

Information sharing, insurance decisions and conflict in the household

Amendment to Pre-Analysis Plan

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Tagel Gebrehiwot* Lotte van der Haar † Nathan Jensen ‡
Kelvin Mashishia Shikuku § Hyuk Harry Son ¶ Karlijn Morsink ||
Anouk van Veldhoven**

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*Global Research Consultancy Service (GCRS)

†Wageningen University

‡University of Edinburgh

§International Livestock Research Institute

¶Northeastern University

||Utrecht University, Wageningen University & Cornell University

**Utrecht University

Additional analysis: Direct effects of insurance purchase

1. IV approach

The pre-specified analyses under the previous pre-analysis plans studied effects of informational interventions - about consumer value and customer care - on insurance take-up and intimate-partner violence (IPV). Our analyses suggest that a relationship exists between information provision, insurance uptake, and household conflict (including IPV). The aim of follow-up analyses specified in this amendment will be to disentangle the direction of this relationship, to understand whether insurance take-up directly affects one of the other outcome variables measured at endline, for example IPV.

First, we use the informational interventions implemented in January-March 2024 as an instrumental variable (IV) for insurance purchase. We estimate the following first-stage regression as part of a linear 2-SLS approach:

$$\hat{I}_{hcs} = \alpha + \beta T_{cs} + \gamma X_{hcs} + \delta_s + \epsilon_{hcs} \quad (1)$$

where, T_{hcs} is a dummy for treatment assignment into one of the customer care information arms (customer care or combined video) and the reference group is the control arm and the consumer value information arm. We estimate this for the subsample of communities where there have been any sales of the insurance product in community c before the interventions. We include pre-intervention household insurance uptake and pre-intervention values of the outcome variable (included in X_{hcs}), as well as randomization strata fixed effects in both the first- and second-stage equation. Instrument strength will be assessed using the Oleva-Pflueger robust F-statistic (Oleva and Pflueger, 2013) and the Anderson-Rubin weak instrument χ^2 test (Anderson and Rubin, 1949). We cluster standard errors at the community level, the highest level of treatment randomization (Abadie et al., 2023). \hat{I}_{hcs} then represents the predicted probability of insurance uptake for household h which we use to estimate the second stage:

$$Y_{hcs} = \alpha + \beta \hat{I}_{hcs} + \gamma X_{hcs} + \delta_s + \epsilon_{hcs} \quad (2)$$

where Y_{hcs} is the household-level outcome variable of interest for household h in community c and strata s .

2. Follow-up study in 2025

2.1 Design

Given a potential exclusion restriction violation due to the potential direct relationship between the information and other household outcomes, we add an additional round of data and evaluate an additional intervention implemented in the insurance sales window in January-March 2025 in the same study setting. This intervention is implemented at the community-level and cross-randomized across the intervention implemented in January-March 2024. The intervention assigns different sales incentive structures to insurance sales agents at the community-level:

1. **Control arm:** Basic sales incentives
2. **T1:** Basic sales incentives + additional sales incentives
3. **T2:** Basic sales incentives + renewal incentives
4. **T3:** Basic sales incentives + knowledge incentives

A more detailed description and initial analysis of this intervention is prespecified and preregistered in *Agent Incentives to Maximize Profits and Social Welfare from a Catastrophic Drought Insurance* (AEARCTR-0016218). As this intervention promotes insurance uptake through sales incentive structures to agents but does not provide direct information to households, and therefore there is no reason to assume a violation of the exclusion restriction, we use this as an alternative IV to estimate the effect of insurance on our household-level outcomes, among which IPV.

An additional round of household survey data from the same households was collected between November-December 2025, about 10 months after the January-March 2025 intervention.

2.2 Sample

We adjust the sample for the additional analysis compared to the sample used for the intervention implemented in 2024. We add 608 households that were excluded previously (see amendment submitted on 21 April 2025). We use this sample of 3143 households (6286 respondents) for our preferred specifications.

Households and respondents that were part of the sample at the time of the intervention in February 2024 but were not interviewed (attrited) during the November-December 2024 survey were dropped from the analyses of treatment effects of the 2024 intervention. However, replacement households and respondents were interviewed for these respondents in the November-December 2024 survey round. Similarly, in November-December 2025 we surveyed replacement households and respondents for those who attrited since the November-December 2024 survey. In our analysis of the

2025 intervention as an IV for insurance purchase, we will include in the sample all households and respondents for whom data was collected in the November-December 2025 survey.

2.3 Estimation strategy

We use a similar empirical approach to estimate the effects of insurance purchase on household outcomes, leveraging variation from the intervention implemented in 2025 as an IV. To achieve the strongest IV, we restrict the sample to Oromia and South West Ethiopia regions only, and use a dummy for random assignment to T2 (renewal incentives only). We estimate the following first stage equation:

$$\hat{I}_{hc} = \alpha + \beta T_c + \gamma X_{hc} + \epsilon_{hc} \quad (3)$$

where T_{cs} is a dummy for whether community c was assigned to T2 (renewal incentives), which provides the strongest first stage. X_{hc} includes households' prior insurance purchase, the pre-intervention value of the outcome variable (measured during the November-December 2024 household survey), as well as a dummy for whether any sales of the insurance product in community c before any of our interventions (i.e. before January-March 2024). Instrument strength will be assessed using the Olea-Pflueger robust F-statistic (Olea and Pflueger, 2013) and the Anderson-Rubin weak instrument χ^2 test (Anderson and Rubin, 1949). Other parameters represent the same as in (1). Standard errors will be clustered at the community-level, the level of randomization (Abadie et al., 2023). We then estimate the second stage:

$$Y_{hc} = \alpha + \beta \hat{I}_{hc} + \gamma X_{hc} + \epsilon_{hcs} \quad (4)$$

where Y_{hc} is the household-level outcome variable of interest for household h in community c , measured in the 2025 household survey.

Additional outcome variable: worries about risk

We add respondents' worries about risks as secondary outcome variable.

We ask respondents, in all survey rounds, to indicate how worried (on a scale of 1-4: not at all worried, a little worried, quite worried, very worried) they are about about each of the following risks:

- Problems with health, sickness (yours or family members)

- Problems at home and with family members
- Accidents and disasters
- Security problems due to conflict with people from other ethnic or religious groups, or with people from other wealth, landholding, or livelihoods activities.
- Not enough money for basic needs (food and clothes)
- Not enough money for other living expenses
- Not enough money for medical expenses
- Not being able to educate your children
- Debt to others

We construct a binary variable for each of the risks that is equal to one if respondents indicate to be quite or very worried, and zero otherwise. We also sum respondents' answers across all risks to form a continuous scale of 0-36 points.

References

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