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Linking Farmers to Markets: The Case of Grain Marketing Information in Western Kenya

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Abstract:

Market liberalization created a situation where there are no guaranteed grain prices, no central information source and the need for marketing information increased. Unfortunately, most farmers have little or no access to marketing information. This study evaluates farmers' perceptions of importance of marketing information; identifies farmers' sources of grain marketing information; determine farmers' confidence in and use of marketing information; and assesses determinants farmers' willingness (WTP) to pay for marketing information. Data used in this study were generated using a structured questionnaire in a survey that covered a random sample of 120 households in traditionally grain surplus-and deficit zones of Kenya. The data were analyzed by descriptive statistics and logit model. Results show that 68% and 55% of the households in grain surplus and deficit zones, respectively, recognized that marketing information was very important. Farmers received marketing information from multiple sources, mainly from traders and other farmers. Most of the farmers who received the information were not utilizing the information due to perceived unreliability of the information and poor access to complementary infrastructure. Education level of the household was the most significant factor that positively affected farmers' WTP for marketing information. In view of farmers' perception that information provided by the private sources is unreliable, the public sector ought to provide marketing information as a public service. Smallholder farmers should be catalyzed to form strong associations so as to enjoy economies of scale in accessing marketing information and markets.

Keywords: Farmer, Grains, Logit, Markets.

Introduction

Input and output marketing systems play key roles in adoption of agricultural technologies. If farmers do not have efficient input and output markets, they resist investing in new and more productive technologies (Oechmke et al. 1997). Lack of markets and poor marketing strategies are arguably the greatest challenges facing the agricultural sector in Kenya and the rest of Africa (Argwings-Kodhek, 1998; Robbins, 2000). Therefore, anything that can be done to considerably reduce the cost and difficulties of linking producers to ultimate consumers such as providing storage facilities and supplying marketing information forms a central feature of any development in Africa (Robbins, 2000). Marketing information can help predict, strategize, plan and act expediently, rationally and efficiently (Mundy and Sultan, 2001), thus reducing business risk, transaction costs and enabling market participants to explore business opportunities (Robbins, 2000). However, information has no value to those who do not use it even if they receive it (Kotler and Armstrong, 2001).

Prior to market liberalization policies in the early 1990s, the Government of Kenya maintained extensive control over cereal marketing through the National Cereals and Produce Board (NCPB) as the sole buyer and seller of cereals. The Government set prices, which were more or less static in a particular season, making the prices predictable. The actors in the cereal sub-sector, therefore, needed little information, other than buying and selling arrangements laid down by the Government (KARI, 1996). Market liberalization created a situation where there are no guaranteed markets and no central information source (Argwings-Kodhek, 1998).Without sufficient and transparent marketing information, liberalized market cannot work efficiently because the market cannot provide a level playing ground for buyers or sellers. Little is known about importance, sources, and utilization of marketing information amongst grain farmers in western Kenya following the market liberalization. It is against this background this study was conceived to: evaluate farmers' perceptions of importance of marketing information; identify farmers' sources of grain marketing information; determine farmers' confidence in and use of marketing information; and

assess determinants farmers' willingness (WTP) to pay for marketing information.

Methodology

The study areas

The study was carried out between June and November 2004 in two contrasting zones: grain surplus-and deficit zones in Kenya. The grain surplus zone comprised Lugari and Trans Nzoia districts in the Kenyan highlands, whilst the traditionally grain deficit zone was composed of Kakamega and Vihiga districts in the moist mid-altitude zone around Lake Victoria. Kakamega and Vihiga Districts lie between latitude 0^o 30'N and longitude 34^o 30' E, whilst Trans Nzoia, the main source of maize that is consumed in the moist mid-altitude zone, lies within latitude1^o N and longitude 35^o E.

Data collection and analysis

The survey districts were purposively chosen. A three-stage sampling technique was used to select the study sites and households. In the first stage, sub-locations were sampled using lists of sub-locations in each district. In the second stage, villages were randomly selected using village lists compiled by key informants from the selected sub-locations. For the selected villages, lists of households in each village were obtained from the village elders and used as sampling frames the survey households. A sample of 120 households (74 from grain surplus-and 46 in deficit zones) was selected for the study. Enumerators, who had earlier been trained on field survey techniques,

collected the data from the households using a structured questionnaire. Descriptive statistics and logit econometric model were used to analyze the data. Following (Pindyck and Rubinfeld, 1981) the functional form of logit model was specified in equation 1:

$\log P_i/1-P_i=\beta_o+\beta_i X_i+\beta_k X_k$ .....Equation 1

Where: 1-P is Probability that household is WTP for marketing information

Pi/1-P is odds of WTP

β_o = constant

βi= A vector of unknown parameters to be estimated.

X_i = A vector of socio-economic variables pertaining to a household i, which are explanatory variables for the probability (P_i) that the i^{th} household is WTP for marketing information. The variables that were considered to affect WTP (the dependent variable--1=WTP; 0 otherwise) for marketing information and their expected signs are shown in Table 1.

Table 1. Explanatory variables for logit model

Variable	Description	Expected sign
EXPI	Experience of household head in farming (years)	-
INFARM	Proportion of on-farm income to total income (%)	+
FAMSZ	Size of land owned (acres)	+
DIST	Distance to the nearest market (km)	+
SEX	Decision maker to grow maize; 1=male; 0 =otherwise	+
OBMAIZ	Objective of maize; 1=mainly for sale; 2=both; 3= consumption	_
ZONE	Grain zone; 1=grain surplus; 0=otherwise	+
AGE	Age of the household head (years)	+/-
EDUC	Schooling of household head (years)	+

Results and discussion

Farmers' perception of importance of marketing information

Farmers' perception of importance of marketing information is critical in determining whether to seek and use the information.

Most farmers (74%) considered marketing information as very important, and 24% as somewhat important (Table 2). Going by zones, 89 % of the farmers in grain surplus zone and 55% in the deficit area recognized that market information is very important.

Sources of marketing information

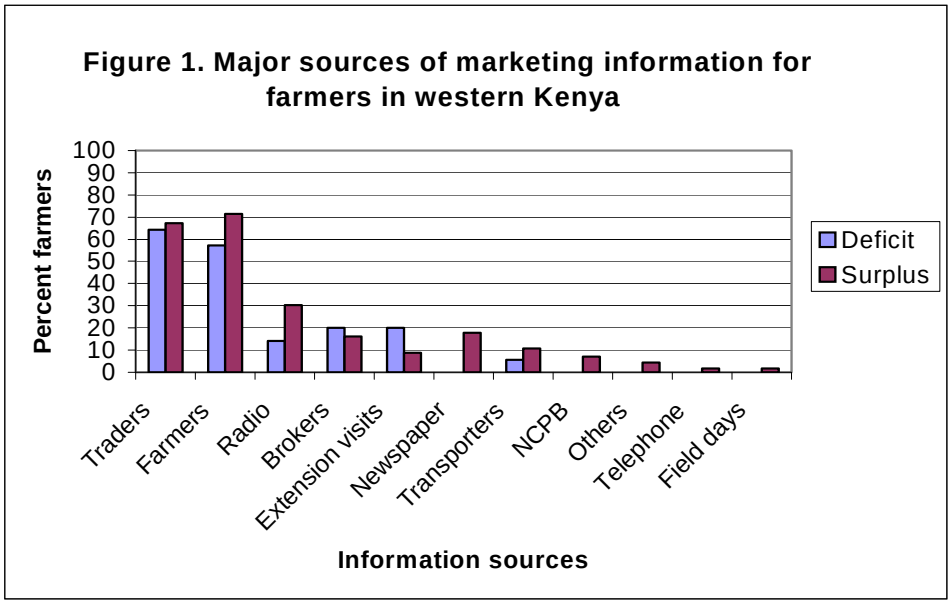
Farmers obtained marketing information from multiple sources. However, most respondents reported that traders (67%) and other farmers (66%) were the main sources (Figure 1). Surprisingly, radio was a major source of marketing information for only 24% of the households, yet over 80% of the surveyed households owned radio. This is mainly attributed to lack of congruence between the time the information is broadcast and the time the farmers listen to the radio. The marketing information received was mainly on grain prices.

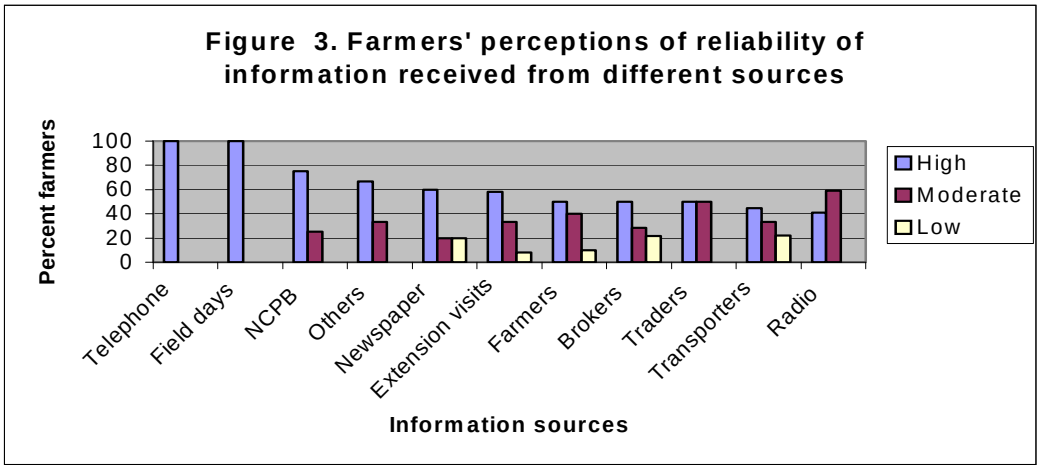
Reliability of farmers' sources of information

Reliability or replicability of information received is an important attribute in usage of information. The only one farmer that obtained marketing information from telephone and other that obtained from field days perceived the two sources as highly reliable (Figure 2). Telephone was perceived to be a most reliable source because sharing of marketing information on phone was reportedly mainly between people who knew each other and had built trust over time.

Table 2. Farmers' perception of importance of market information (%)

Degree of importance	Deficit n=46	Surplus n=74	Total =120
Very important	54.5	88.7	74.2
Somehow important	39.4	14.3	23.6
Not important	6.1	0	2.2





Utilization of marketing information from different sources

The farmers who obtained information from telephone, traders and newspapers reported extensive use of the information. On average, nearly half (49%) of the farmers reported that they extensively used the information they obtained. Information from other sources was either partially used or not used at all. The reported constraints to use of the received marketing information were unreliability of the information, lack of grain storage facilities, urgent family needs and high transport costs. High transport costs and lack of storage facilities were particularly important in the surplus zone where over 60% and above 50% of the respondents, respectively, cited the constraints. Emergencies and basic family needs do not allow farmers to store grains for some time after harvest. They sell the grains at low prices during harvest period even if they are aware that the prices would rise later.

Factors affecting farmers' willingness to pay for marketing information

The model indicates that 88% of the total variations were explained by logistic model which is very good for cross section data used for this study. The Chi-square shows the parameters included in the model were significantly different from zero at less than 1% probability level.

The significant factor at 1% level that explained WTP for marketing information was education level of the household head (EDUC). However, at 5% level, distance from the market (DIST), sex of the decision-maker on maize farming (SEX), and farmers' objective in maize farming (OB_MAIZ) were significant. The proportion of farm income to the total income was barely significant at 10% level (Table 2).

Education level of the household head positively affected WTP for marketing information. This finding is in line with a general agreement that exposure to education increases farmers' capacity to obtain process and use the information (Feder, et. al.1985).

The effect of sex of the decision-maker was negative as expected because households that are male-headed are likely have more ability to seek and pay for information as men generally have more resources, including time than women. Gender studies have provided ample evidence that despite women's historical contribution to food production efforts in sub-Saharan Africa, women lacked equal access to factors of production and information on agricultural activities (Mutangadura, 2005). Indeed, men are more involved in marketing of maize hence have greater propensity to seek for marketing information. The expected sign on age is an empirical question. Distance to the market was positively associated with WTP, probably because people living near markets are keen to know information regarding prevailing market conditions.

Table 3: Results of logit analysis

Variables	Coefficient (B)	S.E.	Wald	P-value
EXP	0.056	0.041	1.829	0.176
INFARM	0.018	0.01	3.158*	0.076
FAMSIZ	0.003	0.01	0.11	0.74
DIST	-0.293	0.126	5.378**	0.02
SEX	-0.699	0.353	3.920**	0.048
OMAIZ	-0.962	0.4	5.788**	0.016
ZONE	-0.548	0.602	0.829	0.362
AGE	0.117	0.141	0.688	0.407
AGE^2	-0.001	0.001	0.88	0.348
EDUC	0.304	0.105	8.397***	0.004
Constant	-1.679	3.311	0.257	0.612
	-2 Log Likelihood 88.619			
	Model Chi-Square	25.793*		0.004
	Correctly Predicted farmers not WTP			64.70%
	Correctly predicted farmers WTP			82.40%
	Overall cases correctly predicted			75.3%

*, **, and *** indicate significant at 10%, 5% and 1% levels respectively

Conclusions and recommendations

About three-quarter of the farmers in both grain surplus and deficit zones perceived marketing information to be very important. The farmers received marketing information from multiple sources, mainly from individuals--traders and fellow farmers. However, the farmers considered the information received from individuals, which mainly covered prices, as unreliable. About half of the farmers who obtained marketing information extensively used it. Education level of the household head was the most significant factor that positively affected farmers' WTP for marketing information.

To improve reliability of information so as to promote its usage, the public sector should provide the information as a public service and minimize bias inherent in individual information sources. This could be achieved by the Ministry of Agriculture negotiating with the public information media to provide marketing information as a public good. In addition, marketing information should be integrated in routine agricultural extension messages. As the value of information depends on its use, there is need to improve the complementary infrastructure including, storage, transport and credit facilities in order to improve the use of obtained information. Finally, farmers should be catalyzed to form strong marketing associations so as to enjoy economies of scale in accessing marketing information and related marketing services.

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References

Argwings-Kodhek, G. 1998. Monitoring for Agricultural Policy Making in Kenya Agricultural Monitoring and Policy Analysis Project. Nairobi: KARI and Tegemeo Institute of Agricultural Policy and Development, Egerton University.

Feder, G., Just, R.E. and Zilberman, D., 1985.Adoption of agricultural innovations in developing Countries: A survey. *Economic Development and Cultural Change*, 33:255-297.KARI (Kenya Agricultural Research Institute). 1996. Liberalization of Domestic Market: Its Implications on National Agricultural Sector and More so Agricultural Research. *Proceedings of a National Workshop on Liberalization of Domestic market,* held in Nairobi,October17-18.

Kotler, P. and Armstrong, G.2001. Principles of Marketing. Ninth Edition. Upper Saddle River, New Jersey: Prince Hall International

Mundy, P. and Sultan, J. 2001. Information Revolutions. How Information and Communication Management is Changing Lives of Rural People www.agricta.org/pubs/inforev/index.htm

Mutangandura, G.B. 2005.Gender, HIV/AIDS and Rural Livelihoods in Southrn Africa: Addressing the challenges. Genda: A journal of culture and African Women Studies, Issue 7. hhp://www.jendajournal.com/issue7/mutangandura.hml. Accessed 15th June, 2007.

Oehmke, J.F., Anandajayasekeram, P., and Masters, W.A., 1997. Agricultural Technology Development and Transfer in Africa Impacts Achieved and Lessons Learned. USAID, Office of Sustainable Development, Bureau for Africa, SD Publication Series, Technical Paper No. 77, Washington, D. C.

Pindyck, R. S. and Rubinfeld, D.L.1981. Econometric Models and Economic Forecasts. Second Edition. McGraw Hill, Inc., New York.

Robbins.P.2000. Commodity Market Information Systems: A General Overview. *In: Proceedings of a Workshop on Strategies for Strengthening Small-scale Food Processing in Eastern and Southern Africa,* held at Entebbe, Uganda, September 23-26, 1998. The Netherlands: CTA.