

Platformization as subsumption? A case study of taxi platforms in Oslo, Norway

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journals.sagepub.com/home/cnc**Sigurd M Nordli Oppegaard** 

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Abstract

Based on a case study of taxi platforms in Oslo, Norway comprised of interviews with drivers and an ethnographic fieldwork working a driver, this article explores the platformization of the Norwegian taxi industry and the drivers' working conditions through Marx's concept of subsumption. In Norway, taxi platforms emerged in an already formally subsumed industry. The platforms have developed a new market segment, and also introduced an additional element in the subsumption of labor, whereby the platforms exert control over the market relations (by determining number of rides, earnings, and potential exclusions) through digital technology. While the platforms' 'algorithmic management' is often described as a technology that might reorganize the world of work, the analysis finds that this form of control does not radically transform the drivers' labor processes and cannot be seen as an example of what Marx termed real subsumption. However, the platformization of the industry, wherein the platforms appropriate the social and technological conditions of production, might result in a reorganization and transformation corresponding to a real subsumption in the future. The article concludes that exploring platform work through Marx's notion of subsumption highlights, on one hand, the relation between platforms and workers as characterized by subordination and domination and, on the other, that a detailed and critical assessment of the actual consequences of platform-based control is necessary to capture the contextual dynamics of platformization.

Keywords

Control, gig work, Marx, Norway, platform work, subsumption, taxi, technology

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Introduction

Over the last decade, platform-mediated gig work has emerged as much-debated and much-studied phenomenon. Despite a myriad of empirical studies, however, there are to date few theorizations of these forms of work. In this context, Simon Joyce (2020) provides an important remedy, arguing for a theorization of the social relations of platform-mediated gig work through the Marxist concepts of subsumption and the cash nexus. According to Joyce, analyses of platform work have a tendency to adopt the platform companies' own terminology or use highly descriptive concepts. Through the concepts of subsumption and the cash nexus, Joyce centers the analysis on the labor–capital relation. He highlights the similarity between platform work and Marx' conceptualization of formal subsumption, as 'formerly independent workers – from taxi drivers to graphic designers – increasingly work under the domination of large concentrations of capital in the form of companies running platforms' (Joyce 2020: 548). Joyce's approach is a reminder that the primary social relation of platform-mediated gig work is one between capital and labor, too often obfuscated by analyses describing the 'gig' and 'platform' economy as a triangular relationship between worker, platform, and customer, as well as a timely corrective to the technological determinism and novelty-focus that characterize some analyses.

In this article, I follow-up on Joyce's approach with an empirical analysis of the platformization of the Norwegian taxi industry and the drivers' working conditions through Marx's concept subsumption. I investigate the following research question: How can the platformization of the Norwegian taxi industry be conceptualized as subsumption? Subsumption describes a process whereby workers and the labor process are, first, materially and economically constituted as a commodity and moment of capital, and become 'the instrument of the valorisation process' (MECW 43: 424), and second, subjected to the domination and subordination this relation entails (Endnotes 2010; Saenz de Sicilia 2021), highlighting the specificity of capitalist social relations. Marx made a distinction between formal subsumption and real subsumption. Formal subsumption denotes processes whereby capital exerts dominance through economic relations of dependence, while real subsumption refers to capital's transformation of the labor and production process to correspond to the capitalist relations of production. In Oslo, platforms, such as Bolt, Uber, and Yango, have become important actors in the taxi industry over the last years, establishing a new market segment of the taxi market while basing their operations on the previously existing work arrangements characterizing the Norwegian taxi industry. My analysis critically assesses the effects of the emergence of digital platforms in Norwegian taxi industry and uses the concepts of subsumption to explore how the platforms exercise control over the drivers and their labor process.

The literature on platform work highlights the digital technology as a tool for controlling workers through 'algorithmic management' (Lee et al. 2015) and platforms have been described as technologies that deepen and radicalize the real subsumption of labor (Amorim & Moda 2020: 106; Diab 2019). My analysis, however, suggests that the introduction of digital platforms first and foremost illustrates the *formal* transformation of the labor process and industry. The drivers retain a substantial autonomy, and the platforms exercise a form of control directed at the conditions under which

they work that primarily function through economic means and a coordination of market relations. The platformization of the Norwegian taxi industry has not resulted in a radical transformation corresponding to Marx's conceptualization of *real* subsumption but can rather be seen as an element in the *formal* subsumption of labor, wherein the platforms exert an economic form of power through digital technologies. Still, the case of taxi platforms in Oslo shows that the platforms appropriate the social and technological conditions of productions and introduce a process that might result in a *real* subsumption in the future.

Below, I first review recent contributions to the literature on platform-mediated gig work, from which two parallel foci emerge: First, the 'gig' aspect, emphasizing the way in which workers in the gig economy, often classified as self-employed and thereby excluded from the social protections following an employment relationship, perform fragmented tasks in a piece rate system, often resulting in a low and unstable income. Second, the 'platform' aspect, highlighting how these companies utilize digital technology to coordinate markets, match workers/sellers and customers, and control labor processes. I then present Marx's notion of subsumption. In the third section, I describe how digital platforms have emerged in the Norwegian taxi industry and detail my methodological approach, before using the concepts of subsumption to analyze the platformization of the Norwegian taxi industry and the drivers' working conditions. In the final section, I discuss, first, how platformization of the Norwegian taxi industry can be understood through Marx's notion of subsumption, and second, the implications of this analysis for how platform-mediated gig work is to be perceived and researched. I argue that the platformization of the Norwegian taxi industry primarily should be understood as an example of formal subsumption. While this platformization might result in a real subsumption in the future, such developments are inhibited by features of the labor process, legal regulations and the platforms' growth strategies.

Labor in the gig and platform economy

Digital platforms are key actors in the ongoing digitalization of work and everyday life (Ferrari & Graham 2021). Digital platforms can refer to social media platforms and advertisement, such as Facebook, YouTube, and Twitter, systems of sensors monitoring and organizing industrial production, platforms selling access to digital goods, such as Spotify and Netflix, cloud-based platforms for data storage and analysis (Amazon Web Service and the like), platform-based companies selling goods provided by its users (Airbnb, Ebay, and Etsy), and platforms that sell services – and labor power – such as Uber, DoorDash, Deliveroo, Upwork, and so on (Srnicek 2017: 49). The latter category, digital platforms that mediate paid work (Moore & Joyce 2020: 929), seldom provide workers with full-time permanent employment, monthly wages and social protections. Rather, they allocate single tasks – referred to as 'gigs' – to a labor force usually paid on commission and classified as self-employed independent contractors. These types of work can thus be termed 'platform-mediated gig work' (Van Doorn et al. 2020).

Platform-mediated gig work is a heterogeneous phenomenon (Vallas & Schor 2020), spanning many industries in the service sector, different skill-sets and concrete labor processes. In the literature, the most common empirical cases are transportation platform

(Jamil 2020; Oppegaard 2018, 2020, 2021), food delivery platforms (Cant 2020a; Jesnes 2019), and online, remote micro-task platforms (Bergvall-Kåreborn & Howcroft 2014; Wood et al. 2019). The literature on platform-mediated gig work highlights two central features of platform-mediated gig work: First, the ‘gig’ or formal aspects of platform-mediated gig work, and second, the ‘platform’ or technological aspects of platform-mediated gig work (Oppegaard 2021). The first tenet of the literature focuses on the way in which platform-mediated gig work represents a fragmentation of jobs and labor processes into separate tasks or ‘gigs’ (Prassl 2018; Woodcock & Graham 2020; Van Doorn 2017), emphasizing the *formal* – economic and legal – aspects of the employment model, such as workers’ form of employment, payment model, working time, and scheduling, and so on.

The second tenet of the literature on platform-mediated gig work emphasizes how these companies use digital platforms to coordinate their markets, connect workers and products with customers, and organize the labor processes (see Chan 2019; Lee et al. 2015; Moore & Joyce 2020; Rosenblat & Stark 2016; Woodcock 2020). This segment of the literature highlights how the platforms are used to allocate tasks to the workers, regulate pay (Bergvall-Kåreborn & Howcroft 2014; Wood et al. 2019), control and surveil (Gandini 2019; Jamil 2020), and constitute a particular form of ‘algorithmic’ (Lee et al. 2015) or platform-based management model (Moore & Joyce 2020; for a critical review of the literature’s overemphasis on control, see Joyce & Stuart 2021). Neither the gig nor the platform aspects of platform-mediated gig work are in themselves new. ‘Gigified’ piece rate models were prevalent in the early phases of capitalism and have since remained significant in particular industries (Stanford 2017), while the platform-based control can be seen as a development of the technology used in call centers (Woodcock 2020) and for fleet management, warehouse organization, and so on in the logistics sector (Cant 2020b). In this article, I use a case study of taxi platforms in Oslo, Norway to discuss how platformization can be understood through Marx’s notion of subsumption. In the analysis, I pay particular attention to the relation between the gig and the platform aspects of the work arrangements, in an effort to highlight the economic and technological control exercised by the platforms.

Subsumption of labor

In his draft of *Capital Volume 1* (see MECW 30: 92–94, 262–279; MECW 34: 30, 93–121, 424–466; Marx 1990: 947–1084), Marx used the concept of subsumption to describe the way in which work and workers are made part of and put under the logic and control of capital as a social form as the labor process becomes ‘capital’s *own* process’ (MECW 34: 424; see also; Endnotes 2010; Mau 2019: 202ff; Saenz de Sicilia 2021). He made a distinction between formal and real subsumption to describe

two separate forms of capitalist production, of which the first always forms the predecessor of the second, although the further developed form, the second one, can in turn form the basis for the introduction of the first in new branches of production (MECW 34: 95):

Formal subsumption is a form of production of *absolute* surplus value, that is, surplus value extracted by increasing the absolute amount of surplus labor in a given production

process, either by increasing the number of workers or the length of the working day. Real subsumption, on the other hand, is a form of production of *relative* surplus value, that is, surplus value produced by increasing the productivity of a unit of labor time, shortening the socially necessary labor time, for example, through the introduction of productivity-increasing technology or new ways of organizing the labor processes.

Subsumption of labor under capital describes a process whereby workers and the labor process are subjected to or governed by capital as a set of social and economic relations. By being the purchaser of labor-power, capital – as the ‘conductor of his labor’, as Marx puts it – commands the workers (MECW 34: 396). The concepts have been used to describe and specify historical periods of the capitalist mode of production (see, e.g. Balibar 2019), while others see the distinction as different *modes* of subsumption – as two distinct types of domination and subordination, or strategies for increasing surplus value (Endnotes 2010; Mau 2019: 216–217; Murray 2004). In this analysis, I draw on the latter understanding to operationalize formal and real subsumption as two co-occurring ways in which capital exerts dominance over labor and the social and material aspects of the production process, both continuously operating under contemporary capitalism (Vrousalis 2017: 435). Marx highlights that both formal and real subsumption are based on the relation between capital and labor as a relation of compulsion (to perform surplus labor) (MECW 34: 102, 426) and writes that formal and real subsumption are two distinct but interconnected forms of domination and social organization: Formal subsumption is the ‘*general* form of any capitalist production process’, but argues that it also is a ‘particular form alongside the developed mode of production which is specifically capitalist’, referring to real subsumption, as real subsumption entails formal subsumption, while formal subsumption ‘by no means necessarily involves the second’ (MECW 34: 424).

Formal subsumption refers to the commodification of labor power and the economic and legal relations of production (Fuchs 2019: 43; Postone 2003 [1993]: 182). Formal subsumption entails that labor takes the specific form of ‘free’ wage-labor (MECW 30: 92–93) – a monopolization of labor’s means of subsistence. Formal subsumption is ‘merely’ an economic form of domination and subordination where the worker becomes *economically dependent* on the capitalist. Marx writes:

The previously independent peasant becomes, as a factor in the production process, dependent on the capitalist, who directs the process; his very employment depends on a contract he has concluded in advance as a commodity owner (an owner of labour power) with the capitalist as a money owner. (. . .). Now he relates to him merely as the owner of capital. (MECW 34: 425)

With formal subsumption, Marx argues, ‘[t]he master is no longer a capitalist because he is a master, but a master because he is a capitalist’ (MECW 34: 435) and highlights the domination immanent in the capital–labor relation (see also Joyce 2020; Mau 2019), a domination not arising from personal relations, but of an *economic* relation of dependence (MECW 34: 426). While not involving a transformation of the production or labor processes themselves, formal subsumption enables an organization of production that brings with it a quantitative transformation of production characterized by a more continuous, more orderly and less ‘wasteful’ process, as well as a lengthening of the workday

(MECW 34: 427). According to Marx, formal subsumption is based on previous, pre-capitalist, forms of production. He notes that formal subsumption is termed 'formal subsumption' because

it is distinguished only *formally* from the earlier modes of production on the basis of which it directly originates (is introduced), modes in which either the producers are self-employed, or the direct producers have to provide surplus labor for others (MECW 34: 430).

Real subsumption, on the other hand, involves a continuous transformation of the production process and a materialization of capital as a social form (Mau 2019: 203; MEWC 34: 30). While formal subsumption refers to the imposing of the wage-labor relation on workers, real subsumption entails a qualitative transformation of the labor and production processes themselves (Fuchs 2019: 43), that, in contrast to formal subsumption, increases productivity and produces relative surplus value (MECW 34: 429). Capital takes control of the production process to reorganize it in a way that is compatible with capitalist relations of production (Mau 2019: 205). Marx therefore refers to real subsumption as the 'specifically capitalist mode of production' (MECW 34: 428) where capital 'not only changes the labour process formally, but radically remoulds all its social and technological conditions' (MECW 34: 30). Real subsumption entails a constant development and revolutions in the mode of production, the 'development of the *relations of production* corresponding to the capitalist production process – relations between the different agents of production, in particular between the capitalist and the wage labourer' (MECW 34: 428).

According to Marx, real subsumption can first arise on the basis of formal subsumption: It 'only takes place when capitalists of a certain importance have directly taken control of production' (MECW 34: 432) and is a form of domination through the labor process. Formal subsumption entails a mere formal change in the labor process through the introduction of wage-labor – real subsumption, on the other hand, Marx writes, 'transforms the real nature of the labour process and its real conditions' (MECW 34: 439). This transformation is capital molding the labor process through a 'complete and constant, continuous, and repeated revolution in the mode of production itself, in the productivity of labour and in the relation between capitalist and worker' (MECW 34: 439), a transformation that is both material and social (MECW 34: 30; Postone 2003 [1993]: 284).

Marx also highlights certain 'hybrid' forms of subsumption. 'Hybrid subsumption' (Marx 1990: 645; Murray 2004: 263) or 'preformal' subsumption (Banaji 2010: 282) refers to arrangements where capital appropriates surplus value without having formally subsumed labor or acquired direct control of the labor process (Vrousalis 2017: 422), such as in the case of interest-bearing or merchant's capital, or the so-called domestic industry (Marx 1990: 590ff). Murray (2004: 263ff) describes two sub-types of hybrid subsumption: transitional and accompanying hybrid subsumption. The former denotes a bridge toward modern capitalist social relations of production that draw production away from pre-capitalist forms based on personal domination. The latter refers to arrangements where capital exerts an actual but indirect power over previously un-subsumed production processes (see Marx 1990: 1023). Under hybrid subsumption, the

relationship between producer and exploiter appears as a relationship of buyer and seller, who face each other as formally free agents (Murray 2004: 264).

Case description and methodology

Digital, platform-based companies first entered the Norwegian taxi market in 2014, when Uber launched two services, Uber Pop and Uber Black, in Oslo. While Uber Black was organized through limousine companies with licensed cars and employed drivers, Uber Pop allowed everyone to register as drivers and use their own personal car to pick up customers through Uber's platform. These drivers, however, did not have taxi licenses, as required by the Norwegian taxi market regulation, and Uber Pop was discontinued in 2017, after a number of drivers as well as Uber's Norwegian and Dutch subsidiary were fined for providing taxi services illegally (Oppegaard 2018, 2020, 2021). This provoked a process toward a deregulation of the Norwegian taxi market to accommodate Uber's business model, and in November 2020, the numerical restrictions on taxi licenses as well as the requirement to be organized in a dispatching center were repealed (Oppegaard et al. 2020; Valestrand & Oppegaard 2022; Aarhaug et al. 2020). Uber 're-launched' its services in Oslo, followed by the Estonian transportation platform Bolt in January 2021 and the Russian platform Yango in July 2021.

The Norwegian taxi industry has traditionally been organized with three supply-side actors: Taxi owners, dispatching centers and employed drivers. Taxi owners are self-employed license holders who own the cars. Prior to the deregulation, the owners were required to be organized in dispatching centers who set the fare and allocate booked requests. The Norwegian dispatching centers are either cooperatives owned by the taxi owners or, increasingly over the last decade, privately owned commercial entities (Aarhaug et al. 2020). With the deregulation of 2020, however, owners were allowed to operate independently, without being connected to a dispatching center. While some owners operate alone, with one car and driving all shifts themselves, others employ additional drivers. These drivers are paid on a piece-rate model and receive between 30 and 50% of what they 'drive in'. Some taxi owners have a few cars and employ a handful of drivers, while others own many vehicles and have many employees.

The taxi platforms in Oslo created a new segment of the taxi market and emerged within the traditional organization of the industry (Valestrand & Oppegaard 2022). Both owners and drivers register on the platforms and receive requests from passengers through the platforms' mobile applications, in addition to finding customers in traditional market segments, such as street hailing and taxi ranks. The platforms have recruited owners and drivers both among traditional taxi owners and drivers in Oslo, and among those who have entered the industry after the repeal of numerical restrictions on taxi licenses. Demographically, the Norwegian taxi industry has always been male dominated and over the last decades, immigrants have come to constitute the majority of the work force, particularly in the large cities (Staalhane & Vassenden 2022; Aarhaug et al. 2020).

My analysis is based on two sources of primary data. First, I have conducted 65 interviews with drivers who work through the platforms. Some of these are owners who also drive. Twenty-one of the interviews were conducted in 2018 with Uber Black drivers, as this was the only platform service available in Oslo at the time, and 44 interviews were

conducted after the deregulation of the taxi market in November 2020 until June 2022. I ordered rides through the platforms and when entering the car, I told the drivers that I am a researcher studying platform work in the taxi industry and asked the driver whether I could ask them questions about their work during the ride. I always stressed that participation is voluntary and that everything they say would be completely anonymous. After each ride, I gave the drivers a ‘five-star’ review and the maximum tip allowed by the platforms (5 Eur on Bolt and Uber, and 15% on Yango). All the drivers I have interviewed (62, as I on three occasions met a I driver I had interviewed previously.) have been male and all but two have migrant backgrounds. A significant majority of them came to Norway as refugees, usually from Africa, the Middle East, and South Asia. The length of the interviews was limited by the length of the ride and usually lasted around 15–25 minutes. I generally did not record the interviews but wrote detailed fieldnotes right after each ride. This means that what they told me has been filtered through my recollection and that I cannot quote them verbatim.

Second, I have conducted an ethnographic fieldwork working as driver for the taxi platforms in Oslo. In May 2021, after having obtained the necessary professional license, I was employed by a taxi owner and worked part-time until late September 2021, driving customers from Bolt, Uber and Yango. In total, I drove 16-day shifts – from six in the morning to three or four in the afternoon – and approximately 160 hours and 180 customers on Bolt, Uber, and Yango combined. I only drove dayshifts, as I did not want to take away the more lucrative night shifts from the other drivers who used the same car I did and who actually needed the money. When driving, I recorded verbal fieldnotes about what I experienced as a driver, paying particular attention to the way the digital platforms function, instructions and earnings. After each shift, I transcribed the recorded fieldnotes.

Subsumption and taxi platforms in Oslo

In the following analysis, I explore the platformization of the Norwegian taxi industry through Marx’ notions of subsumption. Subsumption is generally used to describe the development of the capitalist mode of production – how capitalist relations of production are established and how capital subjugates pre-capitalist production processes. In the case of taxi platforms in Norway, as well as many other forms of platform work, the platform companies’ technologies and organizational forms were introduced into already capitalist production processes. As mentioned above, the taxis are owned by self-employed license holders who usually drive some shifts themselves and also employ additional drivers. The taxi owners bear the costs of operating while the employed drivers’ earnings are dependent on their commission and the number and length of rides. Taxi drivers (employed driver as well as driving owners) find customers in the street, at taxi rank, and through the platforms and dispatching centers, and generally have to work long hours to earn a decent living, usually 10–12 hours, 6 or 7 days per week.

Thus, the Norwegian taxi industry was already formally subsumed when the platforms entered (see Diab 2019; Mathew 2015). The drivers are – similar to many other platform workers (Joyce 2020) – formally subsumed through an employment model based on piece rates where they carry the risks of fluctuations in demand. The employed drivers are formally subordinated to their employers, the taxi owners, who schedule shifts

and thereby control their means of subsistence through the employment relationship (see MECW 34: 96). The taxi owners, on the other hand, remain small-scale or petty capitalists, as owners of the cars and holders of taxi licenses, in some cases also employing other drivers, although often also driving shifts themselves. These owners, however, have become partially dependent on the platforms' market and passenger requests allocated through their technology.

A real subsumption of taxi drivers' labor would entail capital transforming and controlling the production process (MECW 34: 439). Based on a case study of Uber drivers in Brazil, Amorim and Moda (2020) argue that the digital platform deepens and radicalize the real subsumption of workers through the real-time management of drivers, increasing the control exercised over drivers and their labor processes. Diab (2019), on the other hand, holds that Uber's appropriation and use of data, and aim to replace drivers with autonomous vehicles represents a transition toward what he terms 'autonomous subsumption', a historical stage wherein capital tries to become autonomous from labor-power. In the case of the Norwegian taxi industry, however, platformization has not led to a fundamental transformation of the production processes. While dispatching centers allocate booked requests to drivers and set the fare, and thereby partially control what rides drivers get and how much they earn (Mathew 2015), taxi drivers have a substantial formal freedom and autonomy in the labor process: they can – within the hours they have access to a car – drive as much or as little they want, take breaks when they find it necessary and choose the area in which they want to look for a fare themselves. As formally subsumed through an employment model where they are dependent on completing rides to earn money, this theoretical flexibility is in practice rather limited (Shibata 2020) and the drivers must work long hours to make a living. But in the concrete labor processes, the drivers are not subjected to direct control from neither the owners nor the dispatching centers. As Marx (1990: 694–696), argues the piece rate model makes capitalists' control over the workers' process superfluous, as the quality and intensity of the work is controlled by the wage-form, wherein the intensification and lengthening of the working day is in the workers' interests. Piece rates also inculcates in the workers a sense of freedom, while at the same time creating competition between them (Marx 1990: 697), making it the 'form of wage most appropriate to the capitalist mode of production' (Marx 1990: 698). Therefore, the taxi owner or the dispatching centers – or the taxi platforms for that matter, who do not pay the drivers for the time they spend waiting for request – have little incentive to control the labor processes directly.

In the Oslo market, the platforms have emerged as an additional market for taxi operators. License holders and drivers can register on the platforms – they have to provide a copy of the taxi license, driver's license, proof of insurance, and so on – and receive requests through the platforms in addition to finding customers at taxi ranks, hailing and through dispatching centers. In contrast to the organization of platform-based taxi transportation in many other countries (and of Uber's initial effort to establish Uber Pop in Oslo), the service providers in the current platform-based taxi market in Oslo are licensed, professional drivers. They work similar hours as taxi drivers in Oslo did before the platforms' entry (10–12 hours, 6 or 7 days per week) and earn more or less the same (Aarhaug et al. 2020). The drivers usually earn between 30 and 50% of what they drive

in – the fare after the platforms' have taken their commission –: 1,500–3,000 NOK when working the dayshifts (150–300 EUR), around 5,000 NOK (500 EUR) for night-shift and up to 10,000 NOK (1,000 EUR) in the weekend nights. This shows how the emergence of taxi platforms, who in Oslo base their operation on the previously existing work arrangement and employment model of the Norwegian taxi market, did not introduce fundamental changes in the formal subsumption of the drivers.

As we saw above, the literature on platform-mediated gig work highlights the digital platform as tool for managing markets and workers. This technological coordination and control is often referred to as 'algorithmic management' (Lee et al. 2015) or platform-based management models (Moore & Joyce 2020). In the case of taxi platforms in Oslo, the platforms perform three core functions: (1) allocating requests, (2) automatically adjusting prices, and (3) evaluating and sanctioning drivers.

First, most platforms utilize an automated scheme for matching supply and demand (Stanford 2017) where workers are allocated requests from customers ordering a service through the platform company (see Gherson & Cefkin 2020). In Oslo, the taxi platform drivers do not choose their own customers but receive a notification from the mobile application when the platforms send them a customer's request. The platforms tend to not disclose the passengers' destination until the drivers have picked them up, limiting the drivers' possibility to assess how lucrative a ride is. Although the drivers can reject requests – thereby risking their acceptance rate falling, as we will see below – they rarely do, since they are paid on commission and generally need every ride they can get. The drivers' workday is characterized by a substantial amount of unpaid labor (see Pulignano et al. 2021) when waiting for requests from the platforms. During peak hours, on the other hand, drivers tend to receive a steady number of requests. This digitalized system for allocating passenger requests, however, is not significantly different from the traditional industry, where demand and consequently earnings also vary considerably.

Second, platforms often use dynamic pricing schemes, based on fluctuations in supply and demand (see Shapiro 2020) or how much time or effort the tasks is estimated to require (Van Doorn 2020). The taxi platforms increase the fare when demand is high to make it more lucrative to drive and give drivers an incentive to log on or stay on the road (Oppegaard 2018, 2020, 2021; Wells et al. 2021). In Oslo, these 'surges', as Uber calls them, tend to come into effect during the weekend nights, when drivers already out driving – the same hours wherein traditional industry operate with higher weekend fares. However, the dynamic pricing schemes can make it even more difficult for workers to predict their earnings (Cant 2020b) and can be seen as a tool for exercising control at the aggregate level while retaining an impression of autonomy and flexibility at the individual level (Shapiro 2020).

Third, platform companies evaluate the workers on different parameters. The most central are the rating systems. These have been framed as indispensable for platform companies (Botsman & Rogers 2011) and online markets in general (Dellarocas 2003) in creating 'trust' to enable transactions among strangers. From the perspective of workers, however, they function as mechanisms for sanctioning behavior, punishing, or 'deactivating' – firing – workers whose average rating falls below a usually undisclosed threshold (Oppegaard 2018, 2020, 2021; Wells et al. 2021). Gandini (2019) terms this 'techno-normative control', as workers are dependent on favorable ratings from the

customers. This element of the platform-based control can be seen as part of a tendency Adkins (2005) argues characterizes the so-called new economy, wherein workers increasingly are evaluated based on customer satisfaction rather than output. The taxi platform drivers in Oslo perceive the rating as an evaluation of themselves, their person, and the evaluation and sanctioning can be seen as a technology that transforms the social relations to make workers continuously dependent on favorable ratings from consumers. In practice, however, the drivers do not experience the 'techno-normative control' exercised through the rating system as a significant stress factor: The norm in the Oslo market is to give the drivers five-star reviews. While the drivers understand that they might be 'deactivated' if their rating falls too low, only a few of the drivers I have interviewed have heard stories of 'deactivations' happening in Oslo. Generally, they do not perceive it as a realistic threat and do not adjust their behavior in any way to induce favorable ratings, for example, by providing customers with water bottles or chargers, as in other countries (see Rosenblat & Stark 2016). Another form of evaluation performed by the taxi platforms in Oslo is the calculation of drivers' acceptance rates. If these falls too low, they might not get access to certain bonus schemes (see below) or be 'deactivated'. Again, however, this evaluation does not constitute an actualized concern for most drivers, who – since they are paid only per number of rides completed – accept almost all requests anyway.

In addition to these core functions of 'algorithmic management', the taxi platforms in Oslo also implement bonus schemes aimed at attracting drivers to their particular platform and motivating them to drive more and during certain hours. The platforms' bonus systems vary: Bolt offers drivers sporadic campaigns, some minor – such a 400 NOK (40 EUR) bonus for completing 10 trips during an afternoon – and some major – such as 20,000 NOK (2,000 EUR) for completing 100 trips within a month. Bolt sometimes also offer a reduction of the platforms' commission or 'service fee' – the platform's cut of the fare – after a certain number of trips. In a similar fashion, Uber introduces weekly 'quests' where the drivers can choose how many trips they think they will complete within the next few days. The more trips they propose to complete, the lower the 'service fee' will be if they make it. Uber also provides a bonus scheme where drivers receive a bonus of between 150 and 500 NOK (15–50 EUR) if they complete three rides without logging off during peak hours (morning and evening rush hours). This system can be seen as a technique to keep drivers prioritizing Uber over the other platforms during these hours. The third taxi platform operating in Oslo, Yango, has the most lucrative campaigns: When Yango entered the Norwegian market in the summer of 2021, it implemented a bonus system with guaranteed income per completed ride. Drivers got 300 NOK (30 EUR) for one ride, 650 NOK for two, 1,000 NOK for three, 1,500 NOK for four, and so on, up to 12,000 NOK (1,200 EUR) for 20 rides. As we saw above, 12,000 NOK is more than traditional taxi drivers make on a very lucrative weekend shift. The bonus scheme was motivated by Yango's need to attract drivers to its platform, and after a few months, the number of rides drivers had to complete to earn to top bonus was increased to 40 during some periods and 60 during other. According to the drivers, being allocated 20 – not to mention 40 or 60 – rides during a shift is difficult, but the staircase structure of the bonus system provides a strong incentive to stay logged in and on the road. The drivers also argue that given Yango's low fare – in an effort to attract both drivers and

customers, Yango subsidizes both sides of the market – they only make money through the bonus scheme and would quit driving for Yango if the bonuses were removed.

From the drivers' perspective, the platforms' 'algorithmic management' is not experienced as a form of control. There are two reasons for this – both with implications for the discussion of real subsumption of platform labor. First, the platforms' do not intervene directly in the drivers' labor processes. They control the allocation of requests, the prices and whether a drivers will be 'deactivated' or not, but provides the drivers with a significant autonomy in the concrete labor process, without instructing drivers to behave in specific ways or providing guidance on what to do. The 'techno-normative' control of the rating system remains on one hand highly abstract, with no other requirement than to maintain an average rating above a certain limit. On the other hand, it does not appear as an actualized struggle for the drivers in Oslo, who generally receive five-star ratings without adjusting their behavior in any particular way. The same can be said for the acceptance rate calculation, which in practice remains unproblematic for most drivers, who have an interest in accepting all requests.

Second, this means that the labor process when working through the platforms does not differ fundamentally from traditional taxi driving. The drivers wait for requests, pick up passengers and drive them to their destination – just as taxi drivers always have done. Before the platforms entered the Oslo market, drivers either received bookings through the dispatching centers' taximeters or found hailing customers in the street or at taxi ranks. Now, they are also able to receive requests through the platforms. This has led to a minor change in drivers' workday, where they increasingly drive around in an effort to find areas where demand might be higher, instead of waiting at the taxi rank – which some of the taxi owners I have interviewed found frustrating, as it increases fuel and service costs – but cannot be characterized as a radical transformation of the labor and production process. While the platforms supply the drivers with directions in the navigation system integrated in the application, this does not constitute a significant transformation of the labor processes, since GPS systems have been widely used among traditional taxi drivers in Oslo for a long time.

In sum, the digital platforms neither intervene directly in nor transform the drivers' labor process, making it difficult to argue that platform-based control, in the case of taxi platforms in Oslo, constitute an example of real subsumption. First, the platforms' 'algorithmic management' – allocation of request, dynamic pricing and evaluation systems – have in practice had a limited effect on how the drivers do their job. Second, the platforms core functions are oriented toward administrating market relations rather than controlling labor processes, a control based on the platforms' formal subsumption of drivers. This suggests that the taxi platforms in Oslo exercise a form of control through coordinating the market and economic means, mediated by the digital technology of the platform.

Discussion and conclusion: platformization as subsumption?

In this concluding discussion, I summarize the empirical analysis and develop the conceptualization of platformization as subsumption. I first discuss what forms of

subsumption characterize the case of taxi platforms in Oslo. Second, I explore the implications of this conceptualization and what the concept of subsumption can tell us about platformization.

In his analysis of platform work and subsumption, Joyce (2020: 545) places platform work within a continuum of subsumption, from non-capitalist forms of production, via 'transitional sub-forms', (such as hybrid subsumption), to formal and finally real subsumption. Joyce notes the striking similarity between Marx's conceptualization of formal subsumption and the forms of work currently analyzed as platform work, where previously independent producers, such as taxi drivers, become subordinated to platform capital. Certain forms of platform work, such as online freelance work, Joyce (2020) argues, can be seen as illustrations of transitional 'hybrid subsumption' (Marx 1990: 645), a form of subsumption wherein platforms primarily mediate between customers and workers, and where workers continue to operate relatively – although potentially less and less so – independently. Within these arrangements of 'hybrid subsumption', capital exerts dominance without formally subsuming or acquiring direct control over the labor process (Murray 2004: 263; Saenz de Sicilia 2021; Vrousalis 2017: 421ff).

In these types of platform work, workers, generally classified as self-employed, are not separated from the means of production, but rather forced to provide them themselves. The platforms thus externalize a significant proportion of the costs associated with fixed capital, while appropriating surplus value by taking a cut of each transaction on the platform. In Oslo, the platforms developed an additional market segment within the traditional organization of the taxi industry. The self-employed taxi owners in Oslo who use the platforms to extend their market can hence be seen as subsumed through such 'hybrid' arrangements described above. They are neither employed by nor directly subordinated to any of the taxi platforms, using their own cars and finding customers through multiple platforms, but have become partially dependent on the market segments the taxi platforms have created and the digital technology they provide.

Many of the drivers working through the taxi platforms in Oslo, however, are employed by taxi owners – in contrast to taxi platform drivers in many other countries, who tend to be classified self-employed contractors (Prassl 2018). These taxi platform drivers find customers in traditional market segments (street hailing, taxi rank and dispatching centers) as well as through the platforms, and are formally subsumed through work arrangements based on a piece rate model, in a similar manner as traditional taxi drivers in Norway. They are also subjected to the platforms' 'algorithmic management', in Oslo comprising of three core techniques: allocating requests, dynamic pricing and evaluation and sanctioning. Despite often being characterized as a new and digital iteration of Taylorism (see, e.g. Anwar & Graham 2020), a key feature of the way the platforms' control function in the Norwegian taxi industry, is the lack of direct intervention in the drivers' labor processes. The platforms control the number trips drivers get, what they cost – and as a result, also the drivers' earnings – and, through the rating system, whether they will be able to continue to operate. In addition, the platforms offer drivers bonuses to incentivize working longer and specific hours. In the actual labor processes, however, the drivers retain a substantial autonomy. The platforms exercise a form of control directed at the conditions under which they work that primarily function

through economic means and incentives but does not instruct the drivers directly on what they should do and how. The introduction of platforms in the Norwegian taxi market, then, has not resulted in a transformation of the labor processes: The drivers wait for customers, pick them up and drive them to their destination just as traditional taxi drivers always have done.

In this sense, the platforms' control can be seen as an element in the *formal* subsumption of the workers. As Marx writes, formal subsumption entails a 'relation of domination and subordination, in that the consumption of labour is done by the capitalist, and is therefore supervised and directed by him' (MECW 34: 96), and that 'the capitalist takes good care that the labour adhere to the normal standards of quality and intensity, and he extends it as far as possible' (Marx 1990: 1020). In the case of taxi platforms in Oslo, the platforms partially reorganized the industry by establishing a new market segment and introduced new elements in the labor process – most notably the rating system and bonus schemes. Importantly, this has solely resulted in a *formal* transformation of the labor or production process, where the platforms do not exert domination and supervision through a remolding of the social and technological conditions of production characteristic of *real* subsumption (MECW 34: 30), but through a *coordination of the market relations via digital technologies*. In this sense, the 'algorithmic management' performed by taxi platforms in Oslo, is primarily an illustration of the formal subsumption of labor and an economic form of power exercised through digital technologies. The drivers employed by taxi owners and working through the platforms can hence be seen as formally subsumed through both their relation to the taxi owners *and* the digital platforms' coordination of the taxi market.

This illustrates how platformization, as a process of subsumption, first entails taking control over – formally subsuming – existing labor processes, as the platforms find them available (see MECW 30: 92), 'inheriting' the labor processes from a pre-platformized industry. The platforms have, however, appropriated the social and technological conditions of production, which might potentially result in a transformation of the conditions of labor – real subsumption – in the future. Through the digital control over the drivers' economic conditions, the drivers become dependent on the platforms and their technology. The social and technological conditions of production are in the hands of those who own and control the platforms, which might mark the inception of a real subsumption (MECW 34: 30). A real subsumption of taxi platform drivers' labor processes would entail a radical remolding of the social and material aspects of production, increasing productivity (extraction of relative surplus value) and adjusting the technological organization of the labor process and relations of production to correspond to the platform companies preferred production processes (MECW 34: 428, 439). In the case of taxi platforms, such transformation could entail the platforms restricting drivers' autonomy and flexibility, and impose increased control over the labor process by for example, first, demanding exclusivity from the drivers, and limit their opportunities to find customers in the traditional market segments and through other platforms. Second, they could take away from the drivers the possibility to decline requests from passengers, reconfiguring the technological infrastructure to automatically assign rides to drivers. Third, the platforms might also require drivers to work certain hours, limiting their flexibility in scheduling, for example instructing them to stay on the road to stay on the road even during

periods with low demand and punishing them if they log off, to ensure continuous supply.

While this list is not meant to be exhaustive, it indicates some potential processes through which working through taxi platforms could be subject to real subsumption. Certain necessary conditions would, however, have to be in place for such a transformation to arise. In particular, individual platforms would probably have to obtain a dominant position in the market – outcompeting other platforms as well as traditional market segments – to be able to retain drivers while limiting their autonomy and flexibility. The barriers to real subsumption of taxi drivers' labor processes are also linked to the general difficulty of increasing productivity in the service sector (Smith 2020). While the platforms could radically reduce the fare, in an effort to increase demand, potentially making it necessary for drivers to work longer hours, such a strategy be based on the formal subsumption of drivers and the platforms' economic power exercised through the digital coordination of the market, and not a radical remolding of the social and technological conditions corresponding to Marx's conceptualization of real subsumption. Furthermore, the taxi platforms have limited incentives to implement such a remolding of the labor process. First, in contrast to analyses using the concept of subsumption to conceptualize the rise of capitalist modes of production, the taxi platforms have emerged in industries already characterized by capitalist relations of production. The taxi platforms have 'inherited' the labor process from the traditional taxi industry, work arrangements based on piece-rate models, a wage-form, that, as we saw above, according to Marx (1990) is the 'most appropriate to the capitalist mode of production' (p. 698). The taxi platforms do not have supply drivers with cars nor pay them for the time they spend waiting for passenger requests, providing them with few incentives to increase productivity and efficiency, while the piece-rate model makes direct control over the drivers' labor process more or less superfluous by giving the drivers economic impetus to intensify and lengthen the working day (Marx 1990: 694–696). This 'gigified' work arrangement shares important characteristics with and illustrates a similar dynamic as in outsourcing and subcontracting arrangements (Stanford 2017), wherein the platforms hire workers as self-employed contractors or through intermediaries. This limits their responsibilities, risks, and costs associated with being an employer, which, one could expect, has the tendency to postpone processes of real subsumption (Ougaard 2008: 355).

Second, the taxi platforms, as most other platform companies, argue that they solely function as neutral technological intermediaries connecting independent workers with customers, and that they should not be considered employers (Rahman & Thelen 2019). This position has been challenged by workers, unions, and politicians, and increasing their control over and directly intervening in the workers labor processes might increase the likelihood of the platform companies having to reclassify the workers as employees in potential legal processes (Prassl 2018). Third, the platform companies tend to be financed by venture capital investments (Cooiman 2023), allowing them to remain unprofitable and prioritize expansion (Rahman & Thelen 2019; Srnicek 2017). This is the case with taxi platforms in Oslo as well. The logic of expansion over profitability and available investments from patient venture capital firms further limits the platforms' interests in reorganizing the labor process to increase efficiently, allowing them to rather focus on attracting as many drivers and customers as possible.

This indicates that while platformization might involve the seeds of a potentially emerging real subsumption, such a development is inhibited by factors at the level of the labor process, legal regulations and the platforms' growth strategies. In this article, I have used the concept of subsumption to explore taxi platform drivers' working conditions in the case of Oslo, Norway. In this final section, I highlight two implications of conceptualizing platformization as subsumption. First, as argued by Joyce (2020), platform workers are, despite being endowed with a substantial formal flexibility and often classified as self-employed independent contractors, in a relation of subordination and domination vis-à-vis the platform companies. The platforms control the markets and set the terms workers have to accept. In the case of taxi platforms in Oslo, the platforms emerged in an already formally subsumed industry. The drivers are on one hand formally subsumed through the already dominant employment model in the Norwegian taxi industry, where drivers work for a taxi owner and receive a commission of each ride they complete. These piece rate-based work arrangements reduce capitalists' need for direct supervision over the labor processes, as Marx (1990: 694–696), argues by controlling intensity and quality through the wage work and by aligning workers' interests in higher earnings with platform capital's interest in the workers working longer hours and taking more requests from customers. On the other hand, the drivers are *also* formally subsumed under the platforms' control over the market: the platforms first control the rides allocated to each driver, and, as a consequence, their earnings. Second, the platforms adjust the prices and use bonus schemes to give drivers incentives to adjust and increase their supply of labor power. Third, the platforms measure and evaluate the drivers' acceptance rates and customer reviews, and 'deactivates' drivers whose averages fall too low. In this way, platformization entails a formal subsumption through the digital coordination of market relations.

The second implication of conceptualizing platformization as subsumption is that the consequences of the platforms' 'algorithmic management' require a detailed analysis and critical assessment. In the literature on platform work, platform-based control is often presented as a new form of control and a technology that might reorganize the world of work. My analysis, however, indicates that this form of control cannot be characterized as an example real subsumption of labor. In his definition of real subsumption, Marx highlights that real subsumption involves a transformation of the labor process and a remolding of the social and technological conditions. In the case of taxi platforms in Oslo, such transformations are yet to be found. This suggests that rather than assume that labor processes are radically transformed with the introduction of new technological work arrangements, researchers have to critically investigate the platforms' actual consequences in specific contexts to fully capture the dynamics of platformization.

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