

News from the Sky: An Empirical Test of Forward-Looking Behavior among Zambian Farmers*

Ken Miura[†]

January 18, 2020

Abstract

Forward-looking behavior is a central assumption of many economic models in a dynamic setting. However, the literature has not adequately investigated the validity of this assumption in the context of developing countries due to the lack of high-frequency data and the difficulty in finding exogenous advance information. This paper measures the degree of forward-looking consumption behavior of agricultural households with weekly household data combined with daily plot-level rainfall records from rural Zambia. This study begins by confirming that rainfall actually works as a good predictor for future harvests in the study villages. Then, this paper presents a buffer stock saving model with borrowing constraints which predicts that the impact of signals on consumption growth has a hump-shaped relationship with asset stock levels: while the consumption responses of asset-poor and asset-rich households are close to zero or small, the middle asset group reacts to new information the most. Regression results find that weekly household consumption responds to rainfall in particular months which has an enough predictive power for future maize harvests. Furthermore, the response is heterogeneous according to the level of grain inventories, which is consistent with the proposed model. Overall, this paper provides empirical evidence that whereas even constrained households can change their consumption schedule before income shocks actually happen by adjusting buffer stocks, welfare gains from advance information depend greatly on the available asset levels.

*I would like to thank Andrew Foster and Anja Sautmann for their generous time, insightful comments and encouragements. I also thank Daniel Björkegren, Hiromitsu Kanno, Hidetoshi Miyazaki, Takeshi Sakurai, Bryce Steinberg, Chieko Umetsu, and seminar participants at Brown University, IDE-JETRO, and the University of Tokyo for valuable comments and suggestions. Special thanks are also owed to the respondents and their families at the study site for their enthusiastic participation in the interviews. All errors are my own.

[†]Department of Economics, Brown University. E-mail: ken_miura@brown.edu