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Digital labour and development: impacts of global digital labour platforms and the gig economy on worker livelihoods

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Summary
As ever more policy-makers, governments and organisations turn to the gig economy and digital labour as an economic development strategy to bring jobs to places that need them, it becomes important to understand better how this might influence the livelihoods of workers. Drawing on a multi-year study with digital workers in Sub-Saharan Africa and South-east Asia, this article highlights four key concerns for workers: bargaining power, economic inclusion, intermediated value chains, and upgrading. The article shows that although there are important and tangible benefits for a range of workers, there are also a range of risks and costs that unduly affect the livelihoods of digital workers. Building on those concerns, it then concludes with a reflection on four broad strategies – certification schemes, organising digital workers, regulatory strategies and democratic control of online labour platforms – that could be employed to improve conditions and livelihoods for digital workers.

Résumé
Comme de plus en plus les décideurs, les gouvernements et les organisations se tournent vers la « gig economy » (l'économie des petits boulots) et le travail numérique comme stratégies de développement économique pour attirer des emplois à des endroits qui en ont besoin, il devient important de mieux comprendre comment cela pourrait influencer les conditions de vie des

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travailleurs. Dans le cadre d'une étude pluriannuelle menée auprès des travailleurs du numérique en Afrique subsaharienne et en Asie du Sud-Est, cet article met en lumière quatre préoccupations fondamentales des travailleurs: le pouvoir de négociation, l'inclusion économique, les chaînes de valeur intermédiées et la mise à niveau fonctionnelle des travailleurs. Cet article montre que bien qu'il existe des avantages importants et tangibles pour certains travailleurs, il existe également certains risques et coûts qui ont un impact important sur les moyens de subsistance des travailleurs numériques. Se basant sur ces préoccupations, il conclut par une réflexion sur quatre grandes stratégies - les systèmes de certification, l'organisation des travailleurs numériques, les stratégies de réglementation et le contrôle démocratique des plates-formes de travail en ligne - qui pourraient être utilisées pour améliorer les conditions et les moyens de subsistance des travailleurs numériques.

Zusammenfassung

Da immer mehr politische Entscheider, Regierungen und Organisationen die Gig-Ökonomie und die digitale Arbeit als Strategie der wirtschaftlichen Entwicklung für sich entdecken, um Arbeit dorthin zu bringen, wo sie gebraucht wird, müssen wir die damit einhergehenden Auswirkungen auf die Existenzgrundlage der Arbeitnehmer besser verstehen. Auf Basis einer mehrjährigen Studie mit digitalen Arbeitnehmern in afrikanischen Ländern südlich der Sahara und in Südostasien befasst sich der vorliegende Artikel mit vier für die Arbeitnehmer wichtigen Themen: Verhandlungsmacht, wirtschaftliche Inklusion, Intermediation in Wertschöpfungsketten und Hinzugewinn neuer Funktionen. Der Artikel zeigt, dass es zwar bedeutende und konkrete Vorteile für eine Reihe von Beschäftigten gibt, auf der anderen Seite aber ebenfalls Risiken und Kosten mit nachteiligen Auswirkungen auf die Lebensgrundlage digitaler Arbeitnehmer zu bedenken sind. Auf der Grundlage dieser Vorbehalte schließt der Beitrag mit Überlegungen über vier umfassende Strategien – Zertifizierungssysteme, Organisierung digitaler Arbeitnehmer, regulatorische Maßnahmen und demokratische Kontrolle von Online-Arbeitsplattformen – zur Verbesserung der Bedingungen und Lebensgrundlagen digitaler Arbeitnehmer.

Keywords

Gig economy, digital labour, outsourcing, freelancing, precarity, digital work, online labour markets, economic development

The rise of digital labour

Work has historically been geographically bounded. Workers and the work that they performed were inexorably linked, with labour being the most place-bound of all factors of production (Hudson, 2001). As Harvey (1989: 19) famously noted, workers are unavoidably place-based because 'labor-power has to go home every night.'

But the widespread use of the Internet has changed much of that. Clients, bosses, workers, and users of the end-products of work can all be located in different corners of the planet. This article is about what the spatial unfixing of work means for workers in some of the world's economic margins. It provides examples illustrating who it is that performs much of the digital work that is carried out today, and reflects on some of the key benefits and costs associated with these new digital regimes of work.

The rise of digital labour has come about at a confluence of two trends. First, in much of the world, un- and under-employment is a major social and economic concern for policy-makers,

for people with jobs, and for people looking for jobs (ILO, 2015). The International Labour Organisation (2014) estimates that between 2014 and 2019 there will be 213 million new labour market entrants.

Secondly, much of the world is increasingly characterised by rapidly changing connectivity. We have gone from a world, only 10 years ago, where less than 15 per cent of humanity was connected to the Internet, to one today where over 40 per cent of the world's population is connected. There are now over three billion connected people on the planet. Furthermore, 10 years ago, less than 8 per cent of people in low-income countries were connected. Today, the figure is over a third (ITU, 2016).

In response to this confluence of a need for more jobs in places where they do not currently exist, and the spreading of digital connectivity across billions of the world's population, millions of people have turned to outsourced digitally mediated work as a way to transcend some of the constraints of their local labour markets. The first wave of outsourcing, three decades ago, originally moved work to lower-wage areas within national economies (Bain and Taylor, 2008), but by the early 1990s the spread of digital connectivity made it possible for destinations like India and the Philippines to capture large amounts of outsourced work (Bryson, 2007; Dicken, 2015; Lambregts et al., 2016).

In the nascent days of business process outsourcing (BPO) there were very few locations that could offer a sufficient amount of connectivity to support transnational workflows (UNCTAD, 2009), but as ever more people in low-income countries connect to the Internet, another fundamentally different type of outsourcing has emerged: digital labour platforms[1] in which clients post jobs and workers bid on them. In contrast to BPO work, digital labour platforms represent a fundamentally new model because they allow business processes to be outsourced without the mediation of formal BPO organisations (and their associated overheads). Work is turned into a commodity in which workers are transformed into a 'computation service' (Irani, 2015). In this context, workers can transcend some of the constraints of their local labour markets, and tasks such as translations, transcriptions, lead generation, marketing, and personal assistance can now all, in theory, be done by workers from anywhere for clients based anywhere. Much has been said about the ways that technologies of globalisation have widened the global reach of capital at the cost of place-bound labour (see Herod, 2001; Peck, 2002; Swyngedouw, 1997). But the rise of digital work perhaps means that not just capital, but also labour can compete in a global market. Chew Kuek et al. (2015) estimate that the market for digital work was US$4.4bn in 2016, and that it is growing rapidly. An index measuring the utilisation of digital labour platforms suggests that their use is growing globally at a rate equivalent to 25 per cent a year (Kässi and Lehdonvirta, 2016).

Yet there are some preliminary indications that not everyone can compete equally in digital platforms. Beerepoot and Lambregts (2014), for instance, have argued that non-Western workers

1 These markets have also been dubbed 'online labour markets.' However, this article attempts to avoid use of the term 'online' in an explanatory way so as to avoid implying that the 'online' represents any sort of space distinct from material contexts (see Graham, 2013 for a more detailed version of this argument). The article also chooses to refer to digital labour/work as paid activities undertaken through digital labour markets. The term 'microwork' does not capture the full range of activities performed through digital labour markets (not all work is 'micro'), and 'crowdwork' is often also used to describe unpaid labour (such as editing Wikipedia). The article also seeks to avoid conflating markets with platforms. Rather than being relatively unregulated markets, digital labour platforms play hugely important roles in regulating, managing, assigning, and monitoring work (see Agrawal et al., 2013; Kenney and Zysman, 2016; Parker et al., 2016). This article thus primarily uses the term 'platform' to refer to them.

could be poorly rewarded on such sites. While the empirical evidence about the livelihood effects of digital work are still thin on the ground (a notable exception is Scholz, 2013), there is already a rich body of work pointing to challenges associated with the growth of precarious work more broadly in the wider economy (Kalleberg, 2009; Neff, 2012).

However, many governments, third-sector organisations, and private sector actors continue to see a significant developmental potential in digital labour: jobs can be created for some of the world's poorest by taking advantage of connectivity and the willingness of an increasing number of firms to outsource business processes. Examples include the Rockefeller Foundation's 7-year Digital Jobs Africa initiative and the Malaysian government's Digital Malaysia strategy. In Malaysia, the idea of pursuing digital jobs manifested as a key policy priority with the 2012 launch of the strategic programme 'Digital Malaysia', described as 'the nation's vision to forge ahead in embracing the global digital revolution [. . .] that will propel the nation into high-income status with digital technology as its critical enabler' (Digital Malaysia, 2013: 58).[2] One of the five pillars of 'Digital Malaysia' is the programme 'Microsourcing for the B40s' intended to enable the bottom 40 per cent income earners to leverage microwork and online freelancing for sustaining a living. The official target is to enable 340,000 microworkers to generate a contribution to the Malaysian economy of MYR 2.23bn (about US$0.5bn) yearly by 2020.

Similarly, Nigeria's Ministry of Communications Technology launched the initiative 'Microwork for Job Creation – Naijacloud' in the spring of 2013. The explicit aim was to 'reduce unemployment and create wealth through Microwork and Elancing'.[3] Backed by the World Bank and the Rockefeller Foundation, the government arranged workshops introducing thousands of individuals to five of the major global online platforms and microwork intermediaries: Samasource, CrowdFlower, Mobile Works, oDesk and Elance. These and other large-scale interventions demonstrate the high hopes that many have for digital labour in the contexts of development. Underpinning them all is an idea that, in a global market for labour, the actual locations of workers are irrelevant. Anyone can, in theory, do any work from anywhere. An idea that, if true, could bring significant economic benefits to workers in parts of the world where good jobs are hard to come by.

This article challenges that notion by highlighting four key concerns that have been addressed alongside other themes in a multi-year programme of research into digital labour at the world's economic margins, described further below. These concerns – bargaining power, economic inclusion, intermediated value chains, and upgrading – are by no means the only ones affecting digital workers, and our programme also revealed other positive and negative aspects of digital labour platforms. In this article, however, we choose to focus on these four concerns, as they represent important perspectives that have been underrepresented in the policy discussion so far.

As digital work is increasingly being heralded as a way of allowing workers to transcend their local labour markets and tap into an international market, this article adapts Peck's (2002) call to avoid thinking about the global as a scale of market forces and the local as the site of labour and regulatory facilitation. This article thus seeks to recognise the real economic geographies of digital work, as activities that flow through digital production networks (Fichter et al., 2011; Gereffi et al., 2005; Scarbrough, 2000). Doing so allows us to illustrate the grounded geographies of digital work and to point to the political economy of digital labour. It shows that although there are important and tangible benefits to a range of workers, there are also a range of risks and costs that unduly impact on the livelihoods of digital workers. Building on those concerns, the article concludes with

2 http://pikom.org.my/2014/Useful-Govt_Link/Digital_Malaysia_Report_MDeC.pdf
3 http://www.naijacloud.com.ng/

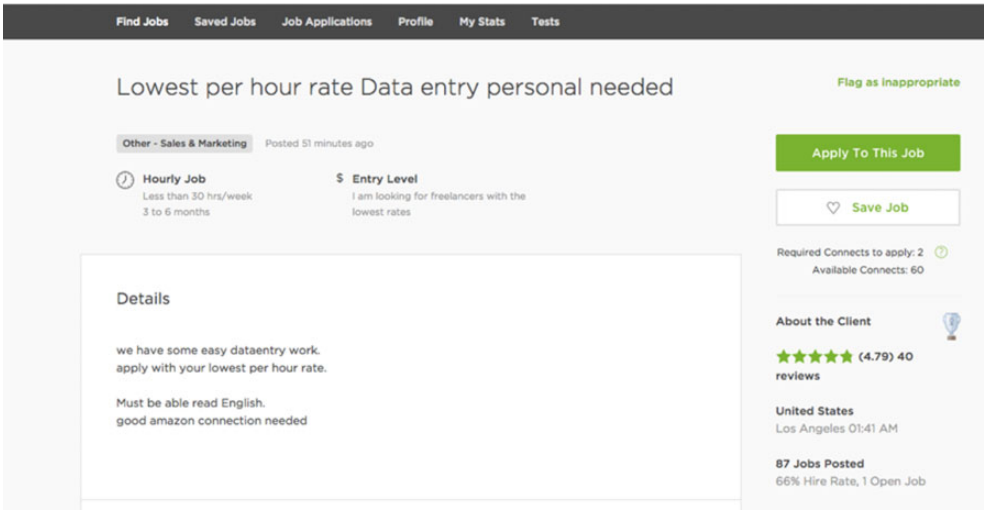

Figure 1. Data entry task on a major digital labour platform.

a reflection on four broad strategies – certification schemes, digital labour organising, regulatory strategies and democratic control of online labour platforms – that could be employed to improve conditions and livelihoods for digital workers.

Empirical foundation

This article draws on findings from the research project *Microwork and Virtual Production Networks in Sub-Saharan Africa and South-east Asia*. It summarises selected findings and themes emerging from project publications, and provides examples from the body of qualitative data presented in various formats in parallel with fieldwork and data collection (Hjorth et al., 2015; Lehdonvirta et al., 2015a), and augments them with additional examples from the data. The data sources referred to in this article consist of a combination of transaction log data from one of the world's largest digital labour platforms, and interviews conducted with workers, managers, and policy-makers in South-east Asia and Sub-Saharan Africa.

The transaction data were obtained from one of the world's largest digital labour platforms, and consist of transaction records of all the 61,447 projects that were completed during the month of March 2013. These records were provided to us by the digital labour platform in an anonymised, privacy-protected form. A variety of variables were recorded for each project in the data set, such as the total amount of money charged from the client and the client's and contractor's countries of residence. Figure 1 depicts a data entry task offered to digital workers through a major digital labour platform. For further details on transaction data and methodological procedures, see Lehdonvirta et al. (2014).

The qualitative data this article draws on consist of semi-structured interviews with 125 digital workers and 27 digital work stakeholders (policy-makers, platform owners, third sector organisations) carried out by the authors during fieldwork in cities in the Philippines (Manila), Malaysia (Kuala Lumpur), Vietnam (Ho Chi Minh City), South Africa (Johannesburg and Capetown), Kenya (Nairobi), and Nigeria (Lagos) between September 2014 and October 2015. The qualitative data were collected by means of face-to-face, semi-structured interviews. Participants were

recruited through several different digital labour markets/platforms (to preserve anonymity, all names have been changed). The listings were private, and only digital workers invited by the researchers could respond. Invited digital workers were shortlisted based on a range of predefined sampling criteria. The main sampling goal was to ensure varied representations of (primarily) low-skilled labour experiences in the countries of interest. In this article we present selected cases from the data rather than a representative view. For further details on methodological procedures, including sampling strategies and data analysis, see Wood et al. (2016).

In the sections below, we adopt a strategy where we first outline the theories and hopes pertaining to each area of concern, and then interrogate them with supporting and contrary examples from the research articles and data. Instead of having one single overarching literature review section, this article instead frames each one of the four sections with a brief review of contextually relevant research. Doing so allows this article both to focus on some of the key potential concerns for digital labour, which is increasingly spoken about as a tool for economic development, and to provide a base for future research that does look into the frequencies, and spatial and social contexts in which some of those concerns are most likely to occur

Four concerns for digital labour

Bargaining power

A key feature of digital work platforms is that they attempt to minimise the outside regulation of the relationship between employer and employee (Lehdonvirta, 2016). Workers are, for instance, generally classified as independent contractors (even though their work sometimes more closely resembles that of an 'employee') (a finding discussed in more detail in Wood et al., 2016). It is also rare that national labour laws are applied to digital workers. These issues are particularly acute when transactions cross national borders: as it becomes unclear which jurisdictions' regulations apply to the work being transacted.

If we have a world in which work is a commodity that can be bought and sold (as a result of standardisation and disembedding of tasks, and the lack of regulation and protections for workers), much of this work can, in theory, be done from anywhere. Concomitantly, if work can be done from anywhere, there is the potential for competitive dynamics (in which there is more demand for work than supply of it) to result in a situation in which low-cost, low-capability suppliers of work (for instance digital workers) could be disadvantaged and become clear price-takers with little bargaining power (Kaplinsky, 2004; Manning, 2003). We summarise some of the findings and provide further examples and discussion below (for more detail see Lehdonvirta et al., 2016).

Drawing on anonymised transactional data of tasks carried out by members of a pool of more than 4.5 million registered workers over the course of one month, we have identified distinct geographies emerging in the context of global trade in digital labour. These structural characteristics provide insights into the competitive production relations that digital workers in the Global South must navigate when seeking to move beyond their local labour markets to engage in digital work.

A key pattern emerging relates to imbalances in the relationship between supply and demand of digital work. Figure 2 offers a representation of the geographical distribution of buyers of more than 65,000 transactions performed during the month of March 2013. The vast majority of buyers of work are located in high-income countries (shaded in the darkest blue color). The only countries in the top-20 list of countries from which most purchases are made that are not considered to be high-income countries are Malaysia (ranked 15th) and India (ranked 19th).

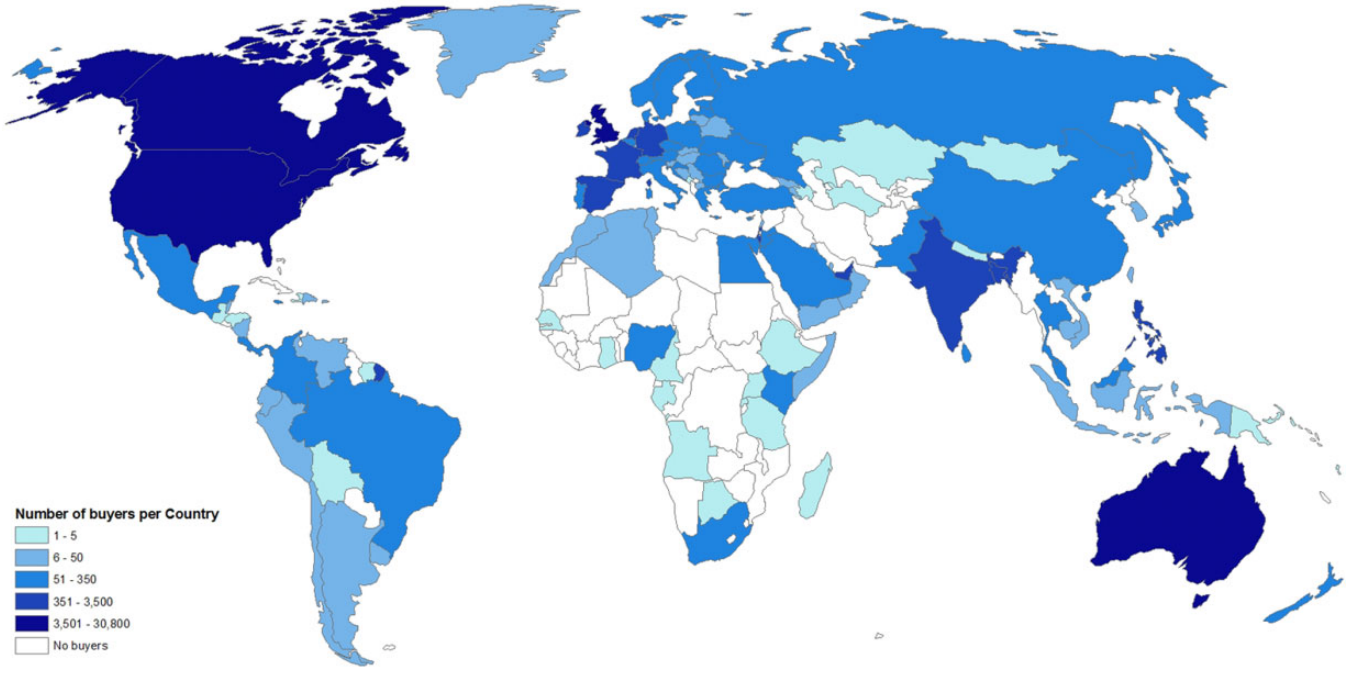

Figure 2. Number of buyers per country.

The geography of sales (see Figure 3) reveals a very different pattern. Even though most demand comes from the Global North, the majority of work is carried out in low-income countries. India and the Philippines, in particular, perform much of the work on the platform. Yet, a significant amount of work continues to be carried out in wealthy countries such as the United States, Canada, and the United Kingdom. Figure 3 also illustrates that there is a broad geography of the supply of work. The fuller context, therefore, is one whereby demand is relatively geographically concentrated, but supply is relatively geographically diffuse and workers from low- and high-income countries end up competing in the same contexts: a situation that is likely to have an impact on the relative degrees of bargaining power exerted by individual digital workers (it is worth noting that at the time of writing, the platform hosted nine million registered workers and only four million registered clients).[4]

Finally, we can explore the spatial variance of hourly pay rates requested by digital workers. The cartogram in Figure 4 depicts each country as a circle and sizes each country according to the dollar inflow to each country over the course of a month (March 2013). The shading of the inner circle indicates the median hourly rate requested by digital workers (i.e. published on their individual online profiles on the platform) in that country; the rates published are not necessarily identical with actual hourly rates or pay received as evidenced through our fieldwork. Nonetheless, the graphic broadly reveals that median wages are, perhaps unsurprisingly, low in low-income countries and are significantly higher in medium- and high-income countries. It also reinforces the fact that the market for work is highly international: with the United States being the only country in which a majority of work is commissioned by domestic clients. This may suggest that US digital workers receive higher wages because of their embeddedness in local institutional structures.[5]

Despite visions that global labour platforms render the location of workers irrelevant, it seems to be precisely the differences between places that encourage particular networks of digital work to be brought into being. As such, we wanted to explore how workers themselves, at some of the world's economic margins, experience digital practices in a platform with such global, but uneven, geographies.

Turning to qualitative evidence obtained by means of semi-structured interviews and analysed in Wood et al. (2016) and Lehdonvirta et al. (2015b), this article next problematises digital workers' relative levels of bargaining power through the lenses of 'skill arbitrage' and 'labour arbitrage'.

One of the main potentials of digital work in the context of development is 'skill arbitrage'. In geographically circumscribed labour markets, a situation often exists where the local population of workers of a certain skill set only has a handful of viable employers, giving the employers a great deal of market power (Manning, 2003). The high costs of migration place barriers on workers' ability to seek better offers elsewhere. Digital labour markets are intended to delocalise work so that there are fewer constraints to where in the world it can be performed (Horton, 2010). Workers can consequently perform 'skill arbitrage', or sell their labour to whoever is willing to pay the most for it, regardless of the buyer's location. This, in theory, allows workers to escape the boundaries of their local labour markets, reduces the bargaining power of employers, and gives workers a higher price for their labour.

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4 It is important to note that not all of these registered workers and clients are active users. However, we can also draw from evidence in Chew Kuek et al. (2015) that demand for work far outstrips supply.

5 Digital workers are also statistically more likely to find work in their domestic market (World Bank, 2016). Some studies have also shown how employers can be biased towards workers of the same nationality or ethnicity (Ghani et al., 2014).

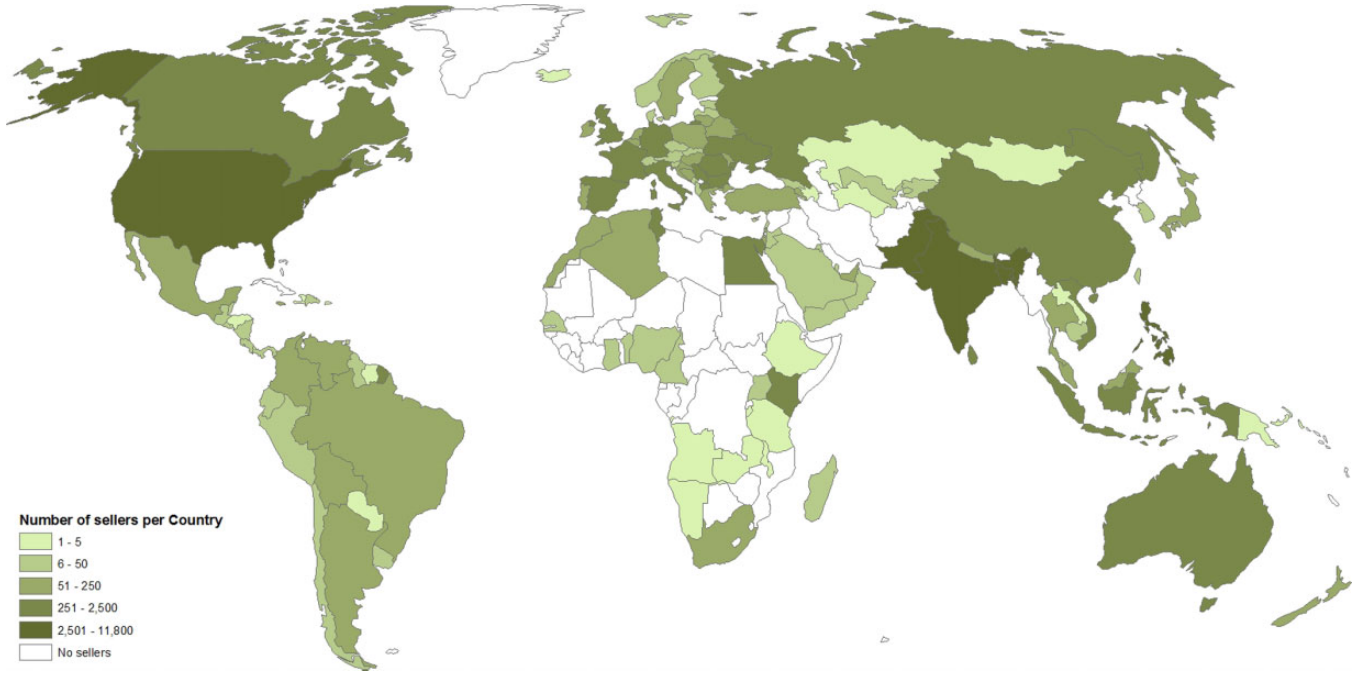

Figure 3. Number of sellers per country.

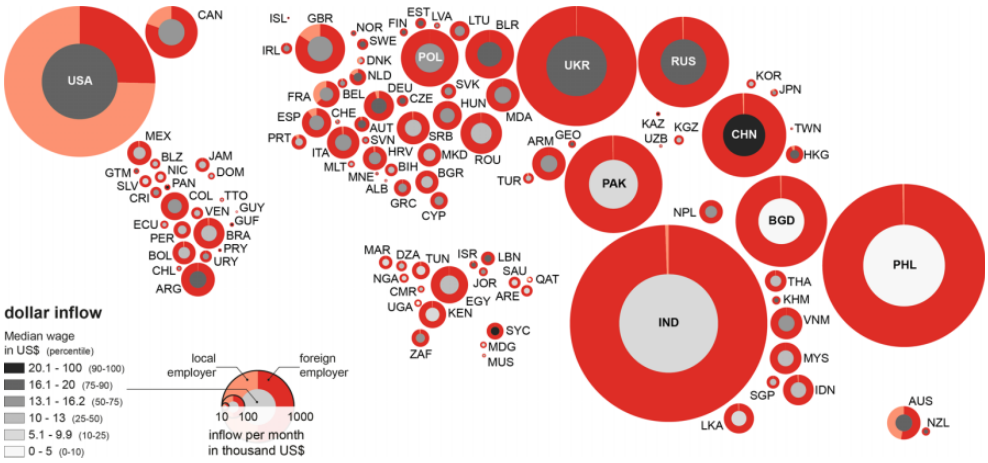

Figure 4. Dollar inflow and median requested hourly pay by country.

In interviews with digital workers, several examples of individuals who have taken advantage of the affordances of digital labour platforms for transcending local ones were encountered. For example, 32-year-old Filipino Arvin used to work as a university lecturer in mathematics and computer science in Manila. While he enjoyed his work, the low pay combined with the daily commute became a source of increasing frustration. Introduced to a digital labour platform by a friend, Arvin started doing Search Engine Optimisation (SEO) for US-based clients in 2011 at an hourly rate of US$4. He is now deliberately specialising in SEO for computer games. Being a computer games enthusiast, Arvin experiences his digital work as being almost like leisure time: 'It doesn't feel like work since I already like do it every day, and putting what I think [into] writing and people reading it, my opinions, it's kind of good. It feels good. It doesn't feel like work.' Working an average of 25–30 hours per week, Arvin is earning a monthly income of US$600 (working for three to four different clients at any given time), thus making almost three times his previous salary. The disparity between the local wages of his friends, working as nurses in local hospitals, combined with the freedom Arvin associated with his digital work, shapes the positive perception of digital work in Arvin's social network:

> My friends are very, very jealous of me. I work whenever I want as long as I finish the job. I can go out on a weekday and not worry about a hangover the next morning. That's why they tell me: 'your job is good. How did you get that kind of job?'

In Arvin's case, digital labour platforms allow him to pursue work that aligns better with his personal interests, and by performing 'skill arbitrage', he is able to reduce his workload while significantly increasing his income.

Another example of a digital worker transcending local labour markets is Vietnam-based Kim-Ly. She left her full-time employment as an accountant in a bank in Ho Chi Minh City to take up digital work in 2010. She had been working at the bank for two years since graduating from university with a degree in economics, but found the work dissatisfying and dull. Kim-Ly therefore searched for digital work opportunities, and quit her job as soon as she had secured a data entry job for a large multinational corporation through a digital platform. The job required her to do daily 8-hour shifts at predefined times, and would involve tasks such as labelling images, or ranking search engine results (at a speed of

100 pages per hour). Initially, Kim-Ly worked for an hourly rate of US$8, making four times her salary at the bank. Having no caring responsibilities, her new financial situation enabled Kim-Ly to travel abroad and purchase luxury goods and consumer products. She explained:

> Actually you know when I work for [the] bank, I have no money to buy anything or go anywhere until I work for [online client]. I have money to buy my laptop, to travel a lot to foreign countries, and my friends, they're jealous with me. They're like 'Why you always go travel around?' I said that 'Quit that job, and find a job like me so you can travel.'

Unlike, Arvin, however, Kim-Ly's perception of digital work is more in line with traditional employment relationships: she only ever works for one client at a time, and has only had a total of two clients over the past four years. This approach to digital work makes her more vulnerable to risks associated with changing patterns of demand for digital work. Kim-Ly's change of employer, for example, was not a deliberate act on her part, but a result of her employer ending the contract prematurely. The client first lowered the hourly rate from US$8 to US$6, explaining that the Vietnamese part of the project was not going well, and then subsequently closed the contract altogether without prior warning (all of this possible because of the lack of costs incurred by clients when they terminate contracts). This left Kim-Ly without any income; and because of difficulties in securing a new contract, she found herself in a poor bargaining position. She therefore accepted a rate of US$4 offered by a US-based client seeking data entry workers. Kim-Ly's experiences of the precariousness of digital work is increasingly impacting on her perception of the degree to which she is able to influence or bargain with her clients. For example, although Kim-Ly had been working a full year for her new client (through the Internet) when we met her – at an hourly wage half of what she initially received – she did not feel entitled to enter into negotiations concerning a pay rise (in part because of an awareness of the pay and skills levels of other digital workers). According to Kim-Ly, she is not qualified for that: 'you have to be very outstanding to ask for that [increase of hourly rate]. I think that I'm not that level. So I cannot ask for that'.

Feelings of disempowerment in the context of rate setting are a key theme in many of the interviews with digital workers. The fierce competition between digital workers seeking earning opportunities through digital labour platforms has directly influenced many workers' strategies for securing work, often resulting in underbidding practices. These patterns relate to the skewed distributions of supply and demand for digital work: digital labour platforms can significantly expand the pool of potential workers available to employers (Beerepoot and Lambregts, 2014). No longer limited to the local market, or to physically moving to a lower-cost labour market, many employers can easily practise 'labour arbitrage', that is, buy labour from where it is cheapest. This can reduce the market power of workers relative to employers and put downwards pressure on labour prices.

There were numerous instances of workers framing their digital work experiences in accordance with these dynamics of a downward spiralling of wages. For example, Nu, a Vietnamese software tester explained that she would look at bids offered by other freelancers from different geographical locations to ensure her rate was lower. Asked how she secures digital work, she explained:

> Actually it's very simple and I think that if I set the minimum [hourly rate] so I will have more job to do. [. . .] there are many freelancers from around the world. I see a country like Philippines – they have very low rate so I need to compare to them.

Narratives of a race to the bottom emerge from interview data even in cases where participants have explicitly reflected on what they consider a fair rate for the services they offer. We heard

stories in South-east Asia from workers who have been willing to lower their rates beyond what they considered fair rates, given their qualifications and experiences. For instance, Vi, a Vietnamese translator was often willing to lower his rate, despite having set his hourly rate based on digital research and careful consideration:

> I think five cents [US$0.05 per word] is the right one. I don't want to work for less. Sometimes I will, if I really need, if I really want the job, I will ask for less. Maybe, three cents.

Similarly, the 26-year-old female Filipino virtual assistant Tala explained:

> I first set it [hourly rate] at US$8 because that's what my previous client was paying me. But I found it quite difficult to find jobs. So I set it at US$4. And I think I even set it at US$3.50 currently. So I mean, if you don't get a lot of invitations, you don't have any other choice but to lower down your expectations, I guess.

These and other examples point to the potential for a pronounced lack of bargaining power for digital workers. When explaining factors that go into decisions to lower rates, the visibility of the global pool of supply within digital labour platforms (i.e. competitors) is often mentioned.

Our qualitative data thus revealed examples of stories of disempowerment, an inability of workers to exert any significant bargaining power, and a 'race to the bottom' in wage rates. These factors sometimes have a negative impact on the lives of workers. Ashon, a Kenyan virtual assistant, for instance, has had trouble paying his rent on time and ultimately had to move to a cheaper part of Nairobi when his long-term Canadian client changed the terms of his contract, and he was unable to get other jobs. Other workers similarly spoke about the anxiety associated with uncertainty about future income. Jocelyn, a Filipino transcriber noted:

> Sometimes, I feel really worried where I can get work. What only consoles me is the thought that it's not me who is to blame why I don't get work. [. . .] It's only that there's no client available – no project available. [. . .] it's really unpredictable.

Despite these challenges, the interviews offered limited evidence of digital workers seeking to strengthen their position through collective action or acts of solidarity. Interviewees often described the global pool of supply of digital workers in terms of 'competition' rather than 'colleagues,' being fearful that other workers will take clients away from them. The imbalance between the supply and demand of work thus seems to disempower many digital workers. Concomitantly, the dispersed geography of digital work reveals examples of employment being disembedded from local norms and local moral economies that would traditionally regulate an employment relationship, and towards what might be seen as a more internationally operating entrepreneurial moral economy based more singularly upon competition.

Economic exclusion

In geographically circumscribed labour markets, certain segments of the population may be excluded from the market or one of its segments entirely, due to discrimination or occupational segregation. For example, workers may be discriminated against on the basis of religion, ethnicity, or disability (Reskin, 2000), or segregated into certain segments of the market on the basis of their gender or ethnicity (Maume, 1999). Digital labour platforms can potentially change some of these dynamics in two ways. First, they can allow workers to access geographically distant markets

where there is less discrimination or segregation. Secondly, they can allow workers to access their local market through a veil of anonymity provided by the digital medium, masking the characteristic on the basis of which discrimination occurs. Indeed, the marketing literature produced by digital labour platforms describes cases where this has reportedly happened (e.g. Elance, 2013). Our research revealed evidence of both economic inclusion of this sort, as well as examples of exclusion and discrimination (detailed in Wood et al., 2016 and Lehdonvirta et al., 2016). Below, we summarise selected findings from these articles and add significant additional evidence and interpretation.

Our research revealed examples of economic inclusion, where interviewees relayed stories of how they were unable to obtain employment or earning opportunities through their local labour markets. Temporary or permanent migrants (who moved for study or other reasons), in particular, spoke about the ways that they could now do work from places where they could not legally work because of a lack of appropriate visas or permits. Both in Malaysia and South Africa (both middle-income countries) we interviewed digital workers originating from low-income countries (Kenya, Mauritius, Lesotho and Cameroon), who explicitly framed digital work as their only option for securing work. Unable to take up employment in local labour markets, they sought to take advantage of the possibility of digital labour platforms to circumvent institutional and regulatory constraints associated with their temporary countries of residence.

Equally, digital labour platforms may, to some extent, offer economic inclusion for individuals who do not hold the educational qualifications necessary to secure traditional employment in local labour markets. For example, Jean, a Filipino transcriber in her late 20s, became pregnant while studying for a Bachelor's Degree in Mass Communication at a local university. As a consequence, she had to give up her studies, and found herself having to rely on financial support from her extended family. She explained how she had applied for jobs in the BPO sector in Manila over the course of seven years without ever being shortlisted for an interview. Jean explicitly stated that her inability to secure a job in the industry was because she did not meet the requirement of having a university degree. When she received her first transcription contract through a digital labour platform in 2012, it thus marked her first experience of professional work since her late teens.

Digital labour platforms also afford individuals who have been made redundant at a mature stage of their career the opportunity to access work. In South Africa, for example, Ellie was made redundant at the age of 42 in 2010, and found herself unable to secure a new job. She had been working in an administrative position for more than a decade, processing payments on behalf of the business' clients. Coinciding with her redundancy, her husband's business went bankrupt, causing them to lose all of their assets, including their house. Still in debt, Ellie was blacklisted and thus not allowed formally to work with sensitive financial information such as credit card details. Having unsuccessfully sought employment in the local labour market for four years, Ellie learnt about digital labour platforms through a friend in 2014. Since then, she has been writing blog posts (as part of search engine optimisation strategies) for more than 10 different clients in the US, India and the UK, charging between US$1.50 and US$2.50 per blog post. Working an average of 25 hours per week, Ellie earns between US$400 and US$600 on a monthly basis. While her hourly earnings are less than what she made while employed in the local labour market, Ellie explained that digital work was the only way for her to access any work opportunities.

Some of the women that we spoke to lived at home with their parents or extended families. They were able to combine wage labour with caring labour (see McDowell, 2015), though it was difficult to ascertain whether they were being paid a full reproductive wage. Digital labour platforms can thus improve economic inclusion by allowing people to combine paid work with other commitments, though this can also indirectly support the continuation of gendered divisions of labour.

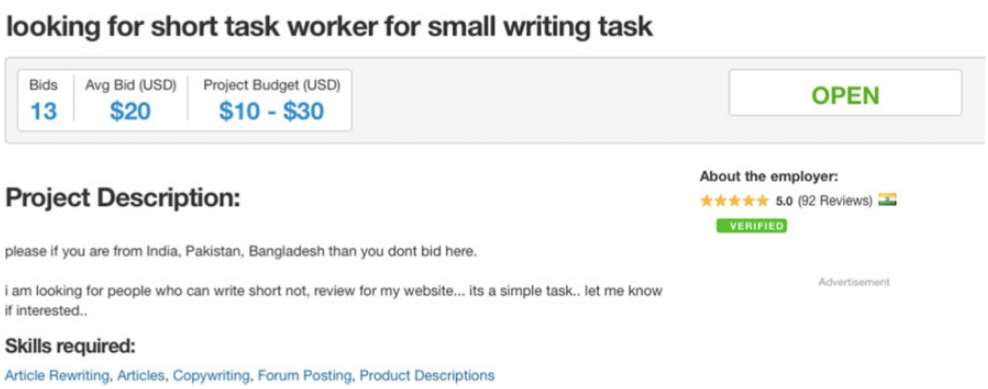

Figure 5. Screenshot from a major digital labour platform.

Besides examples of increased economic inclusion in the contexts of digital work, there is also evidence of different types of economic exclusion and discrimination. Some of the discrimination is explicit (for instance, the blatant request for South Asians not to apply for the vacancy depicted in Figure 5). Other instances are somewhat less explicit. For example, Martin, a 31-year-old content writer from Lagos believed that workers from the US or UK were far more likely to get job offers and thus spoke about ways to mask his Nigerian profile location in digital work platforms. Similarly, William 26-year-old SEO writer from the Nairobi slums often changed the geographical location listed on his profile. He explained: 'it's very discriminatory [. . .] It forces you sometimes to realign your profile to fit that job description'. Many of William's clients continue to believe that he is based in Australia. This is a necessity, he feels: 'You have to create an identity that is not you. If you want to survive online you have to do that. If you don't do that I'm telling you, nothing will come.'

Other types of discrimination are even less obvious. In South Africa, Kenya, and Nigeria, some digital workers highlighted how they experienced clients having a poorly informed understanding of the African context. Specifically, workers mentioned that clients were unable to distinguish one African country from another, clients assumed that African workers did not speak international languages like English or French fluently, clients assumed that African digital workers were uneducated, and clients assumed that African workers would be willing to work for whatever pay was offered. When asked what she would change about digital work, Janette, a South African administrative assistant in her early 30s, responded:

> People's perception of Africa. [. . .] I have come up against people whose perception of this continent as a whole is just, it's downright ignorant. [. . .] You'll talk to people and they think Nigeria is next door to South Africa, or we're all neighbourly, or the whole continent has got Ebola.

Tatiana, a Cameroonian virtual assistant living in Johannesburg with her husband and four children, encountered similar misperceptions:

> People think that when you're from Africa [. . .] Whenever they hear Africa, Africa is somewhere where people are poor, people can't even afford Internet connection. People are not really literate [. . .] That is why when I applied for a job I never send my resume.

Digital labour platforms clearly do allow many people who are disadvantaged in their local labour markets to obtain earning opportunities. However, given their limited opportunities for offline,

more conventional forms of employment, these workers may have little choice but to accept unfavourable positions in their digital work. As illustrated above, discrimination and economic exclusion can also play out in digital labour markets, and can be experienced by a range of workers supplying their labour to global clients.

Intermediation

In development studies, significant attention has been paid to the way in which value chain structures influence outcomes from international trade. A consistent finding has been that value capture is the most important imperative for actors in production chains (Coe and Yeung, 2015), and that a significant part of the value of trade in terms of earnings is captured not by producers themselves, but by intermediaries who use geographic location, networks, and other positional advantages to mediate between buyers and sellers, potentially contributing to (and reinforcing) global inequalities (Pietrobelli and Saliola, 2008). Although ICTs have contributed to the reintermediation of some commodity chains of physical products (Graham, 2011; Murphy and Carmody, 2015), because of the direct worker-client interactions that they facilitate, digital labour platforms are often expected to allow workers to circumvent some intermediaries and obtain more direct access to foreign demand (Beerepoot and Lambregts, 2014; Lehdonvirta and Ernkvist, 2011; Raja et al., 2013). This could allow workers to capture a larger share of the revenues created. In our research, we identified evidence of disintermediation, but also more surprising network patterns, such as reintermediation. These findings are presented in Lehdonvirta et al. (2015b); what follows is a summary of selected findings.

Some of the digital workers who were interviewed have successfully been able to take advantage of disintermediation. One example is Tran, a 30-year-old Vietnamese software developer, living with his wife and 6-month-old daughter in Ho Chi Minh City. Immediately after graduating with a degree in Computer Science in 2007, Tran got a job at a Swiss software development company in Ho Chi Minh City. This job allowed Tran to acquire new skills; he learnt how to develop applications for mobile phones for a wide variety of international clients of the Swiss company. When turning to digital freelancing on a full-time basis in 2010, he was thus able to take on complex programming tasks. Through digital labour platforms, he began working directly with clients based in the US, Canada, India and New Zealand. Over time, he and his clients developed a trusting relationship through repeated interaction. Consequently, Tran and his clients soon began performing business together outside of the digital platforms; thus cutting out another intermediary and link in the global value chain.

Digital freelancing allowed Tran to increase significantly his income while achieving a work/life balance that better suited him. When formally employed as a software developer, Tran made a maximum of US$25,000 per year; in 2014, doing digital freelancing, he brought in US$40,000 (charging US$22 per hour, or, on average, US$5000 per mobile app). Through this disintermediation afforded by the digital labour platforms, he explicitly considered himself detached from any unfair practices enacted by foreign companies operating in Vietnam.

A more surprising finding to emerge from the interviews, however, is that digital labour platforms do not only provide opportunities for disintermediation. Instead, there were numerous stories about reintermediation, often leading to exploitation of digital workers with limited visible experience and feedback on digital platforms. Interviewees suggested that, in many cases, the relatively direct connection between the client and the worker is only temporary. Some successful digital workers become intermediaries themselves, taking on more work than a single person can handle, and hiring other workers on the platform to carry out the work for them (as illustrated in the following cases).

In the Philippines, the digital transcriber Jean, for example, reported that she was predominantly only able to secure transcription work from other digital freelancers who had acquired sufficient feedback scores (often 500+ reviews) to attract large volumes of work from end-clients. This interviewee noticed that these reintermediaries were more exploitative than the few end-clients she had interacted with. The reintermediaries would typically only allow for a two to four hour turn-around time (whereas end-clients typically allow for days), just as they paid workers only a small fraction of what they themselves received for the tasks.

A similar example is that of Dalale, a 26-year-old Mauritian woman, studying for a master's degree in English Literature at a university in Kuala Lumpur. She has done digital work for the past two years, writing articles and blog posts to improve the search engine optimisation of various businesses. However, Dalale rarely works directly with the end-clients. Her clients are, for the most part, other digital freelancers who have developed strong digital profiles, characterised by high numbers of positive feedback ratings[6], making them able to attract a much larger number of tasks at much higher rates that Dalale herself is able to. Dalale knows this because she often notices that jobs she has unsuccessfully applied for are reintroduced to the market by another digital freelancer. For example, once she applied for a SEO writing task, suggesting a price of US$15 rather than the listed suggestion of US$50. She later discovered that the job went to another digital freelancer who had requested a price of US$23. This contractor subsequently offered the job to Dalale for just US$3.50. While Dalale accepts tasks from these reintermediaries (although not without explicitly pointing out that they are unfair), she finds that the lack of direct interaction and communication with end-clients makes it very difficult to understand the full task requirements, making the writing process more challenging.

There are two ways to interpret these types of reintermediation of work. It can be viewed as rent-seeking behaviour, where contractors who have a competitive advantage in attracting clients use that advantage to position themselves between the end-client and the digital worker delivering the actual work. Many digital workers suggested that the greatest source of such competitive advantage on digital labour platforms is the official track record automatically displayed in each contractor's profile: 'reputation score' and list of 'previous projects completed'. Given the limited means to evaluate candidates over the Internet, clients are very likely to pick a candidate with the most impressive track record. That candidate can then forward the task to a competitor with less reputational capital, adding no value to the process, but gaining yet another entry into their own track record. This creates a positive reinforcement loop that greatly favours the first mover.

There are cases where the new intermediaries do add value to the process. For instance, they can perform quality control over the subcontractors' deliverables to retain a strong reputation rating.[7] They also have to break larger tasks into smaller pieces, find subcontractors for each piece, and manage work schedules. These examples of functional upgrading (a supplier taking on new roles in

6 It is hard to overstate just how important feedback scores were to the process of finding work. Some workers revealed that it took them years of constant effort to find their first job because most clients do not trust workers with no feedback.

7 Broadly, reintermediation appears to be important for the completion of high volumes of tasks that require a high level of trust. And while online labour markets attempt to treat labour as a commodity, often they are mediating labour power. In other words, buyers need a way of ensuring that labour power can be actually translated into labour. The reintermediations that we observed thus appear to be part of a process of capital transforming labour markets that have been designed with ideological views of how markets should operate (something that Marx, 1990, and many after him have observed). Those transformations provide clients with a trusted intermediary, whilst intermediaries take on the role of a foreman: supervising the tasks of lower-level workers.

the chain at higher added value) are desirable inasmuch as they allow low-income workers to capture more value. However, if only a small number of functionally upgraded suppliers are able to establish themselves as chokepoints in the chain, the developmental effects of this sort of work can be highly uneven.

Skill and capability development

Disintermediation is conceptually linked to functional upgrading, or increasing the scope of functions performed by the producer in the value chain (Kaplinsky and Morris, 2001). In other words, disintermediation provides producers with the opportunity to attempt to perform higher value-added services. Simply being positioned closer to customers can give producers opportunities to learn more about customer needs and to develop corresponding skills and capabilities (Dicken, 2010). Since work carried out through digital labour platforms is usually associated with disintermediation and the potential to link up with customers more directly, it is often expected to result in functional upgrading and movement towards higher value-added work in service chains (Beerepoot and Hendriks, 2013; Graham and Mann, 2013; Lehdonvirta and Ernkvist, 2011). We have touched on some of these issues in Lehdonvirta et al. (2015b) and Wood et al. (2016), but a full analysis remains to be done; what follows is a discussion of the key issues based on examples from the data.

One example of functional upgrading in our data is the case of 27-year-old Joseph living in Nairobi. After completing his university degree, Joseph was never able to get a job related to his expertise area, procurement. The only job he could get was as a cashier in a supermarket, where he worked for two years (12–14 hours per day, 7 days a week) earning a monthly salary of US$300. Since 2012, he has been doing 'lead generation' and currency (Forex) trading. Asked if he had learnt anything from his digital work, he responded:

> Yeah, like the forex knowledge. I have learnt new skills on computers. [. . .] I am considering trading with my own account since I consider myself now qualified. [. . .] For the Forex client, I have seen him make a lot of money.

However, ICT-enabled outsourcing can also make it easier for workers to be kept at an arm's length from core business processes, hindering knowledge flow from the core to the periphery and thus perpetuating rather than erasing skill and capability disparities (Pietrobelli and Rabellotti, 2011). A key theme to emerge in interviews with digital workers was the common practice of clients withholding contextual information about their business and/or the tasks they outsource through digital labour platforms. Many digital workers explained that they know very little about the clients they are working for. Mindo, a Filipino data entry worker in his mid-20s, for example, said about his client: 'I really don't have any idea on what kind of e-commerce site that he has. [. . .] We only talked about how it will be done and the output that he needs.'

Some workers also expressed a pronounced reluctance to probing clients for information relating to their core business, suggesting that they are only entitled to the knowledge volunteered by clients through text offered in task descriptions (which is often very limited, see Figures 1 and 5).

Moreover, in numerous cases when digital workers have asked their clients for further clarification, they report on being met with silence. The Vietnamese software Nu tester noted that:

> For the employer on [digital platform] it's very hard to deal with the plan with them. [. . .] Because on [digital platform] when they have a big project, they just share with us very small model inside

> [. . .] So I try to write a lot of question but they could not answer because they don't want to answer. [. . .] They say to us to develop this and apply into the system but we . . . we actually didn't know what is the big picture.

Digital workers are thus, in many cases, kept at arm's length, unable to access information about the wider chain their labour forms part of. Those digital workers are unsure of what function their tasks serve; what the meaning of tasks are, or how their work is put into use by end-clients. Furthermore, only some digital workers were able to articulate or make qualified guesses as to how their clients derive value from the labour they performed. Despite the theoretical potentials for digital markets to afford disintermediated connections between workers and end-clients, there are workers who remain unaware about not just the purpose of the work they do, but also who exactly it is that ultimately requests it.

These information asymmetries afford little in terms of providing digital workers with the possibilities of upgrading their skills in order to take on new functions or positions in the value chains in which they are embedded. Rather, information asymmetries enforced by clients inhibit workers' ability to upgrade skills: something that is only possible if knowledge is available about the end-uses to which their labour is put.

In the context of skill and capability development, it is also worth noting that many digital workers performed low-skill tasks that did not correspond with their existing skill set, professional experiences and expertise. Kim-Ly, in Vietnam, holds a degree in economics and has accounting experience in the local labour market, but performs low-skill data entry tasks after switching to accessing work through digital labour platforms. Despite her qualifications, she was not able to find digital work that used her specialised skills, and she found it difficult to transfer her offline skills into her digital work trajectory. The fact that clients did not recognise the capacities of digital workers frustrated freelancers like William (mentioned earlier): 'people [clients] don't really care what you know. In Kenya you're given a job: "do this". You don't have to put your kind of skills [to use], you do what you're told.'

Possible implications for policy and practice: four strategies

The confluence of rapidly spreading digital connectivity, skilled but under-employed workers, the existence of international markets for labour, and the ongoing search for new outsourcing destinations (see Palugod and Palugod, 2011), has resulted in organisational, technological, and spatial fixes for virtual production networks of services and money (Coe and Yeung, 2015). This article offers a vision that diverges from much of the hope and hype about the potentials of digital labour for economic development within those fixes. What is still needed is more detailed empirical inquiry into flows of value in the sector, and further research about who creates it, who captures it, how flows are being reconfigured and who benefits from those reconfigurations, and about whether we see sustainable or dependent local linkages, knowledge spillovers, and impacts on local economies and communities.

Yet, even with the work presented in this article, there is much that has been revealed. We see that a global, but uneven, market for digital labour exists with a significant imbalance between the supply and demand of work. Frictions of distance have not been eliminated (Graham et al., 2015): they have rather been warped to enable new spatial fixes for digital work. As Harvey (2008) notes, 'the perpetual need to find profitable terrains for capital-surplus production and absorption shapes the politics of capitalism.' In the contexts of scarce labour and high wages, capital needs to find ways of disciplining labour power. Digital labour is effective in this regard because it encourages

both 'technologically induced unemployment' in high-wage economies (through the offshoring of work), and, in some cases, the 'proletarianization of hitherto independent elements of the population' (Harvey, 2008, np).

Furthermore, the interviews have demonstrated that not only do market mechanisms seem to serve clients more effectively than workers, but the market itself is skewed in ways that can further exacerbate inequality among those seeking jobs. There are tangible benefits for those that make it through the barriers of reputation and ranking systems. There is harm suffered by those that do not. There is tedium, loneliness, alienation[8], but also empowerment. There are new jobs for many who crave and need them, but inherent precariousness and nothing at all resembling job security. And more structurally, there is a transfer of risk and responsibility. As Coe and Yeung (2015: 110) have argued, 'global production networks are fundamentally an organisational platform for economic actors to mitigate the different forms of risk.' Virtual production networks are no different; but, in this case, the presence of a labour reserve of millions of potentially replaceable workers attempting to underbid each other through markets means that it becomes easier to place the burden of risk onto workers themselves. Clients absolve themselves of most of it, platforms absolve themselves of most of it, and workers are left as the ones most exposed to it.

The ultimate goal of the research on which this article is based is to allow for insights into who it is that contemporary practices of digital labour ultimately benefit. There is no simple story of exploitation and many of the workers that we spoke to were indeed happy to have a job and happy with the wages that they received. But nor is digital work a straightforward pathway to economic development for a broad base of workers. If we accept that practices of work in the capitalist world system have always been characterised by exploitation and power imbalances between labour and capital, then it seems odd to think that there was even a suggestion that digital mediations of work would do anything other than amplify those processes.

Digital tools and digital connectivity have certainly allowed new digital divisions of labour to be brought into being. But this does not mean that a flat marketplace, in which all participants have access to a perfect amount of information, has been created. Rather, geography has been bridged in some key ways: allowing work and money to be almost seamlessly transferred and transacted between anywhere on Earth. But, in other ways, this dispersed geography is used against workers: opaque production networks conceal exploitative work practices from end-customers and end-clients; a lack of co-presence and an international labour pool of digital workers makes it hard to both organise place-based struggles for worker rights (e.g. picket lines) and enact solidarity with fellow workers on the other side of the planet (see Graham, 2016; Lehdonvirta, 2016); and the ownership and control of labour platforms in just a few unaccountable hands means that work tends to be performed outside of the purview of national governments: minimum wages, worker protections, and even taxes[9], seem to be optional rather than required for both the platforms and the clients that source work through them.

But this is just one vision for the Internet and digital labour. If we see the Internet as bringing into being a separate space in which states 'have no sovereignty where we gather' (Barlow, 1996) and all actors are able to participate equally in a global marketplace, then we might see no alternatives to current configurations of digital labour. Envisioning the Internet as an alternate sphere or space allows digital work platforms and practices to be presented as not just unregulated, but also unregulatable.

8 As shown in Wood et al. (2016).

9 Very few workers whom we interviewed admitted to paying taxes on earnings.

But the Internet does not exist in some alternate sphere. It is always and already spatially grounded in people and institutions (see Graham, 2013). Thus, building on Peck's (2002) call to avoid painting the 'global' as an unruly domain that is effectively beyond regulation, our mappings have shown digital work to be trans-scalar, but characterised by distinct networks and geographies: transnational, but never geographically disembedded. And that starting-point is what is needed to rethink what alternate futures for digital labour might look like. In order to achieve better wages and ways of attaining more stable contracts, we outline four broad possibilities (that combine class politics, occupational politics, identity politics, and reproduction politics) that might alter what Piven and Cloward (2000) refer to as the existing 'power repertoires' between capital and labour[10]: market-based strategies, labour rights strategies, regulatory strategies, and reconsiderations of the digital means of production.

Market-based strategies

Because transnational flows of commodities and work frequently involve long, complex, mediated, and opaque production networks, a range of info-mediaries have emerged to analyse critically working and production conditions in upstream nodes on supply chains. For instance, consumer watchdog magazines like *Which?*, *Consumer Reports*, and *Stiftung Warentest* seek to reveal information that sellers of end-products often wish to conceal. Organizations involved in certification schemes (such as Fairtrade and The Rainforest Alliance) attempt to ensure that minimum standards are adhered to, and activist organisations like Sourcemap and Wikichains aim to increase informational transparency in supply chains (Cook, 2004; Kleine, 2015).

The idea underpinning all of this work has been that ICTs could be used not just to facilitate the easy geographic movement of products and services, but also to facilitate a more transparent geographic flow of information about those products and services. If consumers or buyers have more information about products and production practices, then it becomes less likely that firms would be willing to engage in ethically dubious practices (Hartwick, 2000; Graham and Haarstad, 2011). However, thus far, most of these initiatives have used physical goods (like a chocolate bar or a wooden table) as a mechanism to peer backwards through production networks. The rise of digital labour presents a different issue, as outputs have a less solid form. In other words, it could be more challenging to trace the origins of all labour that goes into the configuration of a search engine's results page than it is to trace who was involved in the production of a bag of coffee.

But that should not deter organisations from trying. Strategies of consumer watchdogs, certification schemes, and activist organisations could be emulated and applied to the contexts of digital work. The International Association of Outsourcing Professionals (IAOP) could, for instance, update its ethical standards to be more in line with the worker protections needed in a digital economy. An organisation could also be established to certify that core ILO labour standards are obtained (see Burchell et al., 2014)[11]; but also that workers are paid living wages, have appropriate social and economic protections, and are not saddled with an undue amount of risk. It could be argued that a lot of exploitative digital labour occurs because end-users and even private buyers of work are unaware of the nature of practices upstream in the production network. Organisations

10 After Held et al. (1999), we also wish to avoid painting power as anything but a relational phenomenon. As such, we do not wish to claim that strategies that work in one place and time will necessarily work in other contexts.

11 The Fair Trade Software Foundation already attempts to do something along these lines for software development.

committed to transparency and identifying best practices could do much to improve working conditions (see Wright and Brown, 2013, for a similar argument).

Labour rights strategies

In the history of labour struggles, workers have been able to withdraw labour in order to secure improved working standards. Yet, the very nature of digital labour means that workers can find it hard to do so. Digital workers have been unable to build any large-scale or effective digital labour movements. This is not only because many of them simply don't know each other, but also because there is an understanding that if they withdraw their labour, then workers in other parts of the world are able quickly to replace them. Digital work platforms are designed always to remind workers that they are a market – and one in which workers from all over the world are supposed to compete with one another to offer the most favourable terms possible to clients.

What, then, can be done to counter systems that make it so challenging for workers to mount any sort of place-based activism? First, current conditions for workers mean that this could be a fruitful time for efforts that attempt to foster common class-consciousness amongst digital workers (Huws, 2009; Graham and Wood, 2016), and perhaps even the creation of a transnational digital workers union or trade secretariat.[12] This could be an organisation with more ambitious aims than the current 'Freelancers Union' (that aims to assist workers in navigating through current unstable networks of work rather than attempting to change them) and wider geographic reach than the vast majority of existing trade unions.[13] But as Wright and Brown (2013) and Burawoy (2011) alternatively point out, the internationalising of product markets has undermined the possibilities for multi-owner collective bargaining. Such strategies could alternatively follow Moody's (1997) vision of transnational 'social movement unionism' that calls for loose, but inclusive, alliances between various social movements to campaign on single issues or causes. Large organisations that contract out digital work could be encouraged or pressured to work only with union workers. But this strategy will only get so far, as there will always be employers and clients threatened by such a strategy.

A second strategy could be building on what Hyman (1999: 94) refers to as 'imagined solidarities,' in order to enact digital 'spaces' of resistance or what Harvey (1995) terms 'militant particularisms'. Although a lack of physical co-presence inhibits the ability of workers to identify one another, the same networks that are mediating their work can be harnessed to create digital picket lines. In the same way that co-present picket lines aim to disrupt the ability to conduct business as usual, digital ones could be formed to disrupt the digital presence of employers. Digital workers already make extensive use of affordance like Facebook groups, sub-Reddits, Zello (an Internet-based walkie-talkie app), and the innovative Turkopticon (a browser plugin that allows Amazon Mechanical Turk workers to rate employers) in order to coordinate, share complaints,

12 Indeed, the uproar amongst workers in 2016 after a major digital labour platform unilaterally raised the commission that they take for contracts reveals some of the channels that workers from very different parts of the world used to coordinate with one another (they were, however, unable to mount any effective response).

13 Other current attempts at unionising digital workers still often take geography as a starting point for organising strategies (see, for instance, the app-based driver's association [http://www.teamstertnc.org/]), and have thus-far been unable to empower a transnational group of workers to be able to bargain collectively.

share work opportunities, and give feedback to one another (see some examples in Figure 6). Those same networks could then be potentially used for practices like 'Google-bombing'[14] the web-presence of irresponsible employers, mass action to encourage other workers temporarily to avoid a particular employer, and the mass-messaging of both workers and business partners with messages and letters explaining what the key reasons for the action are. In short, a full and targeted attempt at digital disruption.

However, the question remains that proximity and physical co-presence may indeed be needed for mass and effective forms of worker solidarity. The digital contexts in which digital disruption would need to take place are highly controlled, regulated, and algorithmically opaque: factors that make it challenging to disrupt or picket any employer. Furthermore, because of the non-transparent nature of digital production networks, the strategies mentioned above are unlikely to work for larger employers. As such, what may be needed is a reconsideration of how the digital means of production are governed and regulated.

Regulatory strategies

Not only has the dispersed and global nature of digital work platforms made it extremely challenging for digital workers to organise effectively, it has also made it difficult to lobby politicians to represent their interests. Unlike global networks of digital work, policy-makers are confined by political boundaries and can only necessarily regulate a piece of a much larger network.

However, as Figure 2 demonstrates, only a handful of countries are home to the majority of demand for digital work. It is in those strategic points (because of their network centrality) that both labour and consumers potentially have more agency (Coe and Jordhus-Lier, 2011; Selwyn, 2012): thus opening up space in those places for regulations being enacted to govern how clients should treat their workers irrespective of location. Regulations could cover minimum hourly rates based on a living wage in the worker's country of residence (see Galbraith, 1995) and rights to additional protections and severance packages after workers have been employed for a pre-defined period of time. In short, they could be built on top of a more inclusive definition of employment, and a vision that digital labour platforms should be re-embedded into the norms and moral economies of material labour markets. There is currently very little political will to achieve these objectives in core buyer countries, but that does not mean that any of them are impossible.

Political-economy strategies

Finally, it is worth remembering that the existence of the global-scale many-to-many trading of labour is only currently possible because of the existence of digital platforms. These platforms extract rents from every transaction[15] and set key rules that govern how workers and clients interact with each other (it is worth noting that the platform's power can usually trump that of not just workers, but also clients). They also design their digital contexts to provide some kinds of affordances and not others; encouraging competitive production relations through reverse auctions instead of cooperative production relations, but also potentially reducing inequalities, such as when

14 'Google-bombing' refers to guerilla search engine optimisation strategies that are designed to manipulate the algorithmic filters of search engines in order to make certain topics more (and less) visible and findable.

15 This does not just mean financial rents. As Sipp (2015) notes, unlike almost any other type of work, digital work platforms do not allow workers to even own their own reputational capital.

Figure 6. Screenshots from reddit.com and the 'Awesome Transcribers in Kenya' Facebook group.

prejudice based on nationality is overcome by the provision of verifiable information on workers' skills (Agrawal et al., 2013).

More broadly, it is worth remembering that it is not the existence of platforms themselves that are creating demand for digital work. Clients in some parts of the world need to complete certain tasks, and workers in other parts of the world need an income. Platforms play a key role in organising relationships between the two parties. But other types of organisation are possible.

It would therefore be possible to reconsider who owns the digital means of production. Just as there have previously been both consumer- and worker-led pressures to transact with cooperative building societies and cooperative supermarkets instead of privately held banks and shops, there could similarly be movements to work with cooperatively managed platforms (see, for instance, the pioneering work done by Scholtz, 2016a, b, in this area). The desire to connect geographically disparate clients and workers is not one that will go away and digital platforms are central nodes of control and extraction. We therefore can ask what greater democratic control over the production and utilisation of surplus would look like.

Concluding remarks

This article has demonstrated that although digital work is now a global phenomenon, it is characterised by distinct geographies. Some workers are able to thrive in platforms that reward entrepreneurialism by skilfully building their ranking scores, aligning their self-presentation with the needs of clients, and re-outsourcing tasks to be performed for even lower wages. These positive impacts on the lives of digital workers, that are often touted by promoters and supporters of digital labour in the contexts of international development, are grounded within discourses of individualisation (Murphy and Carmody, 2015), and are often framed in contrast to the alternative: mass unemployment.[16] However, our article has argued that a focus on structural issues is also needed. By highlighting four key concerns in a global, but uneven, marketplace for digital labour, we can instead begin to address some of the ways that digital labour might not best serve goals of economic development.

Some of the frictions that are identified (e.g. imperfect information and alienation, discrimination, the liability of foreignness), serve to harm or discriminate against workers who are unable to navigate the complexities of a digital work marketplace. The bargaining power of workers is undermined by the size and scope of the global market for labour; the anonymity that the digital medium affords is a double-edged sword, facilitating some types of economic inclusion, but also allowing employers to discriminate at will; disintermediation is occurring in some instances, but the combination of the existence of a large pool of people willing to work for extremely low wages and the effects of the importance of rating and ranking systems, is also encouraging enterprising individuals to create highly mediated chains; and those mediated and opaque chains are, in turn, restricting the abilities of workers to upgrade within them. Future research will be able to focus specifically on the frequency with which these issues occur and the ways in which they variably impact on different people in different parts of the world.

These findings have important implications as digital labour is presented as a tool for economic development. Governments like those of Nigeria, Malaysia and the Philippines, and large organisations like the World Bank, are increasingly coming to view digital labour as a mechanism for

16 Or as the economist Joan Robinson (1962: 21) noted, 'the misery of being exploited by capitalists is nothing compared to the misery of not being exploited at all.'

helping some of the world's poorest escape the limited opportunities for economic growth in their local contexts. As Coe and Yeung (2015, 193) note, uneven power relations existed long before global production networks were brought into being, and are necessarily 'enmeshed in relations of inequality'; it is therefore worth asking why it is that we might expect digital labour and the platforms that mediate it to level the field. At this nascent stage, it is therefore important to reflect not just on what we already know about the uneven geographies of digital labour and the frictions faced by digital workers, but also to envision alternatives and strategies that might bring a fairer world of work into being.

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References

Agrawal A, Lacetera N and Lyons E (2013) Does information help or hinder job applicants from less developed countries in online markets? NBER Working Paper Series 18720. National Bureau of Economic Research.

Bain P and Taylor P (2008) United by a common language? Trade union responses in the UK and India to call centre offshoring. *Antipode* 40: 131–154.

Barlow JP (1996) A declaration of the independence of cyberspace. 19 May. Davos, Switzerland. Available at: https://www.eff.org/cyberspace-independence (accessed 20 December 2016).

Beerepoot N and Hendriks M (2013) Employability of offshore service sector workers in the Philippines: opportunities for upward labour mobility or dead-end jobs? *Work, Employment and Society* 27: 823–841.

Beerepoot N and Lambregts B (2014) Competition in online job marketplaces: towards a global labour market for outsourcing services? *Global Networks* 15: 236–255.

Bryson J (2007) The second global shift: the offshoring or global sourcing of corporate services and the rise of distanciated emotional labour. *Geografiska Annaler: Series B, Human Geography* 89: 31–43.

Burawoy M (2011) On uncompromising pessimism: response to my critics. *Global Labour Journal* 2: 73–77.

Burchell B, Sehnbruch K, Piasna A et al. (2014) The quality of employment and decent work: definitions, methodologies, and ongoing debates. *Cambridge Journal of Economics* 38: 459–477.

Chew Kuek S, Paradi-Guilford S, Fayomi T et al. (2015) *The Global Opportunity in Online Outsourcing*. Washington: World Bank.

Coe NM and Jordhus-Lier DC (2011) Constrained agency? Re-evaluating the geographies of labour. *Progress in Human Geography* 35: 211–233.

Coe N and Yeung H W-C (2015) *Global Production Networks: Theorizing Economic Development in an Interconnected World*. Oxford: Oxford University Press.

Cook I (2004) Follow the thing: papaya. *Antipode* 36: 642–664.

Dicken P (2015) *Global Shift*. 7th ed. London: Sage.

Elance (2013) *Elance Annual Impact Report 2013*. Available at: https://www.elance.com/q/sites/default/files/docs/AIR/AnnualImpactReport-small.pdf (accessed 21 December 2016).

Fichter M, Helfen M and Sydow J (2011) Employment relations in global production networks: initiating transfer of practices via union involvement. *Human Relations* 64: 599–622.

Galbraith JK (1995) A global living wage. In: Crouch C and Marquand D (eds) *Reinventing Collective Action*. Oxford: Blackwell, pp. 54–60.

Gereffi G, Humphrey J and Sturgeon T (2005) The governance of global value chains. *Review of International Political Economy* 12: 78–104.

Ghani E, Kerr WR and Stanton C (2014) Diasporas and outsourcing: evidence from oDesk and India. *Management Science* 60(7): 1677–1697.

Graham M (2011) Disintermediation, altered chains and altered geographies: the internet in the Thai silk industry. *Electronic Journal of Information Systems in Developing Countries* 45(5): 1–25.

Graham M (2013) Geography/internet: ethereal alternate dimensions of cyberspace or grounded augmented realities? *The Geographical Journal* 179: 177–182.

Graham M (2016) Digital work marketplaces impose a new balance of power. *New Internationalist*. 25 May. Available at: https://newint.org/blog/2016/05/25/digital-work-marketplaces-impose-a-new-balance-of-power/ (accessed 21 December 2016).

Graham M and Haarstad H (2011) Transparency and development: ethical consumption through web 2.0 and the internet of things. *Information Technologies and International Development* 7: 1–18.

Graham M and Mann L (2013) Imagining a Silicon Savannah? Technological and Conceptual Connectivity in Kenya's BPO and Software Development Sectors. *Electronic Journal of Information Systems in Developing Countries* 56(2): 1–19.

Graham M and Wood A (2016) Why the digital gig economy needs co-ops and unions. *openDemocracy*, 15 September 2016.

Graham M, Andersen C and Mann L (2015) Geographical Imagination and Technological Connectivity in East Africa. *Transactions of the Institute of British Geographers* 40(3): 334–349.

Hartwick E (2000) Towards a geographical politics of consumption. *Environment and Planning A: Society and Space* 32: 1177–1192.

Harvey D (1989) *The Urban Experience*. Oxford: Blackwell.

Harvey D (1995) Militant particularism and global ambition: the conceptual politics of place, space, and environment in the work of Raymond Williams. *Social Text* 42: 69–98.

Harvey D (2008) The right to the city. *New Left Review*. 53(September/October). Available at: http://newleftreview.org/II/53/david-harvey-the-right-to-the-city (accessed 21 December 2016).

Held D, McGrew A, Goldblatt D et al. (1999) *Global Transformations*. Cambridge: Polity.

Herod A (2001) *Labor Geographies*. New York: Guilford Press.

Hjorth I, Graham M and Lehdonvirta V (2015) Microwork and virtual production networks in sub-saharan Africa and South East Asia. *Year 1 Technical Report prepared for the International Development Research Centre (IDRC)*.

Horton J (2010) Online labor markets. In: *Internet and Network Economics*, 6th International Workshop, Proceedings. Berlin: Springer. Available at: http://john-joseph-horton.com/papers/online_labor_markets.pdf (accessed 21 December 2016).

Hudson R (2001) *Producing Places*. New York: Guilford Press.

Huws U (2009) The making of a cybertariat? Virtual work in a real world. *Socialist Register* 37(37): 1–13.

Hyman R (1999) Imagined solidarities. In: Leisink P (ed.) *Globalization and Labour Relations*. Cheltenham: Edward Elgar, pp. 94–115.

International Labour Organization (2014) *World of Work Report 2014*. Geneva: International Labour Organization.

International Labour Organization (2015) *World Employment Social Outlook*. Geneva: International Labour Organization.

Irani L (2015) Difference and dependence among digital workers: the case of Amazon Mechanical Turk. *South Atlantic Quarterly* 114(1): 225–234.

ITU (2016) *ICT Facts and Figures 2016*. Geneva: International Telecommunications Union. Available at: http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2016.pdf (accessed 21 December 2016).

Kalleberg AL (2009) Precarious work, insecure workers: employment relations in transition. *American Sociological Review* 74(1): 1–22.

Kaplinsky R (2004) Spreading the gains from globalization: what can be learned from value chain analysis? *Problems of Economic Transition* 47: 74–115.

Kaplinsky R and Morris M (2001) *A Handbook for Value Chain Analysis*. Ottawa: International Development Research Centre.

Kenney M and Zysman J (2016) The rise of the platform economy. *Issues in Science and Technology* 32(3): 61–69.

Kleine D (2015) Putting ethical consumption in its place: geographical perspectives. In: Shaw D, Newholm T, Chatzidakis A and Carrington M (eds) *Ethics and Morality in Consumption: Interdisciplinary Perspectives*. London: Routledge, pp. 116–137.

Kässi O and Lehdonvirta V (2016) Online labour index: measuring the online gig economy for policy and research. Paper presented at *Internet, Politics & Policy 2016*, Oxford, 22–23 September. Available at: http://ilabour.oii.ox.ac.uk/online-labour-index/ (accessed 21 December 2016).

Lambregts B, Beerepoot N and Kloosterman RC (2016) *The Local Impact of Globalization in South and Southeast Asia: Offshore business processes in services industries*. London and New York: Routledge.

Lehdonvirta V (2016) Algorithms that divide and unite: delocalization, identity, and collective action in 'microwork'. In: Flecker J (ed.) *Space, Place and Global Digital Work*. London: Palgrave-Macmillan, pp. 53–80.

Lehdonvirta V, Barnard H, Graham M et al. (2014) Online labour markets – leveling the playing field for international service markets? Paper presented at *Internet, Politics & Policy 2016*, Oxford, UK, 25–26 September.

Lehdonvirta V, Barnard H, Graham M et al. (2015a) The liability of origin in online labour markets. Paper presented at the *Fourth Global Conference on Economic Geography*, Oxford, UK, 19–23 August.

Lehdonvirta V, Barnard H, Kässi O et al. (2016) 'Not a Lot of People Know Where It Is': Liabilities of Origin in Online Contract Work. Paper presented at *SASE Annual Conference 2016*, Berkeley, 24–27 June.

Lehdonvirta V and Ernkvist M (2011) *Knowledge Map of the Virtual Economy*. Washington: World Bank.

Lehdonvirta V, Hjorth I, Graham M et al. (2015b) Online labour markets and the persistence of personal networks: evidence from workers in Southeast Asia. Paper presented at *American Sociological Association Annual Meeting 2015,* Chicago, 22–25 August.

Malecki E and Moriset B (2008) *The Digital Economy*. Oxford: Routledge.

Manning A (2003) *Monopsony in Motion: Imperfect Competition in Labor Markets*. Princeton, NJ: Princeton University Press.

Marx K (1990) *Capital: A Critique of Political Economy, Volume 1*. Translated from the German by Ben Fowkes. London: Penguin Classics. (Original work published 1867)

Maume DJ Jr (1999) Glass ceilings and glass escalators: occupational segregation and race and sex differences in managerial promotions. *Work and Occupations* 26: 483–509.

McDowell L (2015) Roepke lecture in economic geography—the lives of others: body work, the production of difference, and labor geographies. *Economic Geography* 91: 1–23.

Moody K (1997) *Workers in a Lean World*. London: Verso.

Murphy JT and Carmody P (2015) *Africa's Information Revolution: Technical Regimes and Production Networks in South Africa and Tanzania*. London: Wiley.

Neff G (2012) *Venture Labor: Work and the Burden of Risk in Innovative Industries*. Cambridge: MIT Press.

Palugod N and Palugod P (2011) Global trends in offshoring and outsourcing. *International Journal of Business and Social Sciences* 2: 13–19.

Parker G, Van Alstyne M and Choudary S (2016) *Platform Revolution: How Networked Markets Are Transforming the Economy*. New York: W.W. Norton.

Peck J (2002) Political economies of scale: fast policy, interscalar relations, and neoliberal workfare. *Economic Geography* 78: 331–360.

Pietrobelli C and Rabellotti R (2011) Global value chains meet innovation systems: are there learning opportunities for developing countries? *World Development* 39: 1261–1269.

Pietrobelli C and Saliola F (2008) Power relationships along the value chain: multinational firms, global buyers and performance of local suppliers. *Cambridge Journal of Economics* 32: 947–962.

Piven F and Cloward R (2000) Power repertoires and globalization. *Politics and Society* 28: 413–430.

Raja S, Imaizumi S, Kelly T et al. (2013) *Connecting to Work: How Information and Communication Technologies Could Help Expand Employment Opportunities*. Washington: World Bank.

Reskin BF (2000) The proximate causes of employment discrimination. *Contemporary Sociology* 29: 319–328.

Robinson J (1962) *Economic Philosophy: An Essay on the Progress of Economic Thought*. London: Transaction Publishers.

Scarbrough H (2000) The HR implications of supply chain relationships. *Human Resource Management Journal* 10: 5–17.

Scholz T (2013) *Digital Labor: The Internet as Playground and Factory*. New York: Routledge.

Scholtz T (2016a) *Platform Cooperativism: Challenging the Corporate Sharing Economy*. New York: Rosa Luxemburg Stiftung.

Scholtz T (2016b) *Ours to Hack and to Own*. New York: OR Books.

Selwyn B (2012) Beyond firm-centrism: re-integrating labour and capitalism into global commodity chain analysis. *Journal of Economic Geography* 12: 205–226.

Sipp K (2015) Because it is my name. *Hack the Union: The Future of Worker Organising*. Available at: http://www.hacktheunion.org/2015/07/07/because-it-is-my-name/ (accessed 21 December 2016).

Swyngedouw E (1997) Excluding the other: the production of scale and scaled politics. In: Lee R and Wills J (eds) *Geographies of Economies*. London: Arnold, pp. 167–176.

UNCTAD (2009) *Information Economy Report 2009*. New York: United Nations Conference on Trade and Development.

Wood AJ, Graham M, Lehdonvirta V et al. (2016) Virtual Production Networks: Fixing Commodification and Disembeddedness. *The Internet, Policy & Politics Conference*: Oxford Internet Institute, University of Oxford, 22 September 2016.

World Bank (2016) *World Development Report 2016: Digital Dividends*. Washington: World Bank. DOI:10.1596/978-1-4648-0671-1.

Wright CF and Brown W (2013) The effectiveness of socially sustainable sourcing mechanisms: assessing the prospects of a new form of joint regulation. *Industrial Relations Journal* 44: 20–37.