

## Varieties of platform work: Platforms and social inequality in Germany and the United States

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Weizenbaum Series #7

Working Paper

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May 2020

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# **Varieties of platform work. Platforms and social inequality in Germany and the United States<sup>1</sup>**

Martin Krzywdzinski<sup>2</sup> & Christine Gerber<sup>3</sup>

May 2020

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## Abstract

The platform economy has been criticized for exacerbating social inequalities in various ways. This study draws on these discussions and examines the extent to which social inequalities are being reproduced, reduced, or even increased within platform work. The first central question is that of the precariousness of this form of work and the vulnerability of the platform workers as a group. This is followed by a second question about the role of classical dimensions of inequality of education and gender within the group of platform workers. The study focuses on inequalities related to income, workload, and the subjective perception of platform work. It follows a comparative approach, building on institutionalist analyses developed in labor market and inequality research. The empirical analysis is based on case studies of 15 crowdwork platforms in the United States and Germany and on an online survey of crowdworkers in both countries. While platforms represent a global organizational model, they are embedded in different models of capitalism. The study shows that existing labor market segmentation and social welfare systems determine who works on platforms and to what extent. The weaker the social safety net, the more likely platform work is to be both a curse and a blessing: It offers a much needed and flexible source of income, albeit under extremely precarious conditions. The stronger the social safety net, on the other hand, the greater the market power of workers vis-à-vis the platforms.

# Introduction

The development of the platform economy has engendered both high expectations and fierce criticism. The great expectations came, for the most part, in the early years, when this economic form was still typically called the “sharing economy,” a title that emphasized how a peer-to-peer economy could generate income and change the world of work (cf. Vallas/Schor 2020). As the platform economy has come of age, however, criticism has grown. A number of studies have accused it of exacerbating social inequalities in various ways. For example, some have criticized it for creating a precarious employment sector characterized by low wages and a lack of social protection (MacDonald/Giazitzoglu 2019; De Stefano 2016) and for lacking mechanisms to represent workers’ interests (Hoose et al. 2019). Scholars have also criticized the frequent discrimination based on gender, age, or ethnicity (Cherry 2019a; Van Doorn 2017; Piasna/Drahokoupil 2017). The platforms’ far-reaching control mechanisms place their workers, who are supposed, at least theoretically, to operate independently of the company, in a position of high dependence (Cutolo/Kenney 2019; Gerber/Krzywdzinski 2019; Wood et al. 2018).

This study draws on these discussions and examines the extent to which social inequalities are being reproduced, reduced, or even increased within platform work. The first central question is that of the precariousness of this form of work and the vulnerability of the platform workers as a group. This is followed by a second question about the role of classical dimensions of inequality of education and gender within the group of platform workers. We are interested in inequalities related to income, workload, and the subjective perception of platform work.

The major contribution of the present study lies in its comparative approach, building on institutionalist analyses developed in labor market and inequality research (Benassi et al. 2016; Emmeneger et al. 2012). The empirical analysis is based on case studies of 15 crowdwork platforms in the United States and Germany and on an online survey of crowdworkers in both countries. Our starting point is the expectation that country-specific institutional arrangements (especially with regard to labor market regulation and social security) shape inequality structures within platform work. This perspective has hardly been pursued in the field of platform work to date, not least because the platform economy explicitly presents itself as a global model that is not limited by institutional constraints. Our analysis picks up on and continues initial work on the institutional conditions under which the platform economy emerged (Rahman/Thelen 2019; Friedman 2014).

Platform work is a broad term that has not been used entirely consistently in the literature. Hence, before continuing, we will give a brief overview of the concept. What all forms of platform work share is their use of an “on-demand” market of formally independent workers organized via internet-based platforms. There are, however, major differences between the platforms regarding the importance of space. Platforms such as Uber, Deliveroo, MyHammer, or Helping act as intermediaries for service activities that are delivered locally and are therefore location-dependent. Platforms such as Amazon Mechanical Turk (AMT) or Upwork, on the other hand, focus on location-independent jobs that are done online and by a largely anonymous mass of people, the so-called crowd. This latter model is referred to as crowdwork. There are certain differences between location-dependent and location-independent forms of platform work. For example, collective worker organization is much more possible in location-dependent forms of platform work than in crowdwork. At the same time, however, there are also great similarities between the different forms of platform work. Thus, although our own empirical analysis focuses on crowdwork, we discuss the state of the research and our conclusions in a broader context and use the more general term platform work.

## **State of the research**

### **Platform work and social inequality**

From a formal point of view, platform work is a special kind of digitally organized solo self-employment.<sup>4</sup> What unites the various models of platform work is that the workers are registered as self-employed, they usually receive a piece wage, and they can be called up “on-demand.” Crowdworking has further special features due to its socio-technical configuration; unlike Uber drivers, for example, crowdworkers can work at any time and from any place. This limits their opportunities to talk to one another, collectively organize, and engage in interest representation (Gerber 2020a; Howcroft/Bergvall-Kåreborn 2018; Lehdonvirta 2016).

With regard to the connection between platform work and social inequality, three aspects can be distinguished. The first question is which social groups take up platform work and how they differ from other groups. Second, it is important to consider the conditions of platform work: Is it a particularly precarious form of employment or does it also offer opportunities – in other words, is platform work an “elevator to the top,” a guarantee of social status, or an “elevator to the bottom”? Third, it is possible

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<sup>4</sup> Jonas Ferdinand (WZB) supported us in the writing of this section.

to investigate differences between different groups of platform workers in terms of income, working hours, and other variables.

Regarding the first question, namely of the socio-demographic characteristics of platform workers, the statistics collected to date are very imprecise. Depending on the methods and definitions used, the estimated size of this employment segment in Germany and the United States varies between less than 1% and about 4% of the workforce (Bonin/Zinne 2017; Serfling 2018; Jackson et al. 2017). Few systematic country-comparative studies on the socio-demographic composition of platform workers have been conducted to date. With regard to crowdwork, the available literature has focused on individual countries or platforms; for example, it has looked at crowdworkers on AMT in the United States and India (Diffalah et al. 2018; Ipeirotis 2010) or professional freelancers on Upwork (Popiel 2017; Gandini 2016). In addition, there are some studies of crowdwork in Germany (Schneider-Dörr 2019; Serfling 2018; Bonin et al. 2017; Pongratz/Bormann 2017), while the US studies mostly consider platform work in a broader sense (Bureau of Labor Statistics 2018; Smith 2016; Farrell/Greig 2016). For Germany, studies indicate that most crowdworkers tend to be male and have higher educational attainment than the population average. Compared to other solo self-employed people, crowdworkers are also significantly younger. Initial estimates of the global crowdwork workforce and its composition are available in Berg et al (2018).

For the second question concerning working conditions on the platforms in comparison with other forms of employment, existing studies have reached different conclusions. Some studies point to the opportunities for weaker groups in the labor market, e.g., ex-convicts, physically or mentally disabled people, or even single parents (Carchio 2019; Zyskowski et al. 2015). Crowdwork also offers the opportunity to reduce regional and even global employment and income inequalities by enabling people to take advantage of opportunities in labor markets beyond their region (Berg et al. 2018; Beerepoot/Lambregts 2015). In this way, people in structurally weak areas or in the Global South can benefit from a demand for labor generated in metropolitan areas or in the Global North (Graham et al. 2017; Thies et al 2011). Yet, this literature on the benefits of platform work is contrasted by a rapidly growing body of research that addresses its negative effects, particularly on social inequality. Scholars have argued that platform work is creating a particularly precarious form of solo self-employment (De Stefano 2016), i.e., that a new large category of marginalized work is being established, thus increasing social inequality. The mechanisms of this precarization are flexibilization and disempowerment.



The flexibilization argument refers to the form of remuneration on platforms and the lack of social welfare benefits (Berg et al. 2018). Platform work is usually remunerated per task performed, which can amount to a few cents for tagging a picture or a few euros for a short product description; on so-called competition platforms, such as 99designs, platform workers take part in competitions and go away empty-handed if their work is not among the selected winners (De Stefano 2016). Since platform workers are formally registered as self-employed, they are also not entitled to social welfare benefits, health insurance, paid holidays, or protection against dismissal (Huws et al. 2016). For high-wage countries, this means that part of the labor market is being disembedded and de facto integrated into a global low-wage labor market: “the sun never sets on Amazon’s technology platform” (Irani 2015: 726).

Flexibility is also promoted by ranking systems, which are a key means of labor regulation on platforms (Kellog et al. 2020; Gandini 2016; Lee et al., 2015). A core component is the constant assessment of work quality, either by the customer or (in online work) by other crowdworkers. Depending on the platform and type of work, further criteria may be added, and these criteria may or may not be transparent. On many platforms, the ranking systems take into account factors such as activity on the platform, speed of answers to customer queries, or engagement in community discussions (Gerber/Krzywdzinski 2019). This leads to crowdworkers being forced to be active on the platforms on weekends or in the evening (Berg et al. 2018; Wood et al. 2018).

The disempowerment argument points to the special forms of control on platforms; these differ from both regular employment relationships and classic self-employment and contribute to the vulnerability of platform workers in comparison to other social groups. Many studies on both location-dependent and location-independent platform work emphasize the information and power asymmetries between platforms, clients and workers (Gerber 2020b; Ivanova et al. 2018). Cutolo and Kenney (2019: 13–18) describe the mechanisms that cause the disempowerment of platform workers as follows:

- 1) Platforms control the terms of trade and can change them unilaterally.
- 2) Platforms control workers’ access to information on available jobs, prices etc., while they themselves have complete information on the entire market.
- 3) Platforms control the interface between customers and workers, i.e., they can (depending on the platform and type of work) withhold all information about the customers from the workers.
- 4) Platforms can bar workers from accessing the platform, and thus customers, at will.

- 5) Platforms define the ranking and reputation systems, which have an enormous influence on platform workers' access to jobs. The criteria of the ranking and reputation systems are often kept secret to prevent opportunistic behavior and manipulation.

With regard to the third question, namely that of inequalities between different groups of platform workers, the research argues that platforms reproduce and sometimes intensify existing discrimination and thus social inequality on the labor market. Many of the markets in which platforms act as intermediaries have historically been characterized by gender inequalities (Van Doorn 2017). Platforms that allow crowdworkers to be selected based on their profiles may reproduce stereotype-based selection mechanisms (Cherry 2019a; Foong et al. 2019). Adams and Berg (2017) compared the wages of crowdworkers in the United States by gender and showed that women earn about \$1 less per hour than men. Foong et al (2018) showed that such wage differences also exist for crowdworkers on Upwork. Leung and Koppman (2015) showed that women have a considerable disadvantage when working on programming platforms due to gender stereotypes among the clients. Huws et al. (2016), however, argued in their comparative study of Germany, Sweden, Austria, and Great Britain that platform work sometimes enables women to take on typically male-connoted work – so platforms could also help reduce gender differences in the labor market.

### **Platform work and country-specific institutional systems**

In the research, the image that pervades is that of platform work as a global model that defies national regulation and is thus completely unembedded (Cherry 2019b; Berg et al. 2018). This means that the research on platform work contrasts with existing research on social inequality, which emphasizes the role of institutional arrangements (Häusermann et al. 2019; Benassi et al. 2016).

In particular, research on the dualization of labor markets and societies has emphasized the role of country-specific institutional arrangements (Schwander 2019; Emmenegger et al. 2012). The key argument of this research is that, in contemporary societies, we are observing a tendency to segregate regular and secure employment from a growing margin of precarious employment in response to globalization processes and competition for location. However, this tendency varies from country to country and depends on the institutional arrangement of labor market regulation and welfare state protection. Labor market regulation determines how far dualization processes can go through rules for the use of temporary work, fixed-term contracts, and protection

against dismissal. The welfare state in turn influences the vulnerability of precarious groups and thus their position on the labor market (Gerstung 2019).

The institutional differences in labor market regulation and welfare state security in Germany and the United States – which are the countries this study focuses on – have been well researched (Kaufmann 2003). There has certainly been a rapprochement between the two welfare state regimes (Seeleib-Kaiser 2014). In both countries, claims under the pension and unemployment insurance systems have declined in recent decades. At the same time, precarious forms of employment have increased in Germany due to the deregulation of the labor market (e.g., with regard to the possibilities of using temporary work), the decline in collective bargaining coverage, and the outsourcing of workers by companies. As a result, the low-wage sector has expanded and the number of self-employed workers has also increased (Grabka/Schröder 2019; ILO 2017). Nevertheless, there are a number of regime differences between Germany and the US that are relevant to our analysis:

- Protection in the event of unemployment (especially for the long-term unemployed) and illness – i.e., the decommodification of labor – is still significantly higher in Germany than in the United States, where there is no universal minimum welfare benefit system and a large proportion of employees do not have health insurance at all (Seeleib-Kaiser 2014). The German system offers parental leave benefits that do not exist in the United States. Moreover, the costs of childcare are significantly lower in Germany (Kröger 2011; Henderson/White 2004). We therefore expect platform work to be an important source of income for the groups of precarious solo self-employed persons in the United States as well as for parents and single parents, whereas in Germany, these groups can rely on social welfare benefits and may not need to do platform work. The large gaps in welfare-benefit coverage of the population in the United States will also likely lead to greater geographical inequalities. Especially in poorer rural regions, platform work could be an important source of income.

- The institutional features described here have shaped a culture in the United States that emphasizes entrepreneurship and rejects collective responsibility for citizens' social wellbeing (Richter et al 2018; Seeleib-Kaiser 2014). In addition, the distinction between dependent employment and solo self-employment is less clear-cut in the United States, as the legal protection against dismissal is very weak and most dependent employees are not entitled to benefits like for instance the continued payment of wages during sickness leave. On this basis, we can expect platform work to be more accepted in the United States than in Germany. On the one hand, such precarious independence is considered "normal" due to the lack of alternatives. On the other hand, it is consistent with a model of individual assumption of responsibility.
- The United States has been characterized by a particularly pronounced long-term trend of weakening trade unions (encouraged by state policy) and by rather antagonistic relations between companies and trade unions (Cutcher-Gershenfeld/Kochan 2004). By contrast, cooperation between trade unions, companies, and the state is much more pronounced in Germany, despite all existing conflicts. We can expect these differences to be reflected in the nature of the debate on the regulation of platform work. While we could expect more open conflicts in the United States, we would expect attempts at a negotiated approach between the state, companies, and trade unions in Germany.

Comparative analyses of the regulation of the platform economy and the role of institutional frameworks are still a relatively new phenomenon. Recently, some initial analyses of how institutional factors influence platform work have been presented. Some authors have pointed out that platform work has emerged from a specifically US regulatory context (Van Doorn 2017). Drawing on Friedman (2014), we can also understand platform work as a digital intensification of the atypical work that has been spreading since the 1970s. Rahman and Thelen (2019) have also described platforms as a further development of the outsourcing strategies that sought to enhance shareholder value. Using the example of Uber, Thelen (2018) analyzed the special role US institutions and regulation played in the development of the platform. Although Uber met with resistance from taxi companies in the United States, it was able to win the conflict by successfully mobilizing users (cf. Thelen 2018: 945). However, this led to regulatory responses at the municipal or even state level, for example, in New York or California (De Stefano 2016; Isaac et al. 2015). In the case of Germany, the few currently existing studies on the subject have discussed the role of trade unions such as *ver.di* and *IG Metall* in regulating platform work (Haipeter/Hoose 2019). These unions

have started organizing activities for platform workers, initiated dialogue processes with German platforms, and brought the issue to the political stage.

The present study builds on existing analyses but undertakes an explicit comparative analysis of crowdwork and its regulation in the United States and Germany.

## Data

In the analysis, we used data from the project “Between digital bohemia and precarity. Work and performance in the crowd” (2016–2019), which was funded by the Thyssen Foundation. The analysis focused on crowdwork as a specific form of platform work. The project combined qualitative and quantitative methods. In the qualitative part of the data collection and analysis, 15 case studies of crowdwork platforms in Germany and the United States were conducted. The central question concerned the extent to which the different institutional regimes in Germany and the United States influenced the work and performance regulation on the platforms. In particular, the study examined approaches to the recruitment of crowdworkers, the control and regulation of performance (incentive and remuneration systems), and communication with crowdworkers. The case studies were based on an analysis of platform websites and official documents, their work interfaces for crowdworkers, and their communication forums. The study also involved conducting 32 one- to two-hour semi-structured interviews with representatives of the platforms (Gerber/Krzywdzinski 2019; Gerber 2020a).

The platform-selection process took place in several steps. Our central aim was to include platforms that focused on different types of work (in terms of task content and skill requirements). We distinguished between two task types: micro- and macrotasks. Microtasks can be defined as routine tasks (e.g., image categorization, lead data verification, short audio transcriptions) or as tasks that do not require specific knowledge (e.g., short product descriptions, testing of apps). The nature of these tasks allows them to be broken down into short and standardized components that can be completed within seconds or minutes. Several crowdworkers can work simultaneously on the same task without having to interact. Macrotasks, by contrast, are complex and require a high degree of creativity and specific, sometimes professional knowledge (e.g., design activities, software programming, development of product concepts, scientific problem solving). These tasks cannot be broken down and are therefore organized as projects lasting several days or weeks. The focus is on quality. Platforms often organize competitions to generate proposals, from which the client, a jury, or the crowd community can select the winners. To select the platforms, we compiled a list of all platforms in Germany and selected metropolitan regions in the United States (Bay Area, Boston, Chicago, New York) on

the basis of internet research. We identified 60 platforms, which we contacted in several rounds by phone and email. We continued to contact them until we reached a sample of 15 case studies that equally represented micro- and macroplatforms.

The qualitative analysis showed that the central differences in the design of work and performance regulation related to differences in task types between platforms (micro-versus macrotasks); there were hardly any differences between German and US platforms. Apparently, crowdwork is indeed a global model, in that the platforms apply similar organizational principles (Gerber/Krzywdzinski 2019).

In the following, we will analyze the quantitative survey of crowdworkers. The survey was sent to crowdworkers who registered as German or US residents on the platforms. The total sample consists of 1,131 participants; however, those participants who stated in the survey that their main residence was not in Germany or the United States were excluded from the analysis; this may be the case if the crowdworkers work as “global nomads.” Accordingly, the sample used here comprises 1,088 persons.

On four platforms, the survey was placed on the platform as a paid task. On the other platforms, the survey invitation was sent to the crowdworkers via the platform itself or (if the platforms refused to participate in the survey) via social media (Facebook, LinkedIn, Reddit, Xing) and the platforms’ communication forums.

In our case studies, we received information from the platforms about the composition of the crowdworkers by gender and age. We used this information to calculate platform-specific weighting variables. In terms of gender, our sample composition deviated only slightly from the actual composition of the crowdworkers on the platforms surveyed, but crowdworkers under 35 years of age were noticeably underrepresented. We used a weighting variable to correct for this.

Our data therefore represent a “convenience sample,” which means we cannot generalize beyond the platforms we surveyed. However, the platforms we surveyed represent a total of 14 million registered crowdworkers, which is a considerable proportion of the total number of workers in this sector. Our sample is also broadly similar in composition to those of the available studies on Germany (Bonin/Zinne 2017; Leimeister et al. 2016) as well as on the United States (Difallah et al. 2018; Popiel 2017).

An advantage of our sample is that we covered platforms with different types of tasks in one survey, thus avoiding a focus on individual platforms, which is the dominant approach in the current research. Second, we surveyed German and US crowdworkers on the same platforms, which is an important basis for this comparison. The following table, Table 1, provides information on our sample.

**Table 1.** Socio-demographic composition of the sample

		Germany	United States
Gender	Women	44.8%	53.8%
	Men	55.0%	45.2%
	Other/third gender	0.2%	1.0%
Age	Up to 21 years	10.1%	8.5%
	22–29	37.0%	31.4%
	30–39	30.0%	30.2%
	40–49	12.6%	16.1%
	50–64	10.3%	11.5%
	Above 65	0.9%	2.4%
Education	High-school diploma and below	44.4%	31.1%
	Tertiary degree	55.6%	68.9%
Platform type	Microtasks	88.0%	62.2%
	Macrotasks	12.0%	37.8%
N		576	512

Source: Krzywdzinski/Gerber 2019. Weighted data.

In the US subsample, the majority of workers were women; in the German one, the majority were men. This corresponds with the findings of existing studies. There is thus a certain imbalance in our sample, which results from the fact that macrotask platforms in Germany had lower response rates than those in the United. This also means that workers with a tertiary education are more strongly represented in the US subsample than in the German one. This makes it necessary to consider the platform type (micro/macro) when doing country comparisons.

The questionnaire used in the survey consists of 29 questions and covered the following topics: (a) basic information about the work situation (working hours, type of tasks etc.); (b) the form of performance monitoring on the platform; (c) reputation and ranking systems; (d) interaction with other crowdworkers; (e) perception of working conditions and stress; and (f) socio-demographic information (age, gender etc.).

## The working conditions and income situations of the crowdworkers

With regard to the time spent by crowdworkers on platform work, there were clear differences between Germany and the United States (Table 2). In Germany, crowdworkers spent considerably less time on platforms: two thirds of the respondents worked on their platforms for a maximum of 10 hours per week. This suggests that crowdwork was a secondary activity for this group. In the United States, on the other hand, 35% of those surveyed worked more than 20 hours a week on the platforms – here, it can be assumed that platform work was the main source of income. Only 40% of respondents performed platform work as a small part-time job of 10 hours or less per week.

**Table 2.** Typical weekly working time on platforms of crowdworkers in Germany and the United States by gender and educational attainment

	1–10 hours	11–20 hours	21–30 hours	31–40 hours	More than 40 hours
<b>Germany</b>					
Men	66.1%	20.8%	10.1%	3.0%	0%
Women	63.2%	20.6%	10.8%	3.8%	1.7%
High-school or less	63.5%	23.4%	8.4%	3.3%	1.4%
Tertiary education	65.7%	18.0%	11.7%	3.4%	1.2%
<b>United States</b>					
Men	40.2%	24.2%	19.0%	8.9%	7.6%
Women	40.8%	23.5%	18.8%	11.5%	5.4%
High-school or less	38.5%	18.6%	22.4%	12.6%	7.9%
Tertiary education	41.5%	26.0%	17.5%	9.1%	5.8%

Source: Krzywdzinski/Gerber 2019. Weighted data.

These differences may have been related to the different compositions of the German and US subsamples with regard to platform type: Microtask platform workers are clearly more represented in the German than in the US subsample. We thus took the platform type into account. However, even when we did so, the picture hardly changed. If only microtask platforms were considered, the share of German crowdworkers who worked a maximum of 10 hours per week was 64.1%; in the US case, it was 45.6%. In Germany, 13.5% of crowdworkers on microtask platforms worked 20 hours or more compared to 37.0% in the United States.



With regard to working time, there were no significant gender differences on the platforms in either country. In Germany, there were also no statistically significant differences between different education levels. In the United States, on the other hand, people without tertiary education had higher weekly working hours on platforms; this figure was statistically significant ( $p < 0.05$ ). This suggests that crowdwork is more often a main source of income for the non-tertiary-educated group in the United States.

**Table 3.** Primary employment status of crowdworkers in Germany

	Men	Women	High-school education	Tertiary education
<b>Microtask platforms</b>				
Employed (Full time)	39.3%	21.7%	30.8%	32.4%
Employed (Part time)	12.1%	11.6%	8.7%	14.6%
Self-employed	17.9%	24.3%	17.7%	24.0%
University/Education	22.2%	20.1%	29.9%	13.4%
Other (retired, registered unemployed)	8.5%	22.3%	12.9%	15.6%
<b>Macrotask platforms</b>				
Employed (Full time)	23.1%	6.0%	8.3%	16.7%
Employed (Part time)	10.3%	33.3%	8.3%	23.3%
Self-employed	59.0%	42.4%	58.3%	50.0%
University/Education	2.6%	3.0%	8.3%	1.7%
Other (retired, registered unemployed)	5.1%	15.1%	16.7%	8.3%

Source: Krzywdzinski/Gerber 2019. Weighted data.

The similarities and differences between Germany and the United States are evident when we look at employment status (Tables 3 and 4). Here, we separately considered crowdworkers on micro- and macrotask platforms. The majority of crowdworkers on microtasks platforms in both countries also had a regular job or attended university; in both countries, the majority of crowdworkers on macrotask platforms were self-employed. In both Germany and the United States, the employment status also reflected the classic gender inequalities on the labor market. Men who did crowdwork were much more likely than women to have a regular full-time job, while women working on platforms were much more likely than men to have a regular part-time job or no other job at all.

**Table 4.** Primary employment status of crowdworkers in the United States

	Men	Women	High-school education	Tertiary education
<b>Microtask platforms</b>				
Employed (Full time)	44.9%	27.3%	18.7%	43.4%
Employed (Part time)	16.1%	21.5%	16.3%	21.4%
Self-employed	21.4%	23.2%	28.8%	18.7%
University/Education	7.7%	5.9%	9.5%	5.4%
Other (retired, registered unemployed)	9.8%	22.1%	26.8%	11.1%
<b>Macrotask platforms</b>				
Employed (Full time)	29.3%	19.2%	15.4%	26.8%
Employed (Part time)	13.0%	8.1%	7.7%	11.1%
Self-employed	43.5%	49.5%	48.7%	45.7%
University/Education	2.2%	5.0%	7.7%	2.6%
Other (retired, registered unemployed)	12.0%	18.2%	20.5%	13.7%

Source: Krzywdzinski/Gerber 2019. Weighted data.

There were differences between Germany and the United States, especially with regard to the role of education. First, a much larger proportion of crowdworkers in Germany than in the United States used this activity as a secondary source of income during their university education. Second, there were differences between education levels. In Germany, the differences in employment status between crowdworkers with and without tertiary education appear relatively small – at least if we focus on crowdworkers on microtask platforms and ignore crowdworkers on macrotask platforms because of the small number of cases. In the United States, on the other hand, there were large differences between people with different education levels. University-educated crowdworkers were much more likely to have a regular full-time or part-time job while those without a university education were much more likely to be self-employed or without any other employment.

Table 5 confirms the findings presented so far. In Germany, only 16% of the surveyed crowdworkers reported that their platform income accounted for more than 50% of their total income. In the United States, the figure was just under 33%. Here, too, this difference between Germany and the United States applied to crowdworkers on both microtask and macrotask platforms.

**Table 5.** Share of platform income in total income of crowdworkers in Germany and the United States

	Less than 25%	25-50%	51-75%	More than 75%
Germany	71.4%	12.5%	5.0%	11.1%
United States	47.2%	20.2%	9.0%	23.6%

Source: Krzywdzinski/Gerber 2019. Weighted data.

How can we interpret these findings? They confirm our initial expectation that the different levels of decommodification of labor in Germany and the United States are related to the role of crowdwork as a source of income. In the United States, which has low social welfare benefits, crowdwork is an important opportunity to generate income if no other options are available on the local labor market. Despite its precariousness, crowdwork is often the primary source of income in the United States because no alternatives are available. In Germany, on the other hand, crowdwork is much more often a secondary activity. This could be explained by the fact that there are fewer incentives to use crowdwork as a primary source of income in the German context, where individuals enjoy relatively high social welfare benefit levels. Another explanation could be the strong growth of part-time employment and of so-called “mini jobs” in Germany, which, given their low wages, create the need for additional income.

In both countries, women and crowdworkers without tertiary education were more dependent on income from platform work than men and college graduates. On the one hand, this reproduces the classical inequalities. On the other hand, crowdwork can also be interpreted as an opportunity: It represents a new kind of access to income for these groups, which makes them a little more independent of the local labor market.

## **Subjective perceptions of platform work**

To what extent are the differences in crowdworkers’ objective work situations also reflected in their subjective perceptions of platform work? An interesting finding in Tables 6 and 7 is that crowdworkers in the United States are significantly more satisfied with their platform work than those in Germany and they also more frequently see this type of work as a long-term prospect. This difference applies to both crowdworkers on micro- and macrotask platforms, i.e., regardless of the type of task.

**Table 6.** “Overall I am satisfied with working on the platform.”

	Strongly agree	Agree	Partly	Disagree	Strongly disagree
Germany	19.7%	46.3%	24.7%	8.5%	0.7%
United States	31.0%	46.9%	17.5%	3.2%	1.3%

Source: Krzywdzinski/Gerber 2019. Weighted data.

**Table 7.** “I see my personal future in platform work.”

	Strongly agree	Agree	Partly	Disagree	Strongly disagree
Germany	6.5%	17.1%	20.9%	23.6%	31.8%
United States	15.7%	26.4%	28.3%	18.9%	10.7%

Source: Krzywdzinski/Gerber 2019. Weighted data.

Research on job satisfaction has shown that measurements of subjective satisfaction do not provide information on objective working conditions (cf. Brown et al. 2012) – people are often satisfied with forms of work and employment that are poor and stressful according to objective criteria. It is therefore important to reflect on the reasons for satisfaction. There are two possible explanations for the findings presented here. On the one hand, the differences in satisfaction between German and US crowdworkers may represent the commodification of labor. In the US system, which provides limited social welfare benefits, platform work reduces dependence on the local labor market; thus despite all the burdens, it can be perceived as a gain in autonomy and can lead to higher satisfaction. On the other hand, our findings may also reflect general cultural differences between Germany and the United States. In international surveys, Americans tend to be slightly more satisfied with their work than Germans (Souza-Posa/Souza-Posa 2000). In addition, self-employment enjoys greater recognition in the United States than in Germany and the uncertainties of self-employment are perceived as more socially normal than in Germany.

Interestingly, however, the following two tables, Table 8 and 9, show that US workers’ greater satisfaction with crowdwork is accompanied by a higher level of perceived insecurity and a higher degree of work stress than is evident in the German subsample. Given the greater importance of platform incomes for US crowdworkers, this is not surprising.

**Table 8.** “The uncertainty of whether I will get enough jobs in a month and earn enough money worries me a lot.”

	Strongly agree	Agree	Partly	Disagree	Strongly disagree
Germany	7.7%	10.8%	24,5%	23.6%	33.2%
United States	19.0%	19.0%	24.0%	23.4%	14.6%

Source: Krzywdzinski/Gerber 2019. Weighted data.

**Table 9.** “I organize my working time according to the work that is available – even if this means working late in the evening, at night, or on weekends.”

	Strongly agree	Agree	Partly	Disagree	Strongly disagree
Germany	20.7%	31.5%	23.9%	11.7%	12.2%
United States	39.3%	33.4%	18.0%	5.9%	3.3%

Source: Krzywdzinski/Gerber 2019. Weighted data.

To what extent do the factors that influence the perception of crowdwork differ between Germany and the United States (Tables 10 and 11)? Overall, very similar patterns can be observed within the two countries studied. With regard to the question of whether crowdwork represents a long-term model for the respondents, the current level of platform income proved particularly relevant. People who earned relatively high incomes on the platforms planned to continue working there in the future. In both countries, people without a tertiary education were also much more likely to see their personal future in crowdwork. In terms of employment status, self-employed people, unemployed people, and retired persons in both countries were more likely to see their future in crowdwork than those with regular employment.

**Table 10.** Ordinal logistic regression, German subsample (odds ratios in brackets)

	“I see my personal future in platform work.”	“The uncertainty of whether I will get enough jobs in a month and earn enough money worries me a lot.”	“I organize my working time according to the work that is available – even if this means working late in the evening, at night, or on weekends.”
Gender (women compared to men)	.262 (1.300)	.053 (1.019)	.340 (1.405)
Tertiary education (compared to persons without tertiary education)	-.606 (.545)**	.116 (1.123)	.044 (1.045)
Platform income	.417 (1.518)*	-.151 (.860)	-.052 (.949)
Number of inhabitants of the place of residence	-.043 (.958)	.111 (1.118)	.062 (1.064)
Employed part time (compared to full-time employment)	.435 (1.545)	.667 (1.949)*	-.061 (.941)
Self-employed (compared to full-time employment)	.638 (1.893)*	1.177 (3.245)**	.551 (1.736)*
In education (compared to full-time employment)	-.134 (.875)	.266 (1.305)	-.383 (.682)
Unemployed/retired/other (compared to full-time employment)	.934 (2.545)**	1.297 (3.658)**	.783 (2.188)*
Age	-.011 (.989)	-.015 (.985)	-.020 (.980)*
Number of children	.086 (1.090)	-.024 (.976)	.078 (1.081)
N	534	547	554
Pseudo R <sup>2</sup>	0.047	0.046	.034

Significance level \* <0.05, \*\*<0.01. Controls: platform, duration of work experience on platforms, number of platforms on which the person is registered. Robust standard errors. Weighted data.

**Table 11.** Ordinal logistic regression, US subsample (odds ratios in brackets)

	“I see my personal future in platform work.”	“The uncertainty of whether I will get enough jobs in a month and earn enough money worries me a lot.”	“I organize my working time according to the work that is available – even if this means working late in the evening, at night, or on weekends.”
Gender (women compared to men)	-.017 (.983)	.263 (1.301)	.282 (1.325)
Tertiary education (compared to persons without tertiary education)	-.411 (.663)	.210 (1.233)	-.598 (.550)*
Platform income	.324 (1.383)**	-.139 (.870)	-.002 (.998)
Number of inhabitants of the place of residence	-.289 (.749)**	-.008 (.992)	.042 (1.042)
Employed part time (compared to full-time employment)	-.271 (.763)	.556 (1.744)	.061 (1.063)
Self-employed (compared to full-time employment)	.603 (1.827)*	.704 (2.022)*	.394 (1.483)
In education (compared to full-time employment)	-.356 (.700)	.523 (1.687)	-.035 (.965)
Unemployed/retired/other (compared to full-time employment)	.844 (2.326)*	.319 (1.376)	-.009 (.991)
Age	.011 (1.011)	-.007 (.992)	.004 (1.004)
Number of children	.224 (1.251)**	.021 (1.022)	.082 (1.085)
N	431	445	446
Pseudo R <sup>2</sup>	0.062	0.016	.046

Significance level \* <0.05, \*\*<0.01. Controls: platform, duration of work experience on platforms, number of platforms on which the person is registered. Robust standard errors. Weighted data.

There were certain differences between Germany and the United States regarding the long-term importance of crowdwork. In the United States people living in smaller cities were more likely to accept this form of work than people living in metropolitan areas – this is plausible, because crowdwork offers particular opportunities in rural labor markets. Interestingly, however, this variable was not important in Germany. In the United States, the number of children a person had also clearly influenced their perception of crowdwork: The more children they had, the more likely they were to see crowdwork as their future form of work. This, in turn, can be explained by the lack of social welfare benefits, which puts particular pressure on large families, as well as the high cost of childcare in the United States.

When it comes to the question of uncertainty, there were again extensive similarities between Germany and the United States. In both countries, having a high income from platform work counteracted the burden of uncertainty. In both countries, self-employed people were much more likely to feel insecure than platform workers in regular full-time employment; to a lesser extent, this also applied to part-time employees, the unemployed, and pensioners. Most other variables had little or no impact.

Likewise, with regard to the allocation of working time, the countries were largely similar. In both Germany and the United States, women were slightly more likely than men to strongly gear their crowdwork working hours according to demand. People in regular full-time employment and students tended to have lower probabilities of working on-demand, while the opposite was true for the self-employed. The level of platform income had no influence on this. However, a clear difference can be seen with regard to education levels. In Germany, the level of education had no influence on how flexible and on-demand working hours were. In the United States, by contrast, people without a college degree were about twice as likely to report having on-demand working hours than people with a college degree.

## **Regulation of platform work in Germany and the United States**

Particularly in the debate on dualization, scholars have pointed out that labor market inequalities and segmentation have an influence on policy formulation (Häusermann/Schwander 2012). This argument – as we will illustrate below – also applies to the platform economy. There have been clear differences in policy responses between Germany and the United States. To explain these differences, it was necessary to take into account the legal framework for collective action by platform workers. Although



our empirical analysis focused on crowdwork, in the following we summarize the regulatory responses to platform work in a broader sense.

The first clear difference in terms of policy responses to the development of platform work in Germany and the United States concerns litigation through the courts. In Germany, there has only been one publicly known lawsuit to date: A crowdworker sued the Roamler platform (see Zeit Online 2019). He had been working on the platform for two years and earned his income from this platform alone, however, the platform ultimately terminated his access. In the lawsuit, the crowdworker argued that he was *de facto* employed by the platform and therefore a termination of his access without notice was unlawful. The State Labor Court in Munich ruled that there were no characteristics of dependent employment because the crowdworker was not directly bound by instructions of the platform and could have refused to accept the offered jobs.

In the United States – and especially in California – there have been a large number of class action lawsuits filed by platform workers, almost all of which revolve around the question of whether platform workers are in fact dependent employees (Seiner 2017). However, the most publicly discussed lawsuits against Uber, Lyft, and Crowdfunder ended with a settlement in which the platforms paid millions of dollars to the platform workers, thus avoiding a court decision on the question of dependent employment. A number of other claims have also been dismissed by the courts using similar arguments as in Germany (*ibid.*).

In both countries, the legal disputes have thus revolved around the question of platform workers' dependence on the platforms. The legal demarcations between dependent employment and solo self-employment differ only slightly between Germany and the United States. The central criterion for dependent employment in Germany is the direct obligation to follow instructions (*Weisungsgebundenheit*), which enables the employer to determine working hours and work content (*cf.* Kocher 2012; Müller-Glöge 2020). This is interpreted relatively strictly. In the United States, the primary criterion is the degree of “control” of the employee by the employer – the greater the control, the more the relationship between two parties is to be interpreted as an employment relationship (Seiner 2017).

There are several explanations for the different numbers of legal disputes in Germany and the United States. Differences in the legal system certainly play an important role. US law permits class actions under certain conditions, and California has particularly favorable conditions for class actions in the field of labor law (*ibid.*). Under these conditions, and due to the long-standing weakening of trade unions, a trend of moving labor disputes from the arena of industrial relations to the courts can be observed in the

United States (Colvin 2012). In Germany, there is no such possibility of class actions, which makes the conditions for a court-based collective dispute much more difficult. A second explanation, however, pertains to the differences in the importance of platform work for the respective labor markets. In the United States, platform work is much more widespread, and it often represents the main source of income for people. This is a much stronger motivation and basis for collective disputes, even if they are carried out in court.

Differences between Germany and the United States in terms of political responses to platform work have not only been evident in legal disputes, but also in state policies. In the United States, there has been a conflict between the Republican states and federal government – and the National Labor Relations Board (NLRB) controlled by it – on the one hand and progressive, Democratic states such as California on the other. The NLRB, which oversees compliance with the rules for unionization and recognition, considers platform workers to be freelancers and denies them the right to unionize (Griswold 2019). A number of Republican states have passed legislation defining platform workers as independent contractors. The conflict is currently escalating in California (but also in Massachusetts, New Jersey, and Connecticut). In 2019, California Assembly Bill 5 laid down stricter rules for recognition as independent contractors (Smith 2019).<sup>5</sup> This immediately led to new class actions by platform workers (Scheiber 2019) – but also a petition by the three major platforms, Uber, Lyft, and DoorDash. In this petition, they formulated an alternative that would exempt the platforms from the law and at the same time create additional protections for self-employed platform workers. To date, they have already collected 1 million signatures and can therefore present their alternative to California’s voters in November 2020 (Kerr 2020).

In Germany, the disputes have been less fierce. The German government has commissioned a number of expert reports and studies on the topic of platform work (Leist et al. 2017; Greef/Schröder 2017; Bonin/Rinne 2017) but has not yet decided on specific regulatory steps. The “Green Book Working 4.0” (Grünbuch Arbeit 4.0) published by the Federal Ministry of Labour and Social Affairs (BMAS) formulated two central positions. First, the ministry emphasized that the growth of platform work in Germany has been limited so far and that there has been no sign of precarization through the platforms (BMAS 2015: 175). Second, BMAS has pointed out that the existing rules for determining bogus self-employment have so far been sufficient (BMAS 2015:

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5 Only platform workers who really work without control, who are not active in the same industry as the platforms, and who offer their services to several clients are to be classified as self-employed.

172). At the same time, however, BMAS has stressed that the government must continue to review the need to protect platform workers (BMAS 2015: 176).

Finally, third – in addition to legal disputes and state action – different approaches have also been evident among the trade unions. Both in the United States and in Germany, trade unions have tried to support the organization of platform workers and thus to limit and push back against the development of an employment sector that is unregulated by collective agreements. In the United States, unions are mobilizing to tighten the regulations on bogus self-employment and support the strikes and class actions of platform workers against the platforms (Ghaffary/Campbell 2019). In Germany, too, the trade unions are demanding a tightening of the law (Haipeter/Hoose 2019) and have supported the above-mentioned lawsuit. However, in Germany, the only example of a collective labor dispute organized by platform workers so far involved riders for food delivery platforms Deliveroo, Foodora and Lieferando (Degner/Kocher 2018; Schreyer/Schrape 2018). Due to the weak mobilization power of the platform workers and unions' lack of experience with platform work, the two strongest trade unions – ver.di and IG Metall – have been cautious in their approaches so far and are counting on dialogue with the platforms.

IG Metall launched the “Fair Crowd Work” (FCW) portal in 2015. The portal allows crowdworkers to find advice, evaluate platforms, and exchange information. In addition, IG Metall, in cooperation with eight major German platform companies and the German Crowdsourcing Association, adopted a code of conduct in 2017 that lays down rules for fair platform work. This includes a voluntary commitment to fair payment modes and remuneration levels, to appropriate task and time planning, and to feedback and transparency. An ombudsman's office was set up to ensure implementation and to settle disputes. To date, this office has dealt with around 30 cases. The services trade union ver.di has also set up a consulting center for crowdworkers, which is part of the union's broader advisory services for the self-employed. Like IG Metall, ver.di is also in contact with individual platforms. As the conclusion of the code of conduct makes clear, platforms in Germany are willing to talk to trade unions. This attempt to regulate platform work between companies and trade unions is certainly typical of the traditions of German industrial relations but may also be related to the fact that platforms in the German labor market have to make much greater efforts to ensure the legitimacy of platform work than is the case in the United States.

## Conclusions

Does platform work represent a global model that makes the role of national and institutional differences disappear? Certainly, there are some arguments in favor of this strong globalization thesis. Most platforms operate across national borders. Moreover, there are hardly any differences between the approaches to labor and performance regulation on the various platforms in different countries (Gerber/Krzywdzinski 2019). The platform as an organizational form thus has its origins in the United States (Rahman/Thelen 2019) but has become a global phenomenon. However, the platforms are embedded in different models of capitalism. This comparison between Germany and the United States has shown that institutional factors play a role in two ways.

First, it is apparent that existing labor market segmentation and social welfare systems determine who works on platforms and to what extent: In the United States, platform work is more often a person's main source of income; in Germany it is more likely to be a secondary source of income, especially during college and university education. Accordingly, crowdworkers in the United States perceive the insecurity and burdens of platform work much more than their German counterparts. There are also differences between Germany and the United States with regard to education: In the United States, the situation of crowdworkers without tertiary education is much more precarious compared to crowdworkers with tertiary education, while these differences are smaller in Germany. In contrast, with regard to gender inequality, there are similarities between Germany and the United States. Women working on crowdwork platforms are often in a particularly precarious position: They are more likely to be in part-time employment or otherwise unemployed, while men more often engage in crowdwork alongside full-time employment.

Against this background, it may be surprising to hear that crowdworkers' satisfaction with their work is higher in the United States than in Germany. However, existing research shows that job satisfaction is not an indicator of objective working conditions. In the case of crowdwork, it can be assumed that US crowdworkers' higher satisfaction is due to the fact that they have few alternatives to platform work and therefore perceive the flexibility of platform income as a gain in autonomy. In addition, there is a greater cultural acceptance of self-employment and insecurity in the United States. Second, institutional differences can help explain the policy responses. The spread of platform work in the United States and its importance as a main source of income has led to a large wave of lawsuits in the courts – this is typical for conflict resolution in the United States (Colvin 2012). The importance of platform work as a main source of income for many platform workers has led individual states such as California to push

ahead with regulatory projects. Despite intensive discussions, by contrast, the German government has not yet decided to regulate platform work. One reason for this is that platform work in Germany is still often an additional income source earned alongside regular employment. At the same time, the German government considers the existing social welfare system and labor market regulations as sufficient.

Our analysis thus shows that the platform economy can play a very different role in different national labor markets. The weaker the social safety net, the more likely platform work is to be both a curse and a blessing: It offers a much needed and flexible source of income, albeit under extremely precarious conditions. The stronger the social support, on the other hand, the greater the market power of workers vis-à-vis the platforms. At the same time, however, the possibilities for individual exit limit the willingness of platform workers to organize themselves. It also reduces the pressure for regulatory responses.

Despite these differences between Germany and the United States, we are convinced that the regulation of platforms should be an issue on the political agenda in both countries. First, it is necessary to consider introducing social welfare benefits for platform work, even if this often represents “only” a secondary income source. Second, there is a need for regulation with regard to power and information asymmetries in the algorithmic management of platforms. This includes securing rights for platform workers to have a say in determining rules on the platforms (e.g., with regard to the terms of trade, performance control, or the design of ranking systems). We need to develop ideas for how this participation of the platform workers could be organized.

A limitation of our analysis is our empirical focus on crowdwork, an area in which jobs are completed online and thus independent of location. Although we expect that our results will essentially also apply to platforms that organize more location-bound activities, this requires further research.

## References

- Adams, Abi & Berg, Janine (2017). When home affects pay: An analysis of the gender pay gap among crowdworkers. Available at: <https://ssrn.com/abstract=3048711> (29.4.2020).
- Beerepoot, Niels & Lambregts, Bart (2015). Competition in online job marketplaces: towards a global labour market for outsourcing services?. *Global Networks*, 15(2), 236–255.

- Benassi, Chiara; Doellgast, Virginia & Sarmiento-Mirwaldt, Katja (2016). Institutions and inequality in liberalizing markets: Explaining different trajectories of institutional change in social Europe. *Politics & Society*, 44(1), 117–142.
- Berg, Janine; Furrer, Marianne; Harmon, Ellie; Rani, Uma & Silberman, M. Six (2018). *Digital Labour Platforms and the Future of Work: Towards Decent Work in the Online World*. Geneva: International Labour Office.
- Bonin, Holger & Rinne, Ulf (2017). Omnibusbefragung zur Verbesserung der Datengelage neuer Beschäftigungsformen. IZA Research Report No. 80, Bonn: IZA.
- BMAS (2015). *Grünbuch Arbeiten 4.0*, Berlin: BMAS.
- Brown, Andrew; Charlwood, Andy & Spencer, David (2012). Not all that it might seem: why job satisfaction is worth studying despite it being a poor summary measure of job quality. *Work, Employment & Society*, 26(6), 1007–1018.
- Carchio, Claudia (2019). Platform work as a chance for a more inclusive labour market. In Valeria Fili & Federico Costantini (eds.), *Legal Issues in the Digital Economy. The Impact of Disruptive Technologies in the Labour Market* (pp. 73–104). Newcastle: Cambridge Scholars Publishing.
- Cherry, Miriam (2019a). Age discrimination in the on-demand economy and Crowdwork. *Berkeley Journal of Employment & Labor Law*, 40(1), 1–29.
- Cherry, Miriam (2019b). A Global System of Work, a Global System of Regulation?: Crowdwork and Conflicts of Law. *Tulane Law Review*, 94; Saint Louis University School of Law Legal Studies Research Paper No. 2019-11. Available at: <https://ssrn.com/abstract=3523303> (29.4.2020).
- Colvin, Alexander (2012). American Workplace Dispute Resolution in the Individual Rights Era. *International Journal of Human Resource Management*, 23(3), 459–475.
- Cutcher-Gershenfeld, Joel & Kochan, Thomas (2004). Taking Stock: Collective Bargaining at the Turn of the Century. *Industrial and Labor Relations Review*, 58(1), 3–26.
- Cutolo, Donato & Kenney, Martin (2019). *Playing in God’s Garden: Dependent Entrepreneurs in a Platform Economy*, BRIE Working Paper 2019-3, Berkeley: University of California in Berkeley.
- Degner, Anne & Kocher, Eva (2018). Arbeitskämpfe in der „Gig-Economy“? Die Protestbewegungen der Foodora- und Deliveroo-„Riders“ und Rechtsfragen ihrer kollektiven Selbstorganisation. *Kritische Justiz*, 51(3), 247–265.

- De Stefano, Valerio (2016). The rise of the „just-in-time workforce”: On-demand work, crowdwork, and labor protection in the „gig-economy”. *Comparative Labor Law and Policy Journal*, 37(3), 461–471.
- Difallah, Djellel; Filatova, Elena & Ipeirotis, Panos (2018). Demographics and Dynamics of Mechanical Turk Workers. *Proceedings of the Eleventh ACM International Conference on Web Search and Data Mining*, Marina Del Rey (CA), USA, February 05–09, 2018, 135–143.
- Emmenegger, Patrick; Häusermann, Silja; Palier Bruno & Seeleib-Kaiser, Martin (eds.) (2012). *The Age of Dualization: The Changing Face of Inequality in Deindustrializing Societies*. Oxford: Oxford University Press.
- Farrell, Diana & Greig, Fiona (2016). Paychecks, paydays, and the online platform economy. *Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association*, 109, 1–40.
- Friedman, Gerald (2014). Workers without employers: shadow corporations and the rise of the gig economy. *Review of Keynesian Economics*, 2(2), 171–188.
- Foong, Eureka; Vincent, Nicholas; Hecht, Brent & Gerber, Elizabeth M. (2018). Women (still) ask for less: Gender differences in hourly rate in an online labor marketplace. *Proceedings of the ACM on Human-Computer Interaction*, 2(CSCW), 1–21.
- Gandini, Alessandro (2016), *The Reputation Economy: Understanding Knowledge Work in Digital Society*. London: Palgrave Macmillan.
- Gerber, Christine & Krzywdzinski, Martin (2019). Brave New Digital Work? New Forms of Performance Control in Crowdwork. In Steven Vallas & Anne Kovalainen (eds.), *Work and Labor in the Digital Age (Research in the Sociology of Work, Vol. 33)* (pp. 121-143). Bingley: Emerald.
- Gerber, Christine (2020a). Community building on crowdwork platforms: Autonomy and control of online workers?. *Competition & Change*, advanced access, 1–21. Available at: [doi.org/10.1177/1024529420914472](https://doi.org/10.1177/1024529420914472).
- Gerber, Christine (2020b). Crowdworker\*innen zwischen Autonomie und Kontrolle. Die Stabilisierung von Arbeitsteilung durch algorithmisches Management. *WSI Mitteilungen*, forthcoming June 2020.
- Gerstung, Valeska (2019). *Niedriglohnbeschäftigung im Wohlfahrtsstaat: Der Einfluss von Ideen und Institutionen auf den Niedriglohnsektor*. Wiesbaden: Springer VS.
- Ghaffary, Shirin & Campbell, Alexia (2019). A landmark law disrupted the gig economy in California. But what comes next for Uber drivers? Available at: <https://>

[www.vox.com/recode/2019/10/4/20898940/uber-lyft-drivers-ab5-law-california-minimum-wage-benefits-gig-economy-disrupted](http://www.vox.com/recode/2019/10/4/20898940/uber-lyft-drivers-ab5-law-california-minimum-wage-benefits-gig-economy-disrupted) (29.4.2020).

- Grabka, Markus & Schröder, Carsten (2019). Der Niedriglohnsektor in Deutschland ist größer als bislang angenommen. *DIW-Wochenbericht*, 86(14), 249–257.
- Graham, Mark; Hjorth, Isis & Lehdonvirta, Vili (2017). Digital labour and development: impacts of global digital labour platforms and the gig economy on worker livelihoods. *Transfer*, 23(2), 135–162.
- Greef, Samuel & Schröder, Wolfgang (2017). Plattformökonomie und Crowdworking: Eine Analyse der Strategien und Positionen zentraler Akteure, Forschungsbericht 500, Berlin: BMAS.
- Griswold, Alison (2019). The future for Uber drivers won't be decided by the US government. Available at: <https://qz.com/1621141/trumps-nlrb-says-uber-drivers-are-independent-contractors/> (29.4.2020).
- Häusermann, Silja; Enggist, Matthias & Pinggera, Michael (2019). Sozialpolitik in Hard Times, in: Herbert Obinger & Manfred G. Schmidt (eds.), *Handbuch Sozialpolitik* (pp. 33–54). Wiesbaden: Springer VS.
- Häusermann, Silja & Schwander, Hanna (2012). Varieties of dualization? Labor market segmentation and insider-outsider divides across regimes. In Patrick Emmenegger, Silja Häusermann, Bruno Palier & Martin Seeleib-Kaiser (eds.), *The Age of Dualization: The Changing Face of Inequality in Deindustrializing Societies* (pp. 27–51). Oxford: Oxford University Press.
- Henderson, Alisa & White, Linda (2004). Shrinking welfare states? Comparing maternity leave benefits and child care programs in European Union and North American welfare states, 1985–2000, *Journal of European Public Policy*, 11(3), 497–519.
- Hoose, Fabian; Haipeter, Thomas & Ittermann, Peter (2019). Digitalisierung der Arbeit und Interessenvertretungen. *Arbeit*, 28(4), 423–444.
- Howcroft, Debra & Bergvall-Kåreborn, Birgita (2019). A typology of crowdwork platforms. *Work, Employment & Society*, 33(1), 21–38.
- Huws, Ursula; Spencer, Neil & Joyce, Simone (2016). Crowd work in Europe: Preliminary results from a survey in the UK, Sweden, Germany, Austria and the Netherlands. Available at: <http://www.uni-europa.org/wp-content/uploads/2016/12/2016-12-Crowd-work-in-Europe.pdf> (29.4.2020).
- ILO (2017). *Non-standard employment around the world*. Geneva: International Labour Office.



- Irani, Lilly (2015). The cultural work of microwork. *New Media & Society*, 17(5), 720–739.
- Ipeirotis, Panagiotis (2010). Demographics of mechanical turk, NYU Working Paper, CEDER-10-01.
- Isaac, Mike; Wingfield, Nick & Scheiber, Noam (2015). Seattle Considers Measure to Let Uber and Lyft Drivers Unionize. *New York Times*, Dec. 13, 2015. Available at <https://www.nytimes.com/2015/12/14/technology/seattle-considers-measure-to-let-uber-and-lyft-drivers-unionize.html?partner=IFTTT> (29.4.2020).
- Ivanova, Mirela; Bronowicka, Joanna; Kocher, Eva & Degner, Anne (2018). The App as a Boss? Control and Autonomy in Application-Based Management. Available at: <https://opus4.kobv.de/opus4-euv/frontdoor/deliver/index/docId/388/file/Arbeit-GrenzeFlussVol02.pdf> (29.4.2020).
- Jackson, Emilie; Looney, Adam & Ramnath, Shanthi (2017). The Rise of Alternative Work Arrangements: Evidence and Implications for Tax Filing and Benefit Coverage. Office of Tax Analysis Working Paper 114, Washington: The Department of the Treasury.
- Kaufmann, Franz-Xaver (2003). Varianten des Wohlfahrtsstaats. Der deutsche Sozialstaat im internationalen Vergleich. Frankfurt am Main: Campus.
- Kellogg, Katherine C.; Valentine, Melissa A. & Christin, Angele (2020). Algorithms at work: The new contested terrain of control. *Academy of Management Annals*, 14(1), 366–410.
- Kerr, Dara (2020). Uber, Lyft, DoorDash’s gig worker ballot initiative heads to voters in November. CNET. Available at: <https://www.cnet.com/news/uber-lyft-door-dashes-gig-worker-ballot-initiative-heads-to-voters-in-november/> (29.4.2020).
- Kocher, Eva (2012). Hausarbeit als Erwerbsarbeit: Der Rechtsrahmen in Deutschland: Voraussetzungen einer Ratifikation der ILO-Domestic Workers Convention durch die Bundesrepublik Deutschland. Düsseldorf: Hans-Böckler-Stiftung.
- Kröger, Teppo (2011). Defamilisation, dedomestication and care policy, *International Journal of Sociology and Social Policy*, 31(7/8), 424–440.
- Krzywdzinski, Martin & Gerber, Christine (2019). Working conditions of crowdworkers. Survey of crowdworkers in Germany and the United States, Version 1.00, WZB Berlin Social Science Center, unpublished data set.
- Lee, Min Kyung; Kusbit, Daniel; Metsky, Evan & Dabbish, Laura (2015). Working with machines: The impact of algorithmic and data-driven management on human workers. Proceedings of the 33rd Annual ACM conference on hu-

- man factors in computing systems, New York, NY: ACM, 1603–1612. doi: 10.1145/2702123.2702548.
- Lehdonvirta, Vili (2016). Algorithms that divide and unite: delocalisation, identity and collective action in ‘Microwork’. In Jörg Flecker (Hrsg.), *Space, Place and Global Digital Work. Dynamics of Virtual Work* (pp. 53–80). London: Palgrave Macmillan.
- Leimeister, Jan Marco; Durward, David & Zogaj, Shkodran (2016). *Crowdworker in Deutschland*. HBS Study Nr. 323. Düsseldorf: Hans-Böckler-Stiftung.
- Leist, Dominik; Hießl, Christina & Schlachter, Monika (2017). *Plattformökonomie – Eine Literaturlauswertung*. Forschungsbericht 499, Berlin: BMAS.
- Leung, Ming D. & Koppman, Sharon (2018). Taking a pass: How proportional prejudice and decisions not to hire reproduce gender segregation. *American Journal of Sociology*, 124(3), 762–813.
- MacDonald, Robert & Giazitzoglu, Andreas (2019). Youth, enterprise and precarity: or, what is, and what is wrong with, the ‘gig economy’?, *Journal of Sociology*, 55(4), 724–740.
- Müller-Glöße, Rudi; Preis, Ulrich & Schmidt, Ingrid (eds.) (2020), *Erfurter Kommentar zum Arbeitsrecht*, 20th edition, § 611 Rn. 50-58, Munich: C.H. Beck.
- Piasna, Agnieszka, & Drahoukoupil, Jan (2017). Gender inequalities in the new world of work. *Transfer: European Review of Labour and Research*, 23(3), 313–332.
- Pongratz, Hans (2018). Of crowds and talents: discursive constructions of global online labour. *New Technology, Work and Employment*, 33(1), 58–73.
- Pongratz, Hans & Bormann, Sarah (2017). Online-Arbeit auf Internet-Plattformen: Empirische Befunde zum „Crowdworking“ in Deutschland. *AIS-Studien*, 10(2), 158–181.
- Popiel, Pawel (2017). „Boundaryless“ in the creative economy: assessing freelancing on Upwork. *Critical Studies in Media Communication*, 34(3), 220–233.
- Rahman, K. Sabeel & Thelen, Kathleen (2019). The rise of the platform business model and the transformation of twenty-first-century capitalism. *Politics & Society*, 47(2), 177–204.
- Richter, Nancy; Jackson, Paul & Schildhauer, Thomas (2018). Entrepreneurial behaviour and startups: The case of Germany and the USA. In: Nancy Richter, Paul Jackson & Thomas Schildhauer (eds.), *Entrepreneurial Innovation and Leadership. Preparing for a Digital Future* (pp. 1-14). Cham: Palgrave Pivot.

- Scheiber, Noam (2019). New Lawsuit Against Uber Is Set to Test Its Classification of Workers. *New York Times* (Sept. 12, 2019). Available at: <https://www.nytimes.com/2019/09/12/technology/uber-drivers-california.html> (29.4.2020).
- Schneider-Dörr, Andreja (2019). *Erwerbsarbeit in der Plattformökonomie. Eine kritische Einordnung von Umfang, Schutzbedürftigkeit und arbeitsrechtlichen Herausforderungen*. Working Paper 116, Düsseldorf: Hans-Böckler Stiftung.
- Schreyer, Jasmin & Schrape, Jan-Felix (2018). Algorithmische Arbeitskoordination in der plattformbasierten Gig Economy: Das Beispiel Foodora. *AIS Studien*, 11(2), 262–278.
- Schwander, Hanna (2019). Labor Market Dualization and Insider–Outsider Divides: Why This New Conflict Matters. *Political Studies Review*, 17(1), 14–29.
- Seeleib-Kaiser, Martin (2014). Wohlfahrtssysteme in Europa und den USA: Annäherung des konservativen deutschen Modells an das amerikanische? *WSI-Mitteilungen*, 4/2014, 267–276.
- Seiner, Joseph (2017). Tailoring Class Actions to the On-Demand Economy. *Ohio State Law Journal*, 78(1), 21–71.
- Serfling, Oliver (2018). *Crowdworking Monitor Nr. 1*, Kleve: Hochschule Rhein-Waal.
- Smith, Aaron (2016). *Shared, collaborative and on demand: The new digital economy*. Washington D.C.: Pew Research Center.
- Smith, Rebecca (2019). Washington State Considers ABC Test for Employee Status. National Employment Law Project (Apr 1, 2020). Available at: <https://www.nelp.org/blog/washington-state-considers-abc-test-employee-status/> (29.4.2020).
- Sousa-Posa, Alfonso & Sousa-Posa, Andres (2000). Well-being at work: a cross-national analysis of the levels and determinants of job satisfaction. *Journal of Socio-Economics*, 29(6), 517–538.
- Thelen, Kathleen (2018). Regulating Uber: the politics of the platform economy in Europe and the United States. *Perspectives on Politics*, 16(4), 938–953.
- Thies, William; Ratan, Aishwarya & Davis, James (2011). Paid crowdsourcing as a vehicle for global development, Workshop paper for the CHI 2011 Workshop on Crowdsourcing and Human Computation, (8 May, 2011), Vancouver, BC, Canada.
- U. S. Bureau of Labor Statistics (2018). Contingent and alternative employment arrangements. News Release. Available at: <https://www.bls.gov/news.release/co-nemp.nr0.htm> (29.4.2020).

- Vallas, Steven & Schor, Juliet (2020). What Do Platforms Do? Understanding the Gig Economy. *Annual Review of Sociology*, 46. doi.org/10.1146/annurev-soc-121919-054857.
- Van Doorn, Niels (2017). Platform labor: on the gendered and racialized exploitation of low-income service work in the ‘on-demand’ economy. *Information, Communication & Society*, 20(6), 898–914.
- Wood, Alex; Graham, Mark; Lehdonvirta, Vili & Hjorth, Isis (2018). Good gig, bad gig: autonomy and algorithmic control in the global gig economy. *Work Employment and Society*, 33(1), 56–75.
- Zeit Online (2019). Crowdworker sind Selbstständige, Available at: <https://www.zeit.de/wirtschaft/2019-12/landesgericht-muenchen-crowdworker-selbststaendige-urteil> (29.4.2020).
- Zyskowski, Kathryn; Ringel, Meredith; Bigham, Jeffrey; Gray, Mary & Kane, Shaun (2015). Accessible crowdwork? Understanding the value in and challenge of microtask employment for people with disabilities. *Proceedings of the 18th ACM conference on computer supported cooperative work and social computing*, (14–18 March, pp. 1682–1693). Vancouver, BC, Canada. doi: 10.1145/2675133.2675158.