

## Revision memo

Manuscript ref: WD-19687-R1

### **“Empowering women through targeting information or role models: Evidence from an experiment in agricultural extension in Uganda”**

#### **Response to Reviewer 5:**

##### **Reviewer 5:**

The paper reads much better than the original submitted version, but much still needs to be done. For instance, the introduction reads like a summary of the findings and methods. When the reader gets to the methods and results sections, there is a repetition of issues mentioned in the introduction. The introduction could read much better if it focused on a literature review on issues relevant to the paper's objectives and identifying the gaps the authors would like to fill.

##### *Response to the reviewer:*

*Thank you for your suggestion. It is true that the introduction has one paragraph on the core methodology (a field experiment) and three paragraphs on the findings (in addition to a first paragraph that provides the motivation and a last paragraph that provides a roadmap). While we agree that three paragraphs on findings may be somewhat excessive, we do feel that announcing the research question and methods used upfront (our second paragraph) is standard practice. Furthermore, while Marc Bellemare in his recent book (<https://marcfbellemare.com/wordpress/research/doing-economics>) does not include a summary of the findings in his formula for introductions, he does refer to similar formula's by Claudia Sahm and David Edwards, who both argue that a pre-view of the results has a place in the introduction (see <http://macromomblog.com/2019/09/01/lets-talk/> and <https://www.cgdev.org/blog/how-write-introduction-your-development-economics-paper>).*

*The reviewer is also correct in pointing at the relation of our study to the wider literature is missing. The latter is due to an earlier round of revisions. We initially had a long introduction with a lot of references to the literature and it was suggested by both reviewers to create a separate section for the literature review and move statements about significance of the study to the background study.*

*Changes made to the text: In light of the above, we have substantially rewritten the introduction. While we keep the motivation and the second paragraph that provides both research question and methodology, we have reduced the findings to a single paragraph. We also added a paragraph that situates our study in the wider literature and points out how it contributes to the body of knowledge.*

**Reviewer 5:** I suggest that the authors revise the context section. The context section should focus on the study context, not on how many people were part of the experiment. Authors should move any reference to how the experiment was designed to the methods section. The last

paragraph on page 10 (Lines 35 to 56) does not add any relevant or useful information about the context. I suggest deleting this paragraph and including information about access to agriculture and ICTs in eastern Uganda.

In many instances, it is not only access to information and the nature in which information is disseminated that determine outcomes, but also policy and laws that govern gender relations. There may be a need to include information on land tenure for women and how this affects their decision-making regarding adopting improved farming methods they learn. If relevant, could you include information on any differences in women's and men's legal rights to inherit, own property, access to finance etc. The issue of land is not as straightforward as the authors intimate – they claim that gaining access to land through marriage gives women security over land ownership. It doesn't always. Check Mdege et al., 2022, who acknowledge that young women in Gulu Uganda who had access to land through their husbands often had less decision-making power on how to use some of the income from that land and sometimes even on what crops to plant. Accessing land through husbands can curtail women's decision-making power. The authors do not sufficiently address this. They did not integrate their response to reviewer 2 in their text. Integrating the issue of access to resources, finance, and land would improve their analysis and understanding of their results.

*Response to the reviewer: We revised the context section. As advised we moved all information about methods to the methods section and we included evidence of existing gender gaps in agriculture and key constraints to gender equality and women's empowerment in agriculture in Uganda, and, where evidence is available, in maize farming in eastern Uganda more in particular. Such key constraints relate among others to women's work burden, limited access to resources such as (agricultural) land and limited voice in intrahousehold agricultural decision-making. We elaborate a bit more on the key constraint of land access and explain how social norms, some legal provisions and informal practices disfavour women's land ownership (e.g. legal marriage gives women security over land ownership but customary marriage, which seems preferred, does not necessarily). We also included evidence for eastern Uganda showing the extent of ownership and being the main decision-maker of maize plots by married women.*

*As advised, in a discussion of the limitations of the study (conclusion section), we acknowledge that challenges with access to land, resources, finance and complementary inputs may have constraint the effects of the (information and role model) interventions (see further for more detail).*

**Reviewer 5:** The authors say they conducted their study in eastern Uganda, so they also need to provide relevant information about eastern Uganda in the context section. A map of where the study was conducted could also help to visualise the study areas.

*Response to the reviewer: A map of the study area was added. We also added information that is relevant to the study, in particular related to gender issues and women's empowerment in agriculture in the context section.*

**Reviewer 5:** Why are the authors giving credence to a study in 2011 that shows that the NAAD approach was more effective for male-headed households to negate a recent survey of 2016 that shows that women benefited from the NAADS approach?

*Response to the reviewer: Both studies have their own merits and limitations and we did not intend to “negate” one study nor give “credence” to another study;. For instance, the 2011 study is a large impact evaluations that uses a standard methodology (difference-in-difference). At the same time, the study was not designed with the particular aim of studying gender related issues and the large scale of the may obscure some to the local heterogeneity (in some areas NAADS may have been beneficial to women but averaged over the entire country this may not be apparent). The other study is a mixed-methods case study of one subcounty which evidence suggests that NAADS did better than privatized extension services in reaching women and vulnerable groups.*

*Changes made to the text: We turned the sentence around and now first report the results for the larger (2011) study and then refer to the 2016 study. We completed the information about the public agricultural extension system in Uganda with a recent study that evaluated the extent to which the successor of NAADS, Operation Wealth Creation, includes gender equality and inclusion principles and measures to ensure their implementation (Acosta et al. 2019).*

**Reviewer 5:** I think that although the study conducted by the authors is valid on its own, they should have a section where they discuss some limitations of the study. For instance, they could state that the study had a narrow scope. However, the authors realized that gender norms and inequalities could determine the outcomes of interest even when women have access to information.

*Response to the reviewer: Thank you for this suggestion. We included a discussion of the limitations of the study, which reads as follows: “The assessment of the interaction effects of the treatments allows an understanding of simultaneously addressing constraints to women's empowerment related to information asymmetry and normative gender roles. We acknowledge that reducing these constraints may have had greater impact on women's empowerment in agriculture if, at the same time, women's insecure land ownership and use rights, access to complementary resources including credit, group membership, skill training, and norms related to time use, among others, would have been addressed. Evaluating such complex interventions, however, would need an appropriate research design, for instance, a factorial design with additional factors, which was not within the scope of this study. Besides, testing hypotheses about the effect of more secure land ownership and user rights for women, for instance, is not easily done in an experimental framework unless there are opportunities arising from newly implemented policy or certification. In our study, the multiple other constraints are treated as a given and because of our randomization strategy we can be confident there is no omitted variable bias. In principle, it would be possible to investigate treatment heterogeneity, for instance to examine if the information or role model treatment work better among spouses that have ownership of the maize plot. However, the study would*

*have needed to be designed for such analyses and sample sizes sufficiently large for adequate statistical power, which was out of the scope of this project.”*

**Reviewer 5:** In the conclusion section, when discussing the study's implications, the authors need to explicitly address whether they think the results of their study could apply to the rest of Uganda and even to other agrifood systems. Would these results apply to other countries in the region; why or why not?

*Response to the reviewer: Thank you for this suggestion. We included a short discussion of the transferability of the findings in the conclusion section. “In terms of transferability, our study's findings could apply to other crops grown in the study region which similarly are both food and cash crops and not exclusively male- or female-managed, such as, for instance, millet and cassava. One could expect similar effects in other regions of Uganda and East Africa, where smallholder semi-subsistence household farming, in majority by monogamous dual households, is the dominant agricultural system, and women's access to information, role models, resources and their intrahousehold decision-making power tend to be constrained. Firm conclusions about transferability to other crops and other contexts, be it with other agricultural systems or with other gender norms and roles in agriculture, however, would require an assessment of the extent of difference in the effects of the same interventions.”*

**Reviewer 5:** In the conclusion section, the authors suggest a need for more intensive gender transformative reforms to empower women in agriculture, but it is unclear what these could be.

*Response to the reviewer: To clarify on gender-transformative approaches to extension, we included examples e.g., household methodologies influencing intrahousehold gender relations and decision-making, often using a couple coaching approach; involving both women and men in nutrition, agricultural, farmer field school programs; and participatory action learning methods with communities and/or households that question and try to shift discriminatory gender relations and norms.*

**Reviewer 5:** A couple of places the author refer to ICT- mediated information – this is quite broad, and the only thing tested was using videos for extension using different models/actors and actresses. I think the authors should be modest about what they did and limit the use of much broader ICT-mediated information.

*Response to the reviewer: Agreed, we have replaced the broad term by a more specific term in various locations.*

**Reviewer 5:** Much more has been published on video-based agriculture extension approaches and whether or not they empower farmers. The authors may need to review and build upon this literature and body of work.

*Response to the reviewer: Thank you for this suggestion: Our study focuses on gender responsive agricultural extension and specifically the effects of reducing information*

*asymmetry between male and female spouses and using (female) role models. We use video as a medium but the method of delivery (video) is not central to the study. Evidence from other studies suggests that other methods of delivering information (that preserve the characteristic that we study in our experiment) are likely to lead to similar conclusions. For example, Kondylis et al. (2016) come to similar conclusions when the hypothesis related to the gender of the messenger in in-person agricultural extension information transmission. As the use of video is thus not central to the paper, we feel that a review of the extensive literature on video based agricultural extension is beyond the scope of the current paper.*

### **Response to Reviewer 1:**

**Reviewer 1:** The authors have made clear the contribution of the paper to the field of knowledge. The sectioning of the introduction and literature review has enhanced clarity and coherence, making the story line contextual and interesting. All issues raised in the first review were sufficiently addressed, including explanations to delineate elements that were not included in the study.

A few minor comments that require author attention:

**Reviewer 1:** Highlight 1, "We test the deferential impact of who is targeted with agricultural extension information within the household (husband and/or wife) and who provides this information (man and/or woman)." The 'who provides this information' is not clear - between the man and/or woman, providing information to who? This only becomes clear in chapter 4 to imply that the 'provider' means the messenger - the highlight should make this expressly clear to the reader.

*Response to the reviewer: we have changed the highlight to:*

*We test the differential impact of who is targeted with agricultural extension information within the household (husband and/or wife) and the messenger of this information (man and/or woman)*

**Reviewer 1:** The authors desired to provide a link to the video (they make mention) but no link was provided (if this was unintentional).

*Response to the reviewer: The hyperlink is included <https://www.youtube.com/watch?v=1albuXRm9a8&index=3&list=PLeqdWbb3KnJ8VdzDX-ikrnOnizHRB09Ob>*

**Reviewer 1:** The second policy recommendation (on the ambition of the extension reform) is less clear, and seems detached from the findings of the study.

*Response to the reviewer: We revised the recommendations: We removed the statement about extension reform. We completed the first recommendation with examples of gender-transformative approaches (in response to a reviewer's suggestion). We added a recommendation highlighting the need to not only address constraints related to information and role models but also simultaneously reduce other compounding*

*constraints to women's empowerment in agriculture, including those related to limited access to resources and gender responsive technology and gender norms and roles restricting women's agency.*

### **Response to comments from the Editor**

In addition to reviewer comments, I would like you to address three issues in your revisions that we are asking all authors to address to promote consistency across the research papers along a given theme for which World Development is a vehicle.

1. This is a subject on which there has been some significant research, reported in interdisciplinary development journals. It would be useful for you to engage with available findings in the interests of engaging with the relevant audience to ensure both that your paper is speaking to the literature and demonstrating its additional contributions clearly. World Development is committed to the principle of fair intellectual acknowledgment without bias or discrimination on the basis of gender, ethnicity, race, class, professional standing, or other similar attributes. As such, we encourage all our authors to be vigilant in attribution of intellectual debt and citations, attending in particular to acknowledging authors, scholarship, and literatures often overlooked as a result of above biases.

*Authors' response. As an interdisciplinary team of authors, we are very aware of the existing research on this topic and the interdisciplinary nature of the research. While we agree that our study has a largely quantitative angle, we do feel that we sufficiently point out how our study is related to work by other social scientist that is publish in outlets such as Development and Change or Journal of Development Studies, e.g., research by Alice Evans, Mariola Acosta, and Naila Kabeer.*

2. Please provide a set of 3-5 highlights that convey the message and findings of your paper succinctly and clearly to the general reader.

- We test the differential impact of who is targeted with agricultural extension information within the household (husband and/or wife) and the messenger of this information (man and/or woman)*
- if the aim is to empower women, most gains can be made by re-designing agricultural advisory services to target information exclusively to the female co-head within the household.*
- Challenging gender stereotypes may create room for more women involvement in agriculture.*

3. Finally, please avoid references to gray literature to the greatest possible extent.

*Authors' response. We have deleted some reference from the gray literature where they were not central to our investigation, and we tried as much as possible to stick to peer-reviewed*

studies. There are a few exceptions that we feel warrant citation even though the papers are not (yet) published in the peer-reviewed literature. They are:

- *Fermont, A. and T. Benson (2011), “Estimating yield of food crops grown by smallholder farmers” (International Food Policy Research Institute). While not published in a journal, this IFPRI discussion paper has become the de-facto reference for all study for crop yields in Uganda, with almost 150 citations to date, according to Google Scholar*
- *Duflo, E. and C. Udry (2004), “Intrahousehold resource allocation in cote d’ivoire: Social norms, separate accounts and consumption choices” (National Bureau of Economic Research). This is also a key reference in the literature. While never published, this is written by a Nobel prize laureate and is cited almost 900 times, according to Google Scholar.*
- *Wodon, Q. and C. M. Blackden (2006), “Gender, time use, and poverty in sub-Saharan Africa” (World Bank). This book is considered an important contribution the study of gender and “time poverty.” It collects contributions of an interdisciplinary panel of scholars, and is cited more than 500 times, according to Google Scholar.*
- *Kabunga, N., T. Mogues, E. Bizimungu, A. Erman, and B. Van Campenhout (2016), “The state of public service delivery in Uganda: Report of a baseline survey (International Food Policy Research Institute). This report is referred to for a statistic we cite in the paper.*
- *FAO, IFAD, and WFP (2021). Gender transformative approaches for food security, improved nutrition and sustainable agriculture – a compendium of fifteen good practices. Technical report, Rome. This report it referred to as a key policy document.*

*Additional response from the authors. We have also revised this manuscript to improve its readability, with a focus on syntax, grammar, and word choice.*