The Challenges of Crowd Workers in Rural and Urban America

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Abstract

Crowd work has the potential of helping the financial recovery of regions traditionally plagued by a lack of economic opportunities, e.g., rural areas. However, we currently have limited information about the challenges facing crowd workers from rural and super rural areas as they struggle to make a living through crowd work sites. This paper examines the challenges and advantages of rural and super rural Amazon Mechanical Turk (MTurk) crowd workers and contrasts them with those of workers from urban areas. Based on a survey of 421 crowd workers from differing geographic regions in the U.S., we identified how across regions, people struggled with being onboarded into crowd work. We uncovered that despite the inequalities and barriers, rural workers tended to be striving more in micro-tasking than their urban counterparts. We also identified cultural traits, relating to time dimension and individualism, that offer us an insight into crowd workers and the necessary qualities for them to succeed on gig platforms. We finish by providing design implications based on our findings to create more inclusive crowd work platforms and tools.

Introduction and Related Work

The future of work includes new opportunities through online work and the gig economy. Crowd work has become a core part of the gig economy, especially because it is an important entry point for getting people involved in online labor (Idowu and Elbanna 2019). Crowd workers have even expressed that they believe that their work on such platforms can contribute in their career advancement (Kasunic et al. 2018). Given its flexibility in including nonexperts, and because it is not tied to any specific geographic region, crowd work platforms have been named one of the solutions for facilitating the financial recovery of regions traditionally plagued with a lack of economic opportunities. Nonetheless, for the most part, these crowd work platforms have failed at empowering all geographic regions to access similar economic opportunities, e.g., rural areas (Braesemann, Lehdonvirta, and Kässi 2020). Crowd work platforms have not been designed to support rural workers, who could benefit the most from crowd work (Newlands and Lutz 2020).

Recently though, we have seen the emergence of new studies that aim to comprehend crowd worker demographics (Hara et al. 2019). However, most of the past work on crowd work has rarely considered local U.S. geography into their investigations. Previous work has started to understand rural crowd workers in Europe (Vasantha et al. 2014), finding that flexible hours of working, extra income, and work-life balance are some of the factors that motivate rural workers to participate in crowd work. Investigations that contrast urban and rural platform workers from the U.S. have been more limited in studying specialized knowledge platforms (Braesemann, Lehdonvirta, and Kässi 2020), but there is not enough work that focuses on crowd work specifically for rural and super rural areas in the U.S (Hanrahan et al. 2020; Ángel, Savage, and Moreno 2015). Emphasizing the constraints of rural workers is especially important at this point as historically these regions have suffered from a geographic disparity in terms of economic and social factors. To build off of this prior work, we conducted a survey study to understand ways in which workers living away from urban areas in the U.S. may struggle to benefit from working on these platforms. We focus in particular on crowd workers from Amazon Mechanical Turk (MTurk), one of the most popular crowd work platforms. We identified the following themes concerning their experiences: Onboarding, Income, Infrastructure, and Flexibility. Based on our findings, we discuss design implications to create more inclusive crowd work platforms and tools to increase the likelihood that rural and super rural workers participate in crowd work, and take advantage of the much-needed job opportunities.

Methods

Our goal was to identify the challenges and advantages that crowd workers from different geographical regions face. For this purpose, we created a survey that asked crowd workers about the advantages and challenges that they saw about working on MTurk. These answers were based on their own personal circumstances, especially the geographical region from which they were from.

Data Analysis. We conducted data analysis over the open-ended survey responses of our participants. For our data analysis, we looked for general patterns on crowd work-
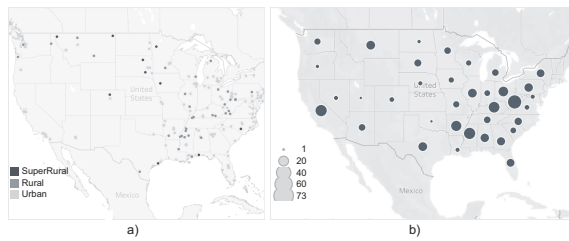
Figure 1: Regions where crowd workers came from: (a) dots are color coded based on whether they were in super rural, rural, or urban areas; (b) shows the number of workers who reported being from a particular state.

ers' responses that summarized the challenges and advantages that they saw for working on MTurk in their region. We aggregated all the open-ended survey responses from participants, as well as all our notes and memos from the study, to begin identifying key concepts and ideas. We used open coding to extract initial concepts from the survey (Mihas 2019). We aimed for these initial concepts to take into account some of the themes that related work had derived (Posch et al. 2018). Next, we discussed these initial concepts in their entirety to underscore their importance. With this initial list of codes established, two of the authors then independently coded the data bottom-up and created a set of 11 axial codes which were applied top-down to the survey responses. From the 11 axial codes, we collectively derived a list of four themes representing the different experiences, and general insights that participants reported. Our analysis showed a strong inter-coder agreement (Cohen's Kappa coefficient(k) = 0.826). Disagreements were discussed during the writing and synthesis process. We used our thematic analysis to structure the responses of our participants and highlight the differences and similarities in their experiences. We discovered the following themes representing the different general experiences that crowd workers in our study reported:

Onboarding: This topic is about the challenges and advantages that exist for integrating new workers onto MTurk, so they can make a living.

Income: This category relates to the challenges and advantages that exist around the money that is received from crowd work.

Infrastructure: This category is about the challenges and advantages that exist around the physical structures and facilities needed to do crowd work.

Flexibility: This category is about the challenges and advantages that arise from the "flexibility" that crowd work provides (i.e. work from home).

Results

We had 421 crowd workers who stated in the survey that they lived in the United States: 290 (69%) lived in urban areas, 114 (27%) in rural areas, while 17 (4%) in super rural regions. Fig. 1 shows on a map an overview of the U.S. regions from which our participants reported living. Notice that the groups we study have disproportionate sizes. This is normal

when studying groups that make up only a small share of the population (Zahnd et al. 2019). We tried to mitigate this with our sampling method where we aimed to incorporate a higher representation of rural and super rural workers; a common practice when studying minority groups to remove the potential for bias (Mercer 2016). In the rest of the paper we refer to our participants who live in an urban area with the identification of "U", those who live in a rural area with "R", and the ones who live in super rural area with "SR".

Crowd Workers' Voice: Challenges and Advantages. Figure 2 presents an overview of the percentage of workers who discussed experiencing certain challenges (Fig 2a.) and advantages (Fig 2b.) when performing crowd work in their region. The categories come from our thematic analysis.

Infrastructure. One of the main challenges that crowd workers discussed across regions was infrastructure, with super rural workers (63%) stating the most that infrastructure posed a challenge for them compared to rural (33%) and urban (26%) workers. For rural and super rural workers, the main problem associated with infrastructure was having access to high-speed broadband. For urban workers, the main challenges related to infrastructure were about deciding to work in different parts of the city, and suddenly encountering "spotty internet". This notion of being able to use a city's infrastructure to work from anywhere was also seen as an advantage for these workers. Our participants across regions rarely discussed advantages related to infrastructure and MTurk, in fact, rural workers (3%) discussed the advantages much less than urban (10%) workers and super rural workers (13%). Some workers from these remote areas felt that MTurk could force individuals to have better infrastructure (e.g., better internet connectivity): *"[the advantages are that] in many cases MTurk makes us have faster Internet. Better home situation..." SR_354.*

Onboarding process. Other challenges discussed across regions were the "onboarding process" and the "low wages" on the platform. The super rural workers (38%) were the ones that discussed the challenges with onboarding the most, while urban workers (31%) and rural workers (24%) discussed these challenges less. The onboarding process proved challenging due to the learning that novice workers were required to do in order to identify legitimate labor and start making wages (e.g., they had to learn what tools to use or how to screen HITs). Workers also discussed how MTurk did not facilitate the onboarding process, especially because the platform put limitations into the type of labor that novices can access. Our participants across regions expressed that one of the things that would make MTurk easier for people from their region was to have better onboarding processes: *"Flatten the learning curve by actually teaching MTurk workers the basics of what they need to know and improve the overall system." R_372.* It was interesting to see however that workers also saw advantages to having a difficult onboarding process. Similar to infrastructure, super rural workers (13%) also discussed the advantages of onboarding the most, compared with urban (10%) and rural workers (8%). Super rural workers discussed how such a type of onboarding process could help people in their village to develop digital skills.

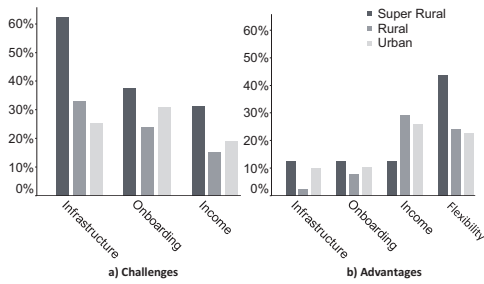**Income**. The other main challenge that workers across ge-

Figure 2: Overview of the challenges and advantages that crowd workers identified.

ographical regions identified was the income they earned on MTurk, with super rural workers (31%) discussing income the most followed by urban (19%) and rural (15%) workers. Although, hardships around income were discussed slightly differently in rural and urban regions. For rural and super rural workers, the main challenge associated with income was that it was not constant and steady. For urban workers however the challenge was that the income was too low to cover their costs of living. This meant they needed to invest long hours on the platform to make ends meet. It was interesting to see that for rural and super rural workers, unlike their urban counterparts, the compensation earned from MTurk was seen as an advantage. Rural participants rarely discussed problems with making ends meet. Instead, they discussed how MTurk could help address the problem of limited job opportunities in their regions: *"...A lot of people [in my rural town] only have part time jobs or none at all [...] There are not many jobs where I am from and it is very remote geographically speaking [...] The extra work [from MTurk] would benefit my community and their families by helping to provide food and shelter.." R_285*. For urban individuals, the advantages that MTurk income brought was that it helped them to complement the income they received from their full-time jobs.

Flexibility. In terms of benefits, one of the main advantages that super rural (44%) and rural (24%) workers identified with crowd work was the flexibility to work from home and not use transportation: *"[The main advantage is that it is] simple work, able to be done from home without driving dangerous roads." R_245*. Urban workers (23%) also discussed the flexibility of crowd work as an advantage. However, they appreciated it because the work provided them with the flexibility to have multiple jobs.

Crowd Workers and Culture. We calculated the median "culture scores" of workers per region for the cultural dimensions of "individualism" and "time". Across regions, crowd workers had surprisingly similar culture scores. The median individualism score was 65 and the median time score was 12. Results of an independent-samples Mann-Whitney test indicated that there was no statistical difference among groups in their culture scores (p-value=0.92 for individualism index; p-value= 0.02 for time). This is noteworthy given that prior work has reported possible cultural differences between rural and urban areas with terms such as "cultural isolation"

(Lichter and Schafft 2016). Our results however might hint that regardless of whether they are rural or urban, crowd workers on MTurk share similar cultural characteristics. In our case, our crowd workers showcased a high individualism score, which is typical of the U.S. culture (Caldwell-Harris and Aycicegi 2006). A high individualism score means they value the performance of individuals over groups. The low time score indicates that workers in our study tended to emphasize promptness, had a short term perspective, and tended to be more focused on tasks and job completion than in maintaining relationships (Hofstede 1984).

Discussion

In this section, we present our discussion based on our findigs from our survey responses, and we also connect our results with prior literature.

Super Rural America & MTurk Wage Opportunities. Our survey highlighted that the main challenges super rural workers identified concerning payments revolved around being able to make a frequent paycheck. It is likely that because super rural workers felt in general that they were receiving fair wages, they stuck more with the platform and eventually earned more money than their urban counterparts. Lichter et al. (Lichter and Schafft 2016) has described that super rural workers are known by their "self-reliance, independence, and hard work." All of this together likely helped super rural workers to strive more on MTurk. Notice also that our results connect to very recent research comparing urban and rural gig workers (Braesemann, Lehdonvirta, and Kässi 2020). The work found that rural workers tended to be more skilled at gig work than their urban counterparts. While the research did not study crowd work, it is interesting that our results hint that the super rural are also striving more in micro-tasking.

Cultural Differences and Crowd Work. According to our results, the differences in the cultural dimensions of individualism and time between rural, super rural, and urban crowd workers was not statistically significant. This could be interpreted as the MTurk platform is likely attracting workers with a similar cultural mindset, regardless of the geographical region from where they are from. We argue that analyzing crowd workers' cultural dimensions of time and individualism could offer us an insight into the core cultural traits which might be necessary for striving in micro work. Our participants with their lower time dimension scores also showed a tendency towards being preoccupied with time to shape and drive the labor they do at home. This preoccupation with time is likely also helpful for crowd work where there is a need to be "always on call" and hypervigilant in order to get the higher paying tasks before they are gone (Whiting and Symon 2020). It is unclear whether our participants have always had this cultural mindset, or whether MTurk contributed to changing how they feel about time. What is important to identify is that workers in our study, based on their time dimension scores, seemed to treat time as a commodity of high value, something that is necessary or perhaps even more important than satisfaction. Nevertheless, it is important to also be aware that the International Labour Organization (ILO) describes

how pushing workers to be "on call" can also create challenges for many workers by potentially reducing their earning potential and can lead to work-life imbalances (ILO 2016; Williams et al. 2019). As previous research has shown that technology can constrain and shape the actions of users (Latour 1992), we see these findings as critical to understanding how crowd workers thrive on the platform, and also better understanding the types of lives they live outside crowd labor. We believe there is likely value in exploring interfaces (Flores-Saviaga, Savage, and Taraborelli 2016) that per geographical location can question workers on the advantages they see for working on crowd work in their specific location, and then highlight to others in the region how they can also take.

Implications for Design. Our results showed that the onboarding process was challenging across geographical groups due to the learning curve that workers had to overcome just to start making earnings. We believe there is value for designers to build tools for facilitating workers' onboarding process. These tools could focus on helping workers to develop "gig literacy skills" (i.e., the skills needed to start making money within online gig work) (Sutherland et al. 2020), and also new computer skills that could translate to jobs outside MTurk (Kasunic et al. 2018). Crowd work could become an important space that empowers these populations to strive and grow while making a living. It is important however that when we design these tools they focus on not only keeping track of workers' development in the crowd work platform, but also offers workers transferability to other online labor markets, and especially jobs outside MTurk. It could be beneficial if workers are able to have a way to demonstrate their career/skill advancement when applying to jobs outside of MTurk.

Limitations and Future Work Our participants were active MTurk workers. We also recruited individuals who were willing to participate in a survey. We adapted our recruitment method as best as possible in order to include in our study the voices of workers in rural and super rural areas locations that would otherwise be difficult to reach and document. Further investigations could focus on conducting interviews with participants from these regions to understand in depth why, despite the challenges they face, rural and super rural workers are able to succeed in crowd work (sometimes even more than their urban counterparts). Future research could also study in more depth the cultural background of crowd workers across geographical regions.

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