Farms, Families, and Markets: New Evidence on Agricultural Household Behavior

Small, family-run enterprises are the backbone of many developing countries, and millions of households around the world produce goods and services for their own consumption as well as for sale. Microenterprises and family farms operate in complex, interlinked markets for food, labor, credit, consumption and output, and face considerable risk and uncertainty. Despite its importance, there is no consensus on the appropriate framework to analyze the interactions between buyers and sellers in rural areas. Using new population representative longitudinal data, I study the behavior of farm-households who grow food both for sale and their own consumption. Understanding these households’ constraints and choices is a key challenge for global development.

The neoclassical agricultural household model is one tool often used to analyze farm-households making both consumption and production choices. The model incorporates a family operated firm into the standard household utility maximization problem, and links profit maximization with time allocation and consumption choices. It provides a theoretical foundation for a large literature in development and labor economics, and has been used to analyze policies including the effects of trade restrictions, provision of property rights, agricultural pricing programs, farm subsidies, productivity shocks, and resource distribution within households. Under specific assumptions, the model greatly simplifies the two-sided production-consumption problem into a tractable, sequential form. If households function as price-taking utility maximizers in a world of complete markets, production and consumption decisions may be treated as separate, albeit related, problems. Under complete markets, optimal choices regarding farm production are made as if households operate profit maximizing firms independent of their preferences and consumption choices. The joint production-consumption problem then becomes recursive, and the family farm only influences consumption allocations only through the income effect from farm profits. This is an incredibly useful result for both theoretical and empirical applications of the model.

In this paper, I investigate the behavior of farm-households in rural labor markets to determine the validity of the neoclassical agricultural household framework with complete markets. Using new, longitudinal data from the Work and Iron Status Evaluation project in Central Java, Indonesia, I examine a prediction of the model that has been upheld by seminal papers in the literature. When separation holds, farm input demands are determined solely by the relationship between the marginal products of the inputs and prices. Preferences and characteristics of the household including family demographics play no role in the optimal production choices. I begin by testing whether the demand for farm labor is truly unrelated to the demographic composition of the farm household, and clearly reject the hypothesis. This is in direct contradiction to influential papers in the literature examining complete markets in Indonesia. I then extend the literature by showing neither time invariant unobserved heterogeneity at the farm level, separately examining labor demand for tasks with differential monitoring costs, nor addressing the potential endogeneity of household composition changes the conclusion: household composition affects labor demand on the farm.

The results are inconsistent with a world of complete markets, and suggest a wedge exists between the productivity of family and hired labor that links who is in the household to farm labor demand. Motivated by this finding, I develop an extended model of resource allocation within agricultural households allowing for heterogeneity in the skills of household and farm laborers. I examine the marginal productivities of different types of workers in on and off farm work, and provide empirical evidence that family members sort across sectors according to their comparative advantage. The overall results of this paper are important not only for modeling farm-household decision making, but for the design and evaluation of development policy, and for understanding complex behaviors of agricultural households in rural markets around the world.