

# Unfairness by Design? The Perceived Fairness of Digital Labor on Crowdfunding Platforms

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**Abstract** Based on a qualitative survey among 203 US workers active on the microwork platform Amazon Mechanical Turk, we analyze potential biases embedded in the institutional setting provided by on-demand crowdworking platforms and their effect on perceived workplace fairness. We explore the triadic relationship between employers, workers, and platform providers, focusing on the power of platform providers to design settings and processes that affect workers' fairness perceptions. Our focus is on workers' awareness of the new institutional setting, frames applied to the mediating platform, and a differentiated analysis of distinct fairness dimensions.

**Keywords** Crowdsourcing · Internet · Fairness · Digital labor · Microwork · Crowdfunding · Amazon Mechanical Turk

## Introduction

Digital platforms, such as Uber, Airbnb, TaskRabbit, and Amazon Mechanical Turk, have brought disruptive change to many service industries. These platforms organize,

facilitate, and broker the services provided by a dispersed workforce of hundreds of thousands of individuals (“crowdwork”). The result is an emergence of digital piecework that differs from traditional low-wage piecework in that it is no longer embedded in organizational hierarchies, but rather in a triadic setting composed of clients (here: “requesters”), platform providers, and largely autonomous workers. The workforce engaged on these digital on-demand service platforms is often characterized by commodification, low cost, minimal institutionalization, and increasing anonymity.

In this article, we argue that digital on-demand crowdworking platforms constitute a new work environment characterized by a triadic relationship between employers (requesters), workers, and the platform provider. As a designer of the platform, including its features, processes, and affordances, the provider plays a crucial role within this relationship. The provider is largely responsible for determining working conditions. Yet, little is known about worker perceptions of these responsibilities. For the purposes of this article, we follow the definition by Kittur et al. (2013, p. 1), who define crowdwork as “the performance of tasks online by distributed crowd workers who are financially compensated by requesters (individuals, groups, or organizations).” This understanding of crowdwork implies a combination of organizational, individual, and technological aspects, thus conceptualizing crowdwork as a “sociotechnical work system” (Kittur et al. 2013, p. 1). Our focus is the particular form of crowdwork most akin to piecework: microworking. Microworking is a form of freelance contracting on the Internet, for example carrying out human intelligence tasks on Amazon Mechanical Turk and Clickworker or offering software development or design skills via crowdsourcing platforms such as Upwork or 99designs.

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The basic philosophy of microworking is to delegate tasks in the form of an open call addressing an undefined but large group of people (Howe 2008). The pieceworkers complete tasks in batches. Employers can task these batches out through platforms such as Amazon Mechanical Turk. These tasks might consist of the remote completion of small digital tasks, such as transcribing a snippet of hand-written text, classifying an image, categorizing the sentiment expressed in a comment, rating the relevancy of a search engine result, or selecting the most representative frame in a video clip (Kittur et al. 2013; Lehdonvirta and Ernkvist 2011). Digital workers are not paid by working hours or hierarchical position. Rather, they are paid based on the timely completion of granular work tasks.

Because crowdsourced digital piecework is a recent phenomenon, there is relatively little research on the nature and effects of these emerging forms of work (e.g., Fish and Srinivasan 2011; Gehl 2011; Kittur et al. 2008; Silberman et al. 2010). Some researchers have examined the desirability and fairness of piecework performed in crowdsourcing systems (Fish and Srinivasan 2011; Kneese and Rosenblat 2014). Others have focused on working conditions, such as reportedly low wages (Ipeirotis 2010; Ross et al. 2010). Most digital service platforms function as spot markets, which are more temporary, part-time, remote, and mobile than standard work arrangements (Connelly and Gallagher 2004; Gregg 2011; Rainie and Wellman 2012). Platform-mediated self-employed laborers remain largely detached from organizational structures (cf. Ashford et al. 2007). The quality of the relationship between platform providers and workers remains contested. Platform providers exert significant influence over the quality and quantity of tasks available to microworkers as well as overall working conditions (Kingsley et al. 2015; Rosenblat and Stark 2015). Therefore, the perceived fairness of work facilitated by digital microworking platforms can be expected to be shaped by the features of these platforms.

In this article, we focus on the institutional environment constituted by these platforms, in particular microworking services. We analyze how platform characteristics affect the perceived fairness, labor conditions, and outcomes based on a qualitative survey conducted among 203 US workers active on the crowd-based service platform Amazon Mechanical Turk. Our analysis sheds light on digital laborers' evaluation of their working environment, their relationship with the platform provider, and workers' understanding of responsibilities for working conditions encountered on the platform. Through this example, we show that digital on-demand service platforms constitute a new institutional setting characterized by strong perceived power asymmetries. These asymmetries are associated with variations in influence, autonomy, or "voice," which ultimately affect the perceived fairness of the labor facilitated

by these platforms. We provide an in-depth analysis of workers' fairness perceptions by differentiating fairness dimensions and their respective antecedents. Finally, we derive initial policy recommendations aimed at bolstering the conditions of digital labor.

## Literature

### The Emergence and Design of Digital Labor

Digital and social technologies facilitate the emergence of new forms of digital labor, such as irregular unpaid forms of labor heavily relying on hedonic gratifications ("playbor") (e.g., Kücklich 2005), or remunerated crowdwork systems that rely on the distribution of work through open calls rather than assignment. Platforms enabling crowdwork range from outcome-based contest sites (e.g., 99designs for creative tasks or InnoCentive for research and development work), to microtasking platforms such as Amazon Mechanical Turk, to place-based labor or sharing systems, such as Uber for ride sharing, Airbnb for room sharing, or Taskrabbit for outsourcing small jobs and tasks (Cefkin et al. 2014). Platforms, thereby, differ according to the degree of digital mediation, with some platforms relying entirely on digital transaction, while others facilitating physical, offline transactions.

From the perspective of those requesting services, these new forms of digital labor have several advantages, such as efficiency through commodification and relative inexpensiveness given very low reservation wages (Aytes 2013; Fish and Srinivasan 2011; Kittur et al. 2008). From a labor perspective, some arguments have been made in favor of digitally mediated work. Above all, it might offer the potential for upward mobility in that it enables participation in better paid, safer, and more comfortable labor conditions (a) for workers in remote or socially disadvantaged locations, (b) for minorities based on anonymity, or (c) simply through offering more ubiquitous and flexible access to income.

However, critics argue that the specific institutional environment constituted by on-demand platforms could facilitate a large-scale, fast-moving, dispersed, anonymous, and highly mediated workforce (Fuchs and Seivignani 2013; Terranova 2000). As a result, the organization of labor and the provision of systematic dispute resolution are becoming more difficult (Irani 2013). Both recruitment and labor costs are minimal. Engaging with individual workers' concerns or demands, therefore, becomes an often untenable proposition for employers (Aytes 2013; Kleemann et al. 2008; Postigo 2003; Rieder and Voß 2010). On many platforms, workers have limited options of seeking recourse in cases of unfair treatment. Accordingly, digital

labor is held to be susceptible to a number of labor abuses (Burston et al. 2010; Fuchs and Sevignani 2013; Kneese and Rosenblat 2014).

One of the most discussed digital labor platforms, and the focus of the present research, is Amazon Mechanical Turk (AMT). AMT focuses on the mediation of microtasks, connecting “requesters” (employers/clients) with workers (micro-contractors) through their online platform. Micro-work is somewhat distinct from other paid forms of digital labor, such as the more proto-entrepreneurial sharing platforms or the more holistic contest platforms, as labor is broken down into small work packages that can be distributed among a digital workforce (Kittur et al. 2013; Paolacci et al. 2010). Many of the tasks allocated to microwork are, at least for the time being, too difficult, expensive, or simply impossible for computers to perform. The practice is thus often discussed as a form of human computation (Quinn and Bederson 2011).

AMT, as a platform, allows for a wide range of tasks to be defined by requesters. Both requesters and workers register on the platform. Both, however, remain almost entirely anonymous as their user profiles provide no personal information or features which allow for personalization. Workers are allocated an alphanumeric identifier, rendering the laborer invisible. Requesters are comprised of representatives of the academic community, start-ups, and entrepreneurial ventures, as well as, and to the greatest extent, large corporations and associated mediators outsourcing labor (Bergvall-Kåreborn and Howcroft 2014). Requesters choose screennames, beyond which workers receive little to no information on their identities or track records, whereas requesters may access metrics on the employment history of workers (Bergvall-Kåreborn and Howcroft 2014).

In everyday practice, the platform allows for only limited interaction between registered users. For example, it does not feature message boards or chat features for communication among requesters, workers, or both together. Critical voices have argued that these choices might be intended to masquerade human labor as more of a computational infrastructure and to discourage questions of ethical labor relations (Irani and Silberman 2013). Anonymity on AMT goes beyond a mere lack of name or face: The platform setup reduces worker visibility to an alphanumeric ID, which may just as well represent a software feature or “bot.” There are some community-driven initiatives to “rehumanize” the workforce that support “turkers” (AMT workers) both informationally and emotionally, as well as adding enhancements to the AMT interface, such as TurkerNation, Turkopticon, MTurkGrind, Reddit’s/r/HITsWorthTurkingFor, and Dynamo (Irani and Silberman 2013; Salehi et al. 2015).

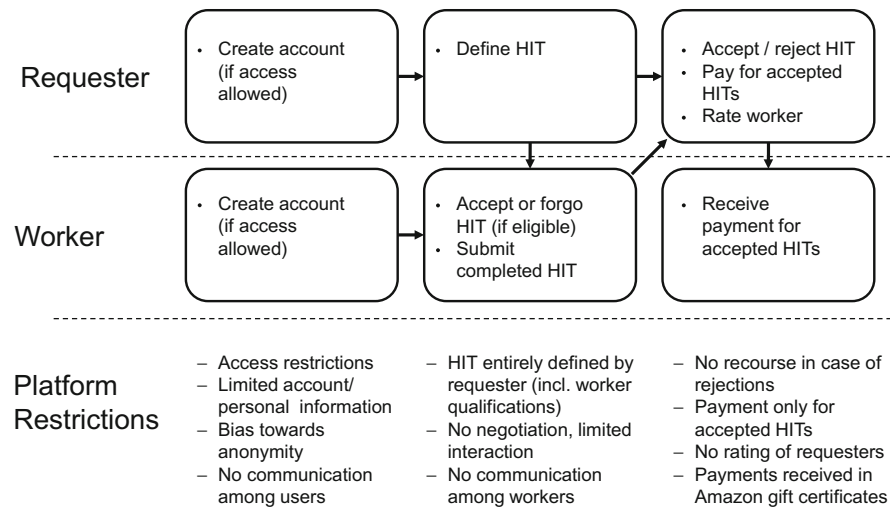
Registered requesters can publish tasks (HITs, or “human intelligence tasks”), including conditions such as payment/rewards, time allotment, HIT expiration dates, maximum number of workers and, if desired, qualifications demanded of eligible workers. Workers can then browse and accept these tasks. Workers can contact requesters with inquiries for further information, which the requester may or may not answer. The conditions published by the requester are not up for negotiation. They can be accepted by workers, or the HIT must be foregone. Upon accepting a HIT, workers can submit/send their work to the requester who will then accept or reject it. If a task is rejected by the requester, the worker will not receive any payment. The requester is not obligated to provide an explanation for a rejection. The platform offers only minimal mechanisms of recourse or conflict resolution in the case of a worker disagreeing with a rejection. Requesters can rate the quality of a worker’s submission, but the platform does not itself provide an option for workers to rate requesters. Rejections automatically reflect upon workers’ reputation. Workers are paid as independent contractors. They are not formally employees of either the platform or requesters. A schematic overview of the platform’s workflow is provided (Fig. 1).

AMT workers differ in both demographics and motivations. In their survey, Paolacci et al. (2010) found that very few digital workers engaged on Amazon Mechanical Turk actually rely on it as a primary source of income. Still, most participants conceded that earning additional money was at least one of the drivers that motivated them to engage in digital labor. Horton and Chilton (2010) showed that although some workers are price-sensitive, many are target earners, that is, they work to achieve an income target somewhat detached from the actual payout of a single task. Besides the monetary incentive, respondents stated that they found their digital work to be an entertaining and fruitful way to spend their leisure time. Similarly, Fuchs and Sevignani (2013) argued that workers may perceive digital labor as work and play at the same time.

### Fairness of Labor

A number of studies have analyzed the relevance of the fairness concept in a labor context (Cropanzano et al. 2001). An instrumental perspective holds that fairness is important due to material or economic considerations. In unfair labor conditions, workers risk being over- or under-rewarded compared to relevant others (Crawshaw et al. 2013). Such a state may be inefficient and unstable. Labor conditions must be fair to ensure reliable and optimal economic outcomes. From an interpersonal perspective, fairness contributes to the quality of social relations. As a

**Fig. 1** A typical microwork workflow and its challenges



result, individuals remain loyal and committed to an organization, even if the outcomes are less desirable, if the process of deciding on these outcomes is perceived as fair (Lind and Tyler 1988; Tyler and Lind 1992). Finally, from a deontic perspective, fairness is important for its own sake. Workers prefer to work in ethical environments, and fair work is considered more meaningful and fulfilling (Crawshaw et al. 2013).

Perceived workplace fairness is held to satisfy workers' socio-emotional needs (Lind and Tyler 1988). It is associated with employees' well-being and psychological health. Fair treatment has been shown to improve employees' trust in their management, increase their job satisfaction, and enhance their intrinsic motivation. Perceived fairness also improves employee retention. In contrast, unfair working conditions are judged by workers to be inferior to a potential conceivable alternative (Choi 2011; Kim and Rubianty 2011; Rubin 2009, 2011). This inferiority of current conditions must be caused by a responsible party: (Un)fairness implies accountability. Unfairness perceptions are derived from an implicit or explicit moral code, which frequently encompasses equality norms (Folger and Cropanzano 1998). Perceived unfairness may lead to moral outrage, which is held to be harmful to both workers and employers (Barling et al. 2009; Holtz and Harold 2013).

Workers' fairness perceptions have been conceptualized as encompassing three distinct dimensions: (1) Distributive fairness refers to the allocation of organizational rewards and resources among employees (Adams 1965), (2) procedural fairness refers to the fairness of formal policies and procedures used in allocation decisions (Leventhal 1980; Lind and Tyler 1988), and (3) interactional fairness refers to the quality of the interpersonal treatment employees receive from authorities in the implementation of formal

procedures (Bies 2000). More recent analyses have further differentiated the element of interactional justice into two sub-factors: interpersonal and informational justice. The former describes the dignity and respect workers receive from others, and the latter captures the level and quality of information and explanations as well as the accountability of authorities, as experienced in the workplace (Colquitt 2001).

Equality plays a crucial role in employees' perceptions of fairness in the workplaces (Colquitt et al. 2005). In the case of distributive and procedural fairness, employees generally consider the allocation of rewards to be fair when it is consistent with established norms, such as equity, equality, and need (Colquitt et al. 2005). Decision-making processes are in turn perceived as fair when they adhere to standards such as accuracy and consistency and when they are unbiased, correctable, representative, and ethical (Leventhal 1980; Thibaut and Walker 1975). Thus, the fairness concept is closely related to that of organizational justice, which more closely explores how and why organizations and managers are judged to be (un)fair by employees (Crawshaw et al. 2013).

### Applying the Fairness Concept to Digital Microwork

Most explorations of workplace fairness have been conducted in the context of offline work relations. Few studies have considered the elements, conditions, and outcomes of fair digital labor and particularly digital microwork. However, insights generated in the context of offline microwork may provide some guidance for the analysis of online microwork. Arnold and Bowie (2003), Arnold and Hartman (2005), and Zwolinski (2007) all focused on the voluntariness of sweatshop labor and the respect that workers inherently deserve for their choices. Accordingly,

interventions into the conditions of microwork in sweatshops are controversially discussed, with some labor rights organizations calling for minimum wages and standards in working conditions (Arnold and Bowie 2003; Maitland 1996). Motivation and voluntariness have also been addressed by previous analyses of online microworkers (Ross et al. 2010).

A concept considered in the context of both offline and online microwork is that of exploitation. Exploitation is defined as the harmful, merely instrumental, utilization of an individual or her capacities for one's own advantage or ends (Buchanan 1988, p. 87). It is closely aligned with the concept of *distributive fairness*. Accordingly, exploitation is easiest to identify when one party is materially harmed in a transaction. In many cases, although a transaction benefits both parties involved, one of them does not benefit sufficiently by some applied standard of equity or equality (Arnold and Bowie 2003; Zwolinski 2007). The allocation of a transaction surplus has been shown to depend on the social position and bargaining skills of the parties involved (Meyers 2004; Zwolinski 2007). Even if all parties' rights are formally respected, one party may become subject to exploitation due to limited bargaining opportunities or a systematically disadvantaged position in the bargaining process. Accordingly, in the case of online microwork, platform and process design may affect distributive justice and potential exploitation in the facilitated transactions, even if all parties' rights are clearly defined and respected.

*Procedural fairness* may also play a particularly important role in the context of digital labor as platforms may systematically limit the scope and outcomes of work negotiations. In open markets, fairness is held to be bolstered by the fact that competition ensures that no party may take unfair advantage of another (Wertheimer 1996). However, this assumption does not apply to markets with limited openness and institutional bias. A bias in the institutional setting of a market may systematically disadvantage one or several parties. The anonymity of market participants may be one such bias because exchange outcomes are held to be more equally distributed if market participants feel part of a larger community and account for the well-being of other members (Koehn and Wilbratte 2012). Anonymous spot markets, instead, may impede the development of the social capital necessary for such conditions. This should hold especially true for a platform such as AMT which drastically limits the personal information about workers available (or even cues as to their human nature) as well as networking or communication opportunities.

The party benefiting from institutional biases may wish to improve the fairness of a transaction when considering the conditions that render the other party disadvantaged or vulnerable (Snyder 2008). However, such corrections

presuppose that all parties are actually aware of institutional biases or disadvantages. This situation is more likely to occur if all parties frequently and openly communicate, an element that may be affected by the platform and process design in the context of microtasking platforms.

The last point indicates that *interactional fairness* may also be an important element of the fairness of digital labor. Interpersonal treatment, communication, and the sharing of information are certainly affected by the design and processes of microtasking platforms. In the context of virtual work, physical isolation was shown to decrease workers' perceived respect (Bartel et al. 2012). The ability of employees to raise concerns and negotiate the terms of an exchange has been termed employee voice (Van Buren and Greenwood 2008). Studies find that employee voice diminishes the less valuable and rare the skills provided by an employee are (LeRoy and Feuille 2002; Van Buren and Greenwood 2008; Witt 2000). Given that the requested worker skills are low cost, commoditized, and exchangeable in the context of online microtasking, employee voice (here rather: worker voice) can be expected to be weak. Employee voice also implies the ability to participate meaningfully in determining the terms of the employment relationship (Van Buren and Greenwood 2008). Online, these terms are largely set by the platform providers, which again limits digital workers' voice.

In addition, employee voice can be bolstered by the coordination of collectives (Budd 2004). Unionization and collective bargaining are common approaches to strengthening employee voice. As noted above, collective bargaining is highly unlikely to occur in anonymous, fluid, and highly competitive spot markets, such as microtasking platforms. Finally, employers or clients can have more or less power over the terms of employment relationships. Because online marketplaces are associated with network effects, a few powerful platform providers are likely to emerge, thus limiting the power of individual clients/requesters and other stakeholders (cf. Freeman and Evan 1990).

In summary, the specific conditions and institutional environment of digital microwork facilitated by on-demand service platforms may affect all three dimensions of workplace fairness: distributive, procedural, and interactional fairness. The market dynamics, design, and processes of microtasking platforms may serve to increase the risk of exploitation, institutional biases, and limited employee voice. Furthermore, the motivation and voluntariness of workers may play a key role in the analysis of digital labor fairness, similar to offline microwork settings. Even if labor conditions can be considered disadvantageous to online workers, digital labor may be considered desirable and dignified if it is framed as voluntary, episodic, and hedonic. Workers may construct positive role

concepts and identities that ensure dignity despite challenging work conditions (Dutton et al. 2010; Hodson 2001; Lucas 2011).

Our following empirical analysis of fairness perceptions in digital labor encompasses three elements. First, we differentiate workers' perceptions of the mediating platform, focusing on workers' awareness of the role of the platform in shaping working conditions. We analyze how workers frame and describe their relationship with the platform provider. Second, we explore the propositions developed above by analyzing the effect of the institutional setting of digital on-demand service platforms on workers' fairness perceptions. Third, we report on suggestions for improved fairness put forth by the interviewed microworkers, and, on this basis, reflect upon policy ramifications.

## Research Design

Our study aims to describe and understand microworkers' perceptions of working conditions on digital on-demand service platforms. We were primarily interested in workers' perceptions of fairness, possible subjective frustrations, and points of action as perceived from the workers' point of view. We invited workers on the online crowdsourcing platform Amazon Mechanical Turk (AMT) to elaborate on their understanding of fair digital labor. We recruited 203 participants, all of whom were experienced members and located in the USA. The call to participate in the survey was announced on the platform itself. We specifically selected members who had completed over a thousand tasks (HITs, or "human intelligence tasks") at the time.

We asked participants to fill out an open-ended questionnaire that contained questions about their work experiences. The questionnaire consisted of two parts. In the first, more general, part, we asked participants whether they had ever felt unfairly treated and asked them to describe these instances. The participants were then asked to elaborate on what exactly they considered to be unfair in these instances and to describe how they reacted to this perceived unfairness. The second part focused explicitly on the role of the platform and its design features in shaping workers' fairness perceptions. More to the point, we asked participants (1) to describe their relationship with the platform; (2) to describe characteristics of a fair transaction on a microworking platform; and (3) to offer suggestions on how the platform provider might be able to increase the fairness of transactions. The goal of this split questionnaire design into a general and a specific section was to first assess workers' unprompted awareness and reflection of the platform provider's role in shaping microwork experiences, before delving further into the specific perceptions

of the platform provider's responsibilities. It took participants between 5 and 55 min to fill out the survey, with an average of approximately 13 min.

The analysis was performed by three researchers with expertise in business and information systems research. Following a content analysis approach based on the framework laid out by Colquitt (2001), participants' comments were analyzed for cues pertaining to perceived (un)fairness, descriptions and attributes of work relationships, and suggestions for improved fairness (open coding). All comments were read thoroughly and independently multiple times by the members of the research team. Each team member identified and listed recurring themes in the data and extracted a smaller subset of data representing textual units relevant to the salient phenomena (Wolcott 1994). The emerging themes were differentiated into categories based on similar characteristics and associated with illustrative comments (Lindlof 1995). Selective coding was facilitated by qualitative data analysis software MaxQda to tag, sort, and retrieve data (Miles and Huberman 1994). The results are presented below.

## Analysis

### Workers' Relationship with the Platform

How aware are workers of the platform provider's role in shaping working conditions on AMT? We find that workers' fairness perceptions are often initially shaped by their interactions with requesters, as most descriptions of perceived unfairness on AMT relate directly to requester behavior (e.g., unjustified rejection of work, lacking feedback, low pay). At the same time, many respondents do not necessarily expect requesters to act fairly and behave responsibly toward their "ultra-short-term employees" on their own. Instead, they look to the mediating platform (1) to ensure sound transactional processes; (2) to prevent abusive behavior; and (3) to act as an arbitrator in cases of conflict. These findings indicate that, for many workers, their relationship with the platform provider is more than simply transactional: It is more nuanced and complex. To provide an overview of these complex relationships, we categorized the various role concepts ascribed to the platform by the interviewed workers based on their social valence as (1) positive, (2) negative, (3) mixed, (4) neutral, or (5) non-descript (Table 1).

Among the positive role concepts, participants describe the platform as a "friend in times of need," a "benefactor," and an "equal." Here, individuals may feel that they owe the platform for providing them with an opportunity for work where traditional sources of income are unavailable. These sentiments of gratitude range from being mildly

**Table 1** Relationships toward the platform

First-order dimensions	Second-order themes	Representative data
<i>Positive relationships</i>		
(54% of respondents described their relationship toward the platform as overall positive)	Friend in times of need	W21 “[the platform] has helped us get along in hard times”
		W95 “[the platform] has been a lifesaver for me. It has provided me with just enough income to supplement my other job and keep me from going under financially”
		W73 “Its my lifeline. I hurt my back 3 years ago, [...] mturk gives me the tools and chance to earn money to pay my bills and buy food”
	Benefactor	W80 “The relationship I have with [the platform] is growing each day, and I’m extremely thankful for the opportunity to be able to use my time constructively at home to earn some money”
		W71 “I love [the platform]. It gives me something to do, and make some extra money at the same time. I don’t know what I ever did without it!”
		W99 “I feel a loyalty to [the platform], and even though it has a few issues I will stick around because overall I believe it is a good service”
		W155 “I have a strong bond with [the platform] and there is a mutual respect”
	Equal	W191 “I think they value me to the same degree I value them”
	<i>Negative relationships</i>	
(8% of respondents described their relationship toward the platform as overall negative)	Exploiter	W131 “Honestly, I hate it. [The platform] has given me some money - but it’s degrading”
		W175 “I wouldn’t say it’s the friendliest thing, I don’t feel like it’s very pro-worker”
	Necessary evil	W68 “It’s a service I use out of necessity, but I have no love for it. It’s a necessary evil”
	Negligent parent	W115 “I feel like an abandoned child. They set up this framework to do things on, which is great, but since then I have hardly felt their presence at all”
		W108 “They never really communicate with me [...]. In a lot of ways, it feels like I am totally on my own, and they are just reaping the financial benefits from my interactions with requesters”
	Untrustworthy partner	W149 “Some days I feel like [the platform] is like a horrible, seedy bar in the bad part of town where it’s hard to tell whether someone will offer me a job or knife me”
	Money-making machine	W123 “I am A35STI4M49LR60. I am an anonymous cog in a money making machine. My hiring and firing is probably almost completely automated and devoid of human oversight”
		W90 “I am just a statistic to them; a cog in the machine that can be replaced if necessary”
		W132 “Let’s face it—I’m just a cog, and compared to people racking up hundreds of HITS a day, a teeny tiny cog at that”
	<i>Mixed relationships</i>	
(13% of respondents described their relationship toward the platform as mixed)	Party in love-hate relationship	W159 “It’s a love-hate relationship like other jobs. Some days I love working and finding new and interesting hits to work on. Other days I can’t force myself to log on even though I need money”
		W202 “It’s a bit of a love-hate relationship at best. [...] Workers are disposable, as there’s always SOMEONE that’s willing to work for less. It’s a bit of a race to the bottom”
		W177 [My relationship with the platform is] positive, but strained based on confusion and resentment”

**Table 1** continued

First-order dimensions	Second-order themes	Representative data
<i>Neutral relationships</i>		
(16% of respondents described their relationship toward the platform as neutral)	Transactional facilitator	W103 “Okay. They have money. I want money. Simple as that” W63 “It is a tool that makes me earn a pocket change whenever I feel like it” W193 “I really don’t think of [the platform] as an employer. They are simply the ‘middle man,’ it seems; as long as they facilitate my payments, I am satisfied with them”
	Employer	W6 “It is very much a boss and employee relationship” W16 “I’m a worker and they’re my employer”
	Party in win–win relationship	W106 “It is a mutually beneficial relationship, but [the platform] obviously has the upper hand” W87 “It’s a win–win relationship. I profit from the quizzes by making money, and the posters on [the platform] get the responses they need” W91 “It’s a good relationship where we both get something out of it. Almost like a business” W144 “It think it’s a give and take relationship. It’s one that you get what you put in”
<i>Non-descript relationships</i>		
(14% of respondents described their relationship toward the platform as non-descript)	Mute entity	W124 “I would describe [my relationship with the platform] as non-existent. Any time a worker has a question, they receive a standard and canned auto response” W126 “[There is] not much of a relationship as they rarely answer any questions you send them” W31 “[My relationship with the platform is] very distant. I use it for extra money, but communication between us is lacking”
	Arbitrary authority	W86 “A lot of (...) accounts get suspended (some even after 3 years of use!) without any reasoning or ability for the people suspended to communicate with someone at [the platform]” W54 “The masters process is unnecessarily opaque, and the system is stacked in favor of bad requesters” W98 “It doesn’t seem like they care that much for workers based on the fact there is no information on how they decide to grant someone Masters or why they will randomly delete accounts”

positive, in the sense that individuals are “glad” that the platform exists as a source of income, to being enthusiastically positive such that individuals see the platform as a “lifeline” or even a “lifesaver.” Another group describes their relationship with the platform as one of mutual respect, where both parties value each other equally.

Among the participants who harbor negative sentiments toward the platform, it is described as an anonymous “money-making machine,” as an “exploiter,” as a “necessary evil,” and as a generally “untrustworthy partner” or even as a “negligent parent.” The wide variety and colorfulness of negative attributes ascribed to the worker–platform relationship stands in contrast to the limited portion of users who actually report a poor relationship with the platform. Given the frequently fleeting and limited relationship of microworkers with the platform, it should be expected that dissatisfied workers would tend to leave

the platform and pursue other interests or sources of income. Because we sampled only experienced and active microworkers, those with negative perceptions of the platform might face a lack of alternatives and thus feel particularly vulnerable to the platform, resulting in strong affective responses.

Not all relationship descriptions can be clearly ascribed positive or negative qualities. In some cases, the relationship is characterized by both positive and negative qualities. Here, the bond between worker and platform is described as a quintessential love–hate relationship. In other cases, users feel that neither positive nor negative attributes are applicable. These neutral relationships include descriptions of the platform as a “transactional facilitator,” as an “employer,” or as a “party in a win–win relationship.” These rather neutral (neither clearly positive nor explicitly negative) relationship descriptions are most



in line with the notion of the platform as a spot market that provides little more than an efficient environment in which transactions can occur. Participants who describe neutral platform relationships focus on a rational trade-off between the time and effort invested and the monetary gains or entertainment value received from their platform engagement.

Some participants also note that their relationship with the platform suffers from a lack of communication. As such, they feel that their relationship toward the platform is distant or non-descript. In these cases, respondents describe the platform either as a “mute entity” or as a “arbitrary authority” that acts on its own accord following a set of seemingly opaque norms or rules.

Figure 2 presents a differentiation of relationship characterizations based on the positive or negative connotation of the applied descriptions and the personalization of the relationship (ranging from personal and emotional relationships to anonymous and rational relationships). Few participants reflect upon the powerful role that the platform takes in determining inequalities and workplace fairness by designing the features and processes underlying all transactions. Unsurprisingly, such considerations are most common for workers who feel dissatisfied and describe a strained relationship with the platform.

Next, we turn to interviewees’ descriptions of critical instances in which working conditions on AMT were perceived as unfair. Based on these accounts, we identify antecedents of workplace unfairness. We differentiate these insights along the fairness dimensions discussed above.

### Perceived Unfairness of Digital Labor

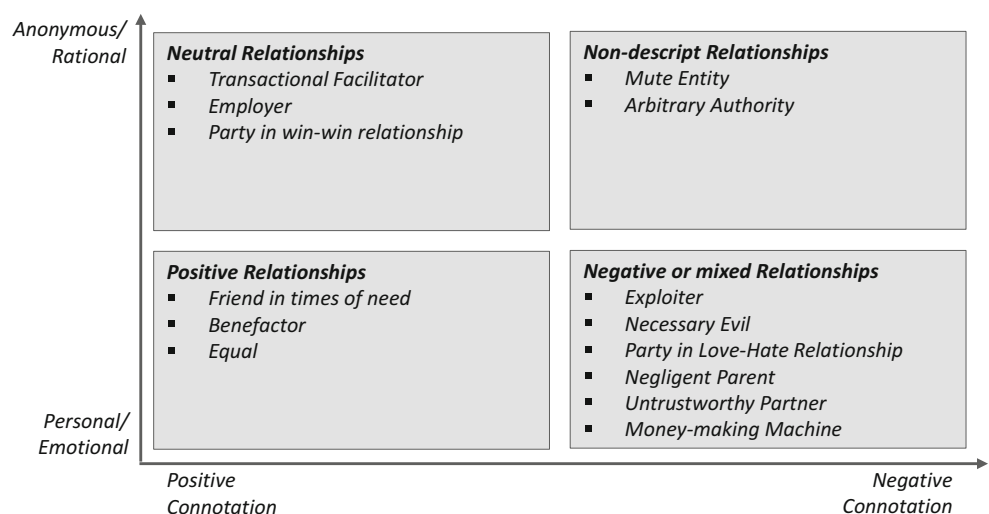
We find a number of common themes that emerge from the descriptions and examples provided by the participants.

These themes can be differentiated as addressing (1) the allocation of rewards and compensation (distributive fairness); (2) formal policies and procedures (procedural fairness); and (3) interpersonal treatment (interactional fairness), as displayed in Table 2.

Distributive fairness plays a prominent role in workers’ fairness perceptions. The element of voluntariness appears particularly salient in demarking unfair or even exploitative transactions. A number of workers report that they are materially dependent on the work performed on the platform rather than engaging in microwork as a mere side job or an opportunity to earn some additional money. Framing microwork as a form of full-time employment directly affects the criteria applied to the fairness of working conditions.

Another key element of workers’ fairness perceptions is the evaluation and acceptance of their work. Workers find it unfair if their work is rejected and payment is withheld without what they feel is an adequate explanation. The platform does, in fact, allow requesters to reject work deemed unsatisfactory and withhold payment with only minimal or no explanation provided. The effect of this platform feature may be perceived as harsh since, in non-digital workplaces, criticism or rejection of work would commonly be associated with an explanation or reason. Rejections without such explanations could be perceived as a symbol of disrespect or as a sign of power imbalance: Requesters need not bother providing reasons for their work evaluations. Also, working conditions in the digital workplace appear to be characterized by small tolerance for mistakes, which may be unfamiliar to some workers. Some criticize that the platform, in mediating digital work, severely limits the scope and potential outcomes of negotiations: Workers can accept tasks and supply results, while requesters can define and allocate tasks, as well as accept or reject results. These basic platform settings also limit the

**Fig. 2** Classification of platform relationships



**Table 2** Fairness perceptions

First-order dimensions and second-order themes	Definition	Representative data
<i>Distributive fairness</i>		
Remuneration (42% of respondents described this dimension as their prime concern)	<p>The perception that requesters undervalue workers' hard work and exploit them as a cheap source of labor</p> <p>On a more subjective level, the feeling that independent of the final result—which may or may not be rejected by the requester—the effort put into a certain task should also be rewarded in some way</p> <p>Many participants report that they do not see themselves in a position to simply walk away from a potential source of income, however small it may be</p>	<p>W9. “We are working in many cases for slave wages”</p> <p>W81. “\$.02 for a task that takes half a minute to do is slave labor”</p> <p>W94. “Even though the work is cheap on [the platform], we are not slaves and the time that we spent should be compensated”</p> <p>W70. “Everyone should be paid a fair, living wage for their time and efforts”</p> <p>W11. “While I do not expect to be able to retire of the work I do on Mturk I do think that hits should pay out at least close to minimum wage”</p> <p>W54. “Obviously, these people have no obligation to guarantee that I have a decent standard of living, but I think they do have an obligation to pay me at least US minimum wage”</p> <p>W49. “There have been some [tasks] rejected that I feel like I made a good faith effort on”</p> <p>W57. “I’ve gotten rejections for ridiculous things that I’ve put my honest effort and time into”</p> <p>W54. “When [requesters] attempt to justify [low pay], they usually cite (a) low funding, and (b) the fact that workers are ‘willing’ to work for below minimum wage”</p> <p>W7. “I have a chronic health problem that makes it impossible for me to work outside the home. [...] Obviously there is some degree of choice involved in the alienation of one’s labor, but it’s hardly a free choice when [there is no viable alternative]”</p> <p>W77. “Although I do have the choice of NOT taking those jobs, sometimes there is nothing else and you are forced to do them if you need the income”</p> <p>W44. [Wages may be] unfair, but if someone agrees to work the task, it was obviously fair enough for them”</p>
<i>Procedural fairness</i>		
Transparency (13% of respondents described this dimension as their prime concern)	Workers complain about requesters who either offer poor compensation or provide an inaccurate estimation of the time needed to complete a task	<p>W97. “There have been times that requesters have turkers like me working for less than a dollar an hour. It is robbery pure and simple”</p> <p>W8. “I have encountered many hits with abysmal pay for a large amount of tedious work”</p> <p>W20. “[Work was] way underpaid and [requesters] downright lied about the time needed”</p>

**Table 2** continued

First-order dimensions and second-order themes	Definition	Representative data
Dispute settlement (15% of respondents described this dimension as their prime concern)	The way disputes between workers and requesters are handled. Workers feel unfairly treated when they see no procedural means to hold requesters accountable for unfair behavior, such as the unjustified rejection of completed work, late payment, the unwillingness to offer feedback or the provision of faulty or incomplete task descriptions	<p>W94. “The workers are at the mercy of the requesters and we have no way to show our grievances.” (...) “Requesters can get away with murder, workers not so much”</p> <p>W11. “When I wrote Amazon explaining the situation all I received back was a form email stating that Amazon does not interfere in these things and that I should contact the requestor”</p> <p>W41. “There should be a recourse for us workers to use if we come across a scammer requestor who is making people wor[k] for free by mass rejecting hits under false claims”</p> <p>W10. “The guy was using mTurk to scam up for answers for his own research company without paying us”</p> <p>W100. “Amazon should have a way for turkers to report requesters who are scammy or fraudulent”</p> <p>W83. [I feel] somewhat angry and frustrated, especially since there is no recourse through Amazon mturk. Workers have no protection in unfair circumstances</p>
<i>Interactional fairness</i>		
Feedback and respect (24% of respondents described this dimension as their prime concern)	The perception that interactions with requesters on the platform are not just an economic transaction but also a social relationship. As such, workers expect requesters to treat them with dignity and respect and not merely as a resource	<p>W61. “In my opinion requesters need to treat turkers with the same respect they would treat members of their own research teams”</p> <p>W95. “Many requesters think that because we aren’t ‘real’ employees that we don’t deserve fair wages”</p> <p>W15. “Realize there are real people completing the tasks on mTurk”</p> <p>W98. Some requester’s should think of workers on mechanical turk as humans [...]”</p>

negotiation opportunities of requesters. Workers feel that they systematically find themselves in a weaker bargaining position because the power to sanction perceived misbehavior rests squarely with the requesters.

As the dependence of workers on wages earned by online microwork increases—in other words, as the voluntariness of the work becomes more limited—workers perceive the power imbalances in the requester–worker relationship as more egregious. Some even express moral outrage. In such instances, workers criticize that although the platform allows requesters to withhold payment, workers do not command a similarly powerful instrument of sanction. In this context, workers also point out a perceived unfairness in the job allocation process as facilitated by the platform. Requesters can rate the quality of the results submitted by workers, and the resulting metric serves as a signal of the quality and reliability of a worker. Workers, in turn, do not have an equivalent opportunity to rate the quality of requesters. Even if they did, workers

expect that the sheer imbalance in the number of requesters versus the number of willing workers would render such a metric largely ineffective. As requesters choose from a large list of willing workers (i.e., members of the crowd), they more heavily rely on quality signals, rendering rating mechanisms more powerful.

Some respondents choose harsh tones to express feelings of impotence due to the perceived power imbalance in the requester–worker relationship. The moral outrage expressed by these workers, such as using a comparison with servitude, may be aggravated by the fact that financial compensation is the only tangible measure of their work’s value. It could be hypothesized that workers who receive “abysmal pay” and feel “robbed” of their fair compensation not only find their work to be undervalued but also feel undervalued as a person. This effect would be facilitated by the fact that workers remain largely anonymous: The platform does not support the personification or humanization of users or the establishment of strong ties among users.

We had proposed that the lack of transparency on digital platforms might lead to perceptions of procedural unfairness and that transparency regarding the conditions and outcomes of transactions for all parties involved might lead to both more conciliatory behavior on the part of requesters and a more coordinated and determined stance on the part of workers. Indeed, workers criticize a lack of transparency in platform-mediated transactions. In some cases, requesters are said to not fully or appropriately describe the effort associated with a task. In other instances, requesters are criticized for rejecting work without an adequate explanation. Commonly, workers' displeasure turns against requesters and in some instances requesters are even accused of "lying" or deceiving workers. A lot of this criticism can be related to platform features, as AMT does not allow workers to communicate with others on the same task, permit the request of detailed job descriptions, encourage the feedback of workers, or provide reputation mechanisms which would apply to requesters.

In cases of conflict between requesters and workers, many interviewees express a wish for clearly defined dispute resolution and arbitration processes. Many consider the platform to be a neutral party that could be appealed to in cases of conflict. As reported by respondents, in its communication with workers, the platform provider does in fact claim a neutral position in that it refuses to interfere in conflicts. However, it could be questioned whether the processes established and designed by the platform are in fact neutral in their effect. For example, the lack of a means of recourse for workers in cases of unfair treatment by requesters is a setting determined by the design of the mediating platform.

Finally, interactional fairness is also affected by platform features, such as the dispersion and anonymity of the digital workforce. Because the microwork platform is set up as a spot market, the voice and visibility of workers are limited. The personalization and humanization of workers vis-à-vis requesters are curtailed by the lack of personal profiles, names, pictures, or the like. Additionally, networking or community building among workers is not technically supported, thereby limiting their ability to communicate and coordinate. The anonymity of the online context may encourage opportunistic and potentially even exploitative behavior. However, it also appears to affect the perceived dignity and self-worth of workers. Many participants report that they experience being treated as a commodity as humiliating and disrespectful.

The next section will explore potential measures aimed at increasing workplace fairness on digital on-demand service platforms as suggested by the interviewees. These suggestions further highlight the perceived role of the platform in facilitating fairness as well as the most salient antecedents of fairness perceptions.

## Suggestions for Increasing Platform Fairness

Respondents share a number of propositions aimed at improving the perceived fairness of digital labor. Many of these propositions apply to platform design features. However, we find little evidence of critical reflection among workers on why the platform currently does not provide the desired features. After all, some features demanded by workers to alleviate power imbalances and improve workplace fairness may conflict with the platform's interests. We report the most salient suggestions in Table 3. Many suggested features or solutions touch upon the basic quality of the work conducted on digital platforms. We identify a trade-off between microwork as either a transaction or occupation. Some workers consider their work to be a regular occupation, with the platform acting as an employer, whereas others consider themselves to be more of a customer, calling on the service provided by the platform.

Because most concerns regarding workplace fairness, as expressed by the participants, address remuneration, compensation also emerges as a prominent theme in their discussion of possible avenues to increase fairness. Respondents' discussion of fair compensation encompasses both an objective and subjective component. On an objective level, a number of respondents demand that platform-mediated work should be rewarded according to clear and transparent standards, such as national and regional minimal wages. However, although most digital laborers agree that microwork platforms should enforce minimal payments for the time and effort invested, the opinions vary greatly with regard to the amount considered adequate. In practical terms, wages tied to time investment could be undercut by requesters' misrepresentation of the time needed for task completion. More elaborate monitoring mechanisms of the actual time needed could in turn exert additional pressure on workers and could intrude on their privacy. A more intermediated step toward fair compensation could be the stricter sanctioning of the deliberate or inadvertent misrepresentation of the time needed for tasks based on feedback mechanisms.

A number of respondents describe their platform engagement as a regular, ongoing occupation. As these workers become engaged on the platform for longer periods of time, they wish more for opportunities of advancement or perks that come with seniority, such as primary access to tasks. Many seasoned workers report giving valuable and frequently uncompensated services for the platform, such as coaching newcomers, helping requesters improve task designs, and identifying violations of platform norms. These descriptions indicate the development of an organizational citizenship (cf. Yen et al. 2011). Some workers even design and maintain forums and custom feedback software.

**Table 3** Suggestions for increasing platform-mediated fairness

First-order dimensions and second-order themes	Definition	Representative data
<i>Distributive fairness</i>		
Minimum remuneration (19% of respondents identified this theme as their primary point for action)	Enforcing a minimum wage—which is difficult to measure because the actual wage is dependent on the task completion time—might reduce overall business and might act as a psychological overall wage ceiling that is nonetheless comparatively low	<p>W122. “Ideally, I think a sort of agreed upon pay scale would be nice. I think a lot of requester take advantage of free work from people that don’t know better”</p> <p>W33. “I feel impotent. We cannot come together, because there is always someone who will accept a HIT that takes 1 h and pays .50 (yes, fifty cents). As long as people are willing to work for less than a dollar an hour (...) well, we cannot demand higher wages”</p> <p>W140. “Well, my main complaint relates to my dream or vision, that the earnings would approximate a legal minimum hourly rate. That would get us a long ways toward a fairer system”</p> <p>W156. “I’m not entirely sure what could be done without sacrificing versatility on the requester side of things. Because, you know, (the platform) could make a pay standard for certain types of jobs, but that would hurt the requester side of things. And ‘fairness’ can be subjective depending on who you ask. Some people would say \$1.00/h is really bad, others would say anything under \$6.00/h is bad. As long as both worker and requester consider transactions to be fair, I think it runs smoothly enough”</p>
Professionalization (4% of respondents identified this theme as their primary point for action)	Finding paths for workers who spend good effort on the platform to advance, or giving workers primary access to tasks. Despite remunerating important platform stakeholders, this creates barriers to access to newcomers and disputes about the exact route to advancement	<p>W76. “There should be multiple tiers of workers, based on seniority and acceptance rate, and going up a tier should offer increased access to (the platform’s) support”</p> <p>W62. “Workers (should have) more of an opportunity to earn special qualifications so that the work can specifically qualify for many different types of tasks. (For instance,) allow workers who have high volume and a high approval rate to have a specific time period to receive high-paying jobs before they are assigned to other workers”</p> <p>W58. “New (workers) should have more ways to accomplish their goals just as much as seasoned (workers). More opportunities to better ourselves and our chances to get good (tasks)”</p>
<i>Procedural fairness</i>		
Increased transparency (26% of respondents identified this theme as their primary point for action)	Increase the information content of the platform, particularly with regard to information about requesters and their record of accomplishment while not invading the privacy of all parties involved	<p>W59. “(The platform) should implement a requester rating system in the same way that workers have approval ratings, masters, etc. Bad and scammy requesters should be able to be seen in the system by default instead of having to use third party services”</p> <p>W81. “I’d love to see a reputation system as part of things. Requesters who want to dramatically underpay or misrepresent their work could continue to do so, and the free market could decide whether to do their work. Similarly, workers who do shoddy, bad work could be easily excluded by requesters using a system like that”</p>

**Table 3** continued

First-order dimensions and second-order themes	Definition	Representative data
Dispute settlement (21% of respondents identified this theme as their primary point for action)	More feedback on the reasons for rejection, measures to appeal unjust decisions and impartial systems to resolve disputes. Given the low-cost nature of many tasks, this has to be balanced with the level of elaboration of the dispute settlement system	W3. “(The platform) could create a system that provides feedback on why a person was rejected. This would require the requester to give reasons to people rather than a rejection or a block. (...) This would make a one sided system more two sided and weed out the bad workers and the bad requesters W118. “I have thought a lot about this and I don’t what they could to be fairer to us without hurting their business. In the beginning, you could not even get unfair rejections reversed when the requester wanted to do the right thing. That was a very nice change”
Workers’ representation (18% of respondents identified this theme as their primary point for action)	Establishing some type of workers’ representation that is consulted about the platform and its organizational design and has some rights in enforcing the implementation of related decisions. The establishment of such a forum should not be discriminated against, and the representatives should be compensated for their efforts	W175. “I think Amazon needs to have a third party involved to deal with workers being treated unfairly. Basically a worker is at the mercy of the requester and it is very difficult to get (the platform) to do anything” W108. “Have a genuine way for workers to raise complaints, such as having a council that can make decisions and handle complaints of workers that get elevated to their level rather than just leaving it all to (the platform’s) generic cookie cutter response system” W135. “People talk about unions, but I don’t see it happening here. It’s an online workspace that could potentially be opened up to the entire world. How do you unionize the world? Globalization has made it very difficult to unionize workers, which is one of the reasons the system was created in the first place. Why do you think they outsourced so many jobs to other places? It’s because they work cheap and don’t have unions”
<i>Interactional fairness</i>		
Humanization (3% of respondents identified this theme as their primary point for action)	Make parties realize that workers are not code and software but human beings with their dignity. Balance this with the appeal of a rather anonymous spot market service as one of the central business propositions, and appeal to many workers	W120. “Start treating us like actual human beings instead of magical computers that get work done” W17. “(The platform) needs to consider its workforce a collection of human beings with needs and act accordingly, rather than looking at the transactions as an open market that happens to pay for use of its server space”

Notably, the mere level of compensation provided on the platform is not at the forefront of the interviewees’ suggestions. Instead, most propositions address aspects of procedural fairness, highlighting the importance of the features and processes enabled by the platform provider. Most frequently, workers wish for increased transparency on the platform, particularly in providing additional historical data on requesters. Currently, without the help of third-party software, workers receive very little information on requesters. Although requesters are invited to rate the quality of workers, equivalent reputation mechanisms to rate requesters are not in place within the framework of the platform itself.

Workers frequently call for a system of arbitration or conflict resolution to which they could have recourse if requesters treat them unfairly. Such a system of arbitration would also entail effective measures for sanctioning ill-behaving requesters. As is, sanctions are nearly exclusively applicable to workers, for example, by requesters rating unsatisfactory services or even withholding payment. Workers look to the platform, above all, to foster a fair and sustainable work environment by providing such a system. Of course, extensive systems of arbitration may significantly undercut the viability of micro-work platforms’ business models, as the allocation of micro-tasks requires minimal transaction costs.

A number of workers express a wish for some form of representation: An opportunity to organize their interests and coordinate their demands. In many cases, interviewees advocate for some mechanisms to systematically give input into platform design and management decisions, indicating a clear understanding of the crucial role platforms play in determining the fairness of digital work. This mechanism could take the form of a council of lead users, worker representatives, or some form of open crowdsourced consultation. Workers also wish for some ways to hold platform operators accountable for implementing the changes to the platform design and processes agreed upon in a timely manner. Allowing such a form of representation would not necessarily be at odds with today's platform setups, as providers do strive to improve their services and crowdsourcing suggestions for improvement is not uncommon in online services.

Finally, a number of participants' comments indicate that the personalization or humanization of the working relationships facilitated by the platform would serve to increase interactional fairness. Matters of self-esteem and dignity are in play when workers feel they are being treated as a replaceable commodity. Workers who frame their platform engagement as a regular occupation struggle to find role concepts ensuring dignity and allowing for pride. Yet such suggestions do go to the heart of the notion of human computation and may prove difficult to implement.

## Conclusion

A number of observers have warned that the emergence of digital labor might lead to the development of a new digital precariat. According to these analyses, digital labor markets transfer risk and insecurity onto workers, dissolve social contract relationships between employers and employees, and weaken the work-based identity, cohesion, and pride of workers (Lloyd and James 2008; MacKenzie and Forde 2009; Potter and Hamilton 2014; Standing 2011). At the same time, digital labor platforms do not necessarily facilitate the outsourcing of previously secure and well-paid jobs to an amorphous crowd of online workers alone. For some, the ubiquity as well as anonymity of digital labor platforms may create access to jobs previously unattainable, for example due to spatial restraints, disabilities, or discrimination (Hollister 2011).

International platforms, especially, may allow access to relatively high-paid, safe, and comfortable jobs for workers abroad. Given a global perspective, many workers may gladly exchange highly standardized "offline" piecework with the flexibility and wages provided by piecework on digital on-demand service platforms. It should also be noted that,

through a reduction in transaction costs, digital labor platforms facilitate the allocation of paid jobs previously too complex or fine-grained to contract out. Thereby, digital labor platforms do not merely soak up or replace existing corporate jobs, but also allow for the emergence of new jobs that could not exist in a pre-digital economy. Given this complexity, the chances and challenges associated with digital on-demand service platforms need to be carefully examined. In this study, we set out to explore the fairness perceptions of workers active on the digital microwork platform Amazon Mechanical Turk.

More specifically, we analyzed how the specific institutional setting of crowdsourced digital microwork affects fairness perceptions in the workforce. Our study focuses on the triadic relationship between employers (requesters), workers, and the platform provider. At first glance, microworking platforms simply facilitate work contracts between requesters (in the role of employers) and workers. Accordingly, most instances of unfair treatment noted by workers refer to misbehavior on the part of requesters. However, focusing the analysis of perceived unfairness on the requester-worker relationship would ignore (more than) half of the story. By designing the platform, its features, processes, and affordances, the platform provider plays a key role in determining the antecedents and characteristics of (un)fairness in digital labor. In the case of the observed platform, we find a number of biases ingrained in the platform design, resulting in power imbalances between requesters and workers that ultimately affect the perception of distributive, procedural, and interactional fairness.

Notably though, most interviewed microworkers report an uncritical, even positive view of their relationship with the platform. Many do, in fact, appreciate the opportunity offered by the platform to earn additional money over a short period of time. As a result of this transactional relationship, many workers ascribe to the platform provider the role of a neutral party, an arbitrator between requesters and workers. We find that workers most critical of the role played by the platform frequently report a stronger dependence on the wages earned and a limited level of voluntariness in their platform engagement (cf. Ross et al. 2010). Thus, workers' relationships with the platform vary significantly in depth and quality, with important implications for the perceived fairness of digital labor.

We identify three distinctions in the perspectives applied to digital on-demand service platforms that strongly affect the fairness perceptions of digital labor:

1. *Framing of working relationship* Is digital labor seen as the hedonic, selective use of an online service or as full-time quasi-employment with a corporation?
2. *Role concept ascribed to provider* Is the platform provider understood as a mere service facilitator or as an ersatz employer?

3. *Positioning of the online service* Is the service facilitated by the platform marketed as a computational service or as the mediation of human work?

Our analysis reveals a varied perception of the platform under consideration among the workforce, with some leaning toward the first and others toward the latter of these options. Most workers are occasional users who appreciate the service provided by the digital platform. Accordingly, the platform is seen not as an employer but as a facilitator of contracts. Yet some, more heavily engaged and considering “turking” to be their full-time job, may even be dependent on the income provided by the platform. These users frame the platform provider as more of an employer and accordingly apply more demanding criteria to the perceived fairness of the working environment. The platform itself, in turn, does tend to market itself as a convenient, low-cost provider of computational services. As a result, community building, identification, appreciation of workers, or the creation of social capital does not appear to be priorities, as can be deduced from a lack of platform functionalities in that regard.

Given its positioning, AMT can be said to be geared toward attracting a temporary, part-time, and dispersed workforce rather than full-time employees (cf. Hollister 2011; Rainie and Wellman 2012). As economic studies show, such transactional settings tend to be characterized by opportunism risks and are therefore governed by strict rules, explicit contractual obligations, and rigorous monitoring rather than trust and social capital (Beccerra and Gupta 1999; Noteboom 1996; Ouchi 1980; Williamson 1981). Unsurprisingly, more heavily engaged workers are more critical of this work environment than occasional users. Yet, among all types of AMT workers, we find criticism of the platform favoring requesters over workers in a number of its settings and policies. As we have seen, requesters can rate (and accordingly publicly reprimand) workers, while no equivalent feedback mechanism is available to workers. Furthermore, requesters can simply withhold payment for services deemed unsatisfactory, with no equivalent sanction mechanism provided for workers.

Our analysis shows that all dimensions of fairness perceptions are affected by such platform settings, above all, procedural and distributive fairness. Yet, while occasional workers may shrug off instances of perceived unfairness, more heavily engaged workers also address matters of interactional fairness as a precursor of procedural and distributive unfairness. It is these workers that most harshly criticize the anonymity of platform profiles, weak cohesion among workers, and the lack of transparency, coordination, and community building among workers, all of which tend to reduce employee/worker voice and perceived dignity (cf. Dufur and Feinberg 2007; Hodson 2001; Koehn and

Wilbratte 2012; Lucas 2011). In some instances, AMT workers even create their own forums or third-party software to counter perceived platform biases.

It should be noted that a governance mode reliant on rules and monitoring provides significant power to the agent setting these rules, who, in the case of digital labor, is the platform. Again, it is those workers more reliant on AMT as a source of income that are most critical of the role played by the platform. These workers would presumably benefit by moving the governance mechanism of microworking platforms away from hierarchy and authority toward social capital and trust (Adler 2001; Ouchi 1980). Such a shift would also affect distributive fairness because the current institutional setting tends to reduce workers’ bargaining power and thereby exerts pressure on wages (cf. Boutang 2012; Scholz 2013). Alternatively, the platform provider may consider differentiating its settings according to the level of worker engagement. Some privileges, therefore, could be offered only to heavy users, while occasional workers remain quite satisfied with the default settings provided currently.

We started out the article by embedding microwork into the wider context of the increasing on-demand, platform-enabled economy. Microwork is only one facet of this economy and one that comes with particular challenges and design principles: first and foremost the masquerading of human labor as computation. The experience of working in a platform-enabled setting obviously differs depending on the particular service type, may it be micro-entrepreneurial endeavors such as on AirBnB, completion-based projects such as on Topcoder, or gig-type forms such as Uber or Lyft. We would argue that the broad challenges to distributive, interactional, and procedural fairness outlined above apply to all of these services, although with different facets. Likewise, we would argue that workers, but also regulators and advocates, often lack understanding for the underlying design mechanisms, politics, and embedded power imbalances of platforms, whether intentional or unintentional, and these should be an object of scrutiny regardless of service type.

Over the course of our research, we learned that the very specific background and life stories of workers deeply matter, both in terms of claims put forward against the platform, and in the range of alternatives open to them. In other words, the interconnection between the world of digital labor and real-world restrictions and opportunities matters. Unfortunately, our study did not get into much depth to interconnect these lines, but we would argue that it would be fruitful for future research to further explore these relationships and to connect to the biographies behind the roles performed on the platforms. Furthermore, our study cannot lay claim to representativeness for the distribution of the issues outlined, nor would that be easy



to ensure, given the self-sampling nature of online labor markets. However, we deem it an interesting avenue to focus studies on specific user groups, such as people depending on this type of work, workers that work primarily at their leisure and for hedonic motivations, or to go beyond established economies and look at the experiences of international workers.

During the course of the interviews, we learned how feelings of unfairness are connected to concepts such as self-identity, pride, and meaningfulness. The rhetoric put forth by the participants clearly marked a desire to be heard and to be appreciated, mainly by lifting the veil of anonymity surrounding the humans behind the platforms. Then again, it remains to be discussed whether the platform setting is the sole reason for disillusionment, at least for some parts of the workforce. Frequently, it comes down to competing narratives and how clear platforms are in communicating that they are not intended as a sole source of income, but as a complement. Thus, it would be interesting in future research to not only look at the workers' perspective in isolation, but also consider the framing of the platforms, which might have led to the current discourse and levels of expectation.

Currently, we are witnessing initial attempts among microworkers to organize and voice their demands. The development of third-party software for rating requesters is a particularly interesting attempt to subvert the current institutional dynamic of microworking platforms. Future studies could focus on attempts by digital microworkers to affect the governance of platforms from within (cf. Gray et al. 2016; Irani and Silberman 2016; Soule 2012). Leana et al. (2012) stress the importance of social capital for underprivileged workers to succeed. Microwork platforms provide an interesting illustration of this proposition, particularly given platforms' apparent opposition to features that allow for the creation of social capital. Of course, our study focused on workers from the USA. Because microworking platforms are open to foreign workers, the implications for workplace fairness might have to be reevaluated given a transnational perspective. As Elvira and Graham (2002) indicate, the highly formalized and anonymous environment of online platforms might actually be beneficial for stigmatized elements of the workforce.

George et al. (2012) propose the notion of an "inclusive innovation." It is far from implausible that digital on-demand service platforms may turn out to be such an inclusive innovation. For that hope to become reality, further critical evaluations of the institutional setting and dynamics of these platforms are necessary and practicable measures to ameliorate asymmetries and bolster the fairness of digital labor remain to be explored.

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