

I am a development economist using tools from applied econometrics and trade to answer policy-relevant questions about agriculture in low-income countries. A central theme of my research is how households trade off consumption-smoothing and profit-maximization motives under imperfect markets. I use experimental, quasi-experimental, and structural methods to study these issues, both at the household level and in general equilibrium. Below, I describe my job market paper, four ongoing projects, and plans for future research in more detail.

Farm Household Misallocation — (*job market paper*)

My job market paper, *Farm Household Misallocation*, estimates how frictions in input markets (e.g. land, labor, fertilizer) and financial markets (credit and insurance) each contribute to misallocation in Thai agriculture. This is crucial for policy because the effects of reducing distortions in *any* market are ambiguous and depend on the underlying distribution of distortions in *all* markets. However, these distortions cannot be separately identified from production data alone. To overcome this challenge, I use moments in household consumption data to estimate how credit constraints and uninsured risk distort input choices through distinct wedges from factor market frictions. Separately identifying and estimating these distortions motivates a novel production function estimator and allows me to account for how distortions may compound or offset each other in policy counterfactuals.

Empirically, I find that aggregate TFP increases by 20-31% moving from the observed to efficient allocation. These gains are more than the sum of their parts: About 11% (5%) TFP gains can be achieved by perfecting financial (input) markets, leaving input (financial) distortions intact. Positive interaction effects from addressing multiple distortions simultaneously account for the remaining 4-7% TFP gains. This suggests that multi-pronged policy approaches may be more effective for reducing misallocation than addressing a single market failure in isolation. In the paper, I also show how the method I develop helps alleviate concerns about measurement error.

I currently have four other active projects, which complement my job-market paper by providing causal evidence of consequences of incomplete agricultural markets and the effects of policies to address them.

Postharvest Loans and Seasonal Price Risk (*analysis stage — joint with Ethan Ligon*)

Postharvest loans have been proposed as a solution to the "sell low and buy high" phenomenon, in which farmers sell harvests at low prices to finance short-term consumption and buy back the same crops at high prices later in the season. Randomized evaluations of postharvest loans have found positive effects of these programs on participation in and profits from intertemporal arbitrage. However, these impacts depend on how much prices increase within a season. Across sub-Saharan Africa, including Nigeria, seasonal price increases are highly variable across years. Not only do households risk defaulting when prices fail to rise, but the net-consumer households these programs target may be those that are most

averse to default risk when price increases are uncertain. Moreover, the potential for simultaneous default makes issuing these loans risky for lenders. Evaluating the viability of postharvest loans thus requires knowledge of their impacts under alternative realizations of price shocks.

We conducted a randomized evaluation of a postharvest loan (PHL) program implemented by a local NGO in Gombe State, Nigeria. The evaluation features high-frequency data on arbitrage, consumption and an experimental elicitation of households' intertemporal marginal rates of substitution. We then use this variation to estimate a model for intertemporal arbitrage under seasonal price variability. In preliminary results, we find that while the treatment induced households to store more grain and shift consumption to later periods, it had limited effects on total consumption. This may be because staple food prices stayed relatively flat during the study period, unlike in other RCTs. Preliminary results from the model provide evidence that exposure to price risk limits households' participation in arbitrage. We anticipate further results providing additional evidence about the viability of PHL programs at scale.

Local Impacts of Large-Scale Land Transactions (*data collection stage — joint with Yeshwas Admasu, Workineh Asmare Kassie and Solomon Zena Walelign*)

I am collaborating with a large team of Ethiopian scholars to study the medium-run effects of a government program that transferred large tracts of undeveloped agricultural land to domestic and foreign private investors. While FDI in manufacturing has been shown to generate positive economic spillovers on host communities, agricultural investments are more contentious, given the potential for land expropriation and environmental externalities. We use a difference-in-differences approach to estimate causal effects of the program on local economic and environmental outcomes. We complement this by conducting a large household survey in Gambela region, a remote and understudied part of Ethiopia that received substantial investment. Preliminary findings suggest that only limited economic linkages between investors and local communities formed, suggesting that the potential for positive spillovers may be lower in remote agricultural regions than in manufacturing centers.

Dynamic Production Function Estimation with Sequential Shocks (*analysis stage — joint with Ethan Ligon*)

I am also working on extending the production function estimator I use in my job market paper to a multi-stage production function with sequential shocks. While static production functions are often assumed for tractability, farmers realize shocks throughout the production process that alter their subsequent input decisions. Under imperfect insurance, input decisions depend on both the realization of prior shocks and expectations over how future shocks would affect consumption at harvest. These dynamics are important for estimating more realistic production functions as well as measuring the misallocation generated by imperfect insurance.

Barriers to Quality and the Commercialization of Staple Crops (*pilot stage — joint with Anthony Ijala, Mathew Kato, and Jérémy do Nascimento Miguel*)

Cassava is considered a famine reserve crop in much of Africa, Asia, and Latin America and is a key staple in many settings, including Uganda. While there is growing demand for high-quality cassava from urban processors and exporters, cassava needs to be dried properly immediately after harvesting to avoid deterioration and cyanogenesis. I am piloting a project introducing village-level cassava chippers and solar driers to farmer groups affiliated with a large agro-processor. The project investigates whether alleviating technical barriers to quality upgrading can increase participation in commercial value chains and how commercialization depends on households' reliance on cassava as a staple crop.

I also view my job market paper as a launchpad for a broader research agenda on misallocation. I have early-stage designs to provide causal evidence that the effects of policies and other shocks in one market are mediated by distortions in other markets, using both fertilizer subsidies in Sub-Saharan Africa and shocks within distinct input and financial networks in Thailand. I am also interested in using primary data collection and experimental elicitations to capture households' beliefs about productivity and measure how they align with model-based estimates. Further topics I am interested in exploring include the distributional, spatial, and environmental components of misallocation.

I also believe that my command of both applied and structural methods makes me a valuable addition to any department. These abilities not only strengthen my solo work but make me an excellent complement to colleagues who specialize in either of these methods. I would also be an active and thoughtful contributor to the department's research community, especially its development, applied micro and trade groups. I am also confident that I will contribute to the department's publication record, complement the skills of my colleagues, and provide valuable mentorship to students.