony power, spatial flexibility and digital enclosure. In the following section we explore in more detail some features of how platform governance of the data value chain/DVN amplifies unpaid labour-time.

UNPAID LABOUR-TIME AS AN ENGINE OF EXTRACTION

A central insight of the Marxian political economy is that all paid work involves an element of unpaid labour-time. The Marxist conception of the labour process is fundamentally grounded in the labour theory of value, which holds that surplus-value is produced by extracting surplus labour-time from workers. The difference between socially necessary labour-time (SNLT) and the total labour-time of the working day is surplus-labour-time (SLT). SNLT refers to the total labour-time required ‘to produce any use-value under the conditions of production normal for a given society and with the average degree of skill and intensity of labour prevalent in that society’ (Marx, 1976, p. 129). The average ratio of SNLT to SLT determines the rate of surplus-value. Surplus-value is determined by ‘the excess of the total amount of labour contained in the commodity over the quantity of paid labour contained in it’ (Marx, 2016, pp. 99–100). There is always more labour represented by a commodity than the amount of labour that the employer has paid for. Profit thus ‘consists precisely in the excess of the value of the commodity over its cost price’ (Marx, 2016). Thus the exploitation of labour through unpaid labour-time is the sole basis for valorization of capital, which contains an incentive to extract as much unpaid labour as possible.

In Capital, Marx (1976) draws extensively on reports from the Factory Acts to explain how the prolongation and intensification of the working day are integral to the valorization process and correspond to an increase in unpaid labour-time. As Cole et. al., (forthcoming) argue, extant analyses of wage theft, in terms of unpaid overtime and the violation of statutory rights and labour laws, neglect this systemic dimension of unpaid labour-time in capitalist systems.
Wage theft in terms of unlawful deductions and other labour market violations is part of a continuum of exploitation that is foundational to the capitalist labour process. Indeed, the ratio between unpaid and paid labour-time reflects the balance of power between capital and labour and the geographical context in which that balance of power is reproduced. In the context of GVCs, it stems from explicit coordination and contributes to asymmetric accumulation by lead firms, and bears a direct correlation to the cost–capability optimization logic of accumulation.

On cloudwork platforms, unpaid labour manifests in a number of ways, including: hours spent searching and applying for jobs (typically in the context of deliberately maintained labour oversupply to facilitate faster work turnover times for clients); working beyond originally advertised timeframes and deliverables in order to maintain reputational indicators such as ‘profile’, ‘rating’ or ‘status’ needed to continue to access work; demonstrating skills and abilities (by taking exams, getting certifications, etc.) to access work while simultaneously building the value of the platform, that is, ‘aspirational labour’ (see Duffy, 2016 & 2017); producing work in response to a brief that may or may not be selected for use (and compensation) by a client (contest models); completing work that is ultimately rejected for payment (but sometimes still used) by a client; disputing client rejections and cancellations; producing secondary data which is extracted and valorized without workers’ knowledge; and more. Similar phenomena have been documented in the literature as ‘work-for-labour’ (Standing, 2018) and ‘self-exploitation’ (Purcell & Brook, 2020) but such practises are amplified by the digital and monopsony governance mechanisms of platforms. Under a standard employment contract, performing such activities without pay would constitute wage theft. Hence, we argue, unpaid labour and wage theft should be understood as one and the same in this context. By leveraging their high spatial flexibility and power of digital arbitrage to avoid accountability to regulators, cloudwork platforms ensure workers have little bargaining power to contest these practises. Moreover, platforms, as capitalist enterprises, systematically integrate these forms of unpaid labour-time into the DVN as key mechanisms of value extraction. Allowing clients to easily reject work, or maintaining a dependant surplus of workers constantly searching for jobs or building their profiles, is integral to their
business model. Furthermore, the incentive for workers to compete on the basis of rating, status or profile, maintains dependency and enclosure, as these metrics are not transferable to other platforms.

Within this range of activities, workers may also incur additional costs including, more perniciously, charges from the platform that they must pay to access work or to register a query or dispute with the platform. Here, we see platforms extracting rent from the obstacles to work that they themselves institute. Abstracting further from the day to day reality of cloudwork, the unpaid contribution of workers to valorizing the platform for future sale – for instance in OnlyFans’ recent attempt to capitalize on its scale and market position for shareholders whilst purging sexual content (though the platform later backed down from the proposal). Data assets can continue to be monetized by clients and platforms in unforeseen ways into the future (Jones, 2021). Microworkers often have little knowledge of the final purpose of their work. For example, clients might not be required to disclose to workers that they are clicking on pictures of buildings in order to train autonomous weapons systems to recognize targets. This same dataset could be used in future to train delivery drones, thus continuing to generate profits for clients that workers do not share in.

Alongside workers’ concrete outputs, they are simultaneously producing data through and about the labour process – the hours and minutes of the day they work, the time a certain task takes to complete, the pattern of their keystrokes, the idiosyncrasies of their voice, their pronunciation, their spelling, possibly even their eye movements. This data, sometimes referred to as ‘exhaust’, because it appears as a byproduct of the production process, has speculative value (Srnicek, 2017). Amazon Mechanical Turk, for instance, is at first glance a minor and not particularly profitable arm of Amazon’s operations, yet as Jones (2021: 72) points out, the platform reserves the right in their Terms and Conditions, to use worker data to ‘improve the Site and other machine learning related products and services offered’, for example, to power the development of AI products like Alexa or Amazon’s logistics systems (see an illustration of this value chain in Figure 1). This supports the claim that unpaid labour is not only present in formal, explicit forms of wage theft, but is also interwoven inextricably into the DVN as a secondary form of extraction. Unpaid labour thus manifests not only in surplus-labour-time and wage theft, but also in the intangible data assets that workers produce.

In this section, we have outlined how geographically untethered labour and its products nonetheless can have geographically contingent outcomes with regards to power relations in the capitalist labour process. Complex spatio-temporal relations enable the obscuring of surplus-value while securing profits in a myriad of ways. In the following section, we offer concrete empirical data elucidating the material manifestations of unpaid labour-time in wage theft and its uneven outcomes in cloudwork. We argue that cloudwork platforms govern cross-border economic activities in a way that continually produces high levels of unpaid labour-time, and that the geographic and social distribution of unpaid labour exacerbates and reproduces inequalities.

METHODS

Our theoretical arguments above are illustrated by analysis of data collected from a survey of 699 workers on 14 platforms during the Northern hemisphere summer and autumn of 2020 (Fairwork, 2021a). In conducting the survey, we used geographically purposive sampling recruiting workers equally from six world regions. Our methods yielded a diverse pool of respondents that included workers with a wide range of different work experiences and skill types. Platforms’ lack of transparency about the size of their workforces makes it nearly impossible to ensure the representativeness of our sample; thus, we opted for purposive sampling allowing us to probe the range of cloudwork experiences. Except for one platform, where workers were recruited via social media sources and one platform where we recruited workers with assistance from the platform managers (they provided a direct and anonymous link publicly on the website), we found participants via the platform infrastructure. This approach has clear benefits for researching the working conditions of platform workers provided that anonymity can be preserved; we took significant precautions to protect worker anonymity (see Ustek-Spilda et al., 2022). Additionally, on-platform recruitment also yields high response rates. Indeed, platform-based worker reputation systems encourage workers to complete the tasks they have agreed to do. While this does not avoid the issue of non-response bias, we sought to minimize
non-response bias by compensating workers at average rates and engaging with workers to answer any questions that they had. Due to confidentiality, raw data cannot be provided; however, all study materials are available at https://github.com/KelleHowson/Fairwork-Cloudwork-Survey-2021.

Survey questions were a mixture of multiple choice and text entry fields and covered a range of topics including working conditions, hours of work, pay, understanding of the platform and perceptions of fairness. On freelancing platforms, we posted the job as a survey for workers to apply to; once we had reached a quota for a specific region, we pivoted to targeting workers individually according to location and then to their task specialization. In these cases, workers were invited to do the survey as a job; invitations were issued to workers whose profiles appeared with varied degrees of visibility throughout the site’s listings as previous research suggests that visibility of profiles can significantly impact a worker’s job experience and success on the platform (Lehdonvirta et al., 2019), and, correspondingly may have implications for individual experiences of unpaid labour. Our selection protocol on microtask sites, because of the prescriptive nature of the platforms and higher levels of anonymity of workers, was to post the survey as a task which workers could take on a first-come basis. In this case, we were also able to target workers by geographic region.

Our findings with respect to the uneven geographies of DVN and unpaid labour are disaggregated along two axes. First, we make one distinction based on the location of respondents – specifically whether they are located in the global North or global South. In doing this, we use the continent of recruitment as a proxy, considering respondents recruited from North America, Europe, and Australia and New Zealand to be residents of the global North, and those in South America, Asia and Africa as residing in the global South. Second, we disaggregate our findings based on the task distribution model of the platform. For this distinction we introduce a binary category of ‘taker’ platforms and freelance platforms. Taker platforms are those where workers, upon gaining access to the platform, are deemed to be qualified to ‘take’ work as it becomes available to them, thus obtaining jobs on a first-worker available system. This is contrasted with freelance platforms, where workers are evaluated individually for each job before their services are contracted. This distinction overlaps significantly, but not completely with the distinction between microwork and online freelancing platforms. All microwork platforms surveyed correspond to the taker category. Conversely, most freelance platforms host jobs typically associated with higher skill levels and vetting conditions that correspond to the freelance category. The notable exception to this are the specialized translation and transcription platforms included in our sample, which we classify as taker platforms as workers are vetted completely by the platform and have no direct contact with clients. Our platform classification is available in Appendix A.

**FINDINGS: ‘EVEN IF THERE IS A RISK OF NOT BEING PAID, THERE IS ALSO THE RISK OF BEING PAID’**

The presence of unpaid labour-time is borne out unevenly through DVN. Our dataset provides insights into three distinct forms in which it manifests visibly. These include non-payment for completed work, extra work demands resulting from relative client power, and time and money spent in anticipation of obtaining work. We hold that each of these types of unpaid labour-time fall on a continuum of the ratio of unpaid to paid labour-time inherent to the capitalist labour process and necessary for the extraction of surplus-value. The driving force of such extraction, in this case, stems from the governance models in DVN which are geared towards optimizing coordination and extraction.

**Non-payment for completed work**

So-called ‘rejected’ work is the most glaring example of unpaid labour in the DVN. Across our sample of 699 workers, 224 workers reported that they had completed work on a platform and had not been paid for doing so. This total accounts for both 33% of global South workers and 33% of global North workers. ‘Rejections’ are often framed as the worker’s fault for doing low-quality work, however they are an endemic method of control deployed by platforms, who
give clients carte blanche to indiscriminately engage in non-payment through rejection. Clients can often, for instance, solicit work from a broader group of workers than they intend to pay, and select for quality. Indeed some platforms are designed entirely around this practice – for instance 99Designs, on which design tasks are posted as ‘contests’, and workers submit work in response to posted briefs, which may or may not be chosen for use, and therefore compensation, by clients. In some cases, work that goes unpaid can still be used by clients. Clients either can use the work directly, or mix and match the best parts of a range of submissions to suit their purposes.

One commonly reported reason for completed work not being remunerated is technical errors such as platform malfunction when submitting their final work; however, clients (or ‘requesters’ in the parlance of many platforms) may also contribute to these technical and procedural problems. For example, many microtask platforms require a completion code. This is provided by the client to the worker at the end of the task. The worker then enters the code into the platform interface at which point the worker’s payment is approved. Workers from India, Brazil, Australia and other countries reported instances of clients failing to provide completion codes, which resulted in their completed work going unpaid. Other studies have pointed to platform methods of ‘quality control’ whereby if a worker’s response deviates from the responses provided by other workers to the same prompt, it is deemed bad quality, and not paid (Silberman & Irani, 2016).

Another reason for automated rejection is that workers may be ‘timed out’ of completing jobs. This can occur on both taker and freelance platforms but was reported most frequently with survey-work. Many clients impose tight timeframes for the completion of microtasks, which forces workers to race to ensure they get paid, and gives rise to high levels of stress (Jones, 2021). This is because there is typically an enormous reserve army of labour available at any given time on microtask platforms. As one worker wrote, ‘I took a long time to do a survey and because I took such a long time they decided not to pay me even though I answered all the questions’ (Australia, Male, 45, Prolific). Workers are often directed off the platform and onto a third party service; thus, they may complete the survey on the third party site only to be returned to the platform at completion to find that they will not be paid. Relatedly, even if ‘timing out’ does not result in non-payment, if a client underestimates or misrepresents the time it will take to complete a task, the worker might be forced to spend twice as long completing it than they were initially led to believe, essentially halving their pay.

If and when a client becomes aware that they have unintentionally rejected or underpaid a worker, our research using the platforms as clients demonstrated the possibility (though often complicated and arduous) of retroactively accepting tasks to compensate workers for their time as well as other means to pay workers. The failure of clients to do so highlights a pernicious and perhaps intentional use of rejections facilitated by platform interface design that makes it exceptionally complicated to reverse actions. As a result, clients may feel particularly confident rejecting work because of the tendency for platforms to prioritize the interests and claims of clients over workers.

The unequal treatment of workers and clients and the lack of redress on most platforms emerge consistently in our data:

There is no protection for workers against non-paying clients of the platform. Theoretically, every single client could refuse to pay and there would be no repercussions...in the case that the client never intended to pay, there’s literally nothing a worker can do to receive payment or even some kind of mediation. (US, Male, 42, Amazon Mechanical Turk)

Some platforms offer workers an opportunity to rate clients. This ostensibly functions as a way for workers to flag bad behaviour on the part of clients thereby allowing future workers to make more informed labour market decisions. Clients, however, can easily avoid poor reviews by creating a new profile thereby limiting the effectiveness of these systems, whereas workers are materially dependent on their accumulated ratings and reviews so creating a new profile, if possible, entails significant risk. Meanwhile, on platforms that have a process for mediating disputes between workers and clients, it is important to note the high opportunity cost for microworkers to contest non-payment. The appeals process is likely to be more time consuming and arduous than simply moving on to the next job (and is of course
itself not paid time); thus, workers are structurally disincentivized from reclaiming their unpaid wages and clients are structurally incentivized to engage in wage theft. Workers have little choice but to absorb the risk of non-payment. This is especially the case for microwork platforms, where payment per task is miniscule. While experiences of this type of unpaid labour-time are highest on taker platforms, wage theft through rejection also occurs on freelance platforms. Other researchers have noted the benefit of escrow payments for providing workers with some insurance of payment (Johnston et al., 2021; Kuhn & Maleki, 2017; Paul, 2018), but such platforms nonetheless provide clients with a licence to judge whether the labour is worthy of being paid.

Multiple freelance workers detailed instances in which the client appeared to have no intention to pay. As one worker recounted:

> After taking all my services and even all the work was done completely according to his requirement. When I delivered his work, he checked that and asked me to cancel the order without giving any explanation. I contacted Fiverr support, they just [told] me that they can not do anything. Just negotiate it and solve it with your buyer. And I was like, this is ridiculous they have no policy for such scammers. (Pakistan, Female, 23, Fiverr)

Workers’ power to negotiate on equal footing with clients in such instances is significantly reduced by the threat of receiving a negative review or rating, which may imperil their future access to work, thus, platform governance disempowers workers from challenging exploitation or unfairness.

Additionally, just because work is rejected (and not paid), does not mean that it is not used by clients. As experienced by another worker:

> My client stated they loved the work and that it was perfect. They left a five-star review, and posted the article to their website. Two weeks later, they went to customer service and cancelled the order. Customer service sided with the buyer because they found one grammar mistake in a 3,000-word article. The buyer continued using my work, with the error present. (US, Female, 31, Fiverr)

Similarly, a Bulgarian worker wrote, ‘Incorrect client making use of the dispute option to get away with payment. He took the work but started [a] dispute but the work contained unique econometric results’ (Male, 34, People Per Hour). These actions may technically be against platforms’ policies or guidelines, yet they are facilitated by platform governance in practice. As such, they are not anomalies; they are integral to the power relations fostered by and on platforms. The fact that platform design allows work to be released to the client before the payment is made means that the client can use the job and still dispute its quality afterwards. Even when a client systematically uses this strategy to solicit jobs on the platform, they often go undetected by platform surveillance, which prioritizes disciplining workers who leave jobs unfinished, rather than clients who engage in non-payment.

In these conditions, workers have little choice but to place themselves at risk of wage theft. This is in large part a function of the structural conditions of their local labour markets and a dearth of viable local opportunities - the same features upon which labour arbitrage in GVCs has long capitalized. This signals the presence of barriers to local labour market participation because of limitations on an individual’s availability to work in a traditional job or because of systemic discrimination – features also associated with an undervaluing of labour. One Brazilian worker speaks directly to this point:

> Freelancer.com is full of scammers, but I’m in no position to reject work. Even if there is a risk of not being paid, there is also the risk of being paid. Staying idle gets me nothing, while working at least gives me either money or insight regarding how to spot scammers and how to manage the risks of defaults. (Brazil, Male, 28, Freelancer.com)
For this worker, however, even experiences of non-payment present potential learning opportunities; his willingness to absorb unpaid labour-time suggests an acceptance of its reality and systemic dimension on the platform. Alongside clear-cut instances of non-payment for completed work, myriad other forms of unpaid labour-time sustain and reproduce DVN and profit for lead firms, which we now turn to.

Unpaid labour-time to maintain access and reputation

The second form of unpaid labour stems from the time workers spend responding to extra client demands. This is time that goes above and beyond what is agreed or understood at the start of contracts and often stems from changes in client demands during the duration of the contract. This is, perhaps unsurprisingly, a more common occurrence on freelancer platforms than on taker platforms where the quality of the work tends to be evaluated more subjectively and where workers and clients have higher rates of direct communication with one another. The overarching coercive systems of platform enclosure which ensure that workers’ access to future jobs are predicated on client ratings significantly reduce workers’ agency.

We found that 71% of freelance respondents reported having performed extra work for clients compared to only 36% of workers on taker platforms. Platform surveillance systems scan constantly for workers taking business or transactions off-platform, yet they are much less attentive to clients making new demands on workers without offering extra pay. Thus, freelancers’ reliance on favourable reviews for access to future income means that they can be coerced to perform unpaid tasks under the tacit threat of a negative review, or to otherwise avoid penalties from the platform. As one respondent explains, ‘There are numerous times that I [have] finished an order and the client changes his mind, wants another language, etc. In these cases I have lost time and money’ (Australia, Female, 61, Fiverr).

When the threat of a poor rating is not enough, clients can leverage the preferential treatment that they receive from platforms (relative to workers), and tactics like work rejection to extract unpaid labour-time. This is detailed well by another respondent who explains:

The other day I had a client, who I did hours of design work for, and he kept asking for more and more even though we agreed on a set amount of work...when I refused to work until being paid, we had to start a dispute which I lost because we had set a certain time frame for the project at the start, which wasn’t respected because the client kept logging off for days at a time, and again, adding more work.
(Morocco, Male, 18, Freelancer.com)

Such instances are common. Indeed both workers and clients seem acutely aware that when a dispute about a payment is filed, the platform is far more likely to side with the client than with the worker, leaving workers with little, if any, recourse. As explained by another respondent:

I have completed a task that I worked on for two consecutive days, then the client decided to do modifications that took another day when I sent the task to the client with modifications she said I was late for the deadline even though the work was already finished the day before, she refused to pay me and requested milestone cancellation, I refused but she said she would pay half the amount we agreed upon when I accepted her cancellation for the milestone she blocked me and cancelled the project. (Egypt, Female, 22, Freelancer.com)

These examples also indicate how platform design and infrastructure facilitates strategic exploitative client behaviour in extracting more work than agreed.
‘Aspirational’ work

In our survey, we also included a broad question to determine the total amount of time workers spend active on platforms, compared to the amount of time for which they are engaged in paid labour. This allowed us to document other types of unpaid labour-time such as time spent building one’s online profile, looking for and applying for jobs on the platform, and doing things like gaining ‘qualifications’ by taking tests (some of which workers had to pay to take) or training with the hope that this will make them eligible for more work in the future. Activities like test-taking are, in many ways, the online equivalent of work credentialing systems. Whereas in traditional employment, employees would be compensated for their time associated with obtaining required authorizations or certificates, this is unpaid labour for cloudworkers. The credentials gained are generally non-transferrable across platforms – and are thus unlikely to increase freelancers’ independence and earning power beyond the platforms’ enclosed system.

Moreover, throughout the platform economy there is an expectation that work be completed quickly. In cloudwork, this is accompanied by an expectation that clients will have a wide range of workers to choose from. In order to fulfill these expectations, platforms are incentivized to maintain a labour buffer – a reserve labour supply that exceeds demand (Johnston et al. forthcoming). Workers’ role in cloudwork production therefore extends beyond the bounds of paid labour to encompass all platform-related actively, particularly their attempts to secure their next contract (whether successful or not). We found high levels of this form of unpaid labour-time across our dataset. On average respondents work 22.7 hours per week on the platform. Of these, 7.8 are unpaid and 14.8 are paid, meaning that on average approximately 34% of all time spent working on the platform is unpaid. Though this figure is notably high, it is consistent with existing research, including from the ILO (2021), determining that approximately one third of all time spent working on online platforms is unpaid.

Bidding for work is a common source of unpaid labour-time on cloudwork platforms. As explained by a 24 year old Pakistani woman working for People Per Hour, a client paid her a quarter of the agreed fee for a piece of work, and did not respond to communications: ‘I feel disappointed at this behaviour as anyone can scam us on the online platforms. People per hour compensated me with free bids, but it wasn’t what my client promised me’. In this case, the platform’s solution was to waive the fee it usually imposes on workers for access to future work (or ‘bidding’). Requiring workers to pay to apply to undertake work presents a key extractive facet of cloudwork platforms. Not only is the labour of ‘bidding’ not compensated, it in itself attracts platform rents. The institution of bidding on freelance platforms, moreover, exploits deliberately maintained high levels of competition between workers for access to jobs, and facilitates a race to the bottom in terms of where workers can set their fees, creating a gamified system of digital arbitrage.

On many of these platforms, we find an oversupply of workers that outstrips the quantity of work available. For example, 25.6% of workers in our sample told us that they were working fewer hours than they would like to due to the platform not having enough work available. When there is not enough work available, workers can spend more time searching for jobs:

Being an independent worker is hard work, this requires a lot of effort in the constant search for work, you must constantly update the job offers and see which one best suits your services and availability. (Venezuela, Female, 23, Upwork)

After finding a potential job there is often extensive unpaid labour-time involved in applying for that job, not to mention fees attached to application:

Despite being very qualified to work on a variety of projects, I often never hear back from proposals that I submit even though I meet all of the qualifications. This in turn causes me to waste [bids] which I have to pay for. (US, Female, 41, Upwork)
This worker continued to explain that sometimes the client fails to hire a worker at all. In these cases, the platform permits jobs to remain open – allowing workers to continually waste time and money applying for jobs where there is no hope of being hired rather than, as she suggests, closing out the jobs after a set period of time. The maintenance of this vast reserve army of labour is a key feature of platform governance, reducing workers’ agency, externalizing costs and risks to labour, and bolstering platform and client power. In addition, by keeping jobs ‘open’ which are not in fact available, platforms can show to their investors, prospective clients and workers that there is a high level of traffic on their platform and give the illusion that jobs are abundant and that the platform has a good market share.

Many platforms also pass the unpaid labour-time of avoiding ‘scammers’ on to workers. Multiple workers reported a variety of different scams that they encountered online. Common among them were ploys that required workers to pay for access to a specialized computer program to be awarded a job, but once a worker shared their credit card information, the job disappeared along with the worker’s money. Rather than the platform taking responsibility for fraud and filtering out predatory clients by improving verification systems, they outsource fraud detection and risks to workers.

In our sample, Freelancer.com had the highest reported incidence of scams, which were exacerbated by the requirement that workers pay for the opportunity to bid on jobs. As another worker explained:

‘There are so many scam projects on this platform. If you are not aware of those, you may lose a lot of money. While bidding, we face problems with that. Sometimes we spend our valuable bids on these projects.’ (Bangladesh, Male, 21, Freelancer.com)

Such experiences again highlight the ways in which platforms systematically externalize costs and risks thus increasing their surplus-value extraction and optimizing their cost–capability ratio.

Furthermore, on other platforms, workers must pay a premium to access better clients and more work opportunities. ‘Preferred status’ can be achieved by workers willing to take on higher levels of unpaid labour-time. On other platforms, this can involve completing unpaid tasks and jobs with the hope of improving their labour market position. A worker explains, ‘I have done the tasks about qualification. If my qualification is good then the clients will be willing to work with me in future’ (India, Male, 18, Microworkers.com). A 28-year-old Serbian woman mentioned that preferred status can also help to avoid scammers. However, on Freelancer.com, the platform she works on, workers must apply for this credentialing, and only those who pay for higher-tier accounts are eligible. Given the relative purchasing power of workers in different countries, the financial barriers instituted by this practice have implications for geographic segregation of workers and their vulnerability to scammers.

Furthermore, workers in the global South reported having a more difficult time accessing tasks and job opportunities. In some cases, this was a direct function of the algorithmic filters platforms provide to allow clients to target workers in a specific location. As one worker described, ‘People in the US have way more opportunities and tasks per day than someone from abroad. Sadly, this is something determined only by the researchers [clients], and not by Prolific themselves’ (Chile, Male, 25, Prolific). In the case of research, there may be methodological reasons for which certain respondents are screened out from participating. Yet, we often found instances where there were no legitimate reasons for filtering out workers from particular locations, but where workers nonetheless experience geographic discrimination.

The uneven geography of unpaid cloudwork

Other research has established that the majority of platform labour is performed in the global South for clients in the global North (Graham et al., 2017, Gray & Suri, 2019; ILO, 2021). Because value production in DVN is powered by high levels of unpaid labour, these findings suggest that DVN are engines of territorial surplus-value extraction following established colonial patterns. Our qualitative survey data reveal an unevenness in the distribution of unpaid
<table>
<thead>
<tr>
<th></th>
<th>Total unpaid time</th>
<th>Unpaid time as a percentage of total time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standardized beta</td>
<td>T-score</td>
</tr>
<tr>
<td>Platform tenure</td>
<td>−0.004</td>
<td>−0.093</td>
</tr>
<tr>
<td>Education</td>
<td>−0.086</td>
<td>−2.179*</td>
</tr>
<tr>
<td>Location</td>
<td>−0.165</td>
<td>−4.213***</td>
</tr>
<tr>
<td>Gender</td>
<td>−0.005</td>
<td>−0.119</td>
</tr>
<tr>
<td>Off platform discrimination</td>
<td>0.04</td>
<td>1.021</td>
</tr>
<tr>
<td>History of non-payment</td>
<td>0.032</td>
<td>0.83</td>
</tr>
<tr>
<td>On-platform discrimination</td>
<td>0.125</td>
<td>3.179**</td>
</tr>
<tr>
<td>Taker platform</td>
<td>−0.154</td>
<td>−3.896***</td>
</tr>
</tbody>
</table>

* indicates $p < 0.05$, ** indicates $p < 0.01$ and *** indicates $p < 0.001$.

Education = scaled 1–6 (limited to highly educated).

Location = global South = 0; global North = 1.

Gender = male = 0; not male = 1.

Taker platform = 1; freelance platform = 0.

Adjusted R-square: Total unpaid time = 0.074, unpaid time as a percentage of total time = 0.116.

labour-time and wage theft throughout the DVN, indicating geographic discrimination. We use geographic discrimination to refer to platform and client bias against workers on the basis of their location, in terms of job allocation, pay and other tasks. Geographic discrimination arises from the model of centralized coordination of a planetary labour market, and is enabled by digital arbitrage. Certain platform managers explicitly stated their belief that some workers should be paid less because they are from poorer areas of the globe. Yet workers also faced discrimination from clients. As one worker explains, workers in the global South bear the brunt of poorly paid work:

The majority of the requesters underpay for most of the tasks. Some will require you to do tons of jobs for a measly 1 cent. The non-US workers are severely underpaid as most of the tasks that really reward better are inaccessible due to location qualification. (Nigeria, Male, 34, Amazon Mechanical Turk)

Existing research has also found a perceived association between low quality of work with workers from developing countries, a feature which results in workers from the global South being less likely to receive well-paid tasks (Galperin & Greppi, 2019; ILO, 2021).

Overarching trends uncovered in our survey are consistent with individual respondents’ testimonies. Our analysis shows that workers in the global South spend 9.9 unpaid hours per week working on cloudwork platforms – almost double the time spent by workers in the global North. This finding is consistent with recent research from the ILO (2021) which aptly notes that part of the explanation for the larger absolute number of unpaid hours is the fact that those in developing countries tend to work more hours overall. However, we also find that when unpaid labour-time is measured relative to the total amount of labour-time spent on platforms, those in the global South also have a greater ratio of unpaid to paid labour-time. To further probe this finding, we conducted two regression analyses to determine the factors that contribute to unpaid labour-time on cloudwork platforms measured in absolute terms and proportionally (percentage of total hours which were unpaid). Using these models we explore the relation between workers’ geolocation in the global South and the amount of unpaid labour-time undertaken by individual workers on cloudwork platforms. Our findings are shown in Table 2.
Our model includes a location variable to distinguish between workers who are located in the global North and those in the global South. Also, given the impact that task distribution type has on the propensity toward wage theft, we have also included a tasker variable to capture this. There are six other variables that also influence the presence of unpaid labour-time online based on our qualitative insights. These include: platform tenure (how long the worker had been registered on the platform), worker education level, gender and offline discrimination (discrimination experienced in local labour markets). Given the wide scope of our definition of unpaid labour-time, we also included some of the other structural factors that contribute to unpaid labour online discussed in the previous sections as these had low levels of correlation with our measurement of unpaid labour-time. These include whether the worker has experienced non-payment for work (or work rejection) and whether they report having experienced discrimination on the platform itself.

Our findings show that being located in the global South contributes to higher levels of unpaid labour-time. We find three variables are statistically significant in both of our models, revealing similar patterns. When determining unpaid labour-time as a percentage of total labour-time, the task distribution method on the platform is the greatest contributing factor to unpaid labour-time. The negative orientation of the ‘taker’ variable indicates that workers who are not on taker platforms (in other words, those on freelance platforms) are more likely to experience higher levels of unpaid labour-time. This is followed closely by worker location. Here we find that workers located in the global South are more likely to experience higher levels of unpaid labour-time. Our model of total search time, meanwhile, finds worker location to be the largest determinant of unpaid labour-time.

The absence of population-wide statistics on platform workers makes it difficult to confirm the representativeness of our sample. Existing research suggests that our geographically informed recruitment strategies may have contributed to an undersampling of workers from the global South. Beyond this, we have no reason to think that our sample is not representative.

The most notable project to enumerate cloudworkers is the Online Labour Index (OLI), a joint project of the International Labour Organisation and the Oxford Internet Institute. These data also have limitations (for example, they are derived from a limited number of platforms in English, Spanish and Russian speaking regions); however, they do provide data against which we can test the robustness of our findings. Using randomized oversampling, we also calibrated our data to mirror the geographic distribution of workers that is reported by the OLI. These findings (shown in Appendix B) confirm worker location as a statistically significant variable with workers in the global South performing more unpaid work and spending a greater percentage of their total work time doing unpaid tasks.

The qualitative findings we offer above provide significant context to the reasons for which workers from the global South are more likely to have higher levels of unpaid labour-time on platforms and as to why freelance platforms are associated with higher levels of unpaid labour-time. First, global South workers appear to face additional barriers to securing jobs and clients via platforms. Second, workers may be more incentivized to spend unpaid labour-time on freelance platforms because of the possibility of higher reward – as these platforms reliably pay significantly more if workers are able to successfully secure a job (see also ILO, 2021). Third, in our model which measures unpaid labour-time proportionally, we find that longer platform tenure is associated with lower rates of unpaid labour-time. This validates, perhaps, the strategy of the Brazilian worker who expressed his hope that exposure to unpaid labour-time would make him better able to avoid it in the future. Another explanation could be that the temporal distribution of unpaid labour-time associated with building an online presence is also uneven. Building a profile on a platform requires significant unpaid labour-time upfront, but is beneficial over many months and perhaps years.

In sum, these findings confirm not only that the exploitation of workers through unpaid labour-time and wage theft is integral to DVNs overall, and that this falls along geographical lines due to the uneven spatial distribution of labour and capital in DVNs; they also demonstrate that unpaid labour-time is visited disproportionately on workers in the global South compared to workers in the global North by virtue of their geographic location.
CONCLUSION

Unpaid labour-time is sometimes treated by platform managers as an anomaly or an occasional mishap. Platform responses to surfaced instances of unpaid labour-time generally serve to shift responsibility to individual workers or clients, or dismiss it with familiar flexibility rhetoric. Yet our research shows that unpaid labour-time is not the exception to the rule, but rather an essential part of the platform model and an indicator of the degree of geographic power asymmetry in DVN. Seen in this light, the prevalence and multiplicity of forms of unpaid labour-time in cloudwork, both visible and hidden, is amplified by the mechanisms of governance through digital arbitrage established by cloudwork platforms as lead firms in DVN. The governance of DVN, as with GVC and GPN led by multinational corporations, is geared towards maximum value extraction and the territorial concentration of power. Transactions between actors are closely controlled within informational infrastructures, which in cloudwork allow for the intensification of unpaid labour-time. With little to no regulatory accountability, spatio-temporal friction, overhead costs, transportation costs or tariffs, cloudwork platforms both deepen and expand the possibilities for the global concentration of power in value chains. Our findings, which draw on theories of governance in GVC and GPN, as well as Marxist political economy, ultimately demonstrate that de-industrialization and digitalization do not harken the end of commodity dependence, geographical constraints or inequality. New extractive DVNs reproduce and deepen inequalities, further erode the labour share of income and concentrate capitalist power and accumulation across space.

The theoretical and practical ramifications of digital arbitrage are by no means limited to the domain of cloud production. Admittedly, the analytical focus of this paper has necessitated a discussion of cloudwork platforms as distinct lead firms that enact particular economic geographies. However, it is important to acknowledge that cloudwork platforms neither exist in isolation from each other, nor from longer-established global networks of production and consumption. For example, the platform model has gained prominence in manufacturing GVCs and GPNs (Butollo, 2021). Similarly, all examples of cloud production mentioned in this paper intersect with, and partially rely on, other complex transnational production arrangements. As a result of this entanglement, cloudwork platforms can be seen as arbitrators for modes of transnational labour governance that, eventually, find their way to those other sectors and production networks.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

DATA AVAILABILITY STATEMENT

The survey and recruitment materials used in this study are available at https://github.com/KelleHowson/Fairwork-Cloudwork-Survey-2021. Due to participant confidentiality, survey responses could not be shared.

ORCID

Kelle Howson [ ] https://orcid.org/0000-0002-5084-7993

REFERENCES


**APPENDIX A: Manifestations of unpaid time by platform designation**

<table>
<thead>
<tr>
<th>Platform designation</th>
<th>Manifestations of unpaid time</th>
<th>Micro/freelancing designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taker platforms, open access, limited screening of workers by the platform, not conducted on a per-task basis (Amazon Mechanical Turk, Prolific, Microworkers, Appen, Clickworker)</td>
<td>Qualification tests, waiting for jobs to become available, being 'timed out' of tasks, work rejection, disputing work rejection</td>
<td>Micro</td>
</tr>
<tr>
<td>Taker platforms, restricted access and managed centrally, screening of workers by the platform not conducted on a per-task basis screened by the platform (Rev, TranscribeMe)</td>
<td>Qualification tests, waiting for jobs to become available, work rejection, disputing work rejection</td>
<td>Freelancing</td>
</tr>
<tr>
<td>Freelance platforms, bespoke services, open access, workers screened directly by clients (UpWork, Freelancer.com, People Per Hour, Jovoto, Fiverr, 99 Designs)</td>
<td>Curating and building profiles, applying for jobs (often unsuccessfully), bidding for tasks, amendments to completed work, contests, high level of communication demands from clients, identifying scammers, client rejection, disputing client rejection</td>
<td>Freelancing</td>
</tr>
</tbody>
</table>
APPENDIX B: Multiple regression models of unpaid time, oversampling to OLI geographic distribution

<table>
<thead>
<tr>
<th></th>
<th>Total unpaid time</th>
<th></th>
<th>Unpaid time as a percentage of total time</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standardized beta coefficient</td>
<td>T-score</td>
<td>Standardized beta coefficient</td>
<td>T-score</td>
</tr>
<tr>
<td>Platform tenure</td>
<td>−0.075</td>
<td>−5.645***</td>
<td>−0.153</td>
<td>−11.241***</td>
</tr>
<tr>
<td>Education</td>
<td>−0.018</td>
<td>−1.312</td>
<td>0.028</td>
<td>2.037*</td>
</tr>
<tr>
<td>Location</td>
<td>−0.152</td>
<td>−11.253***</td>
<td>−0.109</td>
<td>−7.930***</td>
</tr>
<tr>
<td>Gender</td>
<td>0.015</td>
<td>1.133</td>
<td>0.018</td>
<td>1.335</td>
</tr>
<tr>
<td>Off platform</td>
<td>−0.044</td>
<td>−3.204**</td>
<td>0.038</td>
<td>2.763**</td>
</tr>
<tr>
<td>discrimination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>History of non-payment</td>
<td>−0.008</td>
<td>−0.598</td>
<td>−0.051</td>
<td>−3.789***</td>
</tr>
<tr>
<td>On-platform</td>
<td>0.209</td>
<td>15.221***</td>
<td>0.075</td>
<td>5.384***</td>
</tr>
<tr>
<td>discrimination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taker platform</td>
<td>−0.155</td>
<td>−11.392***</td>
<td>−0.173</td>
<td>−12.517***</td>
</tr>
</tbody>
</table>

* Indicates $p < 0.05$, ** indicates $p < 0.01$ and *** indicates $p < 0.001$.

Education = scaled 1–6 (limited to highly educated).
Location = global South = 0; global North = 1.
Gender = male = 0; not male = 1.
Taker platform = 1; freelance platform = 0.
Adjusted $R$-square: total unpaid time = 0.108, unpaid time as a percentage of total time = 0.085.