I am an applied microeconomist with interests in development and labor economics. In particular, I study ways the Internet is changing labor markets in developing countries. I also examine how labor market competitions change social norms on men's support for women's work.

In my research, I develop theoretical models of search and matching in labor markets, and use simulations to solve new equilibrium when Internet access improves. To test the model predictions, I often find natural experiments with spatial and temporal variations. I also follow closely with the latest development in causal inferences, such as two-way fixed effects and differences-in-differences estimators with heterogeneous treatment effects. I am going to use field experiment data in a pipeline project which we plan to finish before next summer.

My research provides implications for policy makers interested in improving job search and labor market outcomes for workers and firms through internet technology. I find associated labor market disruptions can increase inequality. Besides improving Internet infrastructure, complementary policies aiming at lowering access costs, updating skill and digital literacy are critical for ensuring the overall benefits be shared broadly.

Job market paper

In my job market paper *Who benefits from better Internet connectivity? Evidence from the labor market in South Africa*, I showed how the expansion of fast internet availability has changed labor market outcomes and job search methods used by workers of different skill levels and ages. In contrast to most literature focusing on the Internet's impacts on outcomes only, I examined how job search activities may respond. This is important because I used comparative statics in a job seeker's utility maximization model, and showed that an individual's search effort response to Internet access has key implications to the employment outcome.

I calculated the Internet connectivity rate by districts and merged it with the largest national panel survey in South Africa. I used two-way fixed effects estimators to address the endogeneity and assessed the robustness of TWFE estimators following the latest literature on difference-in-difference with continuous treatment.

I find positive effects of Internet availability on employment and total income. More Internet availability induces jobseekers to use online job information, but does not change reliance on personal networks or government agencies. Heterogeneous analysis by ages and education levels reveal important economic patterns. Young workers will not only use the Internet to search for job information online directly, but also to enhance personal networks that could be used for sharing job information. Workers without a primary education are discouraged from online job search, are less likely to be employed, and earn less.

Internet access can change the equilibrium outcomes by decreasing the job search costs for workers, or increasing matching efficiency for firms. I solved a search and matching model using simulations, and showed that the effect on wage is unambiguously positive, but the aggregate effect on employment depends on the relative importance of these two forces.

Other papers and work in progress

Studies have shown that social norms have the potential to shape labor market equilibrium. In a paper *Who has the right to a job? Labor market competition and men's support for women's work*, Rachel Heath, Alex Philip, and I are examining the possibility of a reverse relationship: to what extent labor market conditions can alter social norms. In particular, we test men's support for women's work depending on the competition they face from women in their industries in India from 1980 to 2010. We find that men are more supportive of women's work when the overall female labor force participation is high, however, they are less supportive if more women work in their own industry.

In a work in progress paper, I am examining another way the Internet could potentially change the labor market and reduce inequality – by promoting inclusive labor market institutions through union movements. Specifically, I am testing the impacts of Internet access on work stoppages in the US. I use detailed data of major work stoppages with the establishment, union, location and number of workers involved from 1993 to present. I explore the rollout of the Internet across space and time, similar to my job market paper. The more granular level of broadband subscription data in the American Community Survey can help access the internet's impacts more precisely.

In the future

I plan to continue studying how the Internet changes labor demand in developing countries, in particular, firms' recruiting process. In my job market paper, I used simulation to solve a search and matching model. However, I couldn't test the model predictions on firms vacancy postings empirically, because the pandemic prevented me from traveling to access a restricted part of the survey data in Cape Town. When conditions improve, I will go and obtain the confidential data on employers and their locations. In this way, I can create a matched employer-employee data set, and study impacts of the internet on firms' hiring decisions. I also plan to use web scraping and text mining techniques to analyze job postings on some key job search sites, such as Careers24 in South Africa, or LinkedIn.com.

Job search effort has important implications for employment outcomes as shown in my job market paper, but is hard to measure. I hope to fill this gap by using large-scale online job search platform data. I recently made some connections to Harambee, a not-for-profit social enterprise helping unemployed youth in South Africa. They operate an online job search platform (SAYouth.mob) free of charge for young workers. I can use my Internet connectivity variations and examine the impacts on online search effort with their detailed usage data.

I also plan to study the relationship between internet affordability and labor market outcomes. I find that high cost is the major limiting factor for low internet adoption among many disadvantaged job seekers, but almost all literature has focused on the expansion of internet infrastructure only. I will keep looking for variations in accessing costs, either through natural experiments or field experiments.

A complete list of my current and previous work can be found here: `https://zheliu-econ.github.io/#research`