

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

Ken Miura[†]

Takeshi Sakurai[‡]

April 28, 2021

Abstract

This paper proposes a novel test of consumption responses to new information by building on a buffer stock saving model with borrowing constraints. While the consumption responses of asset-poor and asset-rich households are close to zero or modest, the middle asset group reacts to advance information the most. We test this hump-shaped relationship with weekly household data combined with daily plot-level rainfall records from rural Zambia. The empirical analysis first confirms that rainfall works as a good predictor of future maize harvests in the sample villages. Then, the regression results show that weekly household consumption responds to rainfall in certain months, which has sufficient predictive power for future harvests. Furthermore, the response is heterogeneous according to the level of grain inventories, consistent with the proposed model. Our results suggest that while even constrained households can change their consumption schedules before income shocks happen by adjusting their buffer stocks, welfare gains from advance information depend on the available asset levels.

Keywords: Household consumption, grain storage, seasonality, Africa

JEL Classification: D15, O13, Q12

*We would like to thank Anna Aizer, Daniel Björkegren, Andrew Foster, Jun Goto, Ryo Horii, Hiromitsu Kanno, Hisaki Kono, Anja Sautmann, Bryce Steinberg, Chieko Umetsu, Takashi Unayama, Junichi Yamasaki, and seminar participants at NEUDC conference, Japanese Economic Association Annual Meeting, JADE conference, IDE-JETRO, the University of Tokyo, Kyoto University, and Brown microeconomics lunch seminar 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 our own.

[†]Kyoto University. Corresponding author: Division of Natural Resource Economics, Graduate School of Agriculture, Kyoto University, Kitashirakawa-iwakecho, Sakyo-ward, Kyoto-city, Kyoto 606-8502, Japan; Email: miura.ken.3e@kyoto-u.ac.jp

[‡]The University of Tokyo. Email: atsakura@mail.ecc.u-tokyo.ac.jp