

Research Application Summary

**Effectiveness of mobile phone supported market information dissemination
in promoting Agricultural marketing in Northern Uganda**

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Abstract

Over three-thirds of farmers in Uganda are subsistence farmers and market less than 10 percent of their output. The high cost of marketing is one of the reasons for remaining at the subsistence level. An appropriate agricultural market information service can improve market performance by enabling transparency, competitiveness and efficiency and increase the welfare of farmers. There is today better access to market information service via mobile phones. However to date, there is little empirical evidence on the perceived effectiveness of mobile phone supported market information services under small holder farming systems in Uganda. Therefore, this study was conducted to identify the factors determining effectiveness of mobile phone supported market information and farmers' perceived effectiveness of mobile phone supported market information. A multi stage sampling technique was employed to select 156 respondents. Data were analysed using descriptive analysis and ordered logit model. Results showed that family size, reliability, accuracy and form in which the information is given determined the effectiveness of mobile phone supported market information. However, the majority of respondents found the services ineffective and most respondents were not aware of the existence of the mobile phone supported market information in their area. It was therefore recommended that service providers should consider the quality and content of the information before delivery to the farmers. Rigorous monitoring and evaluation involving the main stakeholders should be carried out to ensure sustainability.

Key words: Agricultural marketing, market information dissemination, mobile phone, Uganda

Résumé

Plus des trois tiers des agriculteurs en Ouganda pratiquent l'agriculture de subsistance et commercialisent moins de 10 pour cent de leur produit. Le coût élevé du marketing est l'une des raisons de ce niveau de subsistance. Un service approprié d'information du marché agricole peut améliorer les performances du marché en permettant la transparence, la compétitivité et l'efficacité, et accroître le bien-être des agriculteurs. Il existe aujourd'hui un meilleur accès au service d'information sur le marché à travers les téléphones portables. Cependant, à ce jour, il existe peu de preuves empiriques sur l'efficacité perçue des services d'information de marchés à travers les téléphones mobiles dans le cadre de systèmes

d'exploitation de petits agriculteurs en Ouganda. Par conséquent, cette étude a été menée pour identifier les facteurs déterminant l'efficacité de l'information de marchés à travers les téléphones mobiles et la perception des agriculteurs. Une technique d'échantillonnage à plusieurs étapes a été utilisée pour sélectionner 156 répondants. Les statistiques descriptives et un modèle logistique ordonné ont été utilisés. Les résultats ont montré que la taille du ménage, la fiabilité, la précision et la forme avec laquelle l'information est donnée déterminent l'efficacité de l'information du marché à travers les téléphones mobiles. Cependant, la majorité des répondants ont constaté que les services étaient inefficaces et la plupart n'étaient pas conscients de l'existence de l'information à travers téléphones portables dans leur région. Il a donc été recommandé aux prestataires de services de considérer la qualité et le contenu de l'information avant leur diffusion aux agriculteurs. Une surveillance rigoureuse et une évaluation impliquant les principales parties prenantes devraient être menées pour assurer la durabilité de la technologie.

Mots clés: Marketing agricole, diffusion de l'information de marché, téléphone, Ouganda

Background

Agricultural market information services are present in most developing countries. Nevertheless, their quality varies depending on the technology used, management (government, private, NGOs among others), duration of funding, content provided and the nature and extent of the required infrastructure (Islam and Gronlund, 2010). In Uganda, many initiatives have been developed to provide market information to farmers through mobile phone toll free calls, voice messages and Short Message Service (SMS). However, the range of this market information is often irregular and/or inaccurate leading to limited understanding among farmers (Magesa *et al.*, 2014). According to Mlozi *et al.* (2011) lack of timely information is one of the constraints to small-scale agricultural productivity. This study assessed the effectiveness of mobile phone supported market information in promoting agricultural marketing in northern Uganda.

Literature Summary

Farmers in most developing countries often rely on informal sources of market information like inter-personal communication, community leaders, and Non-Governmental Organisations (NGOs), among others (Islam and Gronlund, 2010). The rapid growth of mobile telephone in developing countries introduced a new search technology that offered several advantages over other alternatives in terms of cost, geographic coverage and ease of use (Aker, 2011). There have been recent developments in information and communication systems that are aimed at addressing the glaring gaps in the various avenues farmers use to obtain their agricultural information (Islam and Gronlund, 2010).

Study description

The study was conducted in Amuru district in Northern Uganda, located at 3°03'36.0"N,

32°18'18.0"E (Latitude: 3.0600; Longitude: 32.3050). A cross-sectional survey was undertaken using semi-structured questionnaires. A multi-stage sampling technique was employed to select 156 respondents. Data were analyzed using descriptive analysis and ordered logit model. Ordered logit was used because effectiveness is an ordinal variable and the response to it could be predicted from response to other variables. Farmer's perceived effectiveness was measured using a Likert scale of five as "Not effective = 5", "fairly effective = 4", "effective = 3", "moderately effective = 2" and "very effective = 1". In this case, the purpose of the analysis was to see how well the responses could be predicted by responses to other questions. Key informant interviews, focussed group discussions and personal observations were also used.

Results and Discussion

Results revealed that the main factors determining perceived effectiveness of mobile phone supported market information in the study area were family size, form in which information was disseminated, accuracy and reliability of the information (Table 1). Family size had a negative effect on use of mobile phone supported market information. The fewer the number of people in the family, the higher the chances of using mobile phones and mobile phone supported services to access market information which positively affected access and use of mobile phone supported market information. This was consistent with the study by Oladele (2011) who stated that ownership of mobile phone was key in accessing the mobile phone supported market information thus promoting agricultural marketing.

As the number of respondents using voice message format of mobile phone supported market information increased by one percent, not effective decreased by 0.58 percent. Voice message offers local language content thereby working above literacy requirements and works on all types of mobile handsets and even on fixed line telephones (Kumar, 2011). A one percent increase in accuracy decreased not effective by 0.77 percent. As the level of accuracy of the information increased, effectiveness increased concurrently. On the other hand as reliability increased by one percent, not effective decreased by 0.0054 percent consequently increasing perceived effectiveness of the mobile phone supported market information service. Ramesh *et al.* (2014) stated that a good information must be timely, accurate and reliable.

There was a significant positive relationship between the respondents' perceived effectiveness and perception on effectiveness of mobile phone supported market information (Table 2). About 59.4 percent perceived it as very effective. Most farmers (80.1 percent) reported the information was ineffective because it was not timely (71.25 percent), inaccurate (63.75 percent), unreliable (61.25 percent), less frequent and inconsistent, not user friendly since most companies used predominantly SMS (47 percent) which is less preferred compared to voice SMS (40 percent) and was incomprehensive. Magesa *et al.* (2014) indicated that Agricultural Marketing Information System (AMIS) is primarily focused on providing farmers with market price information on typical availability of inputs, markets and prices at different markets.

Table 1: Factors affecting the effectiveness of mobile phone supported market information (n=156)

| Factors affecting Effectiveness | Coef. | Robust Std. Err. | Z | Not effective | |
|---------------------------------|-----------|------------------|----------|-------------------|----------|
| | | | | dy/dx | Z |
| Family size | -1.00443 | .3792801 | -2.65*** | 1.5e-1 (8.2e-2) | -1.82* |
| Moderately comprehensive | -3.74051 | 1.996026 | 1.87* | -.1.4e-3 (1.9e-1) | -0.01 |
| Fairly comprehensive | -3.614066 | 2.021517 | -1.79* | -1.6e-1 (3.0e-1) | -0.54 |
| Not comprehensive | -3.48703 | 1.935125 | -1.80* | 3.2e-2 (1.4e-1) | 0.23 |
| Voice form | 2.803743 | 1.425338 | 1.97** | -5.8e-1 (2.1e-1) | -2.79*** |
| Accuracy | 5.175067 | .9250619 | 5.59*** | -7.7e-1 (2.5e-1) | -3.10*** |
| Reliability | .0362245 | .1631551 | 1.22*** | -5.4e-3 (2.5e-2) | -0.22*** |

(Source: Primary data, 2015)

Perception of Small Holder Farmers on the Effectiveness of the Current Mobile Phone Supported Market Information in enhancing Agricultural Marketing

Table 2: Perception of farmers on the mobile phone supported market information services (n=156)

| | | Perception on the effectiveness of mobile phones supported market information | | | | | Total Percentage | x ² 5.89*** |
|--|----------------------|---|----------------------|-----------|------------------|---------------|------------------|---------------------------|
| | | Very effective | Moderately effective | Effective | Fairly effective | Not effective | | |
| Perceived effectiveness of mobile phone supported market information | Very effective | 59.4 | 5.3 | 20 | 15.3 | 10 | 13.2 | |
| | Moderately effective | 10 | 58.2 | 10 | 15.9 | 15.9 | 10.7 | |
| | Effective | 4 | 4 | 80 | 4 | 8 | 4.9 | |
| | Fairly effective | 10.2 | 8 | 5 | 71.8 | 5 | 13.4 | |
| | Not effective | 3.3 | 3.2 | 6.4 | 7 | 80.1 | 37.8 | |
| Total of respondents that accessed the information | | | | | | | 100 | |

Source: Primary data

Conclusion and recommendation

Family size, reliability and accuracy negatively affected effectiveness of mobile phone supported market information in agricultural marketing while voice SMS form of mobile phone supported market information positively and significantly affected perceived effectiveness of mobile phone supported market information. There was also a significant relationship between perceived effectiveness and farmers' perception on the mobile phone supported market information dissemination. Most farmers' perceived the system as ineffective and perception on effectiveness of the mobile phone supported market information decreased with decrease in the farmer's perceived effectiveness of the service.

Based on the findings a) Service providers should improve the quality and content of information by providing accurate and reliable information mostly in the voice sms format. Farmers should be encouraged to form social networks to ease access to market information; and b) rigorous monitoring and evaluation involving the stakeholders should be done to determine how, when and what information should be given to improve farmers perception and encourage massive adoption of the innovation.

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