

I am an applied microeconomist working on topics related to risk and investment. My research focuses on behavioral and classical components of decision-making to inform the design of policies that foster resilience in the face of uncertainty. I study such topics as technology adoption, the economic viability of smallholder agriculture, climate resilience, food security, and the evolution of agricultural value chains.

## Current Research

My research focuses on understanding investment decisions in the presence of environmental risk factors. Policy makers and academics often find themselves struggling to explain low uptake of seemingly profitable investment opportunities – such as adopting improved agricultural inputs, making use of financial services, or participating in business training programs. In working with small-holding farmers in Mozambique and Nicaragua, I have heard a common justification for this behavior: the belief that external forces dominate agent decisions in determining outcomes.

In my dissertation, I study the role of locus of control – a concept from psychology capturing the extent to which a decision-maker believes that her actions determine outcomes relative to forces outside of her control – on technology adoption, investment, and learning. Locus of control has a long history in psychology but has received little attention in economics. Guided by this history, I incorporate locus of control into neoclassical economic models and demonstrate its usefulness in empirical application.

In the first chapter of my dissertation, I develop a micro-theoretical model of locus of control and economic investment. There are many production processes in both high and low income countries where locus of control is of interest, such as agricultural innovation, educational attainment, job searches, and migration. Locus of control provides an avenue for broad life experiences to affect a decision-maker's beliefs about specific production processes. For example, the discrimination and economic hardship faced by a decision-maker in the past may affect her beliefs about her likely success in college or as a business owner. More precisely, when facing new and unfamiliar activities locus of control can affect beliefs about the returns to various factors of production. I show that the differences induced by locus of control affect the expected distribution of production outcomes, desired investment levels, and expected profit. Attributing too much importance to either external factors or the decision-maker's own control of production results in suboptimal investment levels and incorrect expectations about the profitability of investment.

The remaining chapters of my dissertation are empirical. For the past three years, I have been running a randomized control trial (RCT) with colleagues from the University of California, Davis, on the welfare impact of technologies that reduce exposure to drought risk in Mozambique and Tanzania. The study is a collaboration between public and private partners and is made up of two parallel RCTs in Tanzania and Mozambique. I am responsible

for the design and execution of activities in Mozambique, where I have also been overseeing fieldwork.

The adoption of technologies that improve the level and reliability of maize yields is important for the food and economic security of households in Eastern Africa. In the year prior the study on which my current work is based, 40% and 80% of households surveyed in Tanzania and Mozambique respectively suffered a food-insecure event. This has dire implications for the physical and cognitive development of children in the region. As a result, both governmental and non-governmental actors have devoted considerable resources to developing technologies that help households cope with this risky environment. If, however, the most vulnerable households face a decision-making landscape that makes them unwilling to engage with these opportunities, such efforts are unlikely to be effective.

Our work with maize producers in Mozambique and Tanzania has generated detailed data on farmer beliefs and agricultural behavior, which I use to develop and test a survey instrument for locus of control specific to maize production. I use this maize-specific measure along with a standard, general locus of control measure from psychology to study the adoption of improved maize varieties. Locus of control is shown to account for significant declines in the adoption of improved seed varieties. These results are strengthened by studying the moderating effect of locus of control on a randomized marketing intervention promoting drought-tolerant maize seed and index-based agricultural insurance.

## Future Research

I plan to use my training as an agricultural economist and a development economist to contribute research in both fields, domestically as well as internationally. I will continue to develop my work on behavioral components of decision-making in the face of risk and how policy design can better support investment among decision-makers at all points in the income distribution.

I have particular interest in value-based supply chains, direct marketing, and the effects of regulatory and market environments on producer decisions. These topics speak directly to the economic viability of agricultural production and are relevant both domestically and globally. Owing to my time in Nicaragua and Mozambique, maize and coffee value chains are of special interest. Coffee, especially, offers an opportunity to study consumers' willingness-to-pay for various production and supply chain characteristics. I am interested in studying the benefits accruing to participants at various levels of such value-based supply chains. Finally, I also plan to study the role of information technology in facilitating value-based supply chains and the impacts of changing consumption patterns and regulatory environments on agricultural markets.