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HIERARCHIES WITHOUT FIRMS? VERTICAL DISINTEGRATION, OUTSOURCING AND THE NATURE OF THE PLATFORM

Abstract. New forms of labour intermediation through digital platforms such as *Uber*, *Deliveroo* or *Amazon Mechanical Turk* can be conceptualised as the latest stage of a long-lasting process of disaggregation of the firm and "disorganisation of labour law." In particular, the rise of platform-mediated work can be seen as an instantiation of deliberate business strategies aimed at outsourcing labour while retaining intense and pervasive managerial prerogative. The phenomenon is exacerbating several unresolved tensions inherent in the contemporary world of work, let alone the perverse impact that "platformisation" is having on precariousness and social inequalities.
In short, new technologies allow platforms to abandon traditional methods of workplace governance and adopt a stronger version of the "command and control" logic. Direct interaction is replaced by a significant reliance on information communications technology: workers are monitored more closely and intimately than they ever used to be by means of tech tools, including algorithms, artificial intelligence and customers' reviews. This leads to the question whether the existing concept of "firm" is appropriate to face this new reality, whether minor or major adaptations may be necessary or whether we need a total re-invention of the underlying assumptions of the employment regulation.
After describing the theoretical antecedents of hierarchical outsourcing, the article explores the literature on the nature of "non-standard forms of firm" by applying transaction-cost economics. In an attempt to update the incomplete trichotomy among "hierarchies," "markets" and "networks," I present a complementary model combining pre-existing schemes. Finally, by building on theories unfolding the disarticulation of the formal employing entity and the pulverisation of work-related responsibilities, this paper demystifies the prototypical business model of rampant socio-economic actors in the on-demand economy.

Keywords. Labour platforms, transaction costs, business model, employment law, digital transformation.

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[1] This paper builds on the first chapter of my doctoral dissertation completed for the Ph.D. in Legal Studies at Bocconi University, Milan. An earlier draft of this paper was presented at the 16th Marco Biagi International Conference, Modena, Marco Biagi Foundation, in March 2018. I am extremely grateful to Stefano Liebman, Valerio De Stefano and Miriam A. Cherry for great discussion and invaluable feedback. I am also grateful to Piera Loi, Brishen Rogers and Nastazja Potocka-Sionek for their helpful comments.

1. Introduction

We are all witnessing radical changes in the world of work (and in the corresponding legal fields), fuelled by globalisation, tertiarisation and digitalisation. Structural shifts have remodelled the internal structure of the firm and the work organisation. More importantly, they challenge the underlying assumptions of the employment relationship. Shifts in the labour market differ in their legal implications, yet in most cases they can be disentangled by looking at the interplay among new organisational patterns, contractual arrangements and, not least, power relationships. Therefore, it is worthwhile to complement and perhaps renew the copious studies on the "future of work" with a thorough analysis of changing forms of organisation and business models, a rather neglected topic.

To this end, one could use the illustrative case of labour intermediation through digital platforms, the most recent blatant manifestation of a long-lasting process of dissolution of the unitary firm and "disorganisation of labour law" (Valdés Dal-Ré 2002). The hallmark of the on-going digital transition is the use of technological channels to distribute one-off and low-income jobs through a local/global chain (Rogers 2015). The reliance on short-term assignments provided in a "just-in-time" fashion and compensated on a "pay-as-you-go" basis has a strong impact on the formal organisation of the employing entity and, above all, on the relationship between employers (requesters) and employees (providers).

As I demonstrate below, new technologies such as smart machines, artificial intelligence and online platforms allow abandoning the traditional method of workplace governance and adopting a stronger version of "command-and-control" logic (Taylor 1911). Direct control is replaced by a significant reliance on digital devices and software for coordination (Sprague 2007). Workers are supervised more closely and intimately than they ever used to be. Thanks to the "glue of the creation, monitoring, and enforcement of standards on product and service delivery, made available through new information and communication technologies" (Weil 2014: 9), online platforms impose stringent standards on nominally independent workers hired on the spot for specific tasks (Finkin 2016).

Commentators describe modern firms such as *Uber, Deliveroo* or *Amazon Mechanical Turk* as unparalleled or unprecedented organisations situated between hierarchies and markets or, even better, transcending these two orthodox options. Self-proclaimed "disruptive" companies act as online parasitic "middlemen" by lowering information asymmetries as well as agents' opportunism, minimising organisational costs and engaging a pool of self-employed workers (virtually recruited, effectively organised and persistently disciplined) through instant commercial transactions with an authoritative attitude (De Stefano and Aloisi 2018). The combination of affordable broadband, algorithmic governance, geo-location widgets, machine learning and other wonders of information communications technology (ICT) has blurred the confines between the two classical alternatives – "make" or "buy" (Rubery and Wilkinson 1981) – more deeply than previous experimentations with corporate governance and lean organisations (Zarkadakis 2018).

This hybrid form is often used to avoid the obligations and costs associated with employment status. This latest wave of ICT-enabled outsourcing and deregulation calls for deeper scrutiny, since it is rebooting the firm-boundary problem and reshaping our conceptions. What is left out of the story is the impact of this ongoing revolution on the governance structure and the internal organisation of the firm. This article analyses the shared features of the most common business model adopted in the platform economy, by focusing on the disintegration of the employing entity and the "pulverisation" of employment-related obligations. The article is organised as follows. The next section reviews the fundamentals of transaction-cost economics (TCE). Section 3 analyses the principal trends in the gig economy, while Section 4 conceptualises the "Cerberus firm" as a combination of pre-existing models. Section 5 is concerned with the extent to which transaction cost theory can still explain the platform business model. Section 6 concludes.

2. Orthodox taxonomies, transaction costs and the digital age

Economists, lawyers, organisational theorists, and business historians have long wrestled with the need to explain the firm's governance structure and internal workings (Salento 2003). Why should "islands of conscious power" arise in the surrounding "ocean of unconscious co-operation like lumps of butter coagulating in a pail of buttermilk" (Robertson 1923, cited in Coase 1937: 386)? This section re-examines some of the classical drivers of firms' decisions about internal organisation from a law-and-economics perspective, using Coase's and

Williamson's key insights on the "economic institutions of capitalism" to elucidate why firms can still derive full benefit from vertical integration in the "second machine age" (Brynjolfsson and McAfee 2014).

Transaction cost theory unpacks the decision-making processes determining the "efficient boundaries" of an organisation, defined as an optimal balance between activities completed within and outside the permeable borders of the firm (Stone 2004; Piore and Sabel 1984). According to Coase (1937), who first grasped the principle, transaction costs are minimised within the firm because formal bureaucratic power replaces time-consuming negotiation and price-mechanisms governance in the market. Transaction costs are defined as costs incurred for (i) obtaining reliable information, (ii) bargaining terms and conditions of the relevant contract and (iii) monitoring and enforcing the agreement (Williamson 1981). If these costs are prohibitive, firms bypass the markets by internalising production. According to Chandler (1977), businesses grow by bringing activities *within* the firm in order to optimise transaction costs and exercise upstream authority over resources. In classical and neoclassical economic theory it is well known that, when asset specificity, uncertainty and frequency are high (Simon 1955 and 1991), firms may find it more convenient to grow in a vertically integrated fashion, establishing a non-market governance system.

Coase (1937: 395) brilliantly observed that "[w]ithin a firm, market transactions are eliminated and in place of the complicated market structure with exchange transactions is substituted the entrepreneur-coordinator, who directs production." The exercise of managerial prerogative is made possible by labour regulation and facilitated by the formal existence of an accepted hierarchy. Notably, this private governance structure can also explain the key economic functions of the employment relationship, a legal tool allowing firms to curb transaction costs by reducing the need to constantly search for and select providers, obtain their consent, negotiate terms and conditions and enforce them (in other words, the processes of resourcing, transacting and contracting). The notion of the firm as a "command hierarchy" implies the concept of employment, just as the concept of self-employment implies the notion of the market.

As Baronian emphasises (2020: 217), authority and hierarchy "lower transaction costs related to the contractual relation of employment." The increase in "subordination costs" (also known as organisational costs) is compensated by the possibility of exercising managerial prerogative and hierarchical power instead of specifically negotiating each task through costly and lengthy transactions. Thanks to a unique scheme that "encapsulates" a set of developmental rules and conditions (Aloisi and De Stefano 2020), the employee accepts the authority of the firm and follows orders issued by managers in a given "zone of acceptance" (Simon 1951), thus avoiding the need for contracting every time from scratch. The employment relationship grants management essential organisational prerogatives: (i) the power to assign tasks and give instructions to workers; (ii) the power to control and assess the execution of such tasks; and (iii) the power to sanction non-compliant workers. The employment contract – which is the typical contractual scheme in the hierarchy model – is a perfect example of an "incomplete contract," an agreement that leaves some terms and conditions unspecified within a given framework of programmability. Its inherent flexibility represents a potent vehicle for integration.

To sum up, a firm is vertically integrated when market costs outweigh the internal costs of quick, robust administrative choices. As a result, the hierarchical firm can be far more efficient than the market structure, which may fail to coordinate production effectively and distribute resources optimally.

Undeniably, leading scholars have long since proposed unorthodox responses to the binary divide between "make" and "buy" – in particular, identifying networks as a very elastic way of coordinating economic activities. Networks – intermediate governance structures based on reciprocal, relational, mutually supportive actions – commonly involve aspects of dependency and indeterminacy in co-evolving ecosystems (Goetz and Scott 1981). Powell (1990: 301, 296) argues that the network model can be used "to make progress in understanding the extraordinary diversity of economic arrangements found in the industrial world" and that "the familiar market-hierarchy continuum does not do justice to the notion of network forms of organization."

Holmström and Roberts (1998) noted that many firms decide in favour of cooperation, rather than integration.[2] But seen through the prism of transaction cost economics (Lamoreaux *et al.* 2003), these relationships end up "imitating" the organisation of the centralised firm, or at least some of its defining characteristics (in particular, organisational power), thus building a hierarchy based on external resources rather than on internal ones (Hart and Moore 2005). In a context of

[2] In the Italian experience of *"distretti"* interactions among firms were aimed at promoting the development of specific ties of cooperation in a network (Moretti 2012).

formal independence and stable cooperation, one party dominates the other "interdependent" firm (Klein *et al.* 1978; De Stefano 2009).

It could be argued that conventional theories of governance and organisation cannot capture hierarchical forms of outsourcing in the digital age. In particular, the traditional theory describes integration as an inevitable result of asset specificity, underestimating the future consequences of technological development (Holmström and Milgrom 1994). Arguably, digital transformation and market specialisation could challenge large-scale vertical integration and uphold interconnected forms of governance (Brynjolfsson *et al.* 1994). An influential article anticipated that "by reducing the costs of coordination, information technology will lead to an overall shift toward proportionately more use of markets – rather than hierarchies – to coordinate economic activity […]" (Malone, Yates and Benjamin 1987: 484). Muehlberger (2005: 4) concludes that inventive firms benefit from an ambiguous situation characterised by "incentives (typically linked to market transactions) and control (typically adopted in the bureaucratic model)." Downsides are less evident. Employers may face difficulties in dealing with a segmented, relatively uncommitted and inharmonious workforce, supervising isolated workers operating outside the firm's premises while meeting customers' needs for quality and reliability.

Against this background, the last decade is likely to be remembered for the rapid rise of "platform-mediated work," a "newer" form of employment in which a digital infrastructure facilitates matching labour demand with supply and organises work performance by means of guidelines, ratings and other internal proxies driven by algorithms and artificial intelligence (Ivanova *et al.* 2018). As Tomassetti (2016) explains, the result is an apparently "win-win situation" in which firms control resources without owning them, rapidly adapting to downturns in the market, thanks to "a set of calls on resources that are then assembled into a performance" (Davis 2015: 502). Thanks to multiple commercial contracts, the employer has access to a large workforce while avoiding obligations under labour law and social security.

Outsourcing can be deliberately used to disguise the need to obtain a large pool of workers, abating sunk costs and assembling a flexible organisation. Replacing the employment contract with commercial contracts significantly reduces salaries, turning the wage-setting issue into a mere contracting decision. Needless to say, this shift results in a failure to implement clauses laid down in the applicable collective agreements. Therefore, these processes have been treated with fundamental disapproval, but also with insatiable curiosity and inevitable delay by labour lawyers (Corazza 2004).

If "pipeline businesses" built on departments, lines of authority, reporting mechanisms, and formal decision-making processes were well suited for production and distribution before the digital era (Van Alstyne, Parker and Choudary 2016), in an "always-connected" scenario the theory of an "economy in which firms [are] featured as islands of planned co-ordination in a sea of market relations" is called into question (Richardson 1972: 895). This is an issue of mounting importance in times of digital disruption: is the alternative between "market" and "hierarchy" still useful? To put it bluntly, the level of efficiency reached by new tech infrastructure can lower transaction costs and reduce frictions, making it easier and more convenient for firms to resort to complex and interdependent market relations to acquire "labour energies," instead of relying on vertical and accountable structures based on employment relationships (Williamson 1985). In short, the digital transformation is adding new impetus to the discussion on "what firms are and what they do" (Foss and Klein 2019), questioning the basic "make-or-buy" divide.

3. The gig-economy is anything but collaborative. Taking "platformisation" (more) seriously

Are we on the verge of seeing the definitive eclipse of the firm as we know it? Is this the future of work to which we are headed? It is undeniable that the global labour market faces the threat of tremendous "platformisation" in all industries and latitudes (Corporaal and Lehdonvirta 2017). App- and platform-based firms have the potential to become dominant providers of a large number of services, shrinking the firm and redesigning its notion and shape (Allen, Root and Schwede 2017). This trend could lead to organisations that are "fluidly assembled and re-assembled from globally networked labor markets" (Kessler 2017).

Despite various differences, labour platforms share one common characteristic. They very effectively mobilise, organise and dispatch a flexible, volatile and scalable workforce, significantly reducing transaction costs and information asymmetries for both clients and firms thanks to the efficient use of digital tools (Edelman and Geradin 2016). Featuring an "at arm's length" pattern built "as-needed," they break down jobs into small pieces and assign them to the lowest-bidding or, alternatively, highest-ranked worker – usually self-employed, with very limited access to labour and social security protection. Gig economy workers are excluded from many rights and benefits afforded to employees, including minimum wage, paid sick leave, parental leave, overtime pay, protection against unfair dismissal, compensation for occupational illness or injury, contributions to health insurance and retirement, and the freedom to organise and bargain collectively (De Stefano and Aloisi 2019).

By collecting a large amount of data and enforcing exclusivity clauses, many platform companies are adopting a *"fait accompli"* strategy, asking for forgiveness rather than permission (Garben 2017). Opportunistically, platforms select which rules they comply with and, often, contravene labour law principles or skip out on regulations, claiming that out-dated constraints should not hinder forward-looking innovation.

Platforms offer an indefinite "crowd" of precarious workers, making it cheap and easy to outsource; thus they fall into the vast category of tools tearing down the boundaries of the firm, promoting the engagement of external resources in lieu of stable employment relationships. By nature, they are built as "connecting hubs" ("brokers" or even "marketplace," according to their terms of service; see Hwang and Elish 2015; Aloisi 2016) where responsibilities are diluted. Collins's (1990) prediction about the transition "from mass production to networks of smaller business geared to rapid response to change in consumer taste" (356) is thus coming true.

From this viewpoint, the ability to create an "asset-light" enterprise out of existing relations is empowering a disintegrated form of organisation. Accordingly, researchers have generally agreed that the granitic notion of the firm has been redefined, to what has come to be known as the "*entreprise sans travailleurs*" ("firm without workers"), a temporary "network of individuals" specialised in coordinating funding, production and commercialisation (Malone and Laubacher 1998; Drahokoupil and Fabo 2016). In this respect, it is vital to differentiate between genuine innovations brought about by managerial decisions and restructuring processes that are merely aimed at circumventing labour and social security provisions.

Digital labour platforms represent a formidable example of centralised or hierarchical forms of outsourcing, because, "[b]y mixing governance structures, [they] are able to benefit from the advantages of outsourcing without losing control over labour and assets" (Muehlberger 2005: 4). In addition, platforms seek total control even if they shed responsibility, by consolidating authority structures resembling those common in employment relationships such as setting goals and deliverables, monitoring and evaluating work, providing feedback and imposing sanctions on reluctant workers. Thus, digital devices "are being used in ways that are designed managerially and (il)legally to evade employment status and thereby social and legal entitlements" (Medland *et al.* 2019: 3).

First, matching infrastructures make it simple to recruit the best suited candidate; second, "taskification" aggravates an extreme substitutability of workers, as very little commitment is needed for performing one-off activities; third, these extemporaneous micro-tasks can be allocated efficiently and reassembled at a later stage, if needed. Technology, in fact, can decrease the unit costs of coordination, by extending technical control and making it more penetrating (Munger 2015; Aloisi and Gramano 2020). Transaction costs can be reduced drastically by using modern instruments: (i) information can be obtained through people analytics and consumer reviews (Bodie *et al.* 2017); (ii) fares and other terms are stipulated "algorithmically" on-the-spot by apps taking into account all relevant factors; (iii) the electronically observed failure to follow guidelines, recommendations and instructions may constitute a breach of the participation agreement, leading to automatic expulsion.

As Aloisi and De Stefano (2020) have argued, many modern firms want to have it both ways. They exercise an employer's degree of control over the workforce model without being held accountable as employers (Spicer 2018). New players in the platform economy have invented a rather distorted picture of flexible innovation, based on cost-cutting, risk-shifting and the selective application of legal provisions (regulatory and contractual arbitrage).

4. The rise of the *"Cerberus"* firm, a plural and effective combination of pre-existing models

Even if transaction-cost economics has been foundational for most thinking about management, it might seem that "the business model of digital platforms has practically refuted the theoretical framework of TCE" (Baronian 2020: 229). However, TCE "still unites the thinking of academics, consultants and managers, and it still underpins most subjects taught in business schools. And there is a good reason for that: the old narrative is still largely correct" (Foss and Klein 2019). While most of the existing explanations of the efficient perimeter of a firm have focused mainly on material items and commodities, the general principles of transaction-cost economics apply to both physical assets and workers.

Companies strive to be flexible, specialised and innovative to face unexpected changes. After defining the main sources of the competitive advantage (i.e., organisational strengths), theorists decompose organisations into their key components and subsegments. Platforms can be seen as aggregations of specialised entities with complementary interests – expanding and reconfiguring themselves in a way that best adapts to or even anticipates changing market dynamics. Their fragmented and "fissured" structure optimises contractual flows by adapting the zero-inventory model to workforce governance and slicing the organisation into its smallest components (DiMaggio 2009; Weil 2019).

While it is true that "traditional command-and-control management is becoming less common [since] decisions are increasingly being pushed lower down in organisations" (Malone and Laubacher 1998: 47), at the same time, firms are still relying on a centralised form of coordination and upstream power. Indeed, efficiencies are achieved "as a result of firm integration, of replacing the market exchange activities (or inter-firm transaction costs) […] with agency cost (intra-firm costs)" (Tomassetti 2016: 28). It could be aptly pointed out that platform companies have reduced transaction costs between the platform and its users, not between workers/providers and users. Like firms, they rely on labour to extract value and exercise their control power over their workforce;[3] like markets, they dispatch and connect nominally independent actors; like networks, they match and synchronise demand and supply of services by facilitating interdependence and creating value for both sides of the transaction (even if the vast bulk of the value is captured by the platform).[4]

Although the institutional taxonomy is an effective instrument for classifying the different models of (standard) firms, there are infinite intermediate options

[3] As is demonstrated in C-434/15 *Asociación Profesional Elite Taxi v. Uber Systems Spain, SL* (2015), there is a gap between rhetoric and reality. Indeed, Uber interferes in the discrete task by setting the price, arranging the trip and potentially excluding workers who are caught in breach of the relevant terms and conditions. In 2017, the Court of Justice of the European Union observed that "Uber determines at least the maximum fare by means of the eponymous application, […] receives that amount from the client before paying part of it to the non-professional driver of the vehicle, and […] it exercises a certain control over the quality of the vehicles, the drivers and their conduct, which can, in some circumstances, result in their exclusion" (ECLI:EU:C:2017:981). It is a system where "with great power comes virtual freedom" (Aloisi 2018).

[4] For a detailed analysis of network effects and multi-sided markets, see Zhu and Iansiti (2019).

along the spectrum from a centralised hierarchy to dispersed networks. Instead of an on-off toggle, we might think of a composite scale with movable switches (Grimshaw *et al.* 2005). This allows us to argue that platforms are (i) firms when it comes to exercising command-and-control prerogatives, as the authority mechanism can be enforced by vertical relational contracts; (ii) markets when it comes to treating workers as independent providers, avoiding subordination costs through commercial agreements; and (iii) an immaterial, modular infrastructure relying on "network effects" when it comes to allocating products and services by leveraging the number of users (Srnicek 2016; Cohen 2017).

This "non-standard form of firm" (Lo Faro 2017) can be also seen as a combination of elements pertaining to both "hierarchy" (a vertical structure with a traditional configuration and a classic organism based on "intra-firm contracts") and "the market" (inter-firm contracts). Platforms "replace the 'spontaneous' 'autonomous adjustments' of supply and demand from price signals with 'consciously coordinated adaptations' of centralised production" (Tomassetti 2016: 23). Like Cerberus, the mythological three-headed monstrous dog, platforms are multi-headed economic players that are likely to metastasise from transaction enablers to participation gatekeepers (Malone, Yates and Benjamin 1987). This is why I use the seemingly contradictory formula "hierarchies without a firm."

This sort of "hybrid" among market, hierarchy and network (the Cerberus firm, see Table 1) combines hierarchical organisations and interdependent models at the core area of the business, "while highly temporary market relations continue to predominate on the periphery," thus facilitating "a correspondingly (more) rapid change in the institutional arrangement" (Sydow and Helfen 2016: 2). The table shows how strong authority mechanisms and liquid responsibilities can go hand in hand.

TABLE 1 • STYLISED COMPARISON OF FORMS OF ECONOMIC ORGANIZATION

	Forms			
Key features	*Market*	*Hierarchy*	*Network*	*Cerberus firm*
– normative basis	Contract - property rights	Employment relationship	Complementary strengths	Contract - property rights
– means of communication	Prices	Routines	Relational	Relational
– methods of conflict resolution	Haggling - resort to courts for enforcement	Administrative fiat - supervision	Norm of reciprocity - reputational concerns	Supervision, norm of reciprocity - reputational tie
– degree of flexibility	High	Low	Medium	Low, nominally high
– amount of commitment among the parties	Low	Medium to high	Medium to high	Medium to low
– tone or climate	Precision and/or suspicion	Formal, bureaucratic	Open-ended, mutual benefits	Formal, bureaucratic
– actor preferences or choices	Independent	Dependent	Interdependent	Interdependent

How can "hierarchies without firms" be as effective as traditional highly integrated firms? The proliferation of vertical decomposition has cast doubt on whether entrepreneurs can succeed in running an efficient business while eschewing the powers granted to the formal employer (Marglin 1974). The simple answer is that they do not eschew those powers; they merely delegate them to algorithmic governance or automatic review mechanisms composed (mostly as 'work made for hire') by human programmers, at the direction of human bosses – software that can effectively manage, monitor, and consequently discipline performance execution. This organisational arrangement replaces middle managers with seemingly neutral, objective technology, thereby decoupling managerial power from protective obligations (Aloisi and De Stefano 2020).

5. THE PLATFORM BUSINESS MODEL DOES UBERISATION REDEFINE THE NOTION OF THE FIRM?

Undoubtedly, the increasing relevance of the service-based sector and the crucial role played by digitalisation may have heralded a new era of postindustrialism; of course, authority is exercised in ways that differ from the caricature of the "command-and-control" approach.[5] But no, "Uberisation" does not redefine the notion of the firm – it merely hides the shift from a bureaucratic control to a more sophisticated, technocratic and invasive one (Yung 2005). As Foss and Klein (2019) explain, "the basic idea of a firm, the nature of ownership and responsibility, and how people coordinate tasks are the same as always." To this extent, the apparent success of the narrative describing the final eclipse of Taylorism is far from justified. Platforms rely on the sharp separation of design, management and execution. While claiming to definitively overcome strict protocols, they embody and fully exploit the principles of scientific management, implementing the crucial aspects of the traditional division of labour in a rather voracious and predatory way (Lomba 2005).

As I note above, it would be misleading to look at labour platforms as a unique monolith. Platforms have many dissimilarities; there is no such thing as a functional uniformity. Nevertheless, they share some hallmarks that are crucial for the design of a system of "organised irresponsibility" (Collins 2015; Countouris and Ratti 2018).

The interrelationship among actors could be described as triangular (or multi-party), as the platform (which controls intellectual property rights and governance) also connects between buyers ("requesters," according to the internal terminology) and workers ("sellers" or "providers"). Although the model resembles the one of temporary work agencies, this way of arranging a digital business blatantly denies the existence of an employment relationship, thus "undermining the regulatory framework envisaged for three-way relationships" (Potocka-Sionek 2020: 187). Unquestionably, it is more convenient for clients and employers to engage workers task by task rather than hiring them as employees. This peculiar model allows platforms to deploy managerial prerogatives over a contingent workforce mobilised by means of formal and informal contracts, thus responding to demand peaks and shifting the impact of fluctuations and uncertainty onto the worker's shoulders. This is the source of the platforms' considerable cost advantage.

Platforms exploit the massive use of advanced information technology, typically a combination of widespread broadband, a user-friendly digital application and increasingly effective tools, such as geo-localisation via GPS and management by algorithms, to facilitate transactions and keep the distribution lean (Womack, Jones

[5] This paragraph draws upon De Stefano and Aloisi (2018).

and Roos 1990; McGaughey 2018). In addition, platform work can be considered as a promising laboratory of new practices of people analytics, management by algorithm and gamification. By relying on customer-based feedback systems for quality checks that can be handled seamlessly through electronic interfaces, they externalise some control functions.

Platforms constitute a promising example of a two- or multi-sided market (Evans and Schmalensee 2016; Rochet and Tirole 2006; Evans 2003; Katz and Shapiro 1985). One side is made of clients who benefit from access to low-cost services while supplying the platform with data; the other side is made of clients who may also benefit from positive network externalities (Valenduc and Vendramin 2016). Platforms also benefit from the fact that workers must use their own equipment (personal computers, bicycles or cars, whether leased or owned) to provide a service (Telles 2016). On a closer inspection, this model of vertical outsourcing has existed for decades. What is new is the penetration of infrastructure that determines frictionless transactions, not to mention the quantitative leap and exponential growth in data and metrics that, collected, refined and analysed, can "train" the internal algorithm, making matching and governance even prompter and more successful (Valenduc and Vendramin 2016).

The basic structure can be found in completely different sectors, replicating the original model of a hiring hall or a virtual bulletin board such as Craiglist or eBay, which are advanced databases (Autor 2001). Platforms generate value by simplifying and supporting the interplay between providers and users/consumers. Each successful interaction guarantees a significant transaction fee to the platform. At the same time, platforms are able to avoid high fixed costs as well as to shed variable costs of production, which results in large economies of scale. These business relationships "also transform fixed costs into variable ones" (Muehlberger 2005: 3).[6] This is how economies of scope can be combined with economies of scale and specialisation (Golzio 2005), leading to a high-performing model of hierarchical outsourcing. At the same time, the firm expects employees to offer commitment without getting loyalty in return, thus changing "the implicit contract between the employee and the firm" (Stone 2005: 118).

Consequently, a small but growing body of research on the implications of non-standard firms has suggested that it is important to be able to orchestrate

[6] According to an article published in the magazine «TechCrunch», "Uber, the world's largest taxi company, owns no vehicles. Facebook, the world's most popular media owner, creates no content. Alibaba, the most valuable retailer, has no inventory. And Airbnb, the world's largest accommodation provider, owns no real estate" (Goodwin 2015).

processes, solicit participants, and interact fruitfully with the surrounding ecosystem. This is only partly true. In combination, the contingent nature of the relationship and the reliance on procuring (as opposed to developing internally) the skills that the firm needs significantly misalign the interests of employer and employees with regard to the development of key competences (in labour economics terms, "firm-specific human capital") and new skills. Marginal workers will remain so unless they develop "specialised not specific" skills that can be used outside the firm, assuming that firms do not require the same level of loyalty and commitment from all workers (Deckop, Mangel and Cirka 1999; Killick 1995). This may also have a negative and statistically significant effect on productivity (Lindbeck and Snower 1988; Boeri and Garibaldi 2007).

In short, according to business literature, platforms perform three specific functions: (i) match workers with employers/clients, (ii) provide a common set of tools and widgets that enable the delivery of work in exchange for money, (iii) set governance rules according to which good actors are rewarded and poor behaviour is discouraged. As Nick Srnicek (2017: 48) puts it, "[p]latforms, in sum, are a new type of firm; they are characterized by providing the infrastructure to intermediate between different user groups, by displaying monopoly tendencies driven by network effects, by employing cross-subsidization to draw in different user groups, and by having designed a core architecture that governs the interaction possibilities" in a fluid way.

Contrary to what usually happens in value chain models, platforms make profits as the ecosystem expands in a circular and iterative progression. Network effects increase proportionally with the growing number of participants on one side of the market (direct effects) or the opposite side (indirect effects); that is why online platforms may support one side of the network.[7] What makes a platform distinctive is the ability to capture and utilise information about its massive network of customers and suppliers (Birkinshaw 2018; Uber Technologies Inc. 2019). But platform companies "share with all other kinds of capitalist firms the relation of production based on the property and use of non-human assets by capitalists who extract living labor in order to valorize these social means of production" (Baronian 2020: 229). In short, and contrary to the widespread narrative on disruptive tech, there is no significant difference between the nature of the firm and the nature of the platform, at least from an organisational and

[7] Most platforms aim at quickly capturing network externalities and becoming monopolies (Schmidt 2017).

legal viewpoint (Henten and Windekilde 2015). Instead of advocating a partial abrogation of labour law to unleash innovation, we need to understand the broader picture in which "innovative firms" are situated.

6. Final remarks

Platforms should be understood as non-standard firms that style themselves as networks of market-based contracts, yet use both technological means and pure market power to dictate work rules in great detail, and to organise, control and discipline workers through distributed mechanisms (Edward 1980). Contrary to the industry's claims, by taking advantage of either new technology or new labour demographics or new patterns of production and consumption (Hyman 2018), these powers closely resemble managerial powers without being surrounded by the regulation essential to mitigate them (Aloisi 2018; Prassl 2018).

Vallas and Schor (2020: 10) have recently explained that, as distinctive organisations, platforms "incorporate many of the features of prior economic structures selectively" by retaining authority over important functions while ceding a little control over others. In order to stay competitive, they may look for ways to get rid of the presumed constraints of labour law and social security (Griswold 2016). On the one hand, this model represents a sort of "throwback to the industrial model, incorporating the efficiency and control of automatic management, without the industrial model's job security or stability" (Cherry 2016: 27). On the other, the use of non-standard arrangements makes it easier for platforms to gain a competitive advantage, as they face a much smaller regulatory burden than their competitors do. That is, despite the linguistic "sophistry" (Lobel 2018), the common business model in the platform economy combines features and functions belonging to classical models. Indeed, hierarchies, markets and networks are far from opposing and mutually exclusive forms of organisation.

In addition, "as platforms mature, vertical integration is growing" (Gapper 2019) to meet consumers' expectations of accountability and standardisation. Concomitantly, many gig companies rely on standard contracts and flexible schedules. Several cases demonstrate that the platform economy "can comfortably coexist with the legal determination of an employment status" and employee rights (Aloisi and De Stefano 2020: 56). Concerns that regulation will drive platforms or new companies out of business would therefore seem to be overblown, much like earlier arguments that regulation would end various aspects of the "Fourth Industrial Revolution" (Cherry and Aloisi 2017). As a result, from a regulatory standpoint calls for special and differentiated treatment should not be supported or tolerated.

This spectacular intermingling of old and new challenges explains why platform-based work continues to catalyse so much attention. Transaction cost theory and the traditional repertory of coordinative mechanisms expose the unchanged power structure in the highly unstable gig-economy and explode the fervid myth of the novelty of online platforms. In analogy to what has already been said by Powell (1990), new types of coordination of economic activity represent a combination of existing models. Companies such as *Uber, Deliveroo* or *Amazon Mechanical Turk* retain authority, centralise power, consolidate control and develop ties among selected participants. The ascendancy of such new "geometry" in contemporary capitalism may prove misleading (Kornberger *et al.* 2017). Indeed, platforms do not disrupt the demarcation between alternative models; rather, they reinforce the implicit theory while proposing definitional hybrids that are not always a true reflection of reality.

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