Dynamic Incentives for Sustainable Contract Farming

Professor Long Gao

University of California, Riverside

Meeting online
Date: 10 November 2022 (Thursday)
Time: 11:00 - 12: 30

Link: https://cityu.zoom.us/j/95345917076?pwd=VldXYmR2aUNDK0JSM2xBUXJTUkg2dz09
(Zoom Meeting ID: 935 4591 7076 Password: 167495)

Abstract:

The rise of contract farming has transformed millions of farmers' lives. We study a new class of contract farming problems, where the farmer holds superior information and can invest effort to improve productivity over time. Despite their prevalence, the literature offers little guidance on how to manage such farmers with dynamic incentives. We build a game-theoretic model that captures the dynamic incentives of learning and gaming, with hidden action and information. We characterize the optimal contract: it internalizes both the vertical and intertemporal externalities, with performance pay and deferred payment; the performance pay is to motivate the farmer to invest and improve the relationship-specific productivity; the deferred payment is to ensure that the farmer is willing to share information and behave honestly over time. Even with random yield, the optimal contract can still have a simple implementation of yield-adjusted revenue sharing policy. Using real data, we show that the learning effect is significant. We then quantify when and how contract farming can improve smallholder farmers' productivity and income, creating shared value. We find when buyers have a long-term perspective and can internalize the benefit of farmer improvement, they will pay higher prices to ensure farmers' long-term viability. The resulting long-term policy can remedy both incentive and information deficiencies of spot transactions. Our results inform the policy debate on contract farming: traditional pro-competitive policies (based on spot transactions) can be counterproductive for modern agrifood value chains, hurting both buyers and farmers. By highlighting the critical role of dynamic incentives, this study deepens our understanding of contract farming theory and practice.

Biography:

Long Gao is an associate professor at UC Riverside. He earned his Ph.D. from Penn State University, B.E and M.E. from Tsinghua University. His research focuses on the role of dynamic information and incentives in operations management. The central question is what management can achieve, when the information necessary for decision-making is dispersed, privately held, and evolving over time. The agenda is driven by business practices in supply chain, retailing, transportation, salesforce, and health care. He has published in journals such as MS, MSOM, and POMS.

Your attendance is most welcome!

Department of Management Sciences
CityU
香港城市大學
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