Lisa Ho (lisaho@mit.edu)
Doctoral Candidate at MIT Department of Economics (2018 - present)
Major fields: Development Economics, Labor Economics; Minor fields: Behavioral Economics
Committee: Esther Duflo, Ben Olken, Frank Schilbach

Research Statement

My research interests concern the impacts of digitization in developing countries. I strive to understand the direct impacts of expanded internet access on people's lives, as well as to understand how artificial intelligence technologies are changing labor demand and the process of economic development. I explore these themes in two ongoing projects.

In the research project I describe in more detail below, I study − in collaboration with Anahita Karandikar (UBC Economics PhD student) and Suhani Jalota (Stanford Health Policy PhD student) − how piece rate work opportunities in dataset training and creation for AI may be an effective way to support labor force entry for women through an RCT in Kolkata, West Bengal. Low female labor force participation is a policy challenge throughout South Asia and the Middle East, where a combination of logistical and social barriers make it difficult for women to work outside the home or prioritize a career over housework. Internet-mediated work facilitates flexible arrangements for these women, and allows a greater variety of employers who may not be geographically proximate to their workers to tap into this mostly homebound population.

In other work − joint with Pedro Bessone (Uber) and Ricardo Dahis (PUC-Rio) − I study the effects of expanding mobile internet access in Brazil on students' educational outcomes. Using the staggered entry of 3G into Brazilian municipalities combined with data from the *Prova Brasil*, a standardized exam and survey taken by 5th and 9th grade students, we study the effects of high-speed mobile internet using a heterogeneity-robust event study design. Through this combination of observational studies and experiments, I aim to contribute to our understanding of the impacts of digitization on the world's poorest populations.

Bringing Work Home: Internet-Mediated Gig Work & Women's Employment

This ongoing research study consists of a randomized experiment with 1,670 households in Kolkata, India which addresses three primary research questions:

1. How does female labor supply respond to the attributes of internet-mediated gig work (the ability to work from home, choose one's hours, or multitask with childcare), and which types of women are excluded from the labor force by lack of accomodation along these dimensions?
2. What are the impacts of the flexible attributes of digital gig work on women's on-the-job productivity and probability of dropping out?
3. What is the impact of women's transition from non-employment to part-time digital gig work on the time use, well-being, and attitudes of household members, including children when applicable? Does this digital gig work act as a gateway to the broader labor market?

We offered five variations on smartphone-based gig work to women which consisted of creating Hindi and Bengali speech datasets. The jobs were identical to each other except along one of three attributes (flexibility in work time, work location, or multi-tasking with childcare), and we measured the impact of that attribute on take up of work. Second, we implemented these jobs over one month. Third, we completed an endline survey on gender attitudes related to work and household roles, agency, and household members' time use. At endline, we are offering women additional job opportunities, measuring take up as an outcome to understand whether short-term, part-time, at-home work can act as a gateway to the broader labor market. Endline data collection is currently wrapping up.

Motivation and Background

Labor force participation (LFP) is lower for women than for men nearly everywhere. This is particularly true in India, where the LFP rate was 20.3% for women and 76% for men in 2020 (ILO). Even in the cross-country U-shape of FLFP and income per capita, India is a major outlier (Fletcher et al., 2019). FLFP has stagnated and even declined in recent years, and Covid-19 has likely exacerbated this trend (Deshpande 2020).

Low FLFP has both macroeconomic causes as well as drivers at the household level. At a macro level, FLFP in rural areas is declining. The transition away from a rural agrarian economy has reduced farm work, which was a common way for women to participate in economic production near the home. More economic activity has transitioned to urban areas, but FLFP rates in urban areas are even lower than in rural areas. At a micro level, FLFP in India is low for a number of interacting reasons, including limited physical mobility, early marriage and childbearing, and responsibility for household chores. Social norms and beliefs about women arise from these existing conventions and in turn perpetuate them. Given that these household responsibilities and norms tie women to the home, bringing flexible opportunities *to the home* may be an effective way to support labor force entry for women who would otherwise not work for pay.

Experimental Design

Our evaluation consists of an RCT in Kolkata, West Bengal with 1,670 households. Participating households are randomly assigned into job treatment groups and a control group. The smartphone-based jobs consist of contributing to a Bengali or Hindi dataset by speaking aloud provided sentences, or by validating the quality of existing Bengali or Hindi audio recordings. The job platform is provided by Karya Inc, a Microsoft Research spinoff which is creating datasets in under-resourced languages for speech-based artificial intelligence applications.

The job treatment groups vary across three dimensions: 1) ability to choose work location, 2) ability to choose work hours, and 3) ability to multitask with childcare. First, we offer jobs and measure the difference in job acceptance for each job variation. Second, we return to a random subset of participants who were originally offered inflexible work arrangements, and we offer them the option to switch to the most flexible job. Third, we implement the month-long jobs. Lastly, at the end of the short-term job, we offer another round of jobs (both digital and

non-digital) to both the treatment and control groups and measure take up in order to understand the effects of this short-term, digital work on future labor force participation.

Context. The households in our study come from low- to middle-income households in and near Kolkata, West Bengal. Participating households belong to eight regions (two urban, three peri-urban, and three rural). Households are eligible for our study when there is a woman who (i) is literate in Hindi or Bengali, (ii) has smartphone access (her own or a family member/friend's), and (iii) is currently outside of the labor force, defined by not currently employed or seeking work. The average age of these women participants is 30, and their average household income is approximately Rs 11,700 (140 USD) per month. The woman's husband is the main income earner in more than 90% of households. Husbands are in occupations such as daily wage labor, security guards, drivers, and owners of vegetable, flower, and fruit stands.

Baseline Survey and Job Offers. As part of the baseline survey, we offered jobs to women which varied in the ability to work from home, choose one's work hours, and multitask with childcare. First, the take up rate of the smartphone-based work was high. ***Despite the experimental sample consisting of households where women were not in the labor force at baseline, and where most (two-thirds) of women had not previously had any paid work before, nearly 50% of women offered digital work accepted and started the tasks***. Secondly, the ability to work from home and multi-task with childcare -- two features facilitated by receiving assignments online -- were particularly important to whether or not women started work. Requiring women to work from an office reduced take up by over 70%.

Separating Selection and Treatment Effects. After participants accepted job offers but before they began work, we offered some participants assigned to a less flexible job the possibility of switching to the job which is most flexible. This allows us to separate selection from treatment effects to characterize workers (e.g. in terms of productivity) who are only included in the labor market when they are able to work from home, as facilitated by internet-mediated work.

Job Implementation. Third, we implemented the month-long, part-time jobs on the digital task platform Karya. We model the jobs on other real-world tasks on the platform, and copy the wage (Rs 1/task) from other employers. The work consists of recording spoken sentences to contribute to a database for speech recognition algorithms. From the recordings, we can verify whether or not it is indeed the woman who completed the tasks. In a second round of work, participants also complete other tasks on the platform such as identifying relevant sections of images.

Post-Job Survey and Opportunities. At the end of the intervention, we complete an endline to measure the impact of women transitioning from non-employment to part-time work. This includes modules on (i) use of earnings, (ii) time use, and (iii) economic decision making. Participants in all groups receive secondary job offers to test whether this part-time work can act as a gateway to the broader labor market. We also survey children when applicable to study effects on children's attitudes. Data collection from the endline survey and second round of job offers is currently ongoing and is expected to be completed by mid-January 2022.