

Platform Labour Unrest in a Global Perspective: How, Where and Why Do Platform Workers Protest?

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Charles Umney 

University of Leeds, UK

Mark Stuart

University of Leeds, UK

Ioulia Bessa 

University of Leeds, UK

Simon Joyce

University of Leeds, UK

Denis Neumann

University of Leeds, UK

Vera Trappmann 

University of Leeds, UK

Abstract

Labour unrest by platform workers is a growing global phenomenon, but several questions require deeper understanding. What motivates platform labour unrest? Which actors and strategies are involved? How does this vary across regions? Systematic answers are hindered by the lack of large datasets. Uniquely, this article analyses a global dataset comprising 1271 instances of platform

Corresponding author:

Charles Umney, Leeds University Business School, Maurice Keyworth Building, Moorland Road, Leeds LS2 9JT, UK.

Email: C.r.umney@leeds.ac.uk

labour unrest. It reveals two main dimensions of platform labour struggle: those defending or extending protective regulatory institutions (regulatory protests); and those seeking a larger share of value created (distributive protests). The former more often involve mainstream unions and methods like legal challenges. The latter more often involve grassroots organisation, and the collective withdrawal of labour and demonstrations. Theoretically, the article elaborates on Silver's distinction between Marx-type and Polanyi-type labour unrest to explain and contextualise these findings. These patterns reveal variation within the growing wave of platform labour unrest that have not yet been systematically examined.

Keywords

labour unrest, platform work, precarious work, protest, quantitative methods, strikes, trade unions, worker organisation

Introduction

Despite widespread predictions that the growth of platform organisations would render worker contestation impossible, platform worker protests have made headlines across the world. Understanding this unexpected growth in labour unrest has become an urgent sociological issue (Woodcock, 2021). Questions concerning the grievances motivating platform labour unrest, the actors and strategies involved and how unrest varies globally are important for understanding the dynamics of those struggles and the future of workers' movements. However, there remain few systematic answers to questions of how, why and where platform workers protest.

Existing scholarship has prioritised single or comparative case studies, examining particular communities of workers or protest events (Amorim and Moda, 2020; Cant, 2019; Chen, 2018; Chinguno, 2019; Tassinari and Maccarrone, 2020). Although this literature emerges from around the world, it cannot yet illuminate how patterns of platform labour unrest unfold globally. The core problem is the lack of large datasets covering platform worker protest. This article presents the first global analysis of platform worker unrest. It utilises a unique dataset of 1271 instances of platform labour protest, harvested mostly from global news reporting, between January 2017 and August 2020. It covers four platform industries where protest has been most prominent: ride-hailing, cooked food delivery, courier services and grocery delivery. It asks three empirical questions. What are the most prominent motives for platform labour unrest? What actors and tactics are involved in platform labour unrest? How does this unrest vary across regional contexts?

The article employs exploratory factor analysis (EFA) and linear regression to identify patterns of platform worker protest. The EFA identifies two statistically significant factors of platform labour unrest, defined by differing motives for protest. The first factor is labelled 'distributive protests', as the focus was on pay, working hours and costs; while the second factor was labelled 'regulatory protests', as it included employment status, union representation, health and safety, and deactivation (i.e. the unilateral exclusion of a worker from the platform by the platform company) as core concerns. This distinction does not encompass all cases, suggesting that these two dimensions

are not mutually exclusive. The findings nonetheless indicate a meaningful distinction between two significant dimensions of global platform labour unrest with different motives. Moreover, linear regression analysis reveals these factors were associated with particular labour actors and forms of protest. For methods like strikes and grass-roots, informal actors were more associated with distributive protests, while methods like legal challenges and established trade unions were more associated with regulatory protests. Theoretically, the article notes a parallel between these findings and Silver's (2003) distinction between 'Marx-type' and 'Polanyi-type' labour unrest; where the former indicates the struggles of emerging working classes in response to capitalist development and the latter indicates the struggles of existing labour movements to resist their unmaking as industries are reconfigured globally. However, the article notes that there are key differences and limitations to this comparison, requiring some elaboration of Silver's ideas.

Empirically, the article contributes through an analysis of a novel dataset enabling a more global view of platform labour unrest than has previously been available. Theoretically, it contributes by appropriating aspects of Silver's conceptual apparatus to detect hitherto under-explored differences and patterns in the forms taken by platform labour unrest. The article proceeds as follows. The literature review contextualises the main empirical questions and considers their intersection with Silver's theoretical concepts. After a discussion of the dataset, the data are presented through an EFA, descriptive statistics and regression analysis. The conclusion reflects on the study's limits and implications.

Global patterns in platform labour unrest

This section presents an overview of current knowledge about labour unrest by platform workers, underlining the need for a wider global perspective. Platform work is heterogeneous, and is often divided broadly into local (i.e. in-person services arranged via a platform) and remote forms (i.e. online 'clickwork') (Wood et al., 2019). This article primarily addresses local platform work, since this is where unrest appears to be more visible to the data-gathering methods used, though the conclusion will also reflect on the wider implications for remote platform work.

When examining platform labour unrest in a global context, a relevant question is what is the object of analysis? Many studies examine the attitudes and orientations of platform workers; for instance, through qualitative ethnographies of particular platforms (Anwar and Graham, 2020; Cini and Goldman, 2021; Reid-Musson et al., 2020; Robinson, 2017; Soriano and Cabañes, 2020) and occupational groups (Karanović et al., 2021; Maffie, 2020). These studies highlight the possibility for collective resistance among platform workers, but they neither address how concrete instances of labour unrest unfold, nor contextualise the resistance globally. Other studies make the protest itself the unit of analysis, enabling sharper focus on why and how platform worker unrest happens in practice. However, to date, these have usually emphasised rich description, via qualitative studies of particular strikes or demonstrations (Briziarelli, 2019; Cant and Woodcock, 2020; Chesta et al., 2019; Rauseo, 2018; Tassinari and Maccarrone, 2020; Vandaele et al., 2019). This article also takes the protest as the unit of analysis, but sets it in wider context, examining patterns observable across 1271 instances of platform

labour unrest. The literature review thus continues by asking three questions, each requiring a global analysis: why, how and where do platform workers protest?

First, *why* do platform workers protest? Researchers identify diverse grievances underlying protest. Some relate to novel aspects of platform-mediated work while others are more familiar, especially among low-paid workers. Much attention has been paid to the contractual relations of work, whereby platforms threaten to weaken an established 'standard employment relationship' (Aloisi and Gramano, 2019). They may thus appear as catalysts for deregulation in contexts featuring comparatively strong employment regulations and social protections (Ilsoe and Jesnes, 2020). Platform workers may mobilise, therefore, to demand tighter regulation over the platform model (Cavallini and Avogaro, 2019; Doherty and Franca, 2020). These examples frequently come from Europe, arguably because this is where regulatory systems are most developed. However, platforms' casualising dynamics have also been targeted for protest by established workforces elsewhere, as in Elfstrom's (2019) study of ride-hailing in China.

This kind of unrest dovetails with another more specific problem: that platforms are perceived as sources of bogus self-employment, where workers' dubious 'independent' status is used to evade costs associated with employee protections. Numerous studies highlight campaigns to challenge platform workers' legal status (Leighton, 2016; Prassl and Risak, 2015; Rogers, 2016). Evidence suggests these protests will be most prominent in regions with more established legal frameworks, like continental Europe or Australia (Bessa et al., 2022), or countries with comparatively developed institutional frameworks for employee protections like South Africa (Chinguno, 2019).

Another much-studied potential cause of platform labour unrest is algorithmic control. Platforms are pioneering new technologies and 'hybridised control regimes' that monitor and discipline platform workers (Amorim and Moda, 2020; Ivanova et al., 2018; Vallas and Schor, 2020; Veen et al., 2020; Woodcock, 2020). For some, this is a cause of new waves of platform labour unrest (Bronowicka and Ivanova, 2020). For example, UberPool drivers have protested against their assignment to low-value work by algorithmic systems (Reid-Musson et al., 2020). Algorithmic control is a particular concern where it provides mechanisms for 'deactivating' individuals without any procedural protections, accelerating dynamics of precarisation (Vallas and Schor, 2020).

The literature thus centralises concerns about platforms as drivers of weaker regulation, and a threat to the 'standard employment relationship'. Curiously, pay disputes are less prominent, with more attention focused on casualisation, employment status and algorithmic control, arguably reflecting the relative novelty of these phenomena in the sociology of work. Nonetheless, the salience of claims over the distribution of value has been noted. Pay, for instance, is central to studies of emerging solidarities and new forms of workers' organisation (see Cant, 2019; Tassinari and Maccarrone, 2020; Woodcock, 2021). Yet, while the causes of platform labour unrest undoubtedly vary, there remains little systematic knowledge about how this variation may be patterned globally.

How do platform workers protest? Evidence suggests various strategies are used by platform workers. The importance of themes like casualisation and algorithmic control has encouraged research into strategies including legal challenges against platform 'employers' (Prassl and Risak, 2015), and the gaming of algorithmic systems by platform workers (Anwar and Graham, 2020; Vallas and Schor, 2020). Moreover, the

involvement of heterogeneous actors in platform unrest – not just established trade unions, but grassroots unions, worker collectives and informal worker networks – requires scrutiny and differentiation.

Platform work potentially threatens ‘traditional’ union representation and strategy. Platform workers’ independent status undermines collective bargaining, necessitating methods like ‘strategic litigation’ (Aloisi and Gramano, 2019). Established unions may therefore prioritise resisting the growth of platforms over organising platform workers (Doherty and Franca, 2020). Nonetheless, some established unions do strive to represent platform workers, often via traditional institutional channels where these are sufficiently developed (Ilsøe and Jesnes, 2020). Overall, mainstream unions face challenges in representing platform workers but remain important, particularly where they seek to defend well-developed institutional systems.

Concurrently, research reveals more grassroots forms of solidarity. Message boards and social media groups promote new solidarities and innovative tactics (Reid-Musson et al., 2020; Soriano and Cabranes, 2020; Vallas and Schor, 2020), like the subversion of algorithmic systems (Anwar and Graham, 2020; Chen, 2018; Robinson, 2017; Vallas and Schor, 2020). Solidarities germinated online may flourish offline. This increases the likelihood of platform workers joining unions (Maffie, 2020) and taking part in offline demonstrations and go-slows (Chinguno, 2019). However, the digital novelty of platforms should not be overstated. Industrial militancy also follows in-person interaction between platform workers in certain types of work-setting – for instance, where food delivery riders congregate outside restaurants (Woodcock, 2021).

Strikes and demonstrations remain a vital aspect of platform labour unrest (Chen, 2018; Cavallini and Avogaro, 2019; Tassinari and Maccarrone, 2020). However, the actors involved – and relationships between them – often remain unclear. There is growing interest in how different actors form coalitions (Cant and Woodcock, 2020; Vandaele, 2021; Vandaele et al., 2019). Yet informal networking between workers often precedes the involvement of established unions, particularly in contexts where institutional protections appear less relevant and distributive conflict is emphasised (Cant, 2019).

Therefore, the literature already reveals the plurality of causes motivating platform labour protest, and the plurality of actors and tactics protest entails. However, the reliance on locally embedded qualitative research reveals less about wider patterns in this variation; for instance, whether particular grievances are associated with particular actors and strategies.

While there is evidence to suggest that platform labour unrest is widespread, there is little systematic knowledge on whether particular grievances, actors or strategies are more prevalent in certain countries. This prompts the third question: *where* do platform workers protest? To date, most research on platform work emanates from Europe, North America and Australia, which has led to an over-representation in the literature of protests and worker communities in those regions. Nevertheless, important studies of platform work in Africa, Latin America, South Asia and East Asia (Anwar and Graham, 2020; Chen, 2018; Chinguno, 2019; Morales and Stecher, 2023; Parth et al., 2021) highlight similar themes to European and American analyses. For instance, algorithmic control is central to studies of platform work in China (Chen, 2018), Chile (Morales and Stecher, 2023) and Brazil (Amorim and Moda, 2020). While this underlines the wide

relevance of novel concerns associated with platform work, extant qualitative evidence does not yet enable an understanding of whether grievances addressed by platform worker protest are genuinely international or whether different regions give rise to different ‘models’ of platform protest, with different motives, actors and methods. For instance, countries with more developed institutional employee protections may be more likely to see protests defending employee status, and wider use of strategies like strategic litigation, but no systematic studies confirm this with any surety.

This review reveals much empirical complexity in the causes, actors, strategies and location of platform labour protest. While the existing literature suggests platform labour protest is a genuinely global phenomenon, the lack of quantitative international datasets prevents more systematic global analysis. The next section turns to a theoretical framework that may provide intellectual tools to undertake such an analysis.

Silver’s ‘Marx-type’ and ‘Polanyi-type’ labour unrest

Silver (2003) charts global patterns in labour unrest from 1870 to 1996. The analysis follows the making and unmaking of labour movements as waves of global labour unrest unfold in response to shifting patterns of capital investment. Framing these patterns, Silver makes a distinction between ‘Polanyi-type’ and ‘Marx-type’ labour unrest. The former describes:

resistance to the spread of a global self-regulating market, particularly by working classes that are being unmade by global economic transformations as well as by those workers who had benefited from established social compacts that are being abandoned from above. (Silver, 2003: 20)

The latter describes:

the struggles of newly emerging working classes that are successively made and strengthened as an unintended outcome of the development of historical capitalism, even as old working classes are being unmade. (Silver, 2003: 20)

Using this framework, Silver tracks large-scale patterns in ‘the trajectory of labor movements in the twentieth century’ (Silver, 2003: 17), identifying ‘periodic oscillation over time between phases tending toward the commodification and de-commodification of labor’ (Silver, 2003: 20). Marx-type unrest accompanies the movement of capitalist development as new industries spread across the globe, giving rise to new concentrations of workers and labour unrest over wages and conditions (Silver, 2003: 38). Polanyi-type unrest, by contrast, appears as a backlash against commodification and intensified global economic competition. For Silver, Polanyi-type unrest is associated with ‘old’ working classes, where established social settlements are being dismantled and labour is subjected to re-commodification. Marx-type unrest, by contrast, is associated with ‘new’ working classes, in struggles over the terms of the commodification of labour. Thus, for Silver, different global regions are affected at different times by industrial restructuring, with labour unrest linked to either the commodification or decommodification of labour.

Silver's framework can be developed to understand variation in labour unrest at a smaller scale; that is, not only to analyse phases of labour unrest over century-long time-scales, but also to understand variation within a particular wave of workers' struggles. Silver's own analysis points towards a potentially viable approach. While Silver frames waves of labour unrest as either Polanyi-type or Marx-type, she also notes that key waves of labour unrest – including the late 19th and early 20th centuries – were characterised by 'a combination of Marx-type and Polanyi-type' (Silver, 2003: 20; see also, 129, 169).

Globally, the complexity of capital restructuring means waves of unrest may feature both types simultaneously in different locations. Plainly, protest at the dismantling of social protections is more likely to arise in countries where such arrangements are present to begin with. The 'disruptor' effect of platform work in the global North includes well-known efforts by platforms to place themselves outside existing social and employment protections. This leads to platform worker struggles against deregulation and casualisation, appealing to the preservation or reinforcement of institutional protections. Platform worker struggles in countries with developed social and employment protections – largely but not exclusively in the global North – might therefore be expected to be more Polanyi-type, whereas platform worker protest in the global South might focus more on bare financial matters such as pay.

At root, however, the distinction between Marx-type and Polanyi-type concerns the causes of unrest. It centralises the question of whether workers are contesting the dismantling of existing protections, or the terms of the sale of labour power. That said, there is no obvious reason why workers might not combine elements of Polanyi-type and Marx-type demands in their protests. Indeed, there is already evidence of such developments in studies showing groups of platform workers protesting over pay and employment status (Aslam and Woodcock, 2020; Chinguno, 2019; Joyce et al., 2022). Rather than strict separation, the development of Silver's framework proposed here suggests not only that Marx-type and Polanyi-type unrest can occur alongside one another, but also that they may be found in more intimate connection, in the mix of demands raised by workers at any given time and location. The possibility also arises that the distribution of Marx-type and Polanyi-type might vary along dimensions other than those identified by Silver. In addition to temporal and geographical variation, for instance, the two types might be associated more with particular types of collective organisations or methods of protest; or, in the present context, with different sectors of platform work.

At this stage, though, these conceptual remarks must remain tentative. While Silver's distinction between Marx-type and Polanyi-type provides a useful conceptual starting point for reflecting on these issues, this dataset can help explore how meaningfully it can be applied to a global analysis of platform labour protest.

Method

Data and sampling

The article presents a novel dataset documenting incidents of platform labour unrest globally. Given the lack of standard measures for capturing worker protests on a global scale and the emergent nature of platform labour unrest, the research drew from online news media to provide large amounts of previously untapped data. Most data were

gathered via the Global Database of Events, Language and Tone (GDELT Project), which monitors worldwide news with real-time translation in over 100 languages and a news search interface (on the use of GDELT in social sciences, see Saz-Carranza et al., 2021). By searching GDELT, many thousands of news articles covering platform worker protests were identified.

Initial searches indicated that reported unrest was concentrated across four key sectors: ride-hailing; cooked meal delivery; courier services; and grocery delivery. Worker resistance in remote platform work is less likely to feature in news reporting, though it has started to be examined elsewhere (Wood et al., 2023; Woodcock, 2021). The research thus focuses on in-person, ‘geographically tethered’ platform work (Woodcock and Graham, 2019: 50–52).

To maximise coverage, all global platforms (defined as platforms with operations in at least two world regions) and the two largest platforms within each world region were investigated. Platforms were identified using the web interface SensorTower, which ranks the most-downloaded apps on the biggest app stores – Apple Store and Google Play Store – by country. The most-downloaded apps for each region in the last three months for each of the four sectors were identified. Through this method, 36 platforms headquartered in 15 countries were selected for systematic searching through GDELT. Global companies included: Uber, Uber Eats, Deliveroo, Cabify, Glovo, Bolt, Foodora and Zomato (see the online Appendix). Dominant regional platforms, according to sales revenues, were identified with <https://owler.com> (a crowdsourcing project that estimates expected revenues of tech companies) and included: Ola and Swiggy in India; Rappi and PedidosYa in South America; Meituan, Ele.me and DiDi in China; GrubHub, Doordash, Instacart and Postmates in North America; Jumia Food and Little Cab in Africa; and Careem for North Africa and the Middle East.

The coding unit was the labour protest event – any incident of labour protest over the terms of their employment. Protest event analysis (PEA) has covered activities ranging from petitions to public rallies, mass demonstrations, blockades or occupations (Tilly, 1976). This study specifically examines labour protest as the unit of analysis, which includes classic forms such as strikes and demonstrations, but also other mechanisms such as legal cases. Opp (2009: 44) defines protest broadly as ‘joint (i.e. collective) action of individuals aimed at achieving their goal or goals influencing decisions of a target’. Consequently, legal cases are included here as a form of concerted action to achieve workers’ goals.

Half-automated selection strategies were applied (Lorenzini et al., 2020), through searching keywords (including: riders; protest; strike; stoppage; resistance; fight; dispute; demonstration; log-offs; legal; litigation; court; labour; trade union; gigworker) and targeted terms (including: Rappitenderos [workers doing deliveries for the Colombian Company Rappi]; bike couriers; digital taxi drivers; or app workers). This was a time-consuming method, as it entailed examining and filtering out many false positives; yet it was necessary to achieve a comprehensive dataset. Overall, 385,364 articles were collected, covering 57 countries and 60 platforms, spanning January 2017 to August 2020. Some protests involved workers from multiple platforms, so searching for well-known platforms also captured additional smaller platforms, thereby expanding the coverage of the sample. One limitation of news reports is potential under-reporting (Davenport,

2009). Selection bias in newspaper reporting is a standard critique of PEA (Hocke, 1996; Jeanis and Powers, 2017). In this study, selection bias is to an extent mitigated by GDELT's extensive range of newspaper coverage, including several national and local publications in each country (Nam, 2006). Triangulation by multiple sources for one event can also address emergent selection and description bias (Earl et al., 2004).

Further, given that some countries might suppress media coverage of labour unrest, data from additional sources were included wherever available. Significantly, data were harvested from the *China Labour Bulletin* (CLB) strike map, identifying (160) labour protest events in China. The CLB accumulates information on Chinese strikes including most of the variables described below. The inclusion of CLB data mitigates the under-reporting of Chinese cases by the media.

The initial 385,364 articles were reduced through an automated model for deleting duplicate cases and filtering out false positives that did not mention protest events. Following this, 2023 articles were eventually coded, covering 1271 distinct events. These were coded manually, through carefully reading all reportage (indicators are defined below). To ensure intracoder and intercoder reliability, coding rules were carefully formulated. An initial codebook and set of instructions were subjected to rounds of reliability tests, where all team members were asked to code selections of text to identify where coders had different understandings of variables, which might create inconsistency in the analysis. After multiple rounds of test coding, the team reached a consistent shared understanding of the codebook and how each code should be applied. This codebook informed data entry by a team of nine postgraduate students and the authors. Consistency in coding across data entry was constantly cross-checked, with one author acting as a quality controller. This author's responsibility was to consistently review data entries both within individual coders and across the coders as a team. Corrections were made in the data entry in line with the codebook, where necessary. This enabled identification of any emerging inconsistencies, which could be revisited and recoded to ensure consistency. For example, the distinction between types of union (see next section) was developed through this iterative process, where the entire dataset was updated and recoded as the definition of the variables evolved.

Measures and approach

The two key dependent variables were derived from an EFA of the motives of labour unrest. Codes were allocated to 10 potential causes of labour unrest: pay; working hours; working conditions; employment status; deactivation; union representation; health and safety; non-pay benefits; other regulatory issues; running costs or equipment. All variables were binary coded, with 1 indicating a cited reason for protest and 0 if otherwise. Multiple motives could be recorded for each event.

EFA is a data-driven approach used for variable dimension reduction, and was selected over theory-driven methodologies, such as Confirmatory Factor Analysis (CFA), where the researcher sets pre-allocated variables in each factor and can pre-define the number of factors generated. Two of the initial 10 causes of protest events had to be removed due to very low frequencies. Given the binary nature of the variables, the method used was multidimensional Item Response Theory (IRT). IRT is a probabilistic model, in which

the observed binary variables – here the motives of labour unrest – are grouped to some latent continuous factors. The statistical software used was Mplus (version 8.5) with goodness-of-fit measures reported below.

An EFA model with two factors exhibited a very strong fit. Goodness-of-fit measures were comfortably within acceptable thresholds: Root Mean Square Error of Approximation (RMSEA = 0.014); Tucker–Lewis Index (TLI = 0.978); Comparative Fit Index (CFI = 0.992) (Browne and Cudeck, 1992; Hoelter, 1983). Factor 1, which are labelled ‘distributive protests’, included pay, working hours, running costs and equipment, and accounted for 54% of the sample. Factor 2, which are labelled ‘regulatory protests’, included issues of employment status, union representation, health and safety, and deactivation, and accounted for 16% of the sample. EFA revealed that these factors were sufficiently separate to suggest a meaningful distinction in the motives underpinning platform labour unrest, *while not being mutually exclusive*. There was evidence of combinations of mixed-type unrest (e.g. where protests around pay and employment status were combined), though these did not statistically load as a clearly defined, standalone third factor.

The extracted factor scores were then used to create two continuous variables. Linear regression models were considered more suitable for the purpose of the study and the continuous nature of the factors, rather than a binary (logistic) regression. This was because the two factors were not mutually exclusive (since variables from both factors can appear in combination), although some issues are more strongly associated to distributive protests (Factor 1) and others to regulatory protests (Factor 2).

Key independent variables were developed as follows.

Types of action. This was a categorical variable with four categories: collective withdrawal of labour (indicating strikes and log-offs); demonstrations; legal action; or institutionalisation. ‘Institutionalisation’ captures any formalisation of worker protest, like the creation of works councils, founding of unions, or collective agreements, whereas legal action denotes legal cases, which typically denoted the beginning of a trial or the announcement of the intention of workers, unions or law firms to take legal action.

Type of actors. Actors were coded using six variables: mainstream trade union; grassroots trade union; workers’ collective; informal group of workers; law firms; or other. Six binary variables were created, denoting 1 if the actor participated in the event and 0 if otherwise. Multiple actors could be recorded. From the six binary variables, an additional variable labelled *combinations* was constructed. This categorical variable, with a total of 14 categories, specified whether actors were involved alone, or in combination. This included four categories of single actors (group of workers only; workers’ collective only; grassroots trade unions only; and mainstream trade unions only) and 10 different actor combinations. Differentiating mainstream and grassroots unions is complex without a simple binary indicator that can be easily adopted. The coding process here was relatively labour-intensive, involving qualitative reading of the history and status of unions involved, which informed coders’ judgements. Multiple factors were considered, including whether unions were affiliated to established federations, the nature of their espoused political platforms, their size, date of founding and approach to organisation.

The lead coder developed a continually updated list of unions for collective reference to ensure intercoder reliability. Worker collectives, by contrast, were defined as groups of workers that have a formal identity (as opposed to entirely informal networks), but which were not unions at all.

The inclusion of *multiple companies* in the protest event were coded 1 if multiple companies were targeted by protest and 0 if otherwise.

Type of platform service was categorical, including four different platform sectors: cooked meal delivery; ride-hailing; grocery delivery; and courier services.

Regional and institutional factors were control variables. Region was a categorical variable including: Europe, Asia, North America, Latin America, Africa and Australia and New Zealand. Two further controls were taken from International Labour Organization (ILO) indexes. First, C087 – Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87). Second, C098 – Right to Organise and Collective Bargaining Convention, 1949 (No. 98). These dummy variables were included to examine any relation between the denial of free association and form of labour unrest.

Findings

The findings proceed with an initial presentation of descriptive data organised around central research questions, followed by a multivariate analysis.

Where do platform workers protest?

The largest concentrations of protest events were found in Europe, accounting for 29.76% of protests, closely followed by Asia (27.27%). Latin America accounted for 18.9% of protests, followed by North America (16%) despite the deeper saturation of platforms in the US market. Protest events were significantly fewer in Africa (5%) and Australia/New Zealand (2.8%) See Figure 1.

Protest events were heavily skewed towards two sectors: cooked meal delivery (53.7%) and ride-hailing (43.2%). Courier services and grocery delivery accounted for just 1.1% and 2.1%, respectively. Most protests were reported among large global firms such as Uber and Deliveroo, while a third of protest events featured workers from different platforms. The broad picture of uneven distribution between regions and sectors conceals differences in the ‘how’ and ‘why’ of platform labour unrest.

How do platform workers protest?

As Table 1 shows, most platform workers were involved either in collective withdraw of labour (38%) or in demonstrations (36%). A significant minority of events also involved legal action (15.8%), whereas institutionalisation was the least common (4.6%). Labour withdrawals and demonstrations dominated across all regions, with some notable variations. Collective withdrawals of labour were most pronounced in Asia (52.4%) and Africa (48.4%), while demonstrations were particularly notable in Latin America (52.5%). Wide variations were also evident regarding legal action. Legal action had a weak presence in Africa (4.7%), Latin America (8.8%) and Asia (2.3%) but was more

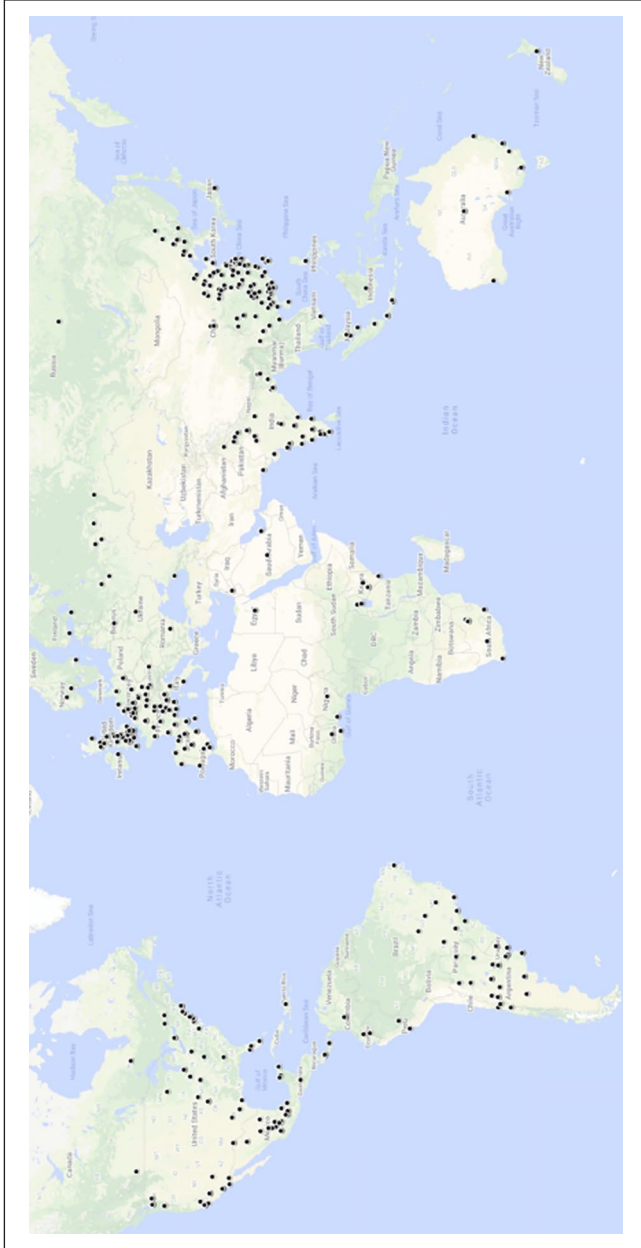


Figure 1. Global map of platform labour protest.

Table 1. Type of protest event by region (%).

Protest event	Total (%)	Europe	Asia	USA	Latin America	Africa	Australia and NZ
Collective withdrawal of labour	38.1	33.9	52.4	27.4	30.4	48.4	34.3
Demonstrations	36	34.9	35	23.4	52.5	35.9	14.3
Legal action	15.8	21.3	2.3	38.3	8.8	4.7	34.3
Institutionalisation	4.6	6.1	2	7	3.3	4.7	8.6
Other	5.5	3.7	8.3	4	15	6.3	8.6

Source: authors' own dataset: $n = 1266$.

Table 2. Lead actors in protest event by region (%).

Type of actors	Total (%)	Europe	Asia	North America	Latin America	Africa	Australia and NZ	<i>n</i>
Grassroots union	13.1	25.1	11.1	3.4	5	9.4	22.9	1267
Mainstream union	20.0	34.8	4.4	14.8	12.1	10.4	51.5	1187
Workers' collective	20.4	25.5	9.6	13.8	30.7	39.7	5.9	1210
Informal group of workers	79.7	77	87.2	67.8	85.4	82.8	54.3	1266
Law firm	2.1	3.8	0.3	5.9	0	0	0	1241

Source: authors' own dataset.

prominent in North America (38.3%) and Australia/New Zealand (34.3%) and Europe (21.3%). Curiously, institutionalisation had a weak presence everywhere, even in regions like Europe (6.1%) where initiatives like the founding of works councils might be expected to make this variable more prominent. Protest events tended to be of short duration, one day, and relatively small, with the majority involving between 11 and 99 workers. A small number of labour withdrawals (40 cases) and legal cases (seven) involved more than 1000 workers.

Table 2 displays the actors involved in protest events. Informal groups of workers were involved in 79.7% of events. Mainstream unions (20%) and workers' collectives (20.4%) were present in around a fifth of protests, while grassroots unions were evident in 13.1% of cases. Despite academic interest in the possibility of coalitions between mainstream and grassroots unions, these were present in just 32 cases. Nonetheless, it is a notable finding that unions (either mainstream or grassroots) were involved in a third of cases.

Regional variation was again important. Protests involving informal groups of workers were ubiquitous. In Asia, likely reflecting the prohibitions on trade unions in China, informal groups of workers were the overwhelming majority (87.2%). However, particularly in Europe (34.8%) and Australia/New Zealand (51.5%), mainstream unions were more prominent. Indeed, Europe and Australia/New Zealand tended to feature more trade unionism, including grassroots actors, whereas Africa, Latin America and Asia tended to be largely reliant on informal worker organisation. North America relied heavily on informal groups of workers (67.8%), despite a relatively high prominence of legalistic methods of protest.

Table 3. Distribution of issues over which platform workers protest by region (%).

Issues	Total (%)	Europe	Asia	North America	Latin America	Africa	Australia and NZ	<i>n</i>
Pay	63.4	62.1	74.9	59.6	50.4	67.2	65.7	1268
Employment status	20.2	30.1	5.7	37.1	13.3	4.7	40	1267
Health and safety (H&S)	19.1	7.2	14	14.8	46.7	34.4	8.6	1268
Other regulatory issues	14.2	9.1	17.4	6.9	23.3	20.3	5.7	1268
Non-pay benefits	9.0	8	14	7.4	4.2	6.3	17.1	1268
Running cost/equipment	7.2	6.9	4.3	6.4	3.8	35.9	14.3	1268
Deactivation	5.7	6.7	2.6	5	7.9	6.3	8.6	1267
Union representation	5.6	7.2	3.1	9.9	5	1.6	0	1268
Working hours	4.8	4.3	6.8	2	2.5	7.8	8.6	1268

Source: authors' own dataset; working conditions omitted due to high number of missing responses.

Why do platform workers protest?

As Table 3 indicates, pay was the most significant motivator of protest events, applying in 63.4% of cases. The overwhelming dominance of pay was particularly notable, given it attracts relatively little attention in the literature. Employment status, despite its prominent presence in the literature, accounted for only around a fifth (20.2%) of protest events. Likewise, while algorithmic control is central to academic debate, deactivation was rarely a factor in protest events. Health and safety accounted for approximately a fifth of protests (19.1%), but there was evidence to suggest this had increased over time, from 11.1% prior to 2020 to 53.2% in 2020. This may be an obvious consequence of the Covid-19 pandemic, but, as shown below, regional variation was important. The desire for union representation was an explicit motivator of protest in only 5.6% of events, a finding underlining the informality of platform workers' actions.

Pay was the dominant grievance in all regions, ranging from half of protests in Latin America to three-quarters in Asia. There was greater regional variation regarding employment status, which underpinned 40.0% of protests in Australia/New Zealand, 37.1% in North America and 30.1% in Europe, but much less in the global South, accounting for 5.7% in Asia, 13.3% in Latin America and 4.7% in Africa. This distinction broadly corresponds to those regions where legal action and unionisation were more prominent.

The frequency and growth of protests around health and safety were characterised by a surge in health and safety-related grievances in Latin America (46.7%). Following the Covid-19 crisis, and the discursive classification of food delivery workers as 'essential workers' exposed to higher risk, couriers in Latin America have demanded provisions for healthcare, and have frequently criticised the insufficient protective gear provided by platform companies (mainly PedidosYa, Glovo, SinDelantal and Uber Eats) (Howson et al., 2020). Health and safety was also more prevalent in Africa (34.4%), reflecting the salience of concerns over violent crime against platform workers.

The next section uses multivariate analysis to better understand the relationship between different aspects of protest events.

Table 4. Linear regression by distributive and regulatory labour unrest.

Variable	Distributive protests		Regulatory protests	
	B	S.E.	B	S.E.
Action type (Ref: Other type)				
Strikes and log-offs	0.43***	0.06	-0.16**	0.05
Demonstrations	0.18**	0.06	-0.05	0.05
Institutionalisation	0.10	0.08	0.13	0.07
Legal action	-0.16*	0.07	0.35***	0.06
Grassroots union	0.18**	0.06	0.07	0.05
Mainstream union	-0.06	0.05	0.15**	0.04
Workers' collective	0.13*	0.06	-0.11*	0.05
Informal group of workers	0.13**	0.05	-0.04	0.04
Law firm	0.03	0.09	0.10	0.08
Other actor	0.03	0.05	0.06	0.04
Grassroots union and group of workers	-0.05	0.08	0.06	0.07
Mainstream union and group of workers	-0.09	0.07	0.21**	0.06
Workers' collective and group of workers	-0.06	0.07	0.13*	0.06
Multiple companies addressed	0.05	0.03	0.02	0.03
Continent (Ref: Australia and New Zealand)				
Europe	-0.24**	0.08	0.15*	0.07
Asia	-0.20*	0.09	0.03	0.07
North America	-0.18*	0.09	0.18*	0.08
Latin America	-0.40*	0.09	0.12	0.07
Africa	-0.06	0.11	0.09	0.09
Type of platform (Ref: Meal delivery)				
Courier delivery	0.33**	0.12	0.10	0.10
Grocery delivery	-0.02	0.10	-0.20*	0.08
Ride-hailing	0.03	0.03	0.06*	0.03
C087	-0.03	0.06	-0.06	0.05
C098	0.02	0.06	0.03	0.05

Notes: Distributive protests: $n = 1151$, $R^2 = 0.287$; Regulatory protests: $n = 1151$, $R^2 = 0.306$; *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Multivariate analysis of labour unrest

Following an EFA (detailed above), protest events were grouped across two factors. *Distributive protests* include issues relating to the distribution of value between labour and capital, while the emphasis in the second factor, *regulatory protests*, was on issues relating to the coverage of protective social institutions. Table 4 models each type of unrest in a linear regression and reports coefficients and standard errors.

Model 1, with distributive protests as the dependent variable, shows that the collective withdrawal of work ($B = 0.43$) and demonstrations ($B = 0.18$) were significantly and positively associated with this factor, whereas legal actions demonstrated a significant yet negative relationship. Distributive protests were also positively associated with

informal worker organisation and grassroots trade unions. Notably, grassroots unions ($B = 0.18$), workers' collectives ($B = 0.13$) and informal groups of workers ($B = 0.13$) were all significantly associated with an approach to protest centred on distributive concerns. Mainstream unions were not significantly associated with distributive protests. Curiously, there were no significant positive associations between region and distributive protests, when compared with Australia/New Zealand as the reference. However, there were negative associations with Europe ($B = -0.24$), Latin America ($B = -0.40$), North America ($B = -0.18$) and Asia ($B = -0.20$). There was a clear sectoral effect, with distributive protests more likely to occur in courier delivery services ($B = 0.33$).

Regulatory protests were more associated with legal channels of platform worker protest. As might be expected, there was a positive and significant association with legal action ($B = 0.35$); in contrast, there was a negative association with collective withdrawals of work ($B = -0.16$). Turning to labour actors, there was a positive and significant association between regulatory protests and mainstream trade unions ($B = 0.15$), whether acting alone or in collaboration with informal groups of workers ($B = 0.21$). No association was evident between grassroots unions and regulatory protests. There was a negative relationship with workers' collectives in general ($B = -0.11$), although there was a more positive relationship where workers' collectives combined with informal groups of workers ($B = 0.11$). Regionally, Europe ($B = 0.15$) and North America ($B = 0.18$) were positively and significantly associated with regulatory protests. Sectorally, regulatory forms of protest were associated with ride-hailing ($B = 0.06$).

Sensitivity analysis

Different sensitivity tests based on alternative regression models were used to check the statistical and conceptual robustness of the results. First, a model with dummy variables (i.e. yes = 1, no = 0) was created for distributive protests and regulatory protests, and binary logistic regression was performed against each. Second, an additional binary logistic regression model was performed where the two factors were treated as a single dichotomous variable, with distributive protests = 1 and regulatory protests = 2. Both binary logistic models produced similar results to the linear regression, especially with regard to core covariates such as action type, actors and types of platforms, confirming the robustness of the results. No confounding associations were found. Third, a linear regression model with different omitted variables was also examined, where results were consistently similar with regard to the core covariates and main conclusions. The final choice of a linear model that included all covariates was based on the desire to include factors that were not mutually exclusive and that conceptually do not support either/or factors, but which capture the variability of issues of protest to different degrees.

Discussion

The discussion draws out three key contributions. First, the most significant empirical findings are elaborated. Second, the extent to which the findings support and/or differ from Silver's well-known conceptual framework are considered. Finally, there will be

some comment on what the findings may mean for future research into the burgeoning topic of platform labour unrest.

Summary of key findings

This article has addressed a gap in the literature on labour unrest in the platform economy. In contrast to extant qualitative studies, it offers a quantitative mapping of platform worker protest. The descriptive statistics show that protests by platform workers were evident across the world. They map the motives, forms and actors involved in protest across different world regions. They reveal important trends; most notably, the centrality of informal methods of organisation in platform labour protest globally, but also the presence of mainstream unions in every fifth protest event. This underlines the continued importance of established unions, though the subsequent analysis shows they are associated with particular dimensions of unrest. Coalitions featuring both mainstream and grassroots unions were, interestingly, a negligible presence. Moreover, the high prominence of pay as a source of protest in all regions (compared with less prominent concerns like employment status, which is only relevant in certain regions; and algorithmic control, which is weak across all regions) suggests pay has been underexamined in the literature on platform labour protest to date.

While pay was the most common grievance overall, the EFA identified two dominant dimensions of protest. Distributive protests were organised around pay, working hours and costs; while regulatory protests raised grievances over employment status, union representation, health and safety, and deactivation. No mixed model met acceptable statistical thresholds. This is the most important distinction revealed in the dataset. This distinction is supported by multivariate analysis, which revealed that these factors were associated with different actors and different protest methods. Distributive protests were positively associated with informal actors and grassroots unionism, and were less likely where mainstream unions were involved. Such protests were more reliant on methods such as collective withdrawal of labour and demonstrations rather than institutional and legal processes. Conversely, regulatory protests were more likely to involve mainstream unions and methods like legal challenges.

Associations between the models and regions were rather limited, with few positive and significant relationships. There were significant positive associations between regulatory protest and Europe and North America, and significant negative associations between distributive protest and Europe, North America, Latin America and Asia. This may suggest that the relatively more extensive legal and institutional framework in Europe fits with the 'regulatory' model. However, caution is needed in linking models clearly with specific regions, and the dataset underlines the complexity of regional conjunctures. Sectoral differences also merit comment. Regulatory protests were marginally associated with ride-hailing, but were less likely to be associated with grocery delivery. This likely reflects how ride-hailing services, paradigmatically Uber, have emerged particularly prominently as a 'disruptor' of existing taxi services, to a greater extent than in services such as grocery delivery, which have expanded in areas where they did not previously exist due to changing consumption habits. This may partly explain why there is more regulatory unrest in ride-hailing than grocery delivery. Distributive protests were significantly associated with courier delivery, though the reasons for this require investigation in future research.

Theoretical implications

To what extent does this empirical analysis connect with Silver's conceptual distinction between Marx-type and Polanyi-type labour unrest? Silver provides a valuable way of parsing these data, but the findings suggest this is not necessarily a convenient and clean distinction. Regulatory protests to some degree resemble Silver's notion of Polanyi-type labour unrest. Where workers appeal for the bolstering or extension of employment status, for example, they are appealing for additional protections against the effects of market competition, which threaten to disorganise existing settlements gained through previous struggles. Likewise, when they demand union recognition, health and safety provisions, or protections against deactivation, a demand for protections against the consequences of market competition can be inferred. Conversely, distributive protests do not feature appeals for social protections, but instead seek a greater share of value created with less reference to institutional arrangements. They thus more closely resemble Marx-type unrest. The analysis also suggests there are cases where regulatory and distributive grievances may coexist. However, the EFA shows that there is sufficient distinction between these two clusters of motivating factors to indicate a meaningful separation, which can be likened to Silver's conceptual dichotomy. Overall, this article's exploratory analysis suggests that Silver's notion of Marx-type and Polanyi-type labour unrest is an important distinction that has some observable relevance to global patterns of platform labour protest.

However, the relationship between these findings and Silver's framework needs reflection and development. First, this article presents cases of platform labour unrest in terms of two dominant forms. These forms are not, however, mutually exclusive and do not encompass all protest events – there will be instances that combine both regulatory and distributive causes of protest. This suggests that, notwithstanding the importance of Silver's framework, empirical reality in platform labour protest is quite complex and the potential of mixed models of protests is something that requires further investigation. So, the distinction is thus an important finding, which can provide a vocabulary and set of concepts for future investigations into platform labour unrest, but which cannot be seen as a mutually exclusive binary. It also cannot be ruled out that the proportion of mixed cases suggests the emergence of other potential models, which will become more visible in future.

Moreover, the article has elaborated on some aspects of Silver's framework, using them as a prompt for further statistical investigation; particularly regarding the use of linear regression analysis to link the two factors to particular types of actors, strategy and region. For Silver, Polanyi-type labour unrest was visible among 'older' labour movements, which sought to defend existing victories. Marx-type labour unrest was visible among 'newer' labour movements. These findings show that regulatory protests were associated more with established mainstream unions, and with more 'institutionalised' forms of protest such as legal challenges; while distributive protests were associated with informal organisation and grassroots trade unionism, and the collective withdrawal of labour and demonstrations. This formalises some correlations implied in Silver's work to give a more rounded picture of two models of unrest. Thus, the linear regression elaborates on Silver's categories, making explicit the associations between particular reasons for protest, and particular actions and strategies.

Future research

This argument has important implications for the literature on platform labour unrest, which is burgeoning but nascent. It is now well-established that platform workers organise collectively to challenge the terms of their work (Woodcock, 2021). This is an important insight not only in the context of platform work, but in a wider context of the apparently declining status of strikes globally as a source of industrial leverage (Gall, 2013). The international proliferation of platform labour unrest involves many tactics, including large amounts of strike action. Moreover, while Gall (2013) observes a trend towards more political strikes rather than those concerned with bread-and-butter industrial concerns, the association identified between distributive protests and the withdrawal of labour (including strike tactics) suggests that the pattern in platform work is slightly different: it is pay, rather than appeals for regulation that appear more associated with the collective withdrawal of labour. These findings also reveal the need to pay closer attention to variations between instances of platform labour protest. Literature has painstakingly documented the emergence of new actors and solidarities in platform work (Anwar and Graham, 2020; Cant and Mogno, 2020; Reid-Musson et al., 2020), and there has been growing discussion of the relationship between informal platform workers' movements and established union movements (Cant and Woodcock, 2020; Vandaele, 2021; Vandaele et al., 2019). This analysis brings a new dimension to these discussions by showing how differences in the nature of the actors involved are connected to differences in the motives for protest. Moreover, literature has also documented different forms of platform labour protest, ranging from strikes to legal action to algorithmic gaming. This article contributes conceptually by developing a framework inspired by Silver (2003) that can help explain this variation in terms of broad patterns of labour unrest.

Beyond the statistical associations drawn between motives, actors and methods of protest, this analysis has further implications for wider literature. Notably, algorithmic control and automated deactivation account for a very small proportion of protest events. This is not to discount the significance of such issues to platform workers, which can profoundly impact the quality of working life (Amorim and Moda, 2020; Chen, 2018; Vallas and Schor, 2020). However, they are generally not cited as motivators of protest events in the media reports. This means it is necessary to caution against over-emphasising the novelty of the platform sector as featuring a distinct set of problems and motivations for protest. The majority of platform labour protests can be understood using the two factors defined above. A further finding is the tiny number of cases where grassroots and mainstream unions form coalitions. This suggests that, despite recent interest (Vandaele, 2021), cooperation between established and grassroots unions is not yet a significant feature of platform labour unrest globally. This may reflect how different actors are likely to be involved in different models of unrest.

Conclusion

This article makes an empirical innovation by analysing a global quantitative dataset on platform labour unrest, which takes the protest event as a unit of analysis. This type of data-gathering initiative is new, and can significantly bolster empirical understandings of the

topic. Theoretically, the article's contribution is to identify patterns in the form of platform labour unrest that support the conceptual approach of Silver (2003), albeit with some caveats and additions described above. Combined, the article thus addresses what has so far been a persistent limitation of the literature: an emphasis on small-scale studies that are unable to systematically identify patterns in forms of platform protest internationally.

There are undoubtedly limits to the research strategy employed, based on news reporting. Most obviously, there is a danger of missing cases from countries where labour protest is under-reported due to a lack of press freedom. In one critical example of countries in this category – China – alternative sources have been used to try to address this problem. More broadly, this challenge does not undermine the central purpose of the analysis, which has been to identify patterns in the nature of protest, based on as large a sample as realistically possible. The dataset is sufficiently comprehensive to provide the first global mapping of its type, and to enable statistical patterning of protests. The data-gathering strategy used here has also sought to mitigate the risk of selection bias through the volume of data gathered, which often includes multiple sources per protest event. The findings are concentrated in specific sectors of platform work where protest events were most visible and thus most likely to be reported in news sources. Future research might usefully extend this approach by specifically targeting other forms of platform work – such as care work or 'clickwork', where there appears to be fewer protest events – with a more qualitative approach given the smaller volume of cases identifiable through news reporting. Potentially, there may be distinctive forms of protest in remote work that are less visible to traditional news media (such as coordinated boycotts of particular clients, or cooperation to gain favourable pricing outcomes on clickwork platforms), and which the specific methods used here are ill-equipped to detect. A related point concerns the lack of specifically online forms of protest by platform workers, such as the hacking or gaming of algorithmic systems. The dataset does not include such examples, partly because they are likely to be most common among remote workers, but also because such activities are likely to be more covert, and thus less visible in news reporting.

The current spike in interest in platform labour unrest is arguably less to do with the overall size of the sector, and more to do with the prospect that it may provide a glimpse into wider emerging and future changes in the organisation of work. As such, the question of what happens when workers stand up to platforms is a vital one, and goes to the heart of understandings of labour movements. This article recognises the novelty of many aspects of the platform model, but also provides support for the belief that important developments from earlier waves of labour unrest – the creation of informal and insurgent solidarities and the use of weapons such as the strike – are a critical part of this future.

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ORCID iDs

Charles Umney  <https://orcid.org/0000-0001-5757-920X>

Ioulia Bessa  <https://orcid.org/0000-0003-2984-746X>

Vera Trappmann  <https://orcid.org/0000-0002-7945-4536>

Supplementary material

The supplementary material is available online with the article.

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Charles Umney is Professor of International Work and Employment at Leeds University Business School. His main research interests include digitalisation and the future of work, with a particular focus on warehousing; more broadly, the relationship between dynamics of market competition and workplace power dynamics. He is the author of *Class Matters* (Pluto Press, 2018) and co-author of *Marketization* (Bloomsbury, 2022).

Mark Stuart is the Montague Burton Professor of Human Resource Management and Employment Relations at the University of Leeds, and Co-Director of the ESRC Digital Futures at Work Research Centre. His current research focuses on technological change, the future of work and worker voice. Mark is an ex-Editor-in-Chief of *Work, Employment and Society*. He is a Fellow of the Academy of Social Sciences and British Universities Industrial Relations Association.

Ioulia Bessa is Associate Professor, based in the Centre for Employment Relations Innovation and Change (CERIC) at the University of Leeds. Her research looks at non-standard forms of employment and working conditions linked to precarity, underemployment/unemployment, typically utilising a range of secondary datasets (national and international). She has published in outlets such as the *British Journal of Industrial Relations* and *Human Resource Management*.

Simon Joyce is Research Fellow at the Digital Futures at Work (Digit) Research Centre, at Leeds University Business School. His main research interests are around worker responses to changing management methods, work organisation and technology. He has been researching platform work since 2016 and has published in journals such as *Capital & Class* and *New Technology, Work and Employment*.

Denis Neumann is a doctoral researcher at the Digital Futures at Work (Digit) Research Centre, at Leeds University Business School. His research interests are power relations in platform work and young precarious workers' relations with trade unions.

Vera Trappmann is Professor of Comparative Employment Relations at Leeds University Business School and associate member of the Digital Futures at Work (Digit) Research Centre. Her research focuses around the response of workers and trade unions towards precarisation of work, organisational restructuring and climate change. She is the author of *Fallen Heroes in Global Capitalism: Workers and the Restructuring of the Polish Steel Industry* (Palgrave Macmillan, 2013).

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