Out of Place out of Sight?

A Quantitative Study on Social Connectedness in the Platform Economy and its Effect on the Willingness to Participate in Collective Action

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Abstract
In the constantly growing platform economy work is no longer a place to go but, merely a task to perform, which leads to a great dispersal of the workforce. This presumably has an effect on the social connectedness amongst workers- a key element for collective action. In this context, the question arises to what extent, if any, social connectedness has an effect on platform workers' willingness to engage in collective action. To analyze this, this study distinguishes the great range of platforms according to their visibility: While in offline crowdsourcing platforms, such as Foodora and Deliveroo, an element of co-presence, and thus an element of a traditional work place remains, work in online crowdsourcing platforms, such as Jovoto, is restricted to the online world, which results in a greater isolation of the worker. The research question is answered based on quantitative data that was collected in an online survey (N=91). The results show that the type of platform not only has a significant effect on the level where interaction takes place, but also on the willingness to organize collectively. Not only does interaction occur significantly more often in offline platforms, this group of workers is also significantly more willing to engage in any type of collective action than workers of online crowdsourcing platforms. The latter group shows a higher degree of willingness for collective action that requires no element of co-presence, i.e. that takes place in the online world, than for collective action that requires a step into the offline world. Linear regression finds this distinction between the visibility of the workers significant to explain willingness to organize collectively. For interaction, only a significant effect of online interaction is found on workers' willingness to engage in online collective action.

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1. INTRODUCTION

"Work is no longer a place to go, but more a task to perform"
(World Employment Confederation, 2016:3)

The advancing digitalization is changing entire market structures. Probably one of the most interesting changes of a post-industrial, digitalized labor market is the emergence of innovative work organization models such as crowdsourcing on platforms. It is often referred to as the "gig economy", as workers grope from one temporary gig to the next one, instead of following a set rhythm that includes fixed working hours and clear working arrangements. Online platforms match supply and demand of the workforce via mobile apps, mediating the gig worker that is often also referred to as the 'crowd worker'. (De Stefano, 2015). "Standard" employment patterns are challenged by this growing trend of location independent workplaces, where workers are left physically, temporally and administratively detached from each other (Ashford et al., 2007). While advocates praise this new type of work for the flexibility it provides the worker with (Eurofound, 2015), critics, on the other hand, fear a revitalization of old forms of exploitation. They stress the increased vulnerability resulting from unpredictable scheduling, inconsistent earning and unreliable long-term employment prospects, as well as unequal power relationships between employer and employee (Rosenblatt and Stark, 2016; Graham, 2016; Rogers, 2016). This new work structure has a direct bearing on a variety of factors, including collective bargaining and the feasibility of worker representation. In industrial ages, a conventional regimented nature of factory work and life in an industrial community provided the material basis for collective action. Workers who saw each other every day developed strong social ties, a feeling of connectedness and a shared identity- prerequisites for collective action (Olson, 1962). Today, skepticism is high, whether the app-driven platform workers would organize and stand up for their interests with the same strength as the workforces of the old, large industrial companies, like, for example, the steel cookers in the past Ruhr. Particularly labor unions hold a rather dark vision of a future beyond conventional employment. They fear that flexible arrangements and the physical and social detachment would undermine union solidarity (Goslinga and Sverke, 2003; Pernicka, 2006). This is no surprise – in conventional theories of collective action, face-to face interaction between workers is oftentimes portrayed as the key to collective action (Olson, 1962).

On 'online crowdsourcing platforms', like Jovoto or Amazon Mechanical Turk (AMT), where work is done exclusively virtually, workers are literally unable to identify fellow workers, to socialize in the traditional sense and to develop social ties. In the case of 'offline crowdsourcing platforms', such as Foodora and Deliveroo, work is locally bound (Todoli-Signes, 2017) and workers remain, at least, physically closer to each other and can visually identify fellow couriers due to a striking uniform. Interaction and socialization, however, can be equally problematic. They don't share an office, but the streets, where workers' whereabouts are decisively determined by algorithms (Lehdonvirta, 2016). Apart from that, time to socialize can be costly, as riders are usually rushing from one job to the next.

Interpersonal contact is consequently very difficult to establish and supposedly very limited in all types of platforms.

Surprisingly, in recent years, we have seen remarkable footage of collective action of the atomized and supposedly unorganizable workforce of both visible and invisible platform workers. Food couriers went on strike all over Europe in response to a new pay (Osborn and Farell, 2016; Kieschnick and Klenez, 2017; Tassinari and Maccarone, 2017) and Amazon's mechanical Turk (AMT) workers started a Christmas letter writing campaign to the company's founder, asking for an improvement of labor conditions and for tools to represent themselves to employers (Harris, 2014). Demonstrations and leaflet campaigns are becoming more frequent and are oftentimes coordinated by established initiatives such as 'Liefern am Limit' or 'Deliverunion' (Kläsgen and Öchsner, 2018). The most recent, and the probably most remarkable, evidence of collective action is the emergence of a workers' councils of Foodora couriers in Austria (Kuba, 2017), as well as in Germany - where not only Foodora, but also Deliveroo riders founded a workers' council in Cologne and Hamburg (Kramer, 2018). Also, it becomes apparent that- despite the difficulties to socialize- platform workers have found their way to communicate and interact with each other: they meet up online to complain and to exchange knowledge. (Lee et al., 2014; Rosenblatt and Stark, 2016). Given this evidence of an apparent willingness to organize collectively amongst platform workers, the question arises, in how far long conventional theories of collective action can hold in the context of the platform economy. The main research question that this thesis aims to answer is thus formulated as follows:

To what extent, if any, does social-connectedness have an effect on the willingness of platform workers to participate in different forms of collective organization?

Similar questions have been posed before in the context of similar types of atypical and "precarious" employment, such as part-time work and self-employment (see for example: Jansen, 2017; Jansen, Akkerman and Vandaele, 2017). The corpus of research on the platform economy, however, remains a still widely unexplored field. The available research is mainly of explorative and descriptive nature, focuses on the work environment and documents the characteristics of the worker (see for example: Leimeister, Durward and Zogaj, 2016). Regarding the matter of collective action, one finds many studies that are mainly concerned with issues that pose obstacles to collective action, such as the unequal power structures or the difficult legal framework (see for example: Donini et al., 2017; Klebe, 2017). In general, most studies about collective action in the platform economy draw conclusions from qualitative data. The rather few quantitative studies available study either only one form of collective action, which is mainly labor unionizing (Rosenblat and Stark, 2016; Jansen et al., 2017) or focus on merely one or two platforms (Rosenblat and Stark, 2016; Al-Ani and Stumpp, 2016). It is very difficult, though, to draw conclusions from one case study to a bigger group composed of such a variety of distinctive platforms. Furthermore, despite an increasing interest of companies to crowdsource certain

tasks, the crowd-debate in Germany is still at its beginning and therefore a currently still widely unexplored field. Empirical research mainly comes from the US and is primarily concerned with only one specific type of platforms, namely micro-task platforms. In contrast, this study will provide quantitative data with a focus on German crowd workers. This is very important due to a rather distinct labor market situations and labor union culture in the U.S. So far, no research has been conducted that has the different degree of visibility of platform workers at its root and distinguishes between two characteristically distinct groups of platform workers when drawing conclusions about collective action in the platform economy. More explicitly, this study aims to bring more light into the matter of a supposedly affected social mechanism of collective action in the platform economy. Thus, the main objective of this study is to analyze the effect social connectedness has on platform workers' willingness to engage in different forms of collective action. It will test long-standing assumptions about the importance of social interaction, but at the same time extend this by not only considering personal, but also online interaction. To reach an answer to the main research question, the following empirical sub-questions will be studied:

1. *To what extent are workers of offline and online crowdsourcing platforms socially connected?*

2. *To what extent are workers of offline and online crowdsourcing platforms willing to organize collectively and address issues at the workplace in different forms of collective action?*

These introductory descriptive research questions will help to get an overview of the potential for distinct types of collective action and to examine to what extent workers are differently socially connected. As in all questions, distinctions will be made between the group of partly visible platform workers and entirely invisible platform workers. The subsequent questions will address the effect social-connectedness has on workers' willingness to engage in collective action. Here, given the dominant online character of most platforms, distinctions will be made between offline and online social-connectedness.

3. *To what extent can differences between platform workers' willingness to organize collectively be explained by personal interaction with co-workers?*

4. *To what extent can differences between platform workers' willingness to organize collectively be explained by online interaction with co-workers?*

Scientifically, this paper will add to the existing research body by providing basic research regarding collective action in the platform economy in Germany. The aim is to bring light into the discrepancy between longstanding theories that would predict no rise of collective action movement and the presented empirical findings of collective action that seem to tell a different story. Hypotheses derived from a theoretical framework in part two of this paper will be tested based on quantitative data that was collected in an online survey (N=91). The analysis part contains a bivariate analysis, as well as a liner regression model. Afterwards, the findings will be discussed.

1.1. Societal Relevance: Platform Work- a Mirror of the Future of Labor

Gig-work as an innovative working model should not be treated as a temporary or marginal phenomenon. Instead, it has the potential to rapidly change the way future work is organized and performed, to alter the content and the quality of jobs and to reshape industries. Some scholars even go as far as to speculate that it will contribute to a disappearance of formal employment (Drahokoupil and Fabo, 2016; Moody and Brooks, 2016). With about 23000 crowdsourcing platforms worldwide, it is no longer a fringe phenomenon, but constantly growing in accordance with an ever-increasing demand. According to a study of the Alexander von Humboldt Institute for Internet and Society (2014), almost 20 percent of German companies claim to work with anonymous producers in the crowd. They do so not only for so called micro tasks, but more and more for research, development and marketing purposes. (Al-Ani et al., 2014). The Institute of German Business (IW) finds that 39 percent of German companies want to cooperate more with the anonymous crowd on the internet in the future (Hammermann and Stettes, 2015).

As an entirely new phenomenon, platform work shakes up fundamental assumptions of old work patterns and the validity of negotiated frameworks. Many platforms classify platform workers as independent contractors. This is problematic, because in various jurisdictions this employment classification precludes workers from forming unions and from engaging in collective action. For instance, the German Works Constitution Act, which was written in 2011, assumes a traditional employment relationship and thus, does not consider digital companies, such as the ones addressed beforehand. This puts German platform workers in a very weak legal bargaining position. In the light of media reports denouncing wage dumping, bogus self-employment and the systematic deprivation of rights, this is especially alarming. The effect such unregulated negotiation positions and unequal power relationships can have, has already shown. Earlier this year, Deliveroo and Foodora tried to prevent the founding of a workers' council (Kramer, 2018a, Kramer 2018b). To avoid the risk of a shadow labor market, where the platform operator unilaterally determines the rules of the game, it is indispensable to design an adequate framework for platform work. The promotion of an enabling environment for worker organizing and collective bargaining can help to ensure that the use of digital platforms is not at the expense of good jobs and decent working conditions. Because of that, research on the mechanisms and

the potential there is in the platform economy is very important. Understanding the crowd can help, for example, labor unions, to approach this group.

1.2. Labor Unions and Platform Work

Traditionally, labor unions have played a crucial role in facilitating worker organizing and supporting collective bargaining for decades. A predominantly young and migrant workforce (Leimeister, Durward and Zogaj, 2016) nonstandard employment models, and largely absent channels for representation and collective bargaining have challenged traditional organizing strategies of labor unions in the platform economy. Their traditional range and logic of services no longer fits the changed nature of platform work. For a long time, labor unions have been struggling to redefine their positions and to adapt their strategies to the heterogeneous nature of non-standard, digital labor and the otherness of organizability of this new group of workers. After predominantly pursuing the strategy of fighting for full-time stable employment and rejecting non-standard arrangements, they are slowly opening for this new type of workforce and are finally "adopting strategies aimed at improving working conditions, social rights and wages of such workers" (Pulignano, Gervasi and Franceschi, 2015). They are taking on the new role of support and encouragement, rather than direction. This trend is also observable in Germany. While the Food, Beverages and Catering Industry Trade Union, NGG, a rather small German labor union, acts as a big supporter of delivery service platforms, such as Foodora and Deliveroo, the IG Metall, the German metalworkers' union and one of the biggest German Labor unions, dedicates themselves to all types of platform worker. The 2013 labor reform in Germany provided the impetus for the IG Metall to finally target non-standard workers by developing an inclusive membership outreach program (Benassi and Dorigatti, 2015). They not only allow platform workers to become labor union members, but also initiated new innovative forms to improve platform work. FairCrowd.work, for example, is a website that enables workers to provide feedback about platforms they work for. The "Code of Conduct" was developed by the platform Testbirds with help from the German Crowdsourcing Association (DCV) and the IG Metall. So far, eight platforms have signed this commitment to fair pay and working conditions. Besides other European and North American union, the IG Metall also signed the "The Frankfurt Declaration on Platform-Based Work" that, amongst other things, proposes the right for workers to collectively organize and identifies platforms as the pertinent counterpart for negotiations (Austrian Chamber of Labor et al., 2016). Although there is consensus regarding the necessity to improve platform-based work, the labor movement has not yet developed a cohesive approach to reach platform workers and to accomplish these goals.

2. THEORETICAL FRAMEWORK

2.1. Platform Work

This study is limited to "digital platforms for the provision of paid services" (Schmidt, 2016), i.e. platforms that convey "labor", i.e. orders for the provision of services between clients and contractors.

Payment -an element that all platforms under analysis share- is a decisive factor, as mainly under such circumstances collective action becomes a topic. Furthermore, the platforms discussed in this analysis share the same organizational structure. They are characterized by a triangular organizational relationship between platform operator and the market participants on the supply and demand side, i.e. the client and the contractor (Schmidt, 2016). The platform provider takes the central role of a mediator and provides the infrastructure to coordinate demand and supply by determining trading conditions and thus, the working conditions platform workers are dealing with. The crowd on the supply side of the platform consists mainly of freelancers.

2.2. Offline vs. Online Crowdsourcing Platforms

As already mentioned in the introduction, the main distinction in this study is made regarding the geographical dimension and thus the visibility of the platform and its workers. Valerio de Stefano (2016) makes a distinction between 'crowdwork' and 'work on-demand via apps'. The group he calls 'crowdworkers' operates exclusively online through platforms that connect an infinite numbers of workers and clients (organizations and businesses) that are often spread over large geographic distances (De Stefano, 2016; Scholz, 2017.) On the other hand, what De Stefano calls 'work on-demand via apps' is platform-facilitated, yet place-based work. This includes food delivery services, domestic work, home repair etc.; all requiring direct interface between gig workers and those requesting gig services (ibid). Todoli-Signes (2017) draws a similar distinction, differentiating between "online crowdsourcing" and "offline crowdsourcing", which shares many similarities with its online counterpart, but "requires local and physical performance" (Todoli-Signes, 2017). In the following, the author will stick to the terms "online crowdsourcing platform" and "offline crowdsourcing platform" when distinguishing between the characteristically different groups of platforms that form the basis of this thesis.

2.3. Collective Action

Scott and Marshall (2009) define collective action as an 'action taken by a group (either directly or on its behalf through an organization) in pursuit of members perceived shared interests". The various forms of collective action differ in the extent they require commitment and effort by individuals. Theories regarding collective action generally seek to explain the drive and the motivation of groups to cooperate and engage collectively and thus search to explain the mechanism by providing a theoretical model. In general, there are two main strings to explain the emergence of collective action: one that is based on economic interests and one that takes sociological factors into consideration. For the purpose of this analysis- that is to analyze the consequences the uprooting of the workplace has on the willingness to participate in collective action- a sociological explanation is going to constitute the basic theoretical framework. This is because the geographical dimension of this changed working setting is expected to rather affect the sociological mechanisms at work. In the many sociological models of collective action established in past decades, scholars focus on distinct aspects to explain the mechanisms underlying collective action. While some put emphasis on factors such as "group identity" (Tajfel, 1979;

Klandersmann 1997; Simon et al., 1998) or the emerge of a 'critical mass' (e.g. Marxwell and Oliver, 1993), there exists a certain consensus about the necessity of "strong social ties", "social cohesion" or in other words "social connectedness" for collective action to emerge.

2.4. Social Connectedness

"While the diffusion of a disease occurs through physical contact, the modification or reinforcement of someone's interest or identity implies sustained forms of interaction." (Rolfe, 2011)

The effect of social connectedness on collective behavior has been discussed by academics and policy-makers since the time of Durkheim writing at the end of the 19th century. Virtually all formal models of collective action have assumed some form of interdependence among actors and some have already explicitly included social networks and influence dynamics (Gould, 1993; Kim and Bearman 1997). Several scholars have investigated the dynamics of interpersonal influence to model group consensus and social cohesion (French, 1956; Abelson, 1964; Friedkin and Johnsen 1990; Friedkin, 1999). Kelley and Thibaut (1978), for example, demonstrated in their study that the effect of the sense of connectedness to others on behavior is a larger commitment to further the interest of the collective. Tajfel (1982) finds that people tend to feel connected to those with whom they share a group membership. When individuals feel connected, their sense of self is broadened to include others and the characteristics of self and others become shared, creating an overlap in cognitions about the self and others. Cojunharenco et al. (2016) showed that a feeling of connectedness to others increasingly makes people feel that their actions make more of a difference, which in turn motivates socially responsible behavior. There is lack for a consensus regarding the conceptualization 'of social connectedness'. One of those factors often proclaimed to be decisive is "personal interaction". Many scholars recognize the distinctive role of communication, face-to-face interaction, and personal(ized) relationships in fostering and maintaining cooperation (Ostrom 1998, 2000;). Interactions between people are one way of creating social cohesion, because they provide the basis for bonds between individuals (Potapchuk et al., 1997). Jenson (2010) suggests that -apart from the inequality dimension- social cohesion consists of social capital, defined as social relations, interactions, and ties. Likewise, Chan, To, and Chan (2006) propose that social cohesion refers to "a state of affairs concerning both the horizontal and vertical interactions among members of society". Friedkin (2004) stresses the importance of personal interaction as it is a way of exchanging experiences, influencing each other's attitudes and behaviors to reach agreement and coordinate behavior. Based on this, the first hypothesis that is to be tested is formulated as follows:

H1: People that interact with others from their platform personally are more willed to organize collectively than those that do not interact at all.

Beckley (1994) explicitly emphasize the geographical dimension as a requisite for social cohesion. He defines social cohesion as the extent to which a geographical place achieves 'community' in the sense of shared values, cooperation and interaction. Many scholars propose that a lack of co-presence, as we can observe in the case of online crowdsourcing platforms, makes it more difficult to develop a feeling of solidarity towards others and consequently makes it harder to organize collectively. (Putman, 2000; Lethdonovirta, 2016**;** Graham, 2016). Given the visibility of offline platform workers, hypothesis 2 and3 derive:

H2: Personal interaction is more common in offline crowdsourcing platforms than in online crowdsourcing platforms.

H3: Working in an offline crowdsourcing platform is positively related with a higher willingness to participate in collective action.

2.4.1. Face-to-Face vs. Online Interaction

Fortunately, interaction nowadays is no longer exclusively limited to dimensions that require geographical proximity. Instead, digitalization extended the sphere where a feeling of social connectedness can occur. Today, the range of possibilities goes beyond face-to-face interaction., as the web enables dispersed groups to gather and act (Beyer, 2014). Especially social media channels are nowadays well-known as a media that can foster a sense of community. Empirical research of collective action among Uber drivers showed that they relied heavily on Facebook to complain about the company and make sense of algorithmic features (Lee et al., 2014; Rosenblatt and Stark, 2016). Accordingly, Griever et al. (2013) investigated whether social connectedness can derive from the use of Facebook and concluded that Facebook indeed may act as a separate social medium in which a sense of social connectedness could develop. More specifically, Lee et al. (2015) analyzed how drivers used online forums to socially make sense of the algorithmic features. They found that forums on the internet were "primary knowledge sources and places for socialization" amongst online workers. This is no surprise, as people that accept platform work are oftentimes "digital nomads" and have a different relationship with the online world than people that were the basis of observations 50 years ago. Most of today's workers grew up with the internet. To them, the internet is not a soulless space, but a "new reality", an additional social space for interaction that exists parallel to the traditional offline social space. Some scholars even go as far as to say that people nowadays have an online identity apart from their offline identity. Thus, it is decisive to differentiate in online and offline social connectedness when analyzing the effect of social connectedness on workers' willingness to participate in collective action. Hypothesis 4 that is to be tested is thus formulated as follows:

H4: *Platform workers that interact online are more likely to be willing to organize collectively than those who do not interact at all with co-workers.*

2.4.2. The Strength of Offline and Online Social Ties

It is questionable whether online ties can be as strong as offline ties. Salehi, Irani, Bernstein et al. (2015) investigated in the potential among AMT workers to organize collectively online. Their study suggests that is may be harder to achieve the same sense of social connectedness online as in the offline world and that consequently, in the online world many collective action efforts never succeed. It shows that the internet and computer-mediated interaction is less effective in forming and sustaining strong social relationships. Accordingly, Tassinari and Maccarone (2017) find that gig-economy strikes so far concentrated in those services that retain an element of physical co-presence, like Foodora or Uber.
Cummings, Butler and Kraut (2002) and arrived at the conclusion that the net benefit depends on whether they supplement or substitute for offline social relationships. Against this theoretical background the following hypothesis that are to be tested derive:

H5: *Platform workers that have merely interacted face-to-face are more likely to be willing to organize collectively than those who have merely interacted online.*

H6: P*latform workers that have interacted face-to-face and online are more willing to engage in collective action than those that have merely interacted face-to face or merely online*

The rise of the internet not only has brought about a new social sphere for people to interact, but it has also added to the range of possibilities for collective action and or has facilitated some forms of it by reducing the effort required to take part in them. As such, petitions can now be signed online, and online discussion forums or chats allow for an easier way to discuss. Signing petitions and gathering in online forums can be considered as "online collective action", as they require no element of co-presence. Given the social ties that are expected to be weaker in online than in offline relationships, one can expect that online ties are strong enough to lead to participation in soft forms of collective actions, but they might not be sustainable enough to have effect on hard forms of collective action that mostly require a step into the offline world, as was shown by Tassinari and Maccarone (2017). The last hypothesis is formulated like this:

H7: Workers of online crowdsourcing platforms are more likely to participate in forms collective action that involve no element of physical co-presence (e.g. online discussions, online petitions) than in those that require physical co-presence (e.g. strikes, labor unionizing).

3. METHODOLOGY AND DATA

This thesis is an explanatory study. Hypotheses are tested using novel quantitative data that was collected through a survey that was designed for the purpose of this study.

3.1. The Online Survey

Given the timeframe and the scope of this study, a time series study involving multiple measures over an extended period was not feasible to complete. Quantitative data was thus conducted in a cross-sectional analysis in form of a survey that was designed online via Qualtrics in cooperation with two other students of the same Bachelor circle. It was fielded between May 9th and June 9th of 22018 and recorded 121 responses. After deleting 30 responses due to incompleteness, 91 responses were left for the analysis. Given that it was not made mandatory to complete questions to go on to the next question, the sample size differs in some questions.

At the beginning of the survey, the participating crowd workers were welcomed and informed about the main topic of the investigation, the approximate response time and the confidentiality of the data. To reduce the dropout rate, participants were informed about their progress in the questionnaire through a progress bar. In order to obtain comparable answers, the questionnaire was standardized by using mainly closed questions. The questionnaire consisted mostly of Likert-type scale questions. Participants were mainly asked to give answers to questions regarding their willingness to participate in different forms of collective action and their online and offline interaction with other platform workers. Furthermore, questions regarding job satisfaction, employment relationship and working hours as well as about the financial dependency of the worrk were addressed. At the end of the questionnaire demographical information was asked (age, education, political attitude) to draw conclusions about the demographic characteristic of the sample. (see Survey in Appendix III)

3.2. Operationalization

The following description of the operationalization will merely focus on those items that were used for the purpose of this study. Based on Jansen et al. (2017) and Akkerman et al (2013), willingness to participate in collective action was assessed in 5 items, asking participants to indicate how willing they would be to a) join an online discussion, b) sign an online petition, c) meet up with fellow workers to discuss actions, d) join a strike and e) to join a labor union. Each item was scaled on a 5-point Likert-type scale, reaching from “not willing at all” to “very willing”. For reasons of legibility the variable was recoded, so that for the analysis “not willing at all” was coded 1 and “very willing” was coded 5. This variable is treated as an interval variable in the analysis, which allows for a linear regression analysis and therefore an easier understanding of the relationship between the independent variables under study and peoples’ willingness to organize collectively. A factor and reliability analysis (Crombach’s alpha

0.785) shows that the two items "willingness to join an online" and "willingness to sign an online petition" can be combined into one variable measuring willingness to participate in online collective action, i.e. that requires no element of physical co-presence. Likewise, "willingness to meet up", "willingness to join a strike" and "willingness to join a labor union" were combined into a reliable new item measuring willingness to participate in collective action that does require an element of physical co-presence (Crombach's alpha= 0.871). Finally, all 5 items were combined into one new interval variable measuring "overall willingness" (Crombach's Alpha= 0,892). The fact that not all variables are perfectly normally distributed has to be kept in mind when interpreting the results. Additionally, participants were asked to dichotomously (1=yes, 0=no) indicate whether they were already engaged in some sort of collective action, as this can be seen as a strong indicator for willingness to participate in collective action. The question was formulated likes this: "*Are you engaged in any form of collective action for the interests of [name of the platform] workers? (being member of a labor union, being active in a political initiative, supporting others via social media etc.) If yes, please mention your form of engagement"*. Given that especially among the group of offline crowdsourcing platforms, two initiatives have recently become very popular in Germany, namely *Liefern am Limit* (origin Cologne) and *Deliverunion* (origin Berlin), a question regarding the affiliation with any (or both) of the two followed (Question: "*Are you in any form (online or offline) connected to one of the following initiatives?"*) If riders were connected to both, they were asked to select only the one they felt most connected to. Liefern am Limit" was coded 1 and "Deliverunion" was coded 2. Additionally, each was coded as a dummy variable. This allows to treat this group of rather extreme cases with caution when analyzing the results.

The independent variable 'social connectedness', conceptualized as interaction, was operationalized by posing the question "*Have you ever met other people from your platform?"*. The following answer categories were given: a) "No, I have never met any other people that work for the same platform (=1)", b) "Yes, I have met them online (=2)", c) "Yes, I have met them personally (=3)" and d) "Yes, I have met other people that work for my platform personally as well as online (=4)". The answers were coded ordinally. To prepare them for regression, dummy variables were created for each category. Additionally, several control variables were included. *'Age'* was recorded in an open field and later converted into an interval variable. Missing values are treated as missing cases**.** '*Eduation'* was assessed by asking participants for the highest degree they had completed or were currently completing. The item was measured un two different items, one for German and one for non-German respondents. These two items were combined into one general education variable, distinguishing between University education (coded 1) and no university education (coded 0). 11 missing cases are treated as missing cases. *'Political atttitude'* is measured on an 10-point left-right scale (0=very left, 10= very right). The 10 missing cases are treated as missing cases. Furthermore, the respondents were asked to indicate the hours they worked approximately a week. This provides an interval scale. The 16 missing cases are treated as missing cases. ***'****Financial dependency'* was measured dichotomously by asking respondents whether

the work they were doing on the platform was their main source of income. ‘no’ was coded 0 and ‘yes’ was coded 1. The 10 missing cases are treated as missing cases. *Jobs satisfaction* was assessed in 5 items to make out the specific areas of dissatisfaction. Participants were asked to indicate their satisfaction on a 5-point Likert-type scale (1 “very dissatisfied” to 5 “very satisfied”) regarding a) the kind of job one is doing, b) the flexibility their job provided them with, c) the payment received from the platform, d) the working conditions and e) their experience with their clients. A factor and reliability analysis showed that the 5 items can be combined into a reliable new variable (Cronbach’s Alpha= 0.82), which resulted in the new interval variable “Overall Job Satisfaction” that was coded alike.

Table 1 provides an overview of all the variables described above. For the interval variables it displays the mean, the standard deviation as well as the minimum and maximum value. For the categorical variables, absolute number for frequencies as well as the frequencies in percent are displayed.

Table 1: *Overview of the variables included in the thesis*

	N	min	max	mean	s.d.	freq
Y1: Overall willingness to participate in collective action	91	1	5	3.08	1.1	
Collective action requiring no element of physical co-presence	91	1	5	3.37	1.14	
to join online discussion		1	5	3.08	1.3	
to sign an online petition for better working conditions	91	1	5	3.67	1.2	
Collective action requiring physical co-presence	91	1	5	2,88	1.22	
Willingness to meet up with fellow workers to discuss action		1	5	3.11	1.19	
Willingness to join a strike	91	1	5	2.62	1.44	
Willingness to join a labor union	91	1	5	2.91	1.44	
Y2: Engagement in collective action	91					
No active engagement						74 (81.3%)
Active engagement						17 (18.7%)
Liefern am Limit						8 (8.8%)
Deliverunion						10 (11%)
X1: online/ offline Interaction	91					
Never						22 (24.2%)
Ever						78 (75.8%)
Exclusively online						11 (12.1%)
exclusively personally						45 (49.5%)
Personally + online						13 (14.3%)
X2: Satisfaction overall	90	1	5	3.64	0.9	
Sort of work	91	1	5	3.75	1.12	
Flexibility	90	1	5	4.04	1.22	
Payment	90	1	5	3.27	1.19	
Working conditions	90	1	5	3.48	1.32	
Experience with their clients	90	1	5	3.69	1.04	
X3: Political orientation	81	0	8	3.56	2.02	
X4: Primary Source of income	81					
Yes						26 (28.6%)
no						55 (60.4%)
X5: Working hours	72	2	55	14.32	11.23	
X6: Education	79					
No university education						15 (16.5%)
University Education						64 (70.3%)
X7: Age	77	18	62	31.5	9.35	
X8: Working country	91					
Germany						48 (52.7%)
Other country						43 (47.3%)

3.3. Case Selection

Three platforms are at the center of this thesis: Foodora and Deliveroo, examples of offline crowdsourcing platforms, and Jovoto, a popular example for an online crowdsourcing platform. These three platforms were mainly chosen due to their prominence, but also as their workers were easiest to reach. One could argue that Foodora and also Deliveroo only partly fulfil the criteria that was elaborated for internet platforms in the context of the platform economy. In fact, Foodora employs all their riders, while in the case of Deliveroo workers are either employed or work as freelancers. As employed

platform workers, Foodora and some of the Deliveroo riders stand out from the mass of freelancing platform workers that are usually in the center of debates around the platform economy. Foodora riders are working in shifts, are paid per hour and not per gig. Their work setting is thus different regarding the flexibility but also the insecurity that is usually associated with platform work. Nonetheless, there are several reasons for including them into this study. First of all, apart from the different employment arrangement, their job routine does not differ from those of other food delivery platforms. Just like Deliveroo riders, they deliver food on their bikes, in a system that is algorithm- and app-based. Second of all, together with Deliveroo, Foodora is in the spot of the media as one of the prominent examples of the platform economy and -although their employment status should make things easier respectively- they are equally struggling with organizing collectively. This also shows in initiatives such as "Liefern am Limit" that were formed by Deliveroo and Foodora riders alike. Third of all, given the trend of reducing the numbers of employed people and increasing the number of freelancing people that is observable in the case of Deliveroo, this scenario is also conceivable for Foodora. Including Foodora also has a practical reason in terms of participants recruitment that shall not be neglected: Foodora, just as Deliveroo riders, are easily identifiable on the streets and thus were easy to recruit for the survey. Jovoto, on the other hand, is an exemplary platform for the mass of platforms that can be found virtually. It connects companies with creative minds, especially in the area of product design, art and branding but also innovative business scenario development. Jovoto workers can submit their ideas within an open competition in which the winner is chosen via public voting. Recently, Jovoto has focused more on private competitions, in which the clients are able to pre-select a certain number of creatives, which usually receive a fixed amount of money for the participation in addition to financial rewards for the winner. In order to increase the sample size, the survey has been also sent out to workers from platforms other than Jovoto, Foodora or Deliveroo.

3.4. Data Collection

Given the limited time and means, this survey is based on a non-probability, opportunity sampling. The following measures lead to the sample of responses this paper will draw conclusions upon. They were selected based on convenience, i.e. in terms of platform workers that could be reached via available means and that were willing to participate.

To acquire offline crowdsourcing platform workers for the survey, different methods were used. Given that *Foodora* and *Deliveroo* workers are visible on the street, they were approached personally and asked to fill out the survey. Personal recruitment was mainly used in Münster and Dortmund. Also, food couriers of Foodora and Deliveroo are well organized in different moderated and unmoderated Facebook groups. Since moderated Facebook groups are impossible to access, the scope was limited to the unmoderated groups. Here, especially the Facebook group "Messengers Of Germany- Kuriere aus Deutschland / Deliveroo, Foodora etc." (451members) was approached: The link to the survey was not

only posted in the group publicly, but also sent out to group members in private messages. Snowball-sampling was done with the help of third parties. Just as in conversations on the streets, private messages always included the request to pass on the survey to fellow workers. With the same demand the author contacted labor unions that work closely with platform workers and support them in their work. Especially, board members of the political initiatives "Liefern am Limit" (Cologne), Deliverunion (Berlin) and FAU (Leipzig) agreed to distribute the survey via their networks.

To reach people of online crowdsourcing platforms, slightly different measures had to be taken. Here, Facebook groups either consist of workers from all over the world or are full of spam. Thus, to recruit people from these platforms a different method was chosen. Through *Jovoto* and *Clickwork* accounts that were created for the sole purpose of this thesis, the link to the survey was sent to 400 Jovoto-workers directly via the platform. Especially in the case of Jovoto this proved to be a very convenient method, as the surface of the platform allows its users to easily send messages to others. Besides selecting Jovoto workers from other Jovoto workers' friends list, the author also actively searched for Jovoto workers that had signed in most recently. Besides including workers from Germany, the sample of Jovoto workers additionally includes people that are working outside of Germany. The decision was made to keep them in the sample to increase the size. This heterogeneity of the Jovoto sample in terms of nationality will have to be considered in the analysis as attitudes towards collective action might differ depending on the national context of a worker.

3.5. The Sample

3.5.1. Platforms represented in the sample

The sample composes of 91 respondents working for 8 different platforms. Deliveroo riders were represented with 13.2%, Foodora riders with 23.1% and Jovoto workers with 50.5%. The three platforms mainly aimed for compose 86,8% of the sample.

Table 2: *Platforms represented in the sample*

	Frequency	Percent	Description
Offline crowdsourcing platforms			
Deliveroo	12	32.4	Food Delivery
Foodora	21	56.8	Food Delivery
Stadtsalat	3	2.7	Food Delivery
Helpling	1	8.1	Cleaning Service
Total	37	100	
Online crowdsourcing platforms			
Jovoto	46	85.2	Creative Work
CrowdGuru	6	11.1	Microtask
Clickworker	1	1.9	Microtask
VIP Kid	1	1.9	Teaching
Total	54	100	

The sample is split up into two sample groups: the group of people working for offline crowdsourcing platforms, which makes up 41% of the whole sample (in absolute numbers: 37), and the group of people working for online crowdsourcing platforms, which makes up 59% (in absolute numbers 54) of the whole sample. Jovoto, Clickworker, CrowdGuru and VIPkid were included into the category of online crowdsourcing platforms, Foodora, Deliveroo, Stadtsalat and Helpling constitute the group of offline crowdsourcing platforms, as the work mediated via that platform is realized offline.

3.5.2. Demographical characteristics of the sample groups

The whole sample is between 18 and 62 years old. The average person is 31,5 years old. In the group of respondents, the group of people younger than 35 years is strongly overrepresented with 73%. The sample of the online crowdsourcing workers is significantly older than the sample of offline crowdsourcing workers, where all respondents are younger than 36 and 75% of all offline workers are younger than 29. This is surely due to the nature of work (riding bicycles) that requires good health. Workers in the online crowdsourcing sample are significantly older (mean age 35.7). The 75-percent quartile includes workers until 45 years old. The respondents of the survey work in 21 different nations: A small majority of 52,7% is from Germany, 16,5% from other OECD Countries and the remaining 30.8% is either from non-OECD countries or did not indicate their origin. Also, about half of the sample (52,7%) is realizing platform work in Germany. The distribution is much clearer if we distinguish between the two main categories of ‘offline’ and ‘online crowdsourcing platforms’. The sample of offline crowdsourcing platform workers is a predominantly German sample, with 89% of German origin. In the sample of online crowdsourcing platform workers, on the other hand, only 27% indicated to be from Germany. This sample group, ergo, is mainly non-German. No matter whether the platform includes low-or high skilled work, it is notable that a majority of respondents is highly educated: 70,3% of all respondents have obtained or are obtaining an university degree. The results from this statistic are congruous with other studies that are concerned with the characteristics of platform workers: A study of the Hans-Böckler Foundation showed that most platform workers have a good or very good educational background (Leimeister, Durward and Zogaj, 2016). Especially in the group of online crowdsourcing workers, about 80% of all participants indicated that they were obtaining or had obtained a university degree, which reflects the requirement of the oftentimes high-skilled jobs that can be found on such platforms.

The two sample groups are fairly similar with regard to their political orientation. The mean of all recorded answers is a 3.56 with a standard deviation of 2.02. In total, the whole group is thus to be considered moderately leftist, with 60% of all respondents positioning themselves on the left side of the scale (0-4). While only 2,5% of the respondents indicated strong right-wing attitudes (8-10), 32% of all respondents showed very strong left-wing orientations (0-2). Here, again it makes sense to distinguish

between the two groups of online and offline crowdsourcing platform workers. In general, the group of offline crowdsourcing platform workers is even more leftist (mean= 2.94) than the group of online workers (mean=3.98). The group of local workers shows a stronger left-wing orientation than the group of online workers: the first two quartiles of the sample of offline crowdsourcing platform workers is dominated by workers with strong leftist attitudes. (0-3), the first quartile even by very strong leftist attitudes (1 on the 0-10 scale).

3.5.3. Employment relationship, working hours and income

From the results for working hours and primary income it can be concluded that platform work is predominantly done as a side job in the sample. Working hours range from 2 to 55 hours in the whole sample with a mean of 14,31 hours. Virtual workers work slightly more than online platform workers. The majority of all workers works no more than 20 hours. Only 28.6% of the whole sample indicated that the income generated the platform constituted their primary source of income. This percentage corresponds with the results of other studies that documented the characteristics of platform workers, showing that 21% had platform work as a primary income source. (Leimeister, Durward and Zogaj, 2016) Out of the respondents that indicated to have it as a primary source of income, 69% were from offline crowdsourcing platforms, where 48.6% of the sample indicated that the payment from the platform was their primary source of income. In online crowdsourcing platforms, on the contrary, 74.1% do not have it as a primary source of income.

Table 3 provides an overview of the characteristics of the two sample groups. For the interval variables it displays the mean, the standard deviation as well as the minimum and maximum value. For the ordinal and categorical variables, absolute number for frequencies as well as the frequencies in percentage are displayed.

Table 3: C*haracteristics of the two sample groups*

		N	Min	Max	Mean	St.d.	Freq.
Age	Offline crowdsourcing platforms	32	18	36	25.59	4.98	
	Online crowdsourcing platforms	45	20	62	35.7	9.5	
Origin							
Germany	Offline crowdsourcing platforms						33 (89.2%)
	Online crowdsourcing platforms						15 (27.8%)
Other	Offline crowdsourcing platforms						3 (8.1%)
	Online crowdsourcing platforms						25 (46.3%)
Work country							
Germany	Offline crowdsourcing platforms						33 (89.2%)
	Online crowdsourcing platforms						15 (27.8%)
other	Offline crowdsourcing platforms						4 (10.8%)
	Online crowdsourcing platforms						39 (72.2%)
University Education							
yes	Offline crowdsourcing platforms						20 (54.1%)
	Online crowdsourcing platforms						44 (81.5%)
no	Offline crowdsourcing platforms						13 (35.1%)
	Online crowdsourcing platforms						2 (3.7%)
Political orientation	Offline crowdsourcing platforms	33	0	8	2.94	2.30	
	Online crowdsourcing platforms	48	0	8	3.98	1.70	
Working hours	Offline crowdsourcing platforms	32	4	55	16.62	11.68	
	Online crowdsourcing platforms	40	2	45	12.48	10.65	
Primary source of income							
Yes	Offline crowdsourcing platforms						18 (48.6%)
	Online crowdsourcing platforms						8 (14.8%)
No	Offline crowdsourcing platforms						15 (40.5%)
	Online crowdsourcing platforms						40 (74.1%)

3.6. Critical Reflection on Data Collection Methods and the Validity of the Sample

Choosing a cross sectional design brings some threats to the internal validity of my study, for example for the time-order of my variable and the question of cause and effect. Thus, reverse effects have to be considered, as collecting data at one single point in time does not allow to make any claims about the certainty of the direction of the causation. In general, it can be discussed whether collective action results from social connectedness or whether social connectedness can also result from certain forms of collective action. This needs to be considered especially in the case of platform workers that were recruited online and can be ruled out by the use of theory. Furthermore, spurious causation can threaten internal validity, as the observed relation might stem from an omitted third variable that has not been included in the model but that does influence worker's willingness to organize collectively. Therefore, control variables, such as satisfaction or the financial dependency which can be suspected to possibly have an effect on the putative cause and effect, were included in the survey.

There are also some threats to the external validity. First of all, "snowball sampling" was used by publishing the survey in distinct groups or by asking third parties, especially political initiatives like *Liefern am Limit* and *Deliveroo,* to share it with others. Under-representation is an issue that results from this and that needs to be considered for the analysis. Given the research question and the hypothesis, is very likely that especially the sample group of workers of offline platform includes a significant

percentage of workers that are already actively engaged in collective action. Especially those that are already engaged in collective action showed a high willingness in distributing it to fellow workers and most likely fellow activists. Approaching Foodora workers on the streets, it showed that mainly those that are already involved in collective action entered a conversation, as they were eager to share their experience. Those who rushed off immediately, feeling molested by the request to fill out a survey, can be expected to be those that are not very willing to engage collectively. This group, however, is equally important as the one that shows a high degree of willingness to organize collectively. In general, this group of platform workers that neither interacts nor is not willing to organize collectively is a lot harder to approach, as they are seldomly organized in, for example, Facebook groups. Resulting from this, the results of the analysis can be skewed. This threat to validity was tackled by purposely asking for active engagement and also for connection to political initiatives like *Liefern am Limit* and *Deliveroo*. This way, we can -at least to a certain extent- control for this.

Secondly, and this threat concerns the whole sample, it can be assumed that there is a tendency of workers who already have a high interest in the development or improvement of platform work in the sample amongst the respondents. Some very comprehensive argumentations about the working conditions in platforms in the feedback section of the survey confirm that assumption. It is very important to have these threats in mind when analyzing and interpreting the results. Also, one could argue that by only distributing the survey online, we excluded a generation that is not very technophile. However, given the digital character of all platforms, this argument can be considered trivial. Migrants, who are neither fluent in German or English, but are constituting a significant percentage of the workforce in platforms in Germany (Leimeister, Durward and Zogaj, 2016), were structurally excluded from participating in the survey due to language barriers.

4. ANALYSIS AND RESULTS

In the following chapter, the hypotheses will be tested. The first part consists of a bivariate analysis, comparing workers of offline and online crowdsourcing platforms regarding their willingness to participate in collective action as well as the level where interaction occurred. In a further step, the bivariate relationship between interaction and willingness to participate in collective action will be analyzed. In the second part of the analysis, a regression analysis is conducted as a robustness check to see whether the claims made about the hypotheses in the first part of the analysis still hold true when taking control variables into account.

4.1. Bivariate Analysis: Where Co-Presence Makes a Difference

Willingness to participate in collective action in offline and online platforms

In general, sentiments of strong willingness for all types of collective action were predominantly expressed by offline crowdsourcing workers. An independent-sample t-test was conducted to compare

willingness for different types of collective action in online and offline platforms and proved all differences to be significant. There was a significant difference in the overall willingness for workers of offline crowdsourcing platforms (M=3.76, SD=0.95) and workers of online crowdsourcing platforms (M=2.6, SD=0.95). The mean difference of 1.15 is significant on a 99%- significance level. Likewise, there was a significant difference in the willingness to participate in collective action that requires no element of co-presence for workers of offline crowdsourcing platforms (M=3.97, SD=0.94) and workers of online platform workers (M=2.96, SD=1.09). The mean difference of 1.91 is significant on a 99%-significance level. Here, both samples, workers express the highest willingness for signing an online petition. Here, the mean difference of 1.10 between workers of offline crowdsourcing platforms (M=4.32, SD=0.82) and workers of online crowdsourcing platforms (M=3.22, SD=1.2) was significant as well on a 99%-significance level.

For collective action that requires an element of co-presence, such as meeting up, striking or joining a labor union, independent sample t-tests were conducted as well and showed similar results. The mean difference of 1.24 between offline crowdsourcing workers (M=3.61, SD=1.16) and online crowdsourcing workers (M=2.38, SD=0.98) was significant on a 99%-significant level. The results show that for willingness to meet up the mean difference of 1.0 between offline crowdsourcing platform workers (M=3.7, SD=1.15) and online crowdsourcing platform workers (M=2.7, SD=1.04) is significant on a 99%-significance level. Same holds true for the willingness to join a strike. There was a significant difference in the willingness to join a strike for workers of offline crowdsourcing platforms (M=3.51, SD=1.41) and workers of online crowdsourcing platforms. (M=2, SD=1.12). The mean difference of 1.51 is significant on a 99% significance level. For labor unionizing, the most institutionalized form of collective action, an independent sample t-test finds that there is a significant difference in the means of offline crowdsourcing platforms (M=3.62, SD=1.40) and online crowdsourcing platforms (M=2.43, SD=1.27). The mean difference of 1.2 is significant on a 99%-significance level.

Table 4 sums these findings up, presenting the mean, the standard deviation, the t-value and the mean difference and its significance level.

Table 4: *Comparing means for willingness to participate in collective action*

		N	Mean	St.d.	t-value	Mean difference
Overall	Offline crowdsourcing platforms	37	3.76	0.95	5.64	1.15***
	Online crowdsourcing platforms	54	2.61	0.95		
Online forms of collective action	Offline crowdsourcing platforms	37	3.97	0.94	4.61	1.01***
	Online crowdsourcing platforms	54	2.96	1.09		
To join an online discussion	Offline crowdsourcing platforms	37	3.62	1.23	3.51	0.92**
	Online crowdsourcing platforms	54	2.70	1.23		
To sign an Online petition	Offline crowdsourcing platforms	37	4.32	0.82	5.15	1.10***
	Online crowdsourcing platforms	54	3.22	1.22		
Offline forms of collective action	Offline crowdsourcing platforms	37	3.61	1.16	5.48	1.24***
	Online crowdsourcing platforms	54	2.38	0.98		
To meet up	Offline crowdsourcing platforms	37	3.7	1.15	4.31	1.00***
	Online crowdsourcing platforms	54	2.7	1.04		
To join a strike	Offline crowdsourcing platforms	37	3.51	1.41	5.47	1.51***
	Online crowdsourcing platforms	54	2.00	1.12		
To join a labor union	Offline crowdsourcing platforms	37	3.62	1.40	4.23	1.2***
	Online crowdsourcing platforms	54	2.43	1.27		

******* $p<0.001$ **$p<0.05$ *$p>0.1$

While willingness can be considered a theoretical concept, active engagement can be seen as an indicator for absolute willingness to organise collectively action. One who is actively engaged in collective action is ultimately willing to do so. The findings of table 5 support the findings regarding the theoretical concept above. It shows that there is a significant relationship between work in offline crowdsourcing platforms and being actively engaged in collective action. This effect is significant on a 99%-significance level (Table 5). This is certainly due to the fact that most protests are related to offline crowdsourcing platforms and focus on Foodora and Deliveroo, whose workers make up most of the sample of offline crowdsourcing platform workers (in total 89%). Furthermore, 35% of the sample of offline crowdsourcing platforms indicated to be connected to *Liefern am Limit* or *Deliverunion*. If we exclude this group of people from the analysis the correlation is still given, however, on a 90%-significance level only.

Table 5*: Active engagement in offline and online crowdsourcing platforms*

	Offline crowdsourcing platforms	Online crowdsourcing platforms	Total
Not actively engaged	23 (31.1%)	51 (68.9%)	74 (100%)
actively engaged	14 (82.4%)	3 (17.6%)	17 (100%)
Total	37 (40.7%)	54 (59.3%)	91 (100%)

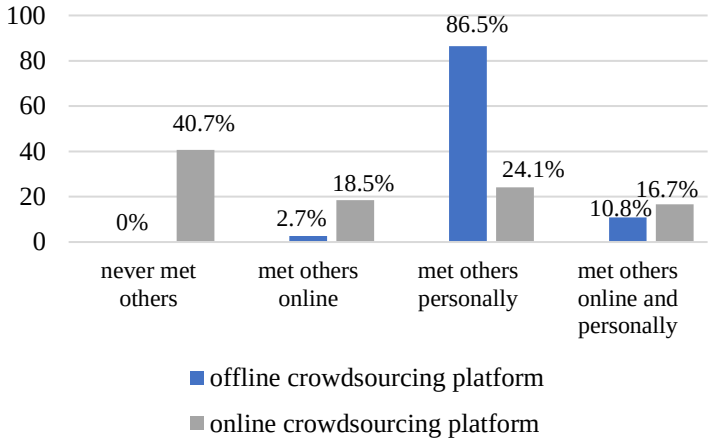
Φ = -0.407; p=.000

It can be summed up that workers in the sample of offline crowdsourcing platforms are significantly more willing to participate in all kinds of collective action than those working for an online crowdsourcing platform. Consequently, we temporarily accept Hypothesis 3. Work in an offline crowdsourcing platform is positively related with willingness to participate in collective action. Linear regression in part two of the analysis will show whether this still holds true when adding control variables. Based on these findings, we can also accept Hypothesis 7: It shows that workers of online crowdsourcing platforms are more willed to participate in online collective action than in collective action that requires a step into the offline world.

Interaction in online and offline crowdsourcing platforms:

The data from the questionnaire reveals that all participants working for an offline platform had made contact with other people from that platform either personally or online. In the sample of offline crowdsourcing platform workers, on the contrary, a total of 40.7% had never interacted with anyone, which somehow is in accordance with the nature of the work. Exclusive personal interaction is significantly predominant in offline crowdsourcing platforms, where 86.5% indicated to have met others of the same platform exclusively personally. This percentage cumulates to 97% if we add those that have met personally and online. In the other sample, surprisingly, 41% indicated to have met personally or personally and online. Correlation matrixes (see Appendix I) show that there is a significant correlation between offline and online crowdsourcing platforms and the degree to which people have interacted.

Figure 1: *Interaction between workers of offline and online platforms in percent*



Based on the results, workers of online crowdsourcing platforms are more likely to have never interacted with others of their platform (Φ=0.467 $p<0.01$) than workers of offline crowdsourcing platforms. They are, however, less likely to have interacted with others of their platform online than workers of platforms with a pure online character (Φ= 0.238, $p<0.5$). The results show the biggest correlation between the type of platform and "having met others personally". As expected, workers of offline crowdsourcing platforms are more likely to have met others personally, than those working for an online crowdsourcing platform. (Φ= -0.52, $p<0.001$). Between the type of platform and 'having met online and personally' no significant correlation was found, though. Based on this, we can accept Hypothesis 2: Personal interaction is significantly higher in offline crowdsourcing platforms than in online crowdsourcing platforms.

So far, we have found two things: People in online crowdsourcing platforms are more willing to organize collectively and the same group of people is interacting significantly more on a personal level than those working in offline crowdsourcing platforms. But does the higher willingness to organize collectively result from the personal interaction that occurs more often in this type of platform?

Does interaction matter for willingness to organize collectively?

To test whether it is true that people that interact personally are more willing to organize collectively than those that have never met before, an independent-sample t-test was conducted to compare the overall willingness to engage in collective action between the group of workers that indicated to have never met anyone of their platform before (M=2.43, SD=0.84) and workers that indicated to have met others, either online or personally or both ways. (M=3.29, SD=1.10). The mean difference of -0.86 is significant on a 95%- significance level.

Table 6: *Comparing means for overall willingness to organize in collective action in between workers that have never met anyone of their platform before and those that have interacted with others before (online or/and personally)*

		N	Mean	St.d.	T-value	Mean difference
All	Never met anyone	22	2.43	0.84	-3.35	-0.86**
	Have met others	69	3.28	1.10		

Dependent variable= Overall willingness, N=91

A t-test, however, does not allow for a meaningful comparison between all different spheres of interaction. Looking at the results of the one-way between subjects ANOVA that was conducted to compare the effects of each category of interaction on the overall willingness to engage in collective action, we have to specify the statement made above. The results show that there was a significant effect of the different levels of interaction on the willingness to organize collectively at the $p<.05$ level for the four conditions [F(3.87)=4.93 p=0.003]. (see Table 8). While the willingness amongst those that have

met personally is highest (M=3.42, SD=1.11) and for those that have never met lowest (M=2.43, SD= 0.84), those that had merely met online showed a surprisingly higher degree of willingness (M=3.3, SD= 0.89) than those that had met both personally and online (M=2.82, SD=1.188). (Table 8). Post hoc comparison, however, indicated that only the mean difference of -0.99 between 'never having met others' (M=2.43, SD=0.84 having met others personally (M=3.42, SD= 1.11) was significant on a 95%-significance level. Hypothesis 1 can thus be accepted at this moment in time. All the other mean differences were not significant for the overall willingness to engage in collective action.

Table 7: *Comparing the overall willingness to participate in collective action for the different levels of interaction*

	N	mean	Std. Deviation
never met others	22	2,43	0.84
met others online	11	3.30	0.89
met others personally	45	3.42	1.11
met others online and personally	13	2.82	1.19
Total	91	3.09	1.10

Dependent variable: Overall willingness to participate in collective action,

These findings can be even more specified if we differentiate between the different types of collective action (see Appendix II). Further one-way between subjects ANOVAs shows that likewise no significant mean difference can be observed between 'no interaction' and 'online interaction' for any of the items that compose "offline collective action" (meeting up, joining a strike and labor unionizing). Here, again only the mean difference of 1.14 between 'no interaction' (M=2.18, SD= 0.92) and 'personal interaction' (M=3.33, SD=1.21) was significant on a 95%-significance level for 'Willingness to engage in offline collective action'. For online collective action, post hoc comparison not only showed the expected significant mean difference between never having met anyone (M=2.8, SD= 0.85) and having met others personally (M=3.55, SD=1.16), but also between never having met anyone and having met others online (M=3.95, SD=0.91). Here, the mean difference of 1.16 is significant on a 95%-significance level. Looking at the different items that were combined under online collective action, these findings become more precise: The results show no significant mean difference between 'no interaction' and 'personal' interaction' for signing an online petition. Here, merely the mean difference of 0.955 between 'no interaction' (M=3.14, SD=1.08) and 'online interaction' (M=4.09, SD=0.70) was significant on a 95%-significance level. On the contrary, for joining an online discussion, the results show a significant mean difference of 1.36 between 'no interaction' (M=2.45, SD=0.96) and 'online interaction' (M=3.82, SD=1.25), but also a significant mean difference of 0.812 between 'no interaction' (M=2.45, SD=0.96) and 'personal interaction' (M=3.27, SD=1.34). Both mean differences are significant on the 95%-significance level. (see Appendix II)

Summing up, we can say that the mean difference between 'no interaction' and 'personal interaction' matters for all types of collective action expect for signing an online petition. Here only the mean difference between never having interacted and having interacted online are significant. Joining online discussion is the only form of collective action where both, personal and online interaction make a significant difference to no interaction at all. Based on these, Hypothesis 1 can temporarily be accepted for all types of collective action expect for signing an online petition. Hypothesis 4 can be temporarily accepted for collective action that requires no element of co-presence. Online interaction only leads to a significantly higher willingness to engage in online collective action. Hypothesis 5, though, stating that platform workers that merely interact face-to face are more likely to be willing to organize collectively than those who merely interacted online, has to be rejected for all types of collective action. Likewise, hypothesis 6 has to be rejected, as no significant difference was found between the group of people that had interacted both personally and online and those that had merely interacted face-to-face or merely online for any type of collective action.

4.2.Regression Analysis

Finally, linear regression was conducted as a robustness check. This allows us to control whether the claims made above based on comparing means, still hold true and thus, whether the hypotheses can still be accepted or have to be rejected when taking control variables into account. Table 9, 10 and 11 reports the b coefficients as well as the standard errors, the standardized coefficient Beta, as well as T and the significance of the variable in the three models (overall willingness, willingness for online collective action, willingness for offline collective action). The results shows that for all types of collective action, work in an offline collective crowdsourcing platform has a significant positive effect on the willingness to participate in collective action and thus confirms what t-tests in the bivariate analysis indicated. As table 9 shows, for interaction, however, the results of the regression analysis merely show a significant effect for online interaction ($p<0.1$) on the overall willingness to participate in collective action.

Table 8: *Overall willingness to participate in collective action*

	Nonstandardized coefficients		Standardized coefficient		
Model	b	St.Er.	Beta	T	Sig.
1(Constant)	4.17	0.77		5.44	0.000
Offline Crowdsourcing platform	0.99	0.33	0.46	3.16	0.002
Met others online	0.74	0.40	0.22	1.86	0.067
Met others personally	0.01	0.36	0.01	0.028	0.978
Met others online and personally	0.19	0.39	0.06	0.50	0.616
Age	-0.01	0.01	0.07	-0.59	0.560
Working hours	0.00	0.01	0.02	0.18	0.854
Overall satisfaction	-0.21	0.14	-0.17	-1.53	0.132
Primary source of income	-0.14	0.28	-0.06	-0.51	0.610
Political orientation	-0.12	0.06	-0.21	-1.88	0065

Dependent variable: Willingness to participate in online collective action
$R= 0.661$ $R^2= 0.437$ $p=0.00$ $N=68$

When differentiating between online and offline collective action, we have to revise this statement and become more precise: Table 10 shows that online interaction does have a significant effect on the willingness to participate in online collective action ($p<0.05$).

Table 10: *Willingness to participate in online collective action*

	Nonstandardized coefficients		Standardized coefficient		
Model	b	St.Er.	Beta	T	Sig.
2(Constant)	3.94	0.84		4.70	0.000
Offline Crowdsourcing platform	1.06	0.35	0.48	3.06	0.003
Met others online	0.92	0.41	0.28	2.22	0.030
Met others personally	-0.20	0.39	-0.09	-0.52	0.608
Met others online and personally	0.42	0.42	0.14	0.99	0.322
Age	-0.02	0.02	-0.16	-1.20	0.233
Working hours	0.00	0.01	0.03	0.23	0.821
Overall satisfaction	-0.00	0.15	-0.00	-0.02	0.986
Primary source of income	-0.1	0.31	-0.04	-0.31	0.758
Political orientation	-0.01	0.07	-0.18	-1.48	0.146

Dependent variable: Willingness to participate in online collective action
$R= 0.593$, $R^2= 0.351$ $p=0.001$, $N=69$

Table 11 shows, that for offline collective action, this no longer holds true. This confirms findings presented in the bivariate analysis. Hypothesis 4, previously only temporarily accepted for collective action that requires no element of co-presence, can finally be accepted. The linear regression show substantiates the claim that platform workers that interact online are more likely to be willing to organize collectively than those who do not interact at all with co-workers. No support, however, is found for H1 and H5, which consequently has to be rejected. The results show that platform workers that interact personally are not significantly more likely to be willing to organize collectively than those who had never met before or those that had merely interacted online. Likewise, still no support for H6 is found.

Table 11: *Willingness to participate in offline collective action*

	Nonstandardized coefficients		Standardized coefficient		
Model	b	St.Er.	Beta	T	Sig.
3(Constant)	4.34	0.85		5,09	0.000
Offline Crowdsourcing platform	0.96	0.35	0.4	2.74	0.008
Met others online	0.55	0.44	0.15	1.24	0.219
Met others personally	0.14	0.40	0.06	0.35	0.727
Met others online and personally	0.04	0.43	0.01	0.1	0.921
Age	-0.00	0.02	-0.01	-0.09	0.926
Working hours	0.00	0.01	0.02	0.18	0.856
Overall satisfaction	-0.35	0.15	-0.26	-2.28	0.026
Primary source of income	-0.18	0.31	-0-07	-0.57	0.574
Political orientation	-0.13	0.07	-0.22	-1.91	0.061

Dependent variable: Willingness to participate in offline collective action
$R= 0.668$, $R^2= 0.446$, $p=0.070$, $N=68$

5. DISCUSSION AND CONCLUSION

This study aimed at quantitatively testing the relationship between social connectedness and willingness to organize collectively in the platform economy. The focus was set on two distinct groups of platforms: online crowdsourcing platforms, like Jovoto, where work is restricted to the online world, and offline crowdsourcing platforms, like Foodora and Deliveroo, where an element of co-presence is preserved. By showing how important this distinction is when analyzing mechanisms of collective action in the platform economy, this study contributes to the existing research body on collective action in the platform economy. In more practical terms, it shows to, for example labor unions, how differently these two groups of platform workers have to be approached.

In accordance with what was hypothesized on the basis of the nature of the work, this study shows that personal interaction occurs significantly more often in offline crowdsourcing platforms than in online crowdsourcing platforms. Furthermore, the findings of this study confirm that the nature of the work, i.e. the geographical dimension emphasized by Berkley (1994), makes it easier for workers to develop a feeling of solidarity and thus willingness to organize collectively (Putman,2000; Lethdonovirta, 2016; Graham, 2016). In offline crowdsourcing platforms, where personal interaction occurred more often, workers also express a higher degree of willingness to participate in any kind of collective action than workers of online crowdsourcing platforms. While workers of offline crowdsourcing platforms expressed moderate or strong feelings of willingness for all types collective action, the degree of willingness varies for workers of online crowdsourcing platforms depending on the type of collective action. They are more willing to engage in collective action that requires no element of co-presence, i.e. that takes place on the internet, where also their work is anchored. This is in accordance with what Salehi, Irani, Bernstein et al. (2015) found. It is harder to achieve the same sense of social connectedness online, which is why willingness is mainly restrained to forms collective action that requires less effort, i.e. that take place online. Accordingly, workers of this group express unwillingness for collective action that requires a step into the offline world, such as joining a strike or a labor union. This supports the argument made by Tassinari and Maccarone (2017): Online social ties are not sustainable enough for collective action that require a step into the offline world. Further findings regarding active engagement in collective action substantiate what has so far been presented: In offline crowdsourcing platforms we find significantly more people actively engaged in collective action than in online crowdsourcing platforms. Moreover, a regression analysis undergirds this: Being involved in offline crowdsourcing platform work has a positive effect on the overall willingness to engage collectively.

Given the significant difference in willingness to organize collectively between the two types of platforms, it would be easiest to presume that this must have something to do with the main characteristic that differentiates the two groups from each other- namely the visibility or invisibility of

workers, that allows for more or less interaction with others. Consequently, in a second part of the analysis, the degree of willingness to engage in collective action was compared according to the level on which workers had interacted with others of their platform before. As hypothesized, those that had interacted personally with others from their platform are overall more willed to engage in collective action than those that had not interacted at all. A robustness check in form of a linear regression analysis, however, does not buttress this. When including control variables, this claim no longer holds true. Online interaction, on the other hand, does make a difference for collective action that takes place online. People that had interacted online show a significantly higher willingness to engage in online forms of collective action than those that had never interacted before. This finding is also confirmed by the results regression analysis in the second part of the analysis.

These findings should be interpreted with caution., though. A survey rooting mistake caused several constrained the extent to which social connectedness could be measured. Essential items documenting information about the context, the frequency and the content of online and offline interaction, would have constituted a more comprehensive concept of social connectedness that would have allowed us to give a more reliable answers to the main research question of this study. Due to this mistake, this study can merely make statements based on the information whether and on what level interaction has occurred between workers. We can only speculate whether people that indicated to have met personally were referring to an unique encounter as or whether personal interaction is motivated by the wish to mobilize others for collective action. Without knowing anything about the frequency of the interaction, it is hard to draw reliable conclusions about the true effect on the willingness to organize collectively. These constraints have to be kept in mind when analyzing the findings.

To sum up, while this study is not able to give the expected insight into how far social connectedness has an effect on willingness to organize collectively in the platform economy, it shows how important the distinction between the two types of platforms is when analyzing mechanism of collective action. Given that already the occurrence of interaction is affected differently in the two types of platforms that were distinguished, it is very likely that consequently the frequency and intensity of interaction will similarly be affected. Thus, further research should take on the topic again, using a more elaborated concept of social connectedness (including frequency, context and content of online and offline interaction) to then either buttress or reject the findings of this study. In general, all further research concerned with collective action in the platform economy is encouraged to adopt this distinction between the visibility of the workers to avoid fallacies. Given the distinctive characteristics of the different groups of platforms, it would be deceptive to continue talking about platform workers in one single category, as they not only differ in terms of the degree to which they are visible and thus accessible for each other, but are generally also very different, for example, regarding their demographic characteristics. Further useful differentiations could be made between competition-based and

competition-independent work, as this surely affects the degree to which people feel connected with each other as well.

Labor unions, who have to adapt to the changing nature of labor, are urged to take the findings regarding online interaction into account when adapting strategies to approach platform workers. Offline crowdsourcing platforms only make up a small percentage in the platform economy. Future labor is more likely to take on forms of online crowdsourcing work, where the study shows noteworthy results. In accordance with the nature of their work, online crowdsourcing platform workers express higher willingness to engage in online collective action. Based on the results that show a significant effect of online interaction on the willingness to participate in that kind of collective action, it makes sense to strengthen online communication channels.

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7. APPENDICES

Appendix I: Correlations between the type of platform and the level of interaction

Table 1: *Comparing offline and online crowdsourcing platforms regarding 'no interaction'*

		offline crowdsourcing platform	online crowdsourcing platform	Total
Never met others	,00	37	32	69
		(58.6%)	(46.4%)	(100%)
	1,00	0	22	22
		(0%)	(100%)	(100%)
Total		37	54	91
		(40.7%)	(59.3%)	(100%)

Φ= 0.467, p=0.00

Table 2: *Comparing offline and online crowdsourcing platforms regarding 'online interaction'*

		offline crowdsourcing platform	online crowdsourcing platform	Total
Met others online	,00	36	45	69
		(45.0%)	(55.0%)	(100%)
	1,00	1	10	22
		(9.1%)	(90.9%)	(100%)
Total		37	54	91
		(40.7%)	(59.3%)	(100%)

Φ= 0.238, p=0.023

Table 3: *Comparing offline and online crowdsourcing platforms regarding 'personal interaction'*

		offline crowdsourcing platform	online crowdsourcing platform	Total
Met others personally	,00	5	41	46
		(10.9%)	(89.1%)	(100%)
	1,00	32	13	45
		(71.1%)	(28.9%)	(100%)
Total		37	54	91
		(40.7%)	(59.3%)	(100%)

Φ= -0.613, p= 0.000

Table 4: *Comparing offline and online crowdsourcing platforms regarding 'personal & online interaction'*

		offline crowdsourcing platform	online crowdsourcing platform	Total
Met others personally and online	,00	33	45	78
		(42.3%)	(57.7%)	(100%)
	1,00	4	9	13
		(30.8%)	(69.2%)	(100%)
Total		37	54	91
		(40.7%)	(59.3%)	(100%)

Φ= 0.82, p=0.433

APPENDIX II: Results from one-way between subjects ANOVA

Table 2*: Overall willingness to participate in collective action*

	N	Mean	Std. Deviation
never met others	22	2.43	0.84
met others online	11	3.29	0.89
met others personally	45	3.42	1.11
met others online and personally	13	2.82	1.19
Total	91	3.08	1.10

Dependent variable= Overall willingness

Table 3: *Multiple comparisons for overall willingness to participate in collective action*

(I) Occurenceof Interaction	(J) Occurenceof Interaction	Mean Difference (I-J)
never met others	met others online	-0.86
	met others personally	-0.99*
	met others online and personally	-0.39
Online	never met others	0.86
	met others personally	-0.13
	met others online and personally	0.48
Personally	never met others	0.99*
	met others online	0.13
	met others online and personally	0.60
Met others online and personally	never met others	0.39
	met others online	-0.48
	met others personally	-0.60

*significant at the 0.05 level

Table 4: *Willingness to participate in online collective action*

	N	Mean	Std. Deviation
never met others	22	2.79	0.85
met others online	11	3.95	0.91
met others personally	45	3.56	1.16
met others online and personally	13	3.23	1.30
Total	91	3,3736	1.14

Dependent variable= Overall willingness

Table 5: *Multiple comparison for willingness to participate in online discussion*

(I) Occurence of Interaction	(J) Occurence of Interaction	Mean Difference (I-J)
never	online	-1.16*
	personally	-0.77*
	online and personally	-0.44
online	never	1.16*
	personally	0.4
	online and personally	0.72
personally	never	0.76*
	online	-0.4
	online and personally	0.32
online and personally	never	0.44
	online	-0.72
	personally	-0.33

*significant at the 0.05 level

Table 6*: Willingness to join an online discussion*

	N	Mean	Std. Deviation
never met others	22	2,45	0.96
met others online	11	3.82	1.25
met others personally	45	3.27	1.34
met others online and personally	13	2.85	1.35
Total	91	3.08	1.30

Dependent variable= Overall willingness

Table 7: *Multiple comparisons for willingness to join an online discussion*

(I) Occurence of Interaction	(J) Occurence of Interaction	Mean Difference (I-J)
never	online	-1.36*
	personally	-0.81*
	online and personally	-0.39
online	never	1.36*
	personally	0.55
	online and personally	0.97
personally	never	0.81*
	online	-0.55
	online and personally	0.42
online and personally	never	0.39
	online	-0.97
	personally	-0.42

*significant at the 0.05 level

Table 8: *Willingness to sign an online petition*

	N	Mean	Std. Deviation
never met others	22	3.14	1.08
met others online	11	4.09	0.70
met others personally	45	3.84	1.22
met others online and personally	13	3.62	1.45
Total	91	3.67	1.20

Dependent variable= Overall willingness

Table 9: *Multiple comparisons for willingness to sign an online petition*

(I) Occurence of Interaction	(J) Occurence of Interaction	Mean Difference (I-J)
never	online	-0.96*
	personally	-0.71
	online and personally	-0.48
online	never	0.96*
	personally	0.25
	online and personally	0.48
personally	never	0.71
	online	-0.25
	online and personally	0.23
online and personally	never	0.48
	online	-0.48
	personally	-0.23

*significant at the 0.05 level

Table 10: *Willingness to participate in offline collective action*

	N	Mean	Std. Deviation
never met others	22	2.18	0.92
met others online	11	2.85	1.03
met others personally	45	3.33	1.21
met others online and personally	13	2.54	1.24
Total	91	2.88	1.22

Dependent variable= Overall willingness

Table 11: *Multiple comparisons for willingnes to participate in offline collective action*

(I) Occurence of Interaction	(J) Occurenceof Interaction	Mean Difference (I-J)
never	Online	-0.67
	personally	-1.14*
	online and personally	-0.36
online	never	0.67
	personally	-0.48
	online and personally	0.31
personally	never	1.14*
	online	0.48
	online and personally	0.79
online and personally	never	0.36
	online	-0.31
	personally	-0.79

*significant at the 0.05 level

Table 12: *Willingness to meet up with others*

	N	Mean	Std. Deviation
never met others	22	2.59	1.01
met others online	11	3.18	1.08
met others personally	45	3.49	1.2
met others online and personally	13	2.62	1.12
Total	91	3.11	1.19

Dependent variable= Overall willingness

Table 13*: Multiple comparisons for willingness to meet up with others*

(I) Occurence of Interaction	(J) Occurence of Interaction	Mean Difference (I-J)
never	online	-0.59
	personally	-0.1*
	online and personally	-0.02
online	never	0.59
	personally	-0.31
	online and personally	0.57
personally	never	0.9*
	online	0.31
	online and personally	0.87
online and personally	never	0.02
	online	-0.57
	personally	-0.87

*significant at the 0.05 level

Table 14: *Willingness to join a strike*

	N	Mean	Std. Deviation
never met others	22	1.82	1.14
met others online	11	2.36	1.12
met others personally	45	3.09	1.46
met others online and personally	13	2.54	1.56
Total	91	2.62	1.44

Dependent variable= Overall willingness

Table 15: *Multiple comparison for willingness to join a strike*

(I) Occurence of Interaction	(J) Occurenc eof Interaction	Mean Difference (I-J)
never	online	-0.55
	personally	-1.27*
	online and personally	-0.72
online	never	0.55
	personally	-0.73
	online and personally	-0.18
personally	never	1.27*
	online	0.73
	online and personally	0.55
online and personally	never	0.72
	online	0.18
	personally	-0.55

*significant at the 0.05 level

Table 16: *Willingness to join a labor union*

	N	Mean	Std. Deviation
never met others	22	2.14	1.12
met others online	11	3.00	1.18
met others personally	45	3.40	1.48
met others online and personally	13	2.46	1.39
Total	91	2.91	1.44

Dependent variable= Overall willingness

Table 17*: Multiple comparisons for willingness to join a labor union*

(I) Occurenc eof Interaction	(J) Occurence of Interaction	Mean Difference (I-J)
never	online	-0.86
	personally	-1.26*
	online and personally	-1.33
online	never	0.86
	personally	-0.40
	online and personally	0.54
personally	never	1.26*
	online	0.40
	online and personally	0.94
online and personally	never	0.33
	online	-0.54
	personally	-0.94

*significant at the 0.05 level

Appendix III: The Survey

Start of Block: Explanation: What is a platform?

Welcome! This survey was designed for the purpose of completing our Bachelor thesis. We are very happy that you are willing to contribute the success of our thesis by filling out this survey. Completing this survey will take approximately 10 minutes.

This survey is about work in digital platforms. Internet platforms, like for example Uber, Jovoto, Deliveroo and many more, link workers with clients for a particular job. In such platforms, workers are either employed by the platform or work as freelancers on-demand and are paid for every single job separately or per hour. This is the case for you and your platform? Great! So let us begin.

End of Block: Explanation: What is a platform?

Start of Block: Information about platform

What is the name of the platform you are working for?
 (In case that you working for more than one platform, please mention the one via which you are working for most of the time. The following questions of this survey will then refer to this platform.)

_____

Apart from this platform, are you working via another platform?

- ○ Yes
- ○ No

End of Block: Information about platform

Start of Block: work for and perception of other platforms

Are you employed by ${q://QID5/ChoiceTextEntryValue} or do you work as a freelancer via ${q://QID5/ChoiceTextEntryValue}?

- ○ employed
- ○ freelancer
- ○ I don't know

Are you aware of the fact that there are platforms other than ${q://QID5/ChoiceTextEntryValue} in the field you are working? For example: If you are working for a food delivery platform, do you know any other food delivery platform?

- ○ Yes
- ○ No

Sometimes people talk about 'platform worker' to refer to all workers from different platforms. Have you ever heard of such a categorization?

- ○ Yes
- ○ No

Do you agree with the following statement: "I see myself as a 'platform worker'."

- ○ Agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Disagree

End of Block: work for and perception of other platforms

Start of Block: Job satisfaction

In general, how satisfied are you with the sort of work you are doing via ${q://QID5/ChoiceTextEntryValue}?"

- very satisfied
- somewhat satisfied
- neither satisfied nor dissatisfied
- somewhat dissatisfied
- very dissatisfied

And more specifically, how well are you satisfied with...

	very satisfied	Somewhat satisfied	Neither satisfied nor disatisfied	Somewhat dissatisfied	very dissatisfied
the flexibility your work provides you with, for example, given the working hours?	○	○	○	○	○
the payment that you receive on your platform?	○	○	○	○	○
the working conditions in general (such as gear, break times etc.)	○	○	○	○	○
the experiences with your clients?	○	○	○	○	○

End of Block: Job satisfaction

Start of Block: Valuation of work features

Please, state in how far you agree with the following statements.

It is more important to me to be flexible in deciding when and how much I want to work than to have a stable income.

- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

It is very important to me to be able to organize my daily activities in the way I want.

- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

Financial security is more important to me than free time.

- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

A stable income is the most important feature of a job.

- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

End of Block: Valuation of work features

Start of Block: Social connectedness Maike

Have you ever met other people from ${q://QID5/ChoiceTextEntryValue}?

- ○ Yes, I have met them personally.
- ○ Yes, I have met them online, for example in internet fora etc.
- ○ Yes, I have met other people that work for my platform personally as well as online.
- ○ No, I have never met any other people that work for the same platform.

How frequently do you literally see other ${q://QID5/ChoiceTextEntryValue} workers while you are working?

- ○ every time I work
- ○ often
- ○ sometimes
- ○ seldomly
- ○ never

How frequently do you see other ${q://QID5/ChoiceTextEntryValue} workers personally in your free time?

- ○ almost every day
- ○ about once a week
- ○ every other week
- ○ about once a month
- ○ less frequently than every month
- ○ Never

Whenever you see other ${q://QID5/ChoiceTextEntryValue} workers while you are working, how frequently do you talk about your work?

- ○ Always
- ○ Often
- ○ Sometimes
- ○ seldom
- ○ never

How often do you read discussions of other ${q://QID5/ChoiceTextEntryValue} workers online?

- ○ about every day
- ○ about once a week
- ○ every other week
- ○ about once a month
- ○ less frequently than once month
- ○ Never

How often do you actively engage online with other ${q://QID5/ChoiceTextEntryValue} workers by for example chatting, discussing or posting in groups?

- ○ about every day
- ○ about once a week
- ○ every other week
- ○ about once a month
- ○ less frequently than once month
- ○ Never

Whenever you meet up with other ${q://QID5/ChoiceTextEntryValue} workers in your free time, how frequently do you talk about your work?

- ○ always
- ○ often
- ○ Sometimes
- ○ seldom
- ○ never

Whenever you interact with other ${q://QID5/ChoiceTextEntryValue} workers online how frequently do you talk about your work?

- ○ Always
- ○ often
- ○ sometimes
- ○ seldomly
- ○ Never

Would you be willing to meet up with those that you met online to discuss issues related to your work?

- ○ Yes
- ○ Maybe
- ○ No

End of Block: Social connectedness Maike

Start of Block: Information Groups

In the next section of this survey, it will be often referred to three groups, which will be explained here:
 1) ${q://QID5/ChoiceTextEntryValue} workers
 2) all workers, operating in the same field as ${q://QID5/ChoiceTextEntryValue}
(For example, Uber and Lyft workers are forming the group of drivers)
 3) platform workers (all workers working via internet platforms)

In the next section of this survey, it will be often referred to two groups, which will be explained here:
 1) ${q://QID5/ChoiceTextEntryValue} workers
 2) platform workers (all workers working via internet platforms)

End of Block: Information Groups

Start of Block: Social Connectedness

How often do you interact with...

	Very often	Often	Sometimes	Seldom	Never
other workers from platforms operating in the same field as ${q://QID5/ChoiceTextEntryValue}?	○	○	○	○	○
workers platforms operating in a different field than ${q://QID5/ChoiceTextEntryValue}?	○	○	○	○	○

End of Block: Social Connectedness

Start of Block: Willingness to participate in different forms of collective action Maike

In recent years, platform workers have been protesting the conditions under which they work, for example low wages, lack of insurance or prohibition to organize in labor unions. Have you heard of such protests?

○ yes

○ no

Are you engaged in any form of collective action for the interests of ${q://QID5/ChoiceTextEntryValue} workers?
 (being member of a labour union, being active in a political initiative such as "Liefern am Limit", supporting workers via social media etc.)
 If yes please mention the forms of engagement.

○ yes _____

○ no

Please answer the following question only if you working for a food-delivery platform.
 Are you in any form (online or offline) connected to one of the following political initiatives?
 If you are connected to both, please select only the one you feel more connected too.

○ Liefern am Limit (origin Cologne)

○ Deliverunion (origin Berlin)

How willing would you be to:

	Very willing	willing	slightley willing	rather unwilling	not willing at all
join a facebook (or reddit) group to discuss problems related to the platform?	○	○	○	○	○
to meet up with fellow workers to discuss actions?	○	○	○	○	○
to sign an online petition for better working conditions?	○	○	○	○	○
to join a strike?	○	○	○	○	○
to join a labor union?	○	○	○	○	○

End of Block: Willingness to participate in different forms of collective action Maike

Start of Block: Indentification Leon

How strongly do you identify with ...

	very strongly	strongly	moderately	slightly	not at all
other ${q://QID5/ChoiceTextEntryValue} workers?	○	○	○	○	○
other workers from platforms operating in the same field as ${q://QID5/ChoiceTextEntryValue}?	○	○	○	○	○
other workers from platforms operating in a different field than ${q://QID5/ChoiceTextEntryValue}?	○	○	○	○	○
with the platform ${q://QID5/ChoiceTextEntryValue} itself	○	○	○	○	○

End of Block: Indentification Leon

Start of Block: Solidarity

Please, indicate in how far you agree with the following statements.

I feel solidarity with...

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
other ${q://QID5/ChoiceTextEntryValue} workers?	○	○	○	○	○
workers from platforms operating in the same field as ${q://QID5/ChoiceTextEntryValue}?	○	○	○	○	○
workers from platforms operating in a different field than ${q://QID5/ChoiceTextEntryValue}?	○	○	○	○	○

End of Block: Solidarity

Start of Block: Satisfaction

Being a [...] gives me a good feeling.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
${q://QID5/ChoiceTextEntryValue} worker	○	○	○	○	○
a part of all workers from platforms operating in the same field as ${q://QID5/ChoiceTextEntryValue}	○	○	○	○	○
platform worker	○	○	○	○	○

End of Block: Satisfaction

Start of Block: Financial dependency & autonomy

If you think about the income of your platform work with which situtions would you identify on the scales below?

	1	2	3	4	5	6	7	8	9	10	
My income is very stable. I earn approximately the same every month.	○	○	○	○	○	○	○	○	○	○	My income is very unstable. I earn something different every month.
I know in advance how much I will earn each month.	○	○	○	○	○	○	○	○	○	○	I dont know in advance how much I will earn each month.
I have many opportunities to accept tasks.	○	○	○	○	○	○	○	○	○	○	I have few opportunities to accept tasks.
I know in advance how many tasks i will be offered each month.	○	○	○	○	○	○	○	○	○	○	I dont know in advance how many tasks i will be offered each month.
I can choose which tasks I want to work on.	○	○	○	○	○	○	○	○	○	○	I have to take every task i can get.
I can choose how i approach a tasks and be creative.	○	○	○	○	○	○	○	○	○	○	I have to strictly follow procedures when i approach a task.

End of Block: Financial dependency & autonomy

Start of Block: Centrality

Please, indicate in how far you agree with the following statements.

The fact that I am a [...] is an important part of my identity.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
${q://QID5/ChoiceTextEntryValue} worker	○	○	○	○	○
a part of all workers from platforms operating in the same field as ${q://QID5/ChoiceTextEntryValue}	○	○	○	○	○
platform worker	○	○	○	○	○

End of Block: Centrality

Start of Block: Individual Self-Stereotyping

I have a lot in common with the average [...].

	Strongly Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly Disagree
${q://QID5/ChoiceTextEntryValue} worker	○	○	○	○	○
worker from platforms operating in the same field as ${q://QID5/ChoiceTextEntryValue}	○	○	○	○	○
platform worker	○	○	○	○	○

End of Block: Individual Self-Stereotyping

Start of Block: in-group homogeneity

[...] have a lot in common with each other.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
${q://QID5/ChoiceTextEntryValue} workers	○	○	○	○	○
workers from platforms operating in the same field as ${q://QID5/ChoiceTextEntryValue}	○	○	○	○	○
platform workers	○	○	○	○	○

End of Block: in-group homogeneity

Start of Block: Social Status Leon

There are many people who believe that different groups enjoy different amounts of social status in this society. You may not believe this for yourself, but if you had to rate each of the following groups as most people see them, how would you do so?

	Very high status	high	rather high	neither high nor low	rather low	low	very low status	I don't know
all ${q://QID5/ChoiceTextEntryValue} workers	○	○	○	○	○	○	○	○
all workers from platforms operating in the same field as ${q://QID5/ChoiceTextEntryValue}	○	○	○	○	○	○	○	○
all platform workers working in a different field than ${q://QID5/ChoiceTextEntryValue}	○	○	○	○	○	○	○	○
all platform workers	○	○	○	○	○	○	○	○

End of Block: Social Status Leon

Start of Block: Platform economy statements Leon

Have you ever made a bad experience with ${q://QID5/ChoiceTextEntryValue}, such as a delayed loan transfer?

- ○ More than once
- ○ Once
- ○ Never

Please, indicate in how far you agree with the following statements.

Organizing occupations via platforms such as ${q://QID5/ChoiceTextEntryValue} is generally a positive development.

- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

I think that [...] are working under bad conditions.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
workers from platforms operating in the same field as ${q://QID5/ChoiceTextEntryValue}	○	○	○	○	○
workers from platforms operating in a different field than ${q://QID5/ChoiceTextEntryValue}?	○	○	○	○	○

End of Block: Platform economy statements Leon

Start of Block: Desire of standard employment relationship

If you could choose freely, would you prefer to fullfill the same function in wage employment? (with a standard working contract)

- ○ Yes
- ○ No

Would you like to fullfill the same funtion in wage employment, even if you receive less pay?

- ○ Yes
- ○ No

End of Block: Desire of standard employment relationship

Start of Block: Block 21

Only a few general questions until you are done!

End of Block: Block 21

Start of Block: working hours

In which country are you working for ${q://QID5/ChoiceTextEntryValue}?

- ○ Germany
- ○ other country: _____

How many hours are you working for ${q://QID5/ChoiceTextEntryValue} on average per week?

_____

Is the work for ${q://QID5/ChoiceTextEntryValue} your primary source of income?

- ○ Yes
- ○ No

Do all incomes from the different platforms combined form your primary income?

- ○ Yes
- ○ No

End of Block: working hours

Start of Block: General Information 1 Maike and Leon

How old are you?

_____

Please, state to what degree you agree with the following statement: The government should take measures to reduce differences in income levels.

- ○ strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

In politics people sometimes talk of "left" and "right". Where would you place yourself on this scale, where 0 means very left and 10 means very right?

	0 1 2 3 4 5 6 7 8 9 10
Political orientation	

What is the highest degree you already completed or that you are currently completing?

- ○ Master's degree (or equivalent) at a university or college
- ○ Bachelor's degree (or comparable) at a university or college
- ○ Apprenticeship
- ○ Abitur
- ○ Realschule
- ○ Hauptschule
- ○ no degree

What is your level of education? Please select the highest achieved level. If currently enrolled, please select the criteria which fit your enrollment

- ○ No school finished
- ○ General school
- ○ High School
- ○ Undergraduate/Bachelor Degree (or comparable)
- ○ Graduate/Master Degree (or comparable)

That's it! Thank you so much for having taken your time. We appreciate it a lot If there is anything you want us to know, feel free to leave a comment below:

_____

End of Block: General Information 1 Maike and Leon