

## Extended Abstract

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<b>Paper/Poster Title</b>	<b>Assessing digital opportunities for the distribution and product design of agricultural microinsurance</b>
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<b>Abstract</b>	<i>200 words max</i>
<p>Agricultural index-based microinsurance is perceived as a promising risk management tool for smallholders. A recent trend are mobile-delivered insurance schemes in which farmers can handle all steps along the client journey via their cell phone. Cell phone usage and network coverage constantly increase and hence, the market is expected to grow further. Yet, farmers' preferences for mobile-delivered insurance products remain largely unknown. We address this knowledge gap by means of a discrete choice experiment conducted among 496 maize farmers in Mali. The experiment presents an easy-to-understand multi-peril crop insurance linked to a greenness index and focuses on attributes related to the delivery channel and product design. Using conditional and mixed logit models, we find that it is not mobile delivery itself that is attractive to farmers, but rather the product bundles made possible by mobile delivery. Especially insurance policies coupled with credit access or with mobile-delivered weather information and agricultural advice are of interest to farmers. We further find that referrals of the insurance by fellow farmers increase the likelihood to take out an insurance. These results are important to better tailor products to farmers' needs which may increase adoption rates and thus enable hedging household welfare against adverse risks.</p>	
<b>Keywords</b>	Mobile-delivered insurance; index insurance; risk management; product bundle; discrete choice experiment
<b>JEL Code</b>	Household finance: Insurance G52, Agricultural finance Q140
<b>Introduction</b>	<i>100 – 250 words</i>
<p>Agricultural index-based insurance gained popularity as they enabled cost-efficient provision of microinsurance to smallholders in remote areas. Recently, a growing number of microinsurance providers entered the market with mobile-delivered insurance products (Raithatha and Priebe, 2020). Instead of distributing the insurance policy via field agents or cooperatives, interested farmers can get informed, subscribe to the insurance, pay premiums, and even request indemnities via their cell phone. The degree to which the insurance service provision is digitalized differs between the providers, but the general idea is the same. Travelling to an agency becomes obsolete, claim management can be made transparent, and waiting times decrease to a minimum as indemnities are triggered automatically. It also enables the provision of new product bundles with e.g. real time weather information or mobile money loans.</p>	

We aim at identifying the importance and opportunities of mobile-delivered agricultural microinsurance by answering the following research questions: Do smallholders prefer insurance products that can be taken out via cell phones? What are appropriate product bundles for mobile-delivered agricultural insurance schemes? Can referral schemes help to bridge a potentially emerging trust gap in mobile-delivered insurance schemes? Thereby, we provide first evidence on farmers' preferences regarding the design of a mobile-delivered index-based insurance product. Our findings are of special relevance for insurance providers to align their products with the needs of smallholders. Well-adapted insurance policies, in turn, are important to achieve high adoption rates and to realize the loss-hedging potential of microinsurance.

### **Methodology**

**100 – 250 words**

We address our research questions by means of a discrete choice experiment (DCE) conducted among smallholder maize producers in the southern half of Mali. The primary data were collected in November 2021 in cooperation with an insurance provider including clients as well as non-clients of the insurance. We offered a fictional multi-peril crop insurance. The insurance policy was designed to trigger a one-time payment of 40,000 FCFA - which is equivalent to a quarter of the average revenue per ha maize (CPS/SDR, 2019) - given a negative deviation of 25 % from the yearly average of a greenness index at the respondent's location. Presenting this simplified scheme allowed to keep the same explanation for respondents across different regions in Mali.

Following a thorough explanation of the fictional product, each respondent answered six illustrated choice cards with two alternatives and an opt-out option. The alternatives differed in six attributes, namely premium per hectare, delivery channel (mobile-delivered vs. agency office), travel time for interaction with the insurance provider, credit access through the insurance, additional information services provided via mobile phones, and recommendation by peers. A pre-test as well as several strict quality controls ensure high data quality. We used conditional and mixed logit models with robust standard errors to assess farmers' preferences on a sample of 496 respondents.

### **Results**

**100 – 250 words**

The general interest in the offered insurance policy was high. Only 20 respondents constantly chose the opt-out option. Consistent across all models the mobile-delivered option was not statistically significantly preferred over the alternative distributed via an agency office. While there was no preference attached to the mobile delivery itself, the attributes and services enabled by mobile delivery increased the likelihood to adopt the insurance. In particular, additional information services that were only included in the mobile-delivered option increased the likelihood to adopt the insurance. The most preferred information service offered was a mobile application in which weather information as well as farming advice were provided. Travel time negatively affected the adoption decision implying that mobile-delivered options that do not entail travelling were preferred. Besides, credit access was perceived as a positive product attribute and recommendations by fellow farmers also led to a higher likelihood to adopt the insurance.

When controlling for socioeconomic aspects via interaction terms, the results remained stable. The current insurance status of the respondent did not influence the results of the experiment. When testing for the influence of remittances and mobile money use, we found statistically significant effects. Farmers who received remittances in the year prior to the data collection were less likely to choose an insurance product, thereby hinting at a potential substitution effect between remittances and insurance policies. Frequent use of mobile money, in contrast, led to an increase in the likelihood to adopt an insurance.

### Discussion and Conclusion

100 – 250 words

Based on these results, two promising product bundles stand out: bundling insurance with credit access and with information services. Our finding that farmers value credit access through the use of insurance is consistent with findings by Galarza and Carter (2011), but goes against results by Giné and Yang (2009). We contribute to this discourse by providing first evidence on the relationship between insurance and mobile money loans. Information services linked to mobile insurance offerings were also of interest to farmers. Previous studies showed that personalized agricultural advice (e.g. Rajkhowa and Qaim, 2021) and weather information services (e.g. Roudier et al., 2014) positively influence farmers' production decisions and welfare. Considering these positive impacts and the interest of farmers, we recommend insurance providers to assess the feasibility of this kind of product bundles.

For microinsurance providers, trust towards the insurer plays an important role in the adoption decision (Platteau et al., 2017). We suspect that the level of trust decreases when the insurance is no longer distributed physically via agents. We show that a good reputation of the scheme could alleviate a potentially emerging lack of trust.

To conclude, this DCE explored preferences for a variety of, so far mostly hypothetical but technically feasible, insurance product features and confirmed a high potential for mobile-delivered insurance. Thereby, we contribute to improve the availability of well-suited risk management tools for smallholders. For policymakers, our findings imply that mobile-delivered insurance products and product bundles may be equally considered for government support of risk management tools.

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