

Neo-Taylorism in the Digital Age: Workplace Transformations in French and German Retail Warehouses

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On the basis of company case studies in retail logistics, the authors investigate whether the adaptation of low-skilled jobs to current technological change corresponds to the more general ‘neo-Taylorist’ transformation of workplaces discussed in the literature and seek to identify those factors that are helping to stabilize or modify this trend. By focusing on the company level, light can be shed on the role of organizational choices and the ways employees renegotiate and influence those choices. The findings point to a convergence on a more Taylorist organization of work and a limited impact by the institutional framework and collective bargaining. The ability of staff representatives to mobilize their power resources is constrained by their weak structural power, as a result of longstanding ‘lean’ transformation of the retail supply chain.

KEYWORDS: technological change, digital Taylorism, power resources, performance management, deskilling, employment relations.

Introduction

There is currently much debate on the labour market effects of the ‘digitalization’ of the economy, primarily about the extent and pace of job destruction through the substitution of routine tasks by machines (Frey and Osborne, 2013; Gregory, Salomons and Zierahn, 2019). Yet some of the available statistics do not show a sizeable decline over the past decade, even in jobs assumed to be most susceptible to computerization, such as occupations in transportation and logistics. In the European Union (EU 28), the number of jobs in the transportation and storage sector strongly re-increased after 2012 and in 2018 exceeded

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levels predating the financial crisis of 2007-2008, even in occupations strongly affected by technological change, such as plant and machine operators.¹ It may be argued that the full extent of computerization (i.e., the 'displacement' scenario) is still to come, the delay resulting from "persisting inhibiting engineering bottlenecks to computerisation" (Frey and Osborne, 2013: 39) or from a lack of profitability (Arntz, Gregory and Zierahn, 2016). Nonetheless, a new perspective of analysis is warranted by the obviously slow displacement in some industries and the possibility that the predicted changes may stretch over quite a long period or never come true to their full extent (for either economic or technological reasons). Rather than focusing only on the *number* of jobs (and the 'displacement' scenario), more attention needs to be paid to changes to their *nature*, in particular their content and the working and employment conditions attached to them, as many jobs may be transformed rather than simply destroyed (Arntz *et al.*, 2016).

In this regard, different scenarios are conceivable at the occupational level. If digitalization is "routine-replacing technological change" (Gregory *et al.*, 2019), 'job upgrading'—in particular, in terms of task enrichment and higher skills—is another potential scenario (for the jobs not displaced). But recent research on changes to low-skilled jobs has shifted attention to a third, less optimistic, scenario pointing in the opposite direction: the emergence of "a socially and occupationally undesirable new 'digital Taylorism', in which digital technologies permit a level of optimisation of Taylor's principle of simplification and control of the work process that had hitherto been unattainable" (Hirsch-Kreinsen, 2016: 12). We assume that the emergence of a given scenario and the way it translates into changes to the nature of jobs are not deterministically driven by technological changes. Our aim is to assess in particular the capacity of workers to counter or at least mitigate the "digital Taylorism" scenario, in connection with both economic and institutional contexts.

To this end, we will study low-skilled occupations in the logistics sector, since the technologies framed in the current debate as 'digitalization' were first adopted in that sector more than 15 years ago (ten Hompel and Schmidt, 2007) and seem to have fostered forms of neo-Taylorism. To open the black box of workplace transformations, we will adopt a qualitative approach based on expert interviews and company case studies. Our empirical evidence comes from two non-liberal market economies, namely France and Germany. This choice helps to fill an empirical gap, since to date research on warehouse work has focused strongly on liberal market economies, such as Australia, the U.S., and the U.K. (e.g., Newsome, 2010; Wright and Lund, 2006; Jaffee and Bensman, 2016; Sowers, Chiccantell and Smith, 2018). By studying two non-liberal market economies with their more extensive rights for worker representatives, we can

better assess how and to what extent workplace transformations induced by digitalization may be influenced by national institutional contexts.

In the following section, we will briefly review recent and earlier debates on revitalization of Taylorist principles in order to identify key features and driving forces of the ‘neo-Taylorism’ scenario as discussed in the literature. The next section will present our analytical framework and identify our core research questions, based on a review of available empirical evidence on the retail logistics sector. It will be followed by a presentation and discussion of our empirical findings.

Transformation of low-skilled work in the digital age— the ‘neo-Taylorism’ scenario

The persistence of Taylorist principles beyond the Fordist era is not a new phenomenon and has been covered by a broad range of authors. Amossé and Coutrot (2011), for instance, in their survey-based cluster analysis of changes to “socio-productive models” in French firms between 1992 and 2005, find some empirical evidence of not only persistence but even increase in the relative importance of what they call the “neo-Taylorist model.” This model is characterized by low levels of employee discretion, strict management control, and low employee participation, in contrast to the “Toyotist model.” Similarly, for manufacturing firms in Germany and elsewhere, many authors have claimed that Taylorist features may in fact also be found in allegedly post-Fordist forms of organization (such as the lean production system in particular), which have been enabled not least by information technologies (e.g., Pfeiffer, 2007). Though, perhaps relying more on teamwork, job rotation and formal employee involvement, post-Fordism often combines these features with strict instructions and supervision (see also Crowley *et al.*, 2010).

Recent contributions to the debate on ‘digital Taylorism’ have additionally highlighted the potential of new digital technologies to facilitate the parceling and automation of work or to tighten performance measurement and control (e.g., Spencer, 2018). This dystopian scenario is frequently spelled out with reference to Amazon’s or Walmart’s fulfilment centres, where handhelds and other ‘digital assistant systems’ like ‘pick by voice’ can be used to immediately impose precisely targeted sanctions in case of any detected misbehaviour or low performance (e.g., Head, 2014). However, by focusing too narrowly on the potential of the latest generation of digital tools, we may lose sight of the broader political and economic factors encouraging—or constraining—the expansion and intensification of Taylorist principles. In this regard, a number of studies that draw on labour process theory have convincingly concluded that it is predominantly the dynamics of the economy—such as the restructuring of global value

chains or the financialization of the economy—that are channelling the current transformation, in some industries at least, toward a digitally enhanced version of Taylorism (see e.g., the contributions in Briken *et al.*, 2017). The scenario of a digitally enhanced ‘Neo-Taylorism’ or ‘digital Taylorism,’ as developed by these more comprehensive approaches, is thus based on an understanding that a revitalization and intensification of Taylorist principles is facilitated, but not primarily *caused*, by the spread of new digital technologies. Rather, it results from company strategies to adjust to a changing economic environment.

To sum up, the debate on ‘digital Taylorism’ has redirected our attention to two important dimensions of workplace transformation—job content and performance management—where new digital technologies can in fact produce dystopian outcomes. Yet, just as the increased technological potential to *displace* low-skilled jobs does not tell us to what extent and why companies will make use of this potential, the increase in technological opportunities to *Taylorize* low-skilled work does not tell us the extent to which companies might choose this path, why they might do so, and if and how employees are able to resist this trend. These are the core research questions we wish to address in the present analysis.

Linking supply chain dynamics and workers’ power to counter the shift to Neo-Taylorism: A framework for analysis

As discussed above, more comprehensive contributions to the debate on digital Taylorism suggest we should focus on how the dynamics of the economy orchestrate the digital transformation of jobs. In fact, as we will spell out in our analysis, the transformation of the retail supply chain over the past three decades has created strong incentives for French and German logistics firms to intensify Taylorist principles in their warehousing processes. In an attempt to avoid replacing technological with economic determinism, our analysis will be used to elucidate the rationale and contingencies of organizational choices that result in a seeming convergence on digitally enhanced Neo-Taylorism across countries. To this end, we need a multilevel framework for analysis that will connect workplace transformations not only to economic environments but also to technological and institutional ones. We will draw on core insights and conceptual tools from a strand of literature that Doellgast, Lillie and Pulignano (2018) have recently grouped under the heading ‘comparative employment relations.’ In comparison to approaches that aim to identify and explain national models of production or national Varieties of Capitalism (VOC), this strand of research is more concerned with differentiated analysis of firm- and workplace-level developments, by focusing on workers’ strategies and their power to pursue them, in particular through

their representatives. This power is derived from different kinds of resources and workers' capacities to access and mobilize them.

In line with a number of recent studies, we deem it useful to link analysis of workers' power more closely with the strand of research on how relations between firms in the supply chains shape employment relations at the workplace level (e.g., Newsome *et al.*, 2015, Mendonca and Adăscăliței, 2020). Many empirical studies on the logistics sector have particularly highlighted the role of changes to the *structural* power of workers, i.e., "the power that simply results from the position of the workers within the economic system" (Wright, 2000: 962). The position of their company and/or commercial establishment in the supply chain is a key determinant of such power. It is possible to identify three trends that have profoundly transformed the retail supply chain over the past three decades. While digitalization has not induced these trends, it has certainly facilitated some of them. The first one is the shift from a supply-driven to a *demand-driven supply chain*. It started in the mid-1980s, when retailers took control of logistics services by channelling an increasing proportion of their supplies through their own 'distribution centres' (DCs), instead of relying on direct deliveries from manufacturers to retail stores (Fernie and Sparks, 2014). This transformation brought about the business entities that are the focus of this article: national and regional DCs. The goal of the transformation was to reduce inventory costs and 'time-compress' logistical processes. This shift was further reinforced by the adoption of 'lean logistics' principles (Jones, Hines and Rich, 1997) from the late 1990s onwards (see also Wright and Lund, 2006). The second shift has been a broader one toward *vertical disintegration* through privatization of non-core activities, thus increasing the market shares of independent 'third party logistics' (3PL) providers. Digitalization has played a facilitating role here through software-based integration of the supply chain, which has facilitated coordination and information exchange between retailers, suppliers and logistics service providers. The threat of outsourcing has further increased pressure by retailers on in-house DCs. Besides outsourcing, companies have also started to optimize their logistics network by moving warehouses to more 'geo-optimal' locations. The third shift, *e-commerce*, has intensified the quest for ever-shorter delivery times and, thus, further 'time-compresses' the logistics processes. Taken together, these trends have exerted significant pressures on warehousing costs and contributed to a structurally asymmetrical relationship between retailers and their logistics service providers (Newsome, 2010; Weil, 2014).

The implications for workers' structural power are, however, not clear-cut. On the one hand, the weak position of logistics service providers arguably limits their bargaining power *vis-à-vis* retailers and, thus, their ability to deflect increasing cost pressures and other unfavourable terms and conditions imposed on ware-

houses (Newsome, 2010). This implies weaker positional power for *both* managers and workers at the warehouse level. On the other hand, several authors have emphasized that the increasingly integrated nature of global value chains gives logistics workers a powerful 'brokerage position' (or structural power), due to their ability to turn warehouses or ports into "choke points" in the global supply chain (Bonacich and Wilson, 2008). Empirical studies, however, document wide variations in how workers can effectively capitalize on this power (see e.g., contributions in Alimahomed-Wilson and Ness, 2018). A number of studies show how the weak position of warehouses in the retail supply chain translates into ever more coercive or even "despotic" versions of Taylorism (Newsome, Thompson and Commander, 2013), which are characterized by panoptic surveillance and control systems, by stronger recourse to disciplinary measures and by a lack of rules and procedures that can displace conflicts from the shop floor to the collective bargaining table.

While most attention has focused on economic pressures from the position in the supply chain, other sources of workers' power must be taken into account at the warehouse level to understand potential variations across entities in the same segment of the supply chain. Another source of structural power comes from local labour market conditions, i.e., workers have a stronger bargaining position in tight labour markets. Also crucial is workers' *associational* power, i.e., the collective organization and capacity of workers to mobilize, which is based on different kinds of resources, such as workers' solidarity, either internal (notably cohesive collective identity) or external (horizontal and vertical links within and between unions and the community), as well as "narrative resources" (in particular, as a means to aggregate interests and frame agendas) (Lévesque and Murray, 2010). The above-mentioned trend toward vertical disintegration tends to undermine workers' associational power by further fragmenting the workforce, through the use of long subcontracting chains and through high use of temp-agency work and/or solo-self-employed workers, as evidenced in particular by studies on the American warehousing sector (e.g., Gonos and Martino, 2011; Jaffee and Bensmann, 2016).

Structural and associational power are interconnected. In particular, several studies have highlighted the critical role of associational power as an important *lever* to activate workers' structural power and/or to counterbalance its decline. While the outsourcing trend tends to hamper traditional firm-centred strategies of worker mobilization, these studies show how the structural power of logistics workers can be 'activated' by innovative strategies that transcend a firm's organizational boundaries and even stretch across different segments of the supply chain (cf., Benvegnu, Haidinger and Sacchetto, 2018; Reese and Struna, 2018; Mendonca and Adăscăliței, 2020).

Another source of power has attracted less attention. *Institutional* power refers to bargaining power from institutional resources, such as legal labour standards, notably employment protection, collective bargaining rights and welfare state support. While many studies emphasize the importance of novel forms of worker mobilization, i.e., associational power, little has been written so far on the role of *institutional* resources, in particular, as a lever to ‘activate’ structural power. This is a gap we can address. By focusing on the warehousing sector in Germany and France, our empirical analyses can shed some light on whether the institutional power resources of organized labour in two non-liberal market economies may enable workers to tap more effectively into their ‘latent’ structural power resources than their counterparts in liberal market economies, thereby altering the path toward digital and ‘despotic’ Neo-Taylorism. We will scrutinize this question by focusing on the two dimensions of workplace transformation that are at the core of the ‘Neo-Taylorism’ debate, namely job content and performance management.

Empirical method and overview of selected cases

The focus of our research is on companies or business entities whose core activity is to operate warehouses for retail companies. Research was carried out in France and Germany in 2016 and 2017.² Fieldwork started with an in-depth industry report in each country—based on existing sources (academic literature, administrative and consulting reports, trade journals, databases) and interviews with industry experts (from trade unions, employer organizations, research institutes)—on the evolution of the industry, the spread of digital technologies and the trends in workplace transformations. The industry reports were used to define selection criteria for the company cases and to assess the representativeness, according to these criteria, of the cases we could access. As a result, care was taken to select cases from both the food and non-food segments of the retail industry, with the aim of covering the two distinct types of warehouses that prevail in the industry: semi-automated warehouses, which are more typical in the non-food segment and conventional warehouses, which are still predominant in the food retail segment. Fully automated warehouses are still rare because of technological barriers and economic considerations (need for large-scale investment). Hence, different factors are slowing down the displacement of jobs echoing the “persisting inhibiting [...] bottlenecks to computerisation” mentioned by Frey and Osborne (2013). In ‘semi-automated’ warehouses, only parts of the various processes are automated, with a significant proportion being still performed manually. In conventional warehouses, tasks are mostly performed manually, with the support of forklifts and other electric vehicles, as well as a range of picking technologies.

The selected business entities comprise several distribution centres (DCs), each of which employs approximately one hundred to more than 2000 workers (see Table 1). The large size mirrors the trend toward strong market concentration in the retail sector in both countries. Moreover, all of these business entities are owned by retailers; thus, they are in-house or 'quasi in-house' entities (legally independent subsidiaries). Finally, the selected entities belong to retailers that have a long company history and are headquartered in Germany or France; thus, they are not subsidiaries of new players that have entered the market with the surge of e-commerce. As a consequence of all three factors (large size, vertical integration, company age), these companies are covered by a full array of country-specific institutions governing the employment relationship—most importantly, collective agreements and company-level bodies of worker representation; in particular, works councils in Germany and union delegates, and health and safety committees in France.

The selected companies can be regarded as typical only for a specific, albeit important, segment of the retail logistics market (large, quasi-in-house entities providing services to large traditional retailing companies). These limitations will

TABLE 1

Characteristics of Case Study Companies

Pseudonym	Product Segment	Legal Status of Logistics Entity	Characteristics of Warehouses under Study
Non-Food Retail			
GER-FASHION	Clothes, other non-food	Subsidiary of e-commerce holding company	1 distribution centre (DC), semi-automated; delivering to individual customers (e-commerce) (> 1000 employees) 1 returns centre (RC), semi-automated, (>1000 employees)
FR-MEDIA	Cultural and electronic products	Subsidiary of retail chain	1 semi-automated DC, delivering to shops (> 500 < 1000 employees) 1 semi-automated DC, delivering to individual customers (e-commerce) (> 100 < 250 employees)
Food Retail / Fast Moving Consumer Goods (FMCG)			
GER-FOOD	Grocery	Subsidiary of supermarket chain	1 conventional DC, delivering to shops (> 250 < 500 employees)
GER-FMCG	Grocery and drugstore	In-house logistics department of retail chain	1 semi-automated DC, delivering to shops (> 1000 employees)
FR-FOOD	Grocery	In-house logistics department of retail chain	4 conventional DCs, 1 semi-automated DC; all delivering to shops (> 100 < 500 employees each)

nonetheless enable us to study precisely what happens in an environment that provides relatively favourable conditions for the employees' ability to mitigate the trend toward Neo-Taylorism. There are two reasons. First, vertical integration of warehouses can be assumed to enhance the structural power of workers, as compared to warehouses operated by 3PL-providers. In the first case, retailers are presumably less willing to 'exit' the longstanding contracts they have with their internal service providers in the event of disruptions. Second, the legislative framework in both countries provides worker representatives at the company level with veto, co-determination and consultation rights on issues that include performance management and job content, as we will spell out in more detail below, and thus *prima facie* provides them with greater institutional resources than those available to workers in liberal market economies.

In addition to interviews with experts at the industry level, a total of 44 interviews (on-site, in union halls or, in a few instances, by phone), were carried out in the 5 companies in 2016 and 2017, with management at the company and warehouse levels, with employee representatives and, wherever useful and possible, with employees.

Findings: digitalization, job content, and performance management

In the following two sections, we will analyze the organizational choices of the five companies under study in two areas of work organization: parcelling of work, which correspondingly reduces task discretion and performance management. The first heading of each sub-section will cover the changes to that area of work organization and the second heading will cover the management-labour disputes that followed or accompanied those developments.

Paving the way for robots? Less autonomy, less task discretion, and general deskilling

Operators as appendages of automated processes

Empirical evidence from our five companies shows that implementation of the new technologies obeys the principles of Taylorism described above; in particular, a reduction in task complexity and discretion. To quote Marx, warehouse workers tend to be reduced to "appendages of the machines," albeit in different ways.

In conventional warehouses, worker autonomy and worker initiative have been significantly reduced by the new picking systems associated with the warehouse management systems introduced in the past 15-20 years. Picking technologies have gradually moved from 'paper picking'—where operators pick

items based on computer-generated lists—to other technologies, such as ‘pick-by-voice’—the most widespread technology at the time of the study—where pickers wear headsets and communicate orally with a software system to receive and confirm picking tasks. Before introduction of that technology, pickers had more discretion to optimize their activity in terms of minimizing the time they spent and the distance they covered in the warehouse (e.g., Gaborieau, 2012). When picking became software-managed, that knowledge and those craft skills tended to disappear, but to different degrees and at different paces across companies. Even with pick-by-paper, which is still used in some companies (in our sample: GER-FASHION and FR-MEDIA), pickers follow a computer-devised trajectory through the warehouse. The pick-by-voice system is just a further step in this software evolution. The picking activity is now continuously and entirely dictated by the software, which tells the pickers orally and precisely where to go and what item to pick to complete an order. Pickers do not even have to know which items they are picking, as the items are reduced to bar codes. Among the companies in our study, loss of autonomy was particularly felt at FR-FOOD, where pick-by-voice had been introduced rather recently (between 2008 and 2014). As a union delegate at that company noted, “Before [the introduction of pick-by-voice], you had to be an expert in your trade, now you just have to know how to use the tool [...] in fact, it is not even a trade anymore [...] you are plugged in when you start, unplugged at the end of the day, that’s it.” The optimizing process used to be based on tacit knowledge acquired through on-the-job training. It is now completely performed by an algorithm—one of the most striking illustrations of ‘digital Taylorism.’ The resulting deskilling is evidenced by the reduction in the estimated time of training to become fully operational, e.g., from two/three weeks to only two/three days with the new system at FR-FOOD.

In semi-automated warehouses, production processes are reminiscent of a more classical form of Taylorism that strongly resembles the traditional assembly lines in manufacturing industries. Job tasks are even less varied than manual picking and work has become more repetitive. The remaining tasks performed by humans are not complex tasks but rather routine ones that are currently too costly to automate. The semi-automated warehouses at FR-FOOD and FR-MEDIA offer the most extreme illustrations. At FR-FOOD, manual picking has been replaced with an automatic sorting system. Each item is packaged in a carton with a bar code and is put on a sorting conveyor; the bar code is scanned and the package is directed to one of the many chutes for assembly into completed store order pallets—a technology that has been used for non-food products for many years (see, for instance, Wright and Lund, 2006). Pickers have been replaced with two new kinds of workers: “feeders,” who pick the parcels from the pallet of a given item and place them on the sorting conveyor;

and “palletizers,” who collect the parcels from the chutes and put them on the pallet being used for a given point of sale order. Both jobs are very repetitive and intensive. A similar sorting system has been put in place at FR-MEDIA, with the same consequences. In a less extreme way, the semi-automated processes introduced by the German companies have also led to a reduction in task variety and to deskilling. For instance, at GER-FASHION, the introduction of the automated sorter at the returns centre is used to streamline the distribution of different types of returned goods to different workplaces, thereby forcing employees to specialize in checking just one type of product (shoes, textiles, or jewellery). Some companies have recently introduced job rotation, which is usually considered a post-Taylorist and more ‘high performance work practice.’ But job rotation schemes in our cases are predominantly strategies to cope with increasing Taylorization—in particular, to avoid musculoskeletal disorders induced by highly repetitive tasks—rather than a counterbalancing strategy to promote job enrichment or enlargement.

Workers’ limited influence over techno-organizational choices that impact job content and working conditions

The overall trend in our cases points in the direction of Taylorist-type work systems, with an increase in routine task jobs and a corresponding deskilling. This trend may indicate that in warehouses not fully automated the digitalization process has been biased in favour of, and not against routine tasks. However, there is no technological determinism at work here. The deskilling results from economic choices (in terms of cost efficiency) at the company or warehouse level at least as much as from general technological constraints. There is potentially a wide range of ‘semi-automated’ warehouses, which vary according to which tasks are automated and which are left to humans and according to how the latter warehouses are designed, with some designs having strong impacts on job content—and associated skill requirements—and on working conditions. At FR-MEDIA and GER-FMCG, according to the unions and/or the managers, for instance, there clearly was a techno-organizational choice to design the work process in order to facilitate hiring of very low-skilled workers (see also below). But the overall impact on working conditions was ambiguous, as the increase in repetitive tasks came with a reduction in handling of heavy loads.

The institutional power of workers in the workplace could be expected to give them and their representatives some influence over such choices. Indeed, in both France and Germany, employee representatives have to be consulted through institutionalized bodies about any change that will impact working conditions. The bodies are the works council in Germany and the bipartite health and

safety committee in France (mandatory at commercial establishments with 50 employees or more). Even though such bodies existed in all of our cases, they had limited influence over management's techno-organizational choices in adopting alternative options that would be more 'human-centered,' but perhaps less economically efficient/cost-effective in the short run. According to French union representatives at FR-MEDIA, management had disregarded the union's objections to the negative effects of some new technologies on workplace ergonomics, and this disregard was in line with warehouse management's strong concern about key performance indicators imposed by retailers to minimize operating costs in the short term, even though human and social costs may be incurred in the longer run. In the same vein, both management and the works council at GER-FASHION pointed to investment restraints imposed by their dominant customers and owners, the retail holding company. Similarly, the works council chair at GER-FOOD mentioned unsuccessful attempts to convince the retail chain to provide the necessary resources to invest in machines and tools that would alleviate painful gestures and postures (such as wrapping machines or automatic roller shutters).

This failure does not only reflect the limited institutional power of employee representatives (only consultation rights) in both the French and German cases. It also reflects the weak position of warehouses in the supply chain (i.e., weak structural power), which tends to curb rather than stimulate mobilization of alternative power resources by workers. In all our cases, management at the warehouse level acknowledged more or less explicitly that their room for manoeuvre was very limited. In this context, the unions played a key role by prioritizing employment conditions (i.e., preserving employment and countering the increase in flexibility requirements—extension of operating hours into the night and weekend, temporal fluctuation in daily or weekly hours, increase in part-time jobs or temp agency work), rather than job content and working conditions. But the unions' agenda cannot be understood independently of their structural and associational power.

In our French cases, in particular, associational power is undermined by the segmentation of the workforce. On the one hand, entities with quite different technologies (conventional versus semi-automated warehouses) coexist, including within a given company. This diversity limits the capacity of employees to voice their interests at a company level, all the more so if the warehouses are distinct facilities with their own committee representatives (on the health, safety, and working conditions committee) and staff representatives. On the other hand, segmentation stems from the deskilling process itself, which facilitates hiring of low-skilled inexperienced temp agency workers. According to the director of FR-FOOD, with pick-by-voice, "It is much easier to integrate the young

inexperienced temp agency workers [...] much simpler than when you had all the instructions on paper.” At some of the warehouses in fact, the share of temp agency work has increased (to up to 20% of the workforce), and senior workers express their fear of being replaced, not by robots, but by contingent workers. At FR-MEDIA, the new job characteristics in the semi-automated warehouse allowed the firm to hire more low-skilled immigrant women and young people, who, according to several interviewed union representatives, are less likely to complain about narrow, repetitive tasks than are senior (male) workers who had experienced the previous type of work organization. Undermining of associational power is facilitated by competition between different unions in France (a key difference with Germany)—up to 5 different unions were present in our two cases. Overall, when working conditions deteriorate too much, the individual exit strategy seems to prevail in France because of the limited efficacy of collective bargaining—as shown by the big increase in labour turnover at the newly inaugurated semi-automated warehouse of FR-FOOD.

In the German cases, fears of being displaced and limited attempts by staff representatives to mobilize workers against the neo-Taylorist transformation result not so much from segmentation of the workforce as from the threat of offshoring, reflecting the erosion of the unions’ structural power. Both at GER-FOOD and at GER-FASHION, works councils have experienced large employment cuts or relocations in the past, as a result of warehousing operations being shifted to more geo-optimal sites within Germany or transferred to new warehouses in neighbouring Eastern European countries with much cheaper labour costs. As both the works councillor and the one operative manager at GER-FASHION explained, increasing productivity by means of the new technologies is seen as the only means to stay competitive in their retailer’s logistics network and, thus, avoid further employment cuts.

Performance management: toward the electronic panopticon?

The intensification and politicization of performance management

A number of empirical studies of retail fulfilment centres have revealed increasingly coercive versions of performance management. Time and motion studies are used to establish *obligatory* levels of effort that are enforced “with tighter and more pervasive systems of monitoring and surveillance and supported by stringent disciplinary procedures” (Newsome *et al.*, 2013: 13; see also Wright and Lund, 2006, and see Harney and Dundon, 2020, for the case of Amazon). Still, the same studies also point to some organizational variations in implementation of the new performance management schemes and reveal some scope for state interventions (Lund and Wright, 2001) or collective workplace regula-

tion (Newsome, 2010). The latter finding is corroborated by ours; light is, thus, shed on how the power resources of employees and their representatives help constrain, but not altogether prevent, a shift toward the “electronic panopticon” (Bain and Taylor, 2000).

Performance indicators are closely monitored at all the warehouses under study and are in some cases also laid down in contracts or ‘service level agreements’ with retailers—another symptom of the very limited autonomy of warehouses and the resulting weak structural power of local actors. Internally, the performance indicators are transposed into predefined targets for the facility, the team, or the individual and can be linked to performance pay schemes in order to incentivize workers to meet or exceed the expected rate. With just one exception (GER-FMCG), the companies under study have some kind of bonus schemes. Across the different systems, the bonus amounts to between 7% and 10% of the basic wage for the majority of employees, equivalent to an additional monthly wage per year—and even more at some French warehouses.

This somewhat static overview conceals several dynamics that have transformed performance management schemes over the past two decades. In line with the findings of previous studies, changes to the economic context and the introduction of new technologies on the shop floor have led, first, to an *intensification* of performance management. At the two French firms, this intensification was achieved in a way best described as ‘management by indicators.’ At FR-FOOD, the introduction of warehouse management software in 2002 enabled the company to develop a broad range of performance indicators, such as the rate of absenteeism, the number of work accidents, the unit cost per parcel, error rates, etc. The system has also led to changes in management’s role. First, the more traditional ways of securing performance (supervision by team leaders, direct interactions) have been cut back and replaced with software and managers acting at a greater distance from the shop floor. Second, according to the director of one warehouse, the performance management system also tends to reduce the managers’ autonomy at each commercial establishment, as the primary goal is to maximize the performance indicators, such as the ratio of ‘productive time’ to total working time. As workers are not considered to be ‘productive’ when they are in a training session, there is less leeway for training initiatives. At FR-MEDIA, the performance indicators have been more strongly oriented to customer satisfaction (both that of individual customers and that of shops) as measured by regular surveys.

The enhanced performance metrics are used not only to measure performance but also to maximize it. Thus, the companies under study have adopted different strategies to increase employee effort. Our findings do not reveal a general trend toward “draconian disciplinary regimes” (Newsome *et al.*, 2013), but there is a

common trend across cases of performance management schemes becoming more contested or *politicized*, i.e., they have become a point of frequent disputes as well as a subject of negotiations between management and labour. It is not so much performance measurement itself that has been politicized as the way in which it is linked to rewards and sanctions, and particularly to pay.

Struggles over rewards and sanctions

At the firms under study, different views can be found among employees and their representatives about both the desirability and the preferred design of performance pay systems. At several French warehouses, and also at GER-FMCG, employee representatives are opposed to individualized schemes, which are seen as an incentive to obtain higher compensation in the short run at the expense of long-term health problems due to work intensification. Senior workers—who have a higher rate of unionization—appear on average more opposed to individual performance pay than do younger workers and/or workers on more precarious contracts (part-timers and temps) because the latter earn proportionately more of their total pay from performance bonuses (as their base wage is low), and this form of payment may also be more consistent with their norms of equity. Nevertheless, there are significant legal restrictions on individualized pay schemes. French law, for instance, prohibits individual quotas and negative bonuses that would reduce total pay to below the level of the base wage stipulated in collective agreements. At FR-FOOD warehouses, where senior workers are numerous and in a tighter labour market, unions have succeeded in preventing adoption of individual performance pay. Although FR-MEDIA has so far been unable to introduce individual performance pay, management has resorted to informal variants of individual incentive schemes by publicizing the average performance levels of the different workshops and congratulating employees whose individual performance is higher.

In addition to enabling worker representatives to oppose individualized pay schemes, the institutional framework in both countries also enables them to shape the design of collective pay schemes. Our cases share a common feature: important aspects of the schemes have to be negotiated between management and labour. In our French cases, this is done through collective profit-sharing schemes (*"intéressement"*), which are designed at the company level within a legally defined framework and which rely on a wide range of performance indicators at the warehouse level. Because general base wage increases have been very low in recent years, wage bargaining has focused mainly on the design of profit-sharing schemes. At FR-MEDIA, for instance, the associated annual bonus amounts to about one month of average salary plus 15% (about 1600 euros). Negotiating the annual bonus of the profit-sharing scheme plays an important

role in the legitimacy of local union *vis-à-vis* the employees. However, at both companies, the complexity of the scheme has increased in recent years, and even our union interviewees, who negotiate the targets with management, find it difficult to fully understand. Staff representatives suspect that management is manipulating the criteria to cut costs. At FR-FOOD, for instance, the bonus has dropped considerably at some facilities because the targets set by top management have become more and more difficult to achieve.

In Germany, the law also gives works councils strong rights to co-determine the principles of pay determination and the introduction of technologies that may be used to monitor employees. In addition, one of the cases illustrates the effect of an institutional infrastructure that supports companies seeking to set up collaborative, high-trust systems of performance measurement and pay. While time and motion studies are often carried out by external companies (as at FR-FOOD), the system at GER-FASHION is based on a certified procedure developed by REFA, an organization founded in the 1920s by engineers for the manufacturing industries. The REFA method stipulates regular updates whenever major technological or organizational changes to the work process have been introduced. Implementation at the company level is a task assumed jointly by the works council and by management. At GER-FASHION, the works council, for instance, supported the CEO's initiative to adapt the system to the aging workforce by means of a slightly different incentive scheme for employees 50 or older, which entitles them to a bonus when they achieve 90% of the standard performance level. The underlying rationale for management was to dissuade older employees from leaving the (voluntary) bonus scheme and making no effort to reach any performance targets. At GER-FOOD, participation in the performance pay system is not mandatory either, so employees who do not feel up to meeting or exceeding the standards can, theoretically at least, opt out.

The voluntary nature of the performance management scheme does not necessarily mean that there is no pressure on individual employees, as some employees and managers ignore or disregard the right to opt out. Consequently, whether one chooses to exercise that right may become crucial, as illustrated by the case of GER-FASHION. There, the works council at the returns centre distributed a leaflet last year informing employees about their individual right to opt out of the incentive pay scheme. The occasional use of this option had a "healing effect," according to the works council: "A few supervisors had to learn that if I want an employee to achieve higher levels than he normally does, then I have to motivate and not oppress him." (works council chair at returns centre, GER-FASHION). By contrast, the works council of the GER-FASHION distribution centre has so far deliberately abstained from actively reminding employees about their opting-out rights. According to the chairwoman of the works council, the

use of these opting-out rights would imply that the DC would be unable to meet the delivery lead times agreed upon in the service-level agreement (SLA) with its (in-house) customers—in a context where these customers have recently announced plans to offshore more of their flows to a warehouse in a neighbouring Eastern European country. This story shows that activation of institutional power resources may depend on structural power.

Next to veto and co-determination rights with regard to (financial) *incentives*, there is another major factor constraining a general shift toward more coercive systems: the restrictions on imposition of *sanctions*. These restrictions arise primarily from institutional constraints. Permanently employed workers, who still make up the vast majority of employees in the companies under study, continue to enjoy considerable dismissal protection in both countries.

Concluding remarks

Overall, the companies under study do seem to be converging toward one single socio-productive model: the ‘neo-Taylorist’ one. At both conventional and semi-automated warehouses, deskilling has led to a loss of knowledge and autonomy. Digital tools are used to optimize tasks and to prescribe and monitor work activity. Our results show that in France and Germany, as in liberal market economies, a key factor has been the erosion of the workers’ structural power due to supply chain transformations. Thus, contrary to what we had assumed, being an in-house entity rather than an out-sourced 3PL does not seem to make a big difference. Overall, in all our cases, both management and unions were under much pressure from the retailers, and fierce cost-cutting strategies were implemented, as evidenced by redundancies and wage cuts that have assumed various forms in recent years. This context was clearly connected to the union agenda of giving priority to preserving jobs and trying to counter the increase in flexibility requirements and associated casualization.

Nonetheless, in this general context, we found some differences from what we see in liberal market economies. In the warehouses under study, management relied less on “draconian disciplinary policies,” as found for instance by Newsome *et al.* (2013) at a logistics warehouse in the United Kingdom, or as extensively documented at Amazon warehouses, particularly in English-speaking countries (Harney and Dundon, 2020). Institutional power resources seem to play a role here. Indeed, strong consultation rights in both France and Germany were not enough to make huge differences in job content and associated working conditions, as compared to logistics companies in liberal market economies. But individualized performance monitoring was less coercive mainly because labour law and collective bargaining rights had imposed safeguards. However, to be consequential, some of these rights need to be ‘activated,’ as illustrated by the

'exit option' from the performance pay system in one of our German cases. Overall, the capacity to make the most of institutional resources depends on both structural and associational powers. Some role is played by differences in the union's associational power at the warehouse level. With competing unions and a resulting fragmentation of narrative resources, with lower quality of social dialogue, and with higher segmentation of the labour force and undermining of internal solidarity, it has become more difficult to push for better working conditions in our French cases. In both countries, the deskilling induced by Neo-Taylorism has additionally facilitated casualization of employment and hiring of lower-skilled workers, thereby further contributed to undermine internal solidarity and, therefore, weakening associational power resources.

Beyond the issue of weak power resources, there is another potential explanation: the limited capacities of workers and their representatives to mobilize to promote their interests, or their limited willingness to do so. Established unions and staff representatives may in particular sometimes lack the experience and skills to use their power resources optimally to develop inclusive strategies that transcend organizational boundaries and stretch across the supply chain, as argued for instance by Benvegnù *et al.* (2018) in the case of the Austrian postal industry. However, in paying more attention to unions' capacities, we should not downplay the very important role of the economic transformations currently undermining their structural power, as well as the vicious circle eroding their associational power once the path to Neo-Taylorization has been taken.

To conclude, the beneficial—albeit limited—impact of institutional constraints in both countries has not altogether prevented the shift to neo-Taylorism, but it has contributed to somewhat less intense forms of neo-Taylorism. Still, this outcome is hardly satisfying, even though many of the jobs affected might disappear over the long term. Instead of just waiting for robots to come, we should put the issue of humane working environments for low-skilled jobs on the agenda of both governments and companies. That, too, is an important item for the future of work.

Notes

- 1 Source: Eurostat database.
- 2 This research on the retail logistics industry was carried out as part of a larger qualitative and quantitative study on the interlinkages between innovations and job quality in several industries in Europe (QulnnE research project, funded by European Commission - Horizon 2020); see Jaehrling (2018) for details and results of the qualitative research.

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SUMMARY

Neo-Taylorism in the Digital Age: Workplace Transformations in French and German Retail Warehouses

The paper analyzes how digitalization in conjunction with changes to the economic environment are affecting the nature of low-skilled jobs in the logistics sector; in particular, job content and the working and employment conditions attached to those jobs. On the basis of expert interviews and company case studies in French and German retail warehouses, the authors investigate whether the adaptation of these jobs corresponds to the more general 'neo-Taylorist' transformation of workplaces discussed in the literature and seek to identify those factors that are helping to stabilize or modify this trend.

Drawing on the comparative labour relations literature, which distinguishes between different types of workers' power resources (institutional, associational and structural), the study examines how and to what extent employees and their representatives renegotiate or influence techno-organizational choices. By focusing on firms headquartered in France and Germany, we can shed some light on whether the institutional power of organized labour may enable them to foster trajectories other than the kind of 'digital Taylorism' we see in liberal market economies.

The findings point, however, to a general convergence on digitally enhanced 'Neo-Taylorism,' which is characterized by deskilling and intensification of performance control. The limited cross-country variation can largely be explained by the very similar effects across countries of 'lean' supply-chain transformation and the trend toward outsourcing and offshoring, which negatively affect workers' structural power. Moreover, associational resources are negatively affected by the deskilling trend. Meanwhile, the findings provide some evidence of a beneficial impact from the institutional power of worker representatives in both countries: in particular, the rights to veto and co-determine performance management systems. These rights have not altogether helped prevent the shift toward neo-Taylorism but have contributed to somewhat less intense forms of neo-Taylorism.

KEYWORDS: technological change, digital Taylorism, power resources, performance management, deskilling, employment relations.

RÉSUMÉ

Néo-taylorisme à l'ère numérique : les transformations du travail dans des magasins de détail en France et en Allemagne

L'article analyse comment l'avènement du numérique, associé à l'évolution de l'environnement économique, affectent la nature des emplois peu qualifiés dans le secteur de la logistique des magasins de détail, en particulier le contenu et les conditions de travail et d'emploi qui leur sont liés. À partir d'entretiens d'experts

et d'études de cas d'entreprises dans des entrepôts logistiques français et allemands, les auteurs examinent si l'évolution de ces emplois reflète la transformation 'néo-tayloriste' des établissements discutée dans la littérature, et cherchent à identifier les facteurs susceptibles d'infléchir ou de confirmer cette tendance.

S'appuyant sur la littérature comparative en relations de travail qui distingue les différents types de ressources de pouvoir des travailleurs (institutionnelles, associatives et structurelles), les auteurs examinent comment les choix technologico-organisationnels sont négociés ou influencés par les salariés et leurs représentants. L'accent mis sur les entreprises ayant leur siège en France et en Allemagne permet de déterminer si le pouvoir institutionnel du mouvement syndical peut permettre de faire émerger d'autres trajectoires que la forme de 'taylorisme digital' constaté dans les économies de marché libérales.

Les résultats indiquent une tendance largement convergente vers un « néo-taylorisme » numériquement 'amélioré', caractérisé par des processus de déqualification et une intensification du contrôle des performances. Le peu de différences observées entre les pays s'explique, en grande partie, par l'effet très similaire de la transformation de la chaîne logistique à flux tendus, ainsi que la tendance à l'externalisation et à la délocalisation, qui minent le pouvoir structurel des travailleurs dans tous les pays. De plus, les ressources associatives sont affectées négativement par la tendance à la déqualification. Cependant, les résultats mettent en évidence un certain effet bénéfique du pouvoir institutionnel des représentants des travailleurs dans les deux pays qui a contribué à éviter l'émergence des pires formes de néo-taylorisme, notamment en termes de contrôle de performance.

MOTS-CLÉS : changements technologiques, taylorisme digital, ressources de pouvoir, gestion de la performance, déqualification, relation d'emploi.

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