COSA Committee On Sustainability Assessment

Sustainability Intelligence

IVR Interactive Voice Response Case Study

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Introduction

We tested Interactive Voice Response (IVR) technology in two pilot projects to assess its effectiveness as a data collection tool in comparison with Computer-Assisted Telephone Interviewing (CATI). While IVR offers substantial cost advantages, the results from both pilots indicate significantly lower response rates relative to CATI.

Across the two contexts, IVR consistently underperformed despite variation in survey length. In particular, survey duration, often considered a key constraint in remote data collection, does not appear to fully explain the low response rates observed. Even relatively short IVR surveys (22 questions) yielded poor completion rates, suggesting that additional factors play a critical role in shaping respondents' engagement with this technology.

Our analysis identifies several individual-level characteristics associated with response behavior. In particular, age, years of schooling, and household wealth are significantly correlated with the likelihood of survey completion. Furthermore, respondents' level of prior involvement in the implementation program emerges as a key determinant of participation, pointing to the importance of familiarity and trust in technology-mediated survey modes.

We next examine in detail the results from the two pilot projects:

- **Sudan (22-question survey)**: The IVR survey achieved a response rate of 7% (defined as completed interviews), compared to a substantially higher response rate of 66% for CATI.
- **Zimbabwe (70-question survey)**: The IVR survey yielded no completed interviews (0% response rate), while the CATI approach achieved a response rate of 95%. A closer examination of respondent behavior in the IVR survey reveals substantial early drop-off. Specifically, 22% of respondents did not answer any question, while 56% answered only 1-15 questions. Only a small share (7%) progressed further into the survey answering 16–30 questions, a further 7% answered 31–50 questions, and 8% answered more than 51 questions but did not complete the survey. These patterns indicate that attrition occurs predominantly at the early stages of the IVR survey, with very few respondents reaching completion. This distribution suggests that respondent fatigue, limited engagement, or difficulties in interacting with the IVR system may significantly hinder survey completion, particularly for longer questionnaires.

These stark differences highlight the limitations of IVR as a standalone data collection method in these contexts. While IVR may reduce operational costs, its effectiveness is severely constrained by low respondent engagement, particularly among populations with lower levels of education, wealth, or prior exposure to the program intervention.

Overall, the findings suggest that, although IVR can be a cost-efficient tool, its deployment in similar settings should be carefully evaluated against the risk of substantial non-response bias. Hybrid approaches or complementary engagement strategies may be necessary to improve participation and ensure data quality.

IVR (Interactive Voice Response)
Agile Data in Sudan

IVR Implementation in IFAD- SNRLP program: In collaboration with International Fund for Agricultural Development (IFAD), International Security and Development Center (ISDC), and Viamo, COSA tested Interactive Voice Response (IVR) technology within the IFAD's Sustainable Natural Resources and Livelihood Program (SNRLP) in Sudan. The program aims to improve food security, income, and resilience among pastoralist and agro-pastoralist communities. The SNRLP targets approximately 120,000 households, corresponding to around 720,000 individuals. The beneficiary population is composed of a heterogeneous mix of livelihood groups, including 50% smallholder farmers, 30% agro-pastoralists, and 20% pastoralists.

The sample for this study consists of 2,852 individuals distributed across multiple states (add Figure X for geographic coverage with conflict). The individuals were part of the baseline study conducted by IFAD between December 2022 and January 2023. COSA and its partners implemented an IVR-based feedback survey to collect beneficiary perceptions of the program between June and October 2024. The survey was conducted shortly before program activities were suspended due to the escalation of conflict in the country.

The same individuals were contacted using both IVR and CATI modalities, yielding response rates of 7% and 66%, respectively. Overall response rates were adversely affected by contextual constraints, notably the prevalence of switched-off phones due to the escalation of conflict and the resulting network disruptions. However, the substantial gap in response rates between CATI and IVR suggests that differences in performance cannot be

attributed solely to connectivity issues, but also reflect respondents' relative preferences and ability to engage with each survey mode.

To further investigate these differences, we estimate a probit model examining the determinants of response to IVR calls relative to CATI calls. The dependent variable is defined as a binary indicator equal to one if the respondent answered the IVR call, and zero if the respondent did not answer the IVR call but did respond to the CATI call. This specification allows us to isolate factors associated with engagement with IVR technology among individuals who were otherwise reachable by phone. The set of explanatory variables includes key socio-demographic and economic characteristics, such as sex, age, household size, years of schooling, region of residence, treatment status, and exposure to shocks. These covariates are included to identify which individual- and household-level factors are associated with a higher likelihood of engaging with IVR-based surveys.

The results indicate that years of schooling and household wealth are the most important predictors of the response of an IVR. Both variables exhibit positive, statistically significant, and monotonically increasing effects, suggesting that individuals with higher levels of education and greater economic resources are more likely to engage with IVR surveys. These findings are consistent with the hypothesis that familiarity with technology, cognitive ease in navigating automated systems, and access to more reliable communication tools play a key role in shaping response behavior.

IVR (Interactive Voice Response)
Agile Data in Zimbabwe

In collaboration with the World Poultry Foundation and GeoPoll, COSA tested Interactive Voice Response (IVR) technology within the Africa Poultry Multiplication Initiative (APMI) in Zimbabwe. The program aims to improve farmers' livelihoods through increased income, enhanced dietary diversity, and improved access to training, education, health, and hygiene services. At the time of the study, the intervention had reached 1,967 Mother Units and an estimated 30,000 smallholder farmers.

The study sample consists of 363 smallholder farmers randomly drawn from the population of program beneficiaries. COSA and its partners implemented an IVR-based survey to collect qualitative feedback on program participation between March and April 2023. All respondents were informed in advance of the upcoming call and offered an incentive of USD 2.5 upon completion.

A total of 380 individuals were initially contacted via IVR. However, due to a zero completion rate, a subsample of 139 of these individuals was subsequently contacted using the CATI survey mode.

To analyze participation patterns within the IVR survey, we estimate a multinomial probit model in which the dependent variable captures the level of engagement with the questionnaire, defined across three categories:

- Group 1: No questions answered (26.32%)
- Group 2: 1–20 questions answered (51.88%)
- Group 3: More than 20 questions answered (21.80%)

This specification allows us to examine how individual characteristics influence the depth of engagement with the IVR survey, rather than simply the binary decision to respond.

The results indicate that the main determinants of participation are respondents' level of involvement in the program (proxied by the number of trainings attended), age, and intrinsic motivation as captured by a measure of reciprocity.

More specifically:

- Program involvement is positively associated with engagement: an additional unit of involvement increases the probability of being in Group 2 by approximately 11 percentage points and in Group 3 by approximately 10 percentage points relative to Group 1, with no statistically significant difference between Groups 2 and 3.
- Age is negatively associated with deeper engagement: older respondents are about 1 percentage point less likely to be in Group 3 relative to Groups 1 and 2.
- Reciprocity shows a similar pattern to program involvement, increasing the probability of being in Group 2 by 11 percentage points and in Group 3 by 10 percentage points relative to Group 1, while not significantly affecting the likelihood of being in Group 3 relative to Group 2.

These findings highlight the importance of both program exposure and behavioral traits in shaping engagement with IVR technology. In particular, individuals who are more embedded in the program and who exhibit stronger pro-social motivations are significantly more likely to engage with the survey, while older individuals appear less likely to sustain participation through longer questionnaires.

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