I am an applied microeconomist working in **environmental economics, urban economics, industrial organization, and labor economics**. There are three main areas in my research agenda: (1) the effects of public policies in alleviating transportation emissions, (2) understanding individual responses to environmental/climate changes from a behavioral perspective, and (3) labor market dynamics in developing countries. A common theme across in my works is the use of large-scale geocoded data and combination of causal inference with structural models to conduct rich counterfactual and welfare analyses.

Environmental Policies in the Transportation Sector

The efficiency and equity of environmental policies in the transportation sector have garnered substantial academic interest. My dissertation investigates three commonly-used environmental policies in the urban transportation sector: electrification, reformulated gasoline regulation, and public transportation investment. My job market paper, "***Distributional Effect of Electric Vehicle Policies: Adoption, Travel Behaviors, and Environmental Benefits***", studies the distribution of environmental benefits across space from Electric Vehicles (EVs) adoption. Existing studies focus on EV adoption while leaving usage behaviors and distributional effects understudied. My job market paper introduces a new perspective, emphasizing the importance of commuting routes and flows in understanding urban pollution diffusion and evaluating the distributional effects of transportation policies. I develop a novel structural model of the U.S. auto market incorporating household decisions on vehicle portfolios, EV adoption, and trip-specific vehicle selection. Combining the model-predicted EV usage probability with simulated web-scraped data on routes for each trip, I construct a measure of EV exposure at a highly granular geographic level. This measure accounts for the cumulative EV mileage traveled across the area, thereby capturing the spatial distribution of environmental benefits. I show that environmental benefits are negatively correlated with low-income and minority percentages in communities. The counterfactual policy experiments compare the effect of EV purchasing subsidies (both universal and targeted to low incomes) with charging station investments under various spatial deployment scenarios. The results suggest that investments in charging infrastructure generate approximately three times more environmental benefits than current policies. Furthermore, place-based charging station policies hold greater promise in promoting equitable distribution of these benefits among income and racial groups.

In a companion paper, "***The Effect of Electric Vehicle Adoption and Exposure on Air Pollution*: *Evidence from Commuting Routes in California***," co-authored with Dr. Prottoy Akbar (Aalto University), we develop a shift-share measurement of EV exposure at the census tract level. This measurement combines predetermined commuting networks (shares) with EV adoption trends at the origins of routes (shifts). We offer the first causal estimation of the impact of EV usage on local pollution, and thereby address the gap in causal evidence beyond engineering estimates.

In my paper "***Environmental Standards and Consumers Response: Evidence from Gasoline Content Regulation in China***" (revised and resubmitted at the *Journal of Environmental Economics and Management*), I investigate the impact of gasoline content regulation on consumers' demand. Using unique gas station-level data in China and rich geocoded information, I study how consumers respond to standard upgrades, which increase both the price and the environmental quality of gasoline. I find that consumers respond positively to standard upgrades and substitute higher-emission gasoline for lower-emission gasoline. Also, the Willingness to Pay for gasoline increases by roughly 5% in response to the environmentally-friendly reformulation.

In another co-authored paper, "***The Effects of Subway Policies on Gasoline Consumption: Subway Expansion versus Fare Changes***" (under review), I compare the effects of expanding subway networks with revising subway prices, as both strategies seek to reduce gasoline consumption. I find that both subway expansion and fare changes significantly impact gasoline consumption in the short run; however, the effect of subway expansion is larger and more durable. A

cost-benefit calculation finds that expanding subways is more cost-effective in reducing driving than are fare changes. These results have important implications for evaluating subway investment and shaping optimal subway pricing policies. This project has received a $10,000 *Rawski Research Award* from the University of Pittsburgh.

Behavioral Perspectives in the Environmental Economics

While my dissertation focuses on urban transportation policies, a parallel strand of my research aims to understand and model individual behavior in response to environmental hazards and climate change. In my paper "***Air Pollution, Sympathy and Online Charitable Giving***" (under review), I investigate the relationship between sympathy and charitable giving in a natural setting with an unconventional context: exposure to air pollution that elicits sympathy and promotes donations for its victims: respiratory disease patients. Leveraging website visit data from a major online medical crowdfunding platform in China, I find that air pollution affects charitable giving by drawing donors' attention to environmental-related features, particularly respiratory diseases, and increasing donations. The charitable contributions induced by air pollution towards respiratory diseases are quantitatively comparable to the medical expenses caused by the air pollution itself.

Labor Market Equilibrium in Developing Countries

Another line of my research focuses on labor market equilibrium in developing countries. In my paper "***Road to Free Labor Market: The Impact of Abolition of Job Assignment Reform in China***," I study the Job Assignment Reform (JAR), a unique historical episode in China that ended government-assigned employment in modern China. I show that JAR decreases the employment rate while increasing wages, conditional on being employed. To quantify the welfare and distributional effects, I calibrate a search and matching model with human capital heterogeneity. JAR benefits high-human-capital workers by enhancing matching quality, but negatively impacts low-human-capital workers by increasing the risk of unemployment. Employment liberalization improves the allocation of talent and increases overall welfare and output. This paper has been accepted at top junior economists conferences, including the *Economics Graduate Student Conference* and the *Young Economists Symposium.*

Research on China Economy

I also have deep expertise in the Chinese economy. My early doctoral studies on China's energy policies, environmental regulation, and infrastructure investments have been published in leading Chinese economics journals, such as *China Economic Quarterly*, the *Economic Research Journal,* and the *Journal of World Economy*, accumulating over 200 citations. These publications have provided me with extensive data and research resources, which offer me the potential for future collaboration and high-quality research papers.

Future Works

Moving forward, I plan to continue pursuing my current research projects toward publication in top-tier economics and science journals. Funded by the *Institute for Humane Studies*, I have purchased footprint traffic data (aggregated from mobile device data) from *SafeGraph*, and have also been collecting data on public charging station usage from multiple metropolitan areas. In addition, I plan to scale the methodology in exposure to electric vehicles and use it to study the causal effects of EV adoption on a broader set of outcomes, including health, labor, and education. Finally, I am interested in using more granular data to model consumers' behaviors. One of my early-stage projects uses *Nielsen* home scanner and retailer scanner data to estimate consumers' willingness to pay for environmentally friendly products. I am looking forward to deepening my existing research partnerships and starting new collaborations.