

Research Proposal: 2015-2016 NBER Entrepreneurship Fellowship

My research interests are in contract theory and industrial organization applied to agricultural markets in developing countries. My dissertation research looks at problems of contracting to supply French beans for export in Kenya. I propose to use an NBER Entrepreneurship fellowship to build upon the results of my dissertation work and study mechanisms to compensate for imperfect contract enforcement and search frictions between buyers and suppliers in a market.

Motivation

Relatively few smallholder farmers produce for Kenya's French bean export industry even though it has been shown to be a profitable enterprise for small-scale producers. Kenyan small-holder farmers who adopted French bean production under a targeting marketing program saw a 33% boost in income compared to the control group who received no program services (Ashraf et al., 2009). Previous research (Dolan and Humphrey, 2004; Mithofer et al., 2008; Ashraf et al., 2009; Asfaw et al., 2010) has suggested a variety of potential barriers to market - including costs of export certification, lack of irrigation, lack of access to credit, unreliable contracts, lack of information on market prices, etc - without reaching a consensus on the exact combination of problems that deters small-scale producers from entering this market. Without knowing the correct causal barriers to market, policymakers may find it difficult to design cost efficient and effective programs to support farmers. For example, programs to expand agricultural output in developing countries often include subsidized credit in the bundle of services offered. However, evidence from Kenya (Ashraf et al., 2009) and Ghana (Karlan et al., 2014) shows that liquidity constraints may not always be a limit on agricultural production, even for very poor households.

In my dissertation, I show that imperfect contract enforcement and search frictions can be acting as barriers to adopting French bean production. In my first essay, I demonstrate that imperfect contract enforcement deters entry, complicates exit, and reduces land allocation on the intensive margin. To do so, I introduce a new, empirical approach to test for barriers to technology adoption based on the causal mechanisms work of Imai et al. (2013). The approach can be used to pre-screen hypotheses before conducting a randomized control trial to reduce the likelihood of null experimental findings, and after program evaluations to identify the specific mechanisms impacted by the intervention. In my second essay, I show how search frictions compound the effects of imperfect contract enforcement by extending Moen's (1997) model of search frictions to allow for heterogeneous agents and relational contracting, and empirically testing the model with data from Kenyan farmers.

Also in my dissertation, I explore how exporters benefit from contracting with small-scale producers. Syverson (2011) notes that firms may experience different degrees of flexibility of input markets which might contribute to observed differences in aggregate productivity differences. In my third essay, I conduct a series of analyses to examine whether French bean exporters experience productivity gains from matching with their contracted suppliers, and whether more efficient firms are associated with longer repeated relationships and greater latitude for contract price adjustment within relationships than less efficient firms.

Research Plan

I would use an NBER Entrepreneurship fellowship to expand upon my dissertation research. First, I plan to use my existing dataset to explore whether successful participation in the export supply chains has increased incomes and/or food security at the farm household level. This work will be done jointly with Hugo De Groot, Menale Kassie, and Sika Gbegbelegbe from CIMMYT. Second, I plan to conduct a series of laboratory experiments, either at the Vernon Smith Experimental Laboratory at Purdue University or in partnership with a university within the Boston area, to explore potential mechanisms to correct for problems of contract enforcement and search frictions. These experiments will allow me to develop a menu of options for policy-makers to use to tradeoff between a mechanism's efficacy and cost and ease of implementation. I have prior experience conducting laboratory experiments for my Master's thesis research on contracting for the biofuel industry, and from six years of participation in the Vernon Smith Experimental Economics Lab group at Purdue University. Finally, I expect to devote time towards grant writing to fund follow-up field experiments with Kenyan French bean farmers to confirm that relational contracting and search frictions are barriers to market. The nature of the research design for my dissertation can only identify possible causal barriers to market, not establish positive causality. Field experiments would allow me to both confirm that imperfect contract enforcement and search frictions are the main causal barriers to market, and potentially field test some of the mechanisms which prove to be effective in laboratory experiments.

In addition to this research on Kenya's French bean market, I also plan to use theoretical modeling to explore how imperfect contract enforcement between firms and their suppliers impacts firms' horizontal differentiation decisions. Under standard models of horizontal product differentiation in consumer markets, price competition drives firms to make their products as different as possible. In producer markets where contracts are imperfectly enforced, however, greater differences in buyer requirements could increase the possibility of hold-up. Using a combination of theoretical modeling, I plan to investigate how the predictions of the Hotelling (1929) and Salop (1979) models change in this new environment.

Contribution to NBER PIE Program

I expect to contribute to the NBER PIE program in four ways. First, my dissertation research examines barriers to entrepreneurship in input supply markets governed by formal contracts. This is an area which has not been well explored yet in the entrepreneurship literature, and should contribute to the broader discussion of what types of firms participate in global value chains. Second, the research I plan to do as an NBER fellow on mechanisms to mitigate problems of contract enforcement and search frictions may offer synergies with research from other NBER working groups including Innovation Policy, Behavioral Economics, and Market Design. Third, as an agricultural economist, I have experience with agricultural markets and policies in the US and overseas that may not be familiar to your current working group members and therefore provide opportunities for new joint collaborations. Finally, my research portfolio includes theoretical modeling, laboratory experiments, empirical techniques, and primary data collection experience which will allow me to be an active participant in a wide variety of working group research activities.

References

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