An intermediary’s geographical expansion choice under uncertainty

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Abstract

High transport costs to reach markets and search frictions on these markets make it difficult for small-scale farmers in developing countries to market their production. Geographically isolated farmers therefore often have to rely on intermediaries to transport and sell their output on markets. To collect output from farmers, these intermediaries have to make investments while facing uncertainty due to the volatility of agricultural prices on world markets. Using real options theory, we establish the optimal investment strategy for an intermediary in terms of when to invest and with how many geographically dispersed farmers to contract with. We also establish how the intermediary should optimally further expand its collection area. We determine what public authorities could do to encourage the emergence of intermediaries who collect production from isolated farmers. Finally, we apply our framework to analyze investment decisions made by intermediaries in the milk sector in Senegal.

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