Geographic Context In The Sharing Economy

Jacob Thebault-Spieker
GroupLens Research
University of Minnesota
thebault@cs.umn.edu

Brent Hecht
GroupLens Research
University of Minnesota
bhecht@cs.umn.edu

Loren Terveen
GroupLens Research
University of Minnesota
terveen@cs.umn.edu

Abstract
The sharing economy is increasingly focused on providing geographically-situated services through dynamic work assignment. Uber drivers pick up consumers, TaskRabbit workers travel to the location of the job. This geographic context permeates the sharing economy, and directly impacts who workers are, how work is done, and if workers trust their safety where the work is. Our work focuses on the geographic contours of the sharing economy, seeks to identify disparities that exist and mitigate these disparities through sociotechnical means.

Author Keywords
Geography; TaskRabbit; Uber; reputation.

ACM Classification Keywords
H.5.3. Information interfaces and presentation (e.g., HCI): Group and Organization Interfaces;

Introduction
Most sharing economy platforms like TaskRabbit, Uber, and Amazon Home Services, have a significant geographic component[7][3]; workers travel to the location of the job or consumer. The geographically-situated nature of sharing economy services imposes a set of constraints[7] that do not exist in the same way for more 'virtual' [6] task marketplaces like Mechanical

Turk. This different context permeates the sharing economy, and means that there are new factors to address when considering some of the themes of this workshop.

Our Work

There are two primary thrusts to our work, understanding *mechanisms that lead to disparity in social computing services*, and *designing techniques to counteract this disparity*, to support more uniform participation and contribution on these platforms.

Our previous work[7] was the first to explore the geographic and socioeconomic disparities in sharing economy systems (TaskRabbit, in this particular case). Dillahunt and Malone followed shortly with a very complementary piece of work [2] exploring the possibility of peer economy systems as economic opportunity for residents of low socioeconomic status (low-SES) areas.

My coauthors and I, using a robust statistical modeling approach, found that both geographic distance, and *where workers focus effort* affect the availability of sharing economy services. In our study, TaskRabbit workers were more willing to do tasks in higher-median income areas, and in areas nearer to where they lived or spent time. Workers in our sample *do not live* in low-SES or suburban regions; because of distance, this means that workers were *less willing to do tasks in low-SES and suburban regions*. According to a survey deployed as a part of this study, perceptions of safety in low-SES areas is part of the reason for this reticence. Because workers focus their work in urban, higher-SES areas (either because they live there, or because of socioeconomic status of the region), service in TaskRabbit is *less available and more expensive in lower-income or outer-ring suburban areas*. We have run a similar study, using robust geostatistical modeling, in the ride-hailing system UberX. These UberX results generalize our findings beyond a single peer economy system; people in low-SES and suburban areas *wait longer for a ride* than their higher-SES, more urban counterparts. This work (with the TaskRabbit study) is under preparation.

Geography and Work

Our findings suggest significant implications for one of the themes of this workshop; work means different things when the geographic context of the sharing economy is considered. The nature of work is *physically situated* in the sharing economy, and our results suggest that *who workers are* affects which *situated tasks* they will do. It seems there are *barriers to work* for residents in low-SES areas, which also serves to reduce availability of the services themselves. An on-going direction of this work is exploring whether sharing economy platforms provide better service than the systems they're replacing (e.g. Uber and taxis)? It is generally understood that trust in a system relates to how users experience the service [5]. If a platform like Uber provides better service than it's 'traditional' counterparts, this may serve to support the trustworthiness of the platform overall.

In a geographic situated crowdwork platform that we have built (FolkSource, similar to TaskRabbit), we are currently conducting a study to understand what kinds of motivation incentives support *geographically uniform* contribution, with an eye towards mitigating some of the socioeconomic trends that our prior work has shown. This study will inform the design of situated

work systems, and seeks to address the geographic disparity that exists in the sharing economy now.

Geography and Trust

Our (non-low-SES) participants discuss safety as one major concern for how they make decisions about which tasks to accept, and thus do not conduct work in low-SES areas, reducing availability in these areas. Work by Dillahunt and Malone [2] suggests that trust and safety are bi-directional concerns; their participants (residents of low-SES areas) also discuss concerns of personal safety as barriers to participating in the sharing economy. The concerns for trust in the sharing economy are *also situated*, and are modified by the context of the geography of the sharing economy service. Some geographic regions (rightfully or wrongfully) have reputations as being unsafe, which affects how existing workers make their services available. These *geographic* reputations are informal, and workers do not trust the safety of some areas; this may affect both *who can be* workers, and *where service is available*.

In a related vein, we are in the preliminary stages of designing a study exploring bias in the more formalized reputation systems that exist in every major sharing economy platform. We are interested in the way implicit social biases (like race, or gender) get expressed in these ratings-based reputation systems. Because of general understandings of implicit bias [1], and that people do not perfectly express preference in rating systems[4], we hypothesize that biases do get expressed in these systems. If true, consumers' implicit bias may negatively impact some people's *ability to work* in the sharing economy. This would be an unintended side-effect of these reputation systems, which seek to instill trust in unknown workers. One very important outcome of this work will be identifying an effective sociotechnical intervention for mitigating the bias we expect to manifest in ratings-based reputation systems.

Conclusion

Because sharing economy services are highly geographically situated, geographic factors like distance, or the heterogeneity of people over space, contribute to the realities of work and trust in the sharing economy. As sharing economy platforms continue to overtake more 'traditional' industries, this geographic context suggests new implications for situated work, and is an important factor that should be considered in the design of these platforms. My work has shown that geographic biases negatively affect availability of sharing economy services, and on-going work is exploring what mitigation strategies exist.

References

[1] Bertrand, M. and Mullainathan, S. *Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination*. National Bureau of Economic Research, 2003.

[2] Dillahunt, T.R. and Malone, A.R. The Promise of the Sharing Economy among Disadvantaged Communities. ACM Press (2015), 2285–2294.

[3] Edelman, B.G. and Luca, M. Digital Discrimination: The Case of Airbnb. com. *Harvard Business School NOM Unit Working Paper*, 14-054 (2014).

[4] Kluver, D., Nguyen, T.T., Ekstrand, M., Sen, S., and Riedl, J. How many bits per rating? *Proceedings of the sixth ACM conference on Recommender systems*, ACM (2012), 99–106.

[5] Marie Christine Roy, Olivier Dewit, and Benoit A. Aubert. The impact of interface usability on trust in Web retailers. *Internet Research 11*, 5 (2001), 388–398.

[6] Teodoro, R., Ozturk, P., Naaman, M., Mason, W., and Lindqvist, J. The motivations and experiences of the on-demand mobile workforce. *the 17th ACM conference*, ACM Press (2014), 236–247.

[7] Thebault-Spieker, J., Terveen, L.G., and Hecht, B. Avoiding the South Side and the Suburbs: The Geography of Mobile Crowdsourcing Markets. *Proceedings of the 2015 Conference on Computer Supported Cooperative Work*, ACM Press (2015), 265–275.