Gender, Income Control, and Information Sharing Among Spouses

Sean Posey & Nicholas Magnan, University of Georgia, and sean.posey@uga

Selected Paper prepared for presentation at the 2023 Agricultural & Applied Economics Association Annual Meeting, Washington DC; July 23-25, 2023

Gender, Income Control, and Information Sharing Among Spouses

1 Overview and significance

There is a growing consensus among development economists that the adoption of modern farming practices and technologies improve the welfare of smallholder farmers and sparks the growth and development of the agriculture sector in developing countries. By adopting modern farming practices and technologies, farmers can increase profits (Bezu et al. 2014;Takahashi et al. 2019), improve food security Shiferaw et al. (2014)), and increase the quality and diversity of both their children's diets and their own (Kim et al. 2019;Bezu et al. 2014). Despite these welfare improving outcomes, technology adoption rates remain consistently low and issues such as chronic malnutrition remain persistent in most of the developing world. Lambrecht et al. (2014) states technology adoption occurs in three stages; awareness, tryout, and continued use. Access to and the quality of information plays a vital role in an individual's decision to adopt a new technology. In many developing countries, information is first introduced to farmers through extension agents, local traders, or marketers. Extension agents rarely meet demand for extension services while subsistence households do not interact frequently with local traders and marketers reducing farmers' access to information.

Recent studies have focused on increasing smallholder farmers' access to information by increasing extension access (Kondylis et al., 2016), using peer to peer (P2P) training (BenYishay & Mobarak 2019; Fafchamps 2019), and leveraging social networks to improve diffusion (Banerjee et al. 2014;Beaman et al. 2018). Although these studies show increased rates of information sharing and technology adoption, many of these studies find that women were less likely to obtain information than men (Beaman et al., 2018), men were less likely to listen to female trained farmers (BenYishay et al., 2020), and information sourced through a female social network had less impact on demand for agricultural technologies (Magnan et al., 2015). Although women play a key role in development, technology adoption among women continues to lag behind men. This lag is often attributed to the unique barriers women face such as time constraints, credit constraints, information constraints, and gender norms. There remains evidence of low information sharing for agricultural technologies(Fisher et al., 2019) and credit opportunities (Fletschner & Mesbah, 2011) between spouses that hinder awareness for women farmers preventing adoption. This study opens the box of information sharing within the household under two different income settings to identify ways to improve the flow of information between spouses.

Studies on information diffusion may overestimate their impact of their intervention by assuming household level access to information or household level knowledge of a new technology. Information diffusion designs, such as peer to peer farmer training, that do not include within household behavior may under perform or lead to larger gender gaps in access to information. Recent work determining spousal roles in adopting technology has found mixed results. Women may have little impact on the household's decision to adopt new technologies if the information enters the house through her (Gulati et al., 2019), however, Magnan et al. (2019) finds that the adoption decision for improved maize varieties were correlated to risk preferences of both the husband's and wives showing that intrahousehold decision making is complicated, heterogeneous, and how the information enters the household impacts which technology is adopted. Despite these effects information has within the household, few studies have attempted to directly test for information sharing in the household. This study uses a laboratory in the field experiment to observe information sharing within the household.

This paper contributes to two broad areas of research. First, this paper builds on the existing literature on household behavior. Several papers have tested the assumptions of many household models. Our paper contributes to this literature by experimentally observing information sharing by both husbands and wives as well as how the control of the income within the household impacts information sharing. Second, our paper contributes to the information dissemination literature. Many papers have explored ways to improve information dissemination across households. BenYishay & Mobarak (2019) uses performance based incentives to improve peer to peer information sharing. Others such as Banerjee et al. (2014) uses social network characteristics to improve information dissemination. Many of these papers focus on farmer to farmer or household to household information dissemination. Our paper contributes to this literature by expanding

on the findings in Beaman et al. (2018) and focusing on the barriers to information women face specifically within their household.

2 Empirical Strategy

We use a lab in the field with a 2x2 treatment design to exogenously vary the training of one spouse in each household and the control each spouse has over the income the household receives from the experiment. We ask couples from groundnut producing households in Northern Ghana to attend two meetings. Within each meeting participants are asked to solve the 4-disk version of the Tower of Hanoi for a cash prize. Households will be assigned to one of four treatment groups, husband first- individual payment, wife first- individual payment, husband first- joint payment, and wife first- joint payment. These four treatment groups allow us to observe information sharing between husbands and wives through their performance in this task as well as the impact income control has on information sharing behavior across genders. The primary goal of using a lab in the field is to create a unique environment to observe information sharing exogenous to the many factors that impact information sharing. We expect the results of the study to reflect real world practices. We collect information about groundnut practices and income from both spouses. We use this information to create outcome variables that are correlated with information sharing. We then compare household's information sharing in the lab to the information sharing in practice.

3 Data, Methods, and Results

Our study involves 480 households among 12 villages from Northern Ghana. Both the husband and wife of each household are interviewed separately. Participants perform a task using an android based tablet that collect the number of moves made, what move was made, and time until completion which are uploaded directly from the tablet to a cloud-based database. We interview the untrained spouse at the second meeting about information they received from their spouse or other members outside of the household. We have two major findings, men are unlikely to share information with their spouse unless the income from the task is shared jointly between the husband and wife. We find significantly higher rates of training and improved training by men for their wives when income was distributed jointly. The second major finding is that men do not put forth effort to complete the task when the income is shared jointly. Men push the effort to learn onto their wives when income is shared, but when income is individually distributed men perform significantly better.

4 Potential for Discussion

Information sharing within the household has continued to be a difficult topic to study. This experiment attempts to open that black box by observing information sharing in a lab in the field experiment when spouses are not given time or forced to share information. Unlike previous studies that observe discounting between spouses (Conlon et al., 2021) or use survey responses (Fletschner & Mesbah, 2011). We use both reported training rates as well as participants performance to measure both information sharing at the extensive margins and the intensive margins. The focus of the discussion will be on improving future information dissemination strategies to be more inclusive of women and shedding light on the barriers to information women face within their own household. Furthermore, information dissemination strategies may need to account for household income structure.

References

Banerjee, A., Chandrasekhar, A. G., Duflo, E., & Jackson, M. O. (2014). Gossip: Identifying central individuals in a social network. Tech. rep., National Bureau of Economic Research.

Beaman, L., BenYishay, A., Magruder, J., & Mobarak, A. M. (2018). Can network theory-based targeting increase technology adoption? Tech. rep., National Bureau of Economic Research.

BenYishay, A., Jones, M., Kondylis, F., & Mobarak, A. M. (2020). Gender gaps in technology diffusion. *Journal of Development Economics*, *143*, 102380.

BenYishay, A., & Mobarak, A. M. (2019). Social learning and incentives for experimentation and communication. *The Review of Economic Studies*, *86*(3), 976–1009.

Bezu, S., Kassie, G. T., Shiferaw, B., & Ricker-Gilbert, J. (2014). Impact of improved maize adoption on welfare of farm households in malawi: a panel data analysis. *World Development*, *59*, 120–131.

Conlon, J. J., Mani, M., Rao, G., Ridley, M. W., & Schilbach, F. (2021). Learning in the household. Tech. rep., National Bureau of Economic Research.

Fafchamps, M. (2019). Mobilizing p2p diffusion for new agricultural practices-experimental evidence from bangladesh.

Fisher, M., Habte, E., Ekere, W., Abate, T., & Lewin, P. A. (2019). Reducing gender gaps in the awareness and uptake of drought-tolerant maize in uganda: The role of education, extension services and social networks. *Journal of Gender, Agriculture and Food Security (Agri-Gender)*, *4*(302-2020-394), 38–50.

Fletschner, D., & Mesbah, D. (2011). Gender disparity in access to information: do spouses share what they know? *World Development*, *39*(8), 1422–1433.

Gulati, K., Ward, P. S., Lybbert, T. J., & Spielman, D. J. (2019). Intrahousehold valuation, preference heterogeneity, and demand for an agricultural technology in india.

Kim, J., Mason, N. M., Snapp, S., & Wu, F. (2019). Does sustainable intensification of maize production enhance child nutrition? evidence from rural tanzania. *Agricultural Economics*, *50*(6), 723–734.

Kondylis, F., Mueller, V., Sheriff, G., & Zhu, S. (2016). Do female instructors reduce gender bias in diffusion of sustainable land management techniques? experimental evidence from mozambique. *World Development*, *78*, 436–449.

Lambrecht, I., Vanlauwe, B., Merckx, R., & Maertens, M. (2014). Understanding the process of agricultural technology adoption: mineral fertilizer in eastern dr congo. *World Development*, *59*, 132–146.

Magnan, N., Love, A., Mishil, F., & Sheremenko, G. (2019). Husbands' and wives' risk preferences and improved maize adoption in tanzania. *University of Georgia*.

Magnan, N., Spielman, D. J., Gulati, K., & Lybbert, T. J. (2015). Information networks among women and men and the demand for an agricultural technology in india.

Shiferaw, B., Kassie, M., Jaleta, M., & Yirga, C. (2014). Adoption of improved wheat varieties and impacts on household food security in ethiopia. *Food policy*, *44*, 272–284.

Takahashi, K., Mano, Y., & Otsuka, K. (2019). Learning from experts and peer farmers about rice production: Experimental evidence from cote d'ivoire. *World Development*, *122*, 157–169.