DETERMINANTS OF MARKET PARTICIPATION DECISIONS IN SMALL RUMINANTS’ MARKET BY LIVESTOCK KEEPERS IN ISIOLO AND MARSABIT DISTRICTS, KENYA

By

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Outline

Introduction:
- Demand for animal food products

Objectives:
- Motivation & Justification
- Specific objective(s)

Methods:
- Setting: Marsabit/Isiolo
- Analytical framework

Results:
- Household characteristics
- Determinants of market participation decisions

Discussion & Conclusion:
The demand for animal food products is postulated as rising in many developing countries (Delgado et al, 1999). This is enhanced by increases in urbanization, population and income growth.

Markets for animals and animal products is created and encourage commercialization.

Need for increased production and subsequent sale of animals and animal products.
Pastoralists keeping small ruminants are likely to benefit from potential increase in demand for animal food products if they respond positively by increasing participation in the market.

An in-depth understanding on how best to strengthen small ruminant producers’ bargaining power at the markets and the steps required to achieve positive changes in market structures will definitely guide in improving their participation and increase the benefits gained from the markets.
Objectives: Motivation & Justification

- The study forms a basis for assessing interventions aimed at improving production and sales of small ruminants & strengthening producers’ bargaining power at the markets.

- The study results guide in improving ability of the pastoral community to benefit from livestock market.

- The study establishes an understanding of socioeconomic characteristics of pastoralists which depict areas of concern in improving commercialization of livestock enterprises.
Objectives

- The need to understand market participation decisions behavior of pastoralists in ASALs

- There was need to understand how livestock producers in ASALs link with the markets, the interactions they have and whether there are benefits gained in an effort to meet the demand

- To analyze the determinants of market participation among livestock keepers of small ruminants in the study districts
Methods: Setting:- Marsabit

- Located on extreme part of Northern Kenya; area of 66,000 sq.km (11.2% of country)
- Remote, sparsely populated and infrastructure deficient
- 80% population reliant on livestock for survival; spatiotemporal variability in forage & water
- IBLI pilot (ILRI partnering with Cornell/Wisconsin-Madison/Syracuse Universities)

Laisamis, Korr (Ngurunit), Kargi, Maikona, (Kalacha, Elgade) North Horr (Qorqa), Gass and Loiyangalani divisions
Isiolo East, Isiolo Central, Merti, Garba Tulla, Kinna and Sericho divisions

• Located on approx North Central part Kenya; area of 25,605 sq.km (≈4.3% of landmass)

• Area generally flat, low lying plain, hot & dry with av temp 27ºC.

• 56% of the population below the poverty line: Central -50-60%; north >70%; Southern 60-70%

• 70% population reliant on livestock

• Just like Marsabit, communities suffer from livestock raids and tensions over grazing land & water persist
Data were drawn from a sample of 250 households in the two districts by use of systematic random sampling in the selected clusters/divisions.

Primary data were collected through administration of questionnaires to the respondents and were then complimented with secondary data from libraries and institutions.

Descriptive analysis was used to elicit the household characteristics.
Determinants of market participation in small ruminants market were analyzed using the probit model since the dependent variable is qualitative and estimates the probability of selling small ruminants.

The model is specified as,
\[ \Pr (Z_i = 1|w_i, \alpha ) = \Phi (h(w_i , \alpha)) + \varepsilon_i \] 
where \(Z_i\) is an indicator variable for the households that sell small ruminants, \(w\) is a vector of factors affecting the decision to sell, \(\alpha\) is a vector of coefficients estimated and \(\varepsilon_i\) is the error term assumed to be normally distributed.
Methods: Analytical Framework cont..

From equation 1, then:
\[ Z_i^{*} = \alpha w_i + u_i \]  \hspace{1cm} \text{(2)}

Where \( u_i \sim N(0, 1) \) and
\[ Z_i = 1 \text{ if } Z_i^{*} > 0 \]  \hspace{1cm} \text{(3)}
\[ Z_i = 0 \text{ if } Z_i^{*} \leq 0 \]  \hspace{1cm} \text{(4)}

- Equation 2 is thus the decision to sell regression estimated by maximum likelihood as an independent probit model and run with the aid of STATA software.
Results: Household Characteristics

- Households interviewed had an average size of 6.3 people, 88% of these households being male-headed with mean age of the household head being 46.7 years.
- The education level of the household heads in the study area is quite low. Over 64.4% of the household heads are uneducated having not attained any level of education.
- 41.6% of the households have members belonging to groups mostly self-help groups but only 14% of the members cited marketing as the role that the groups play.
Distance of most households from the major markets is at an average of 158.6 km. This explains the reason for the livestock keepers choosing to sell their small ruminants locally. Moreover, most of the roads in the study area are rough and rocky with over 80% of the households in the study regions living in areas connected by roads in bad condition.

Access of water for livestock is a great challenge especially during the dry seasons. The major water sources for livestock during the dry season are mainly wells and boreholes.
Fetching of water by men in Elgade (Marsabit)
## Regression Analysis Results

### Probit Results

| Variable                                                | Coeff. est. | Std. error | P>|z| |
|---------------------------------------------------------|-------------|------------|-----|
| Gender the HH head                                      | 0.50964     | 0.34224    | 0.136 |
| Age of HH head in yrs                                   | 0.00917     | 0.00888    | 0.302 |
| Education level of HH head in yrs                       | 0.00058     | 0.02528    | 0.982 |
| Occupation of HH head if pastoralist                    | -0.26131    | 0.23700    | 0.270 |
| Occupation of HH head if employed formally              | -0.40395    | 0.43393    | 0.352 |
| HH size                                                 | -0.07137    | 0.05116    | 0.163 |
| Average price of small stock                            | 0.00060     | 0.00012    | 0.000*** |
| Group membership                                         | -0.48491    | 0.22638    | 0.032** |
| Road condition to market                                | -1.32279    | 0.37352    | 0.000*** |
| Variable                        | Coeff. estimates | Std. error | P>|z|   |
|--------------------------------|------------------|------------|------|
| Distance to livestock market    | -0.22298         | 0.25280    | 0.378|
| Employment of labour           | 0.04562          | 0.31026    | 0.883|
| Cash relief                    | -1.07594         | 0.38024    | 0.005***|
| Food relief                    | 0.12842          | 0.08308    | 0.122|
| Non farm income                | 0.00008          | 0.00006    | 0.184|
| Credit facilities              | 0.75157          | 0.28797    | 0.009***|
| Herd size                      | 0.03817          | 0.00825    | 0.000***|
| Constant                       | -1.18367         | 0.57225    | 0.039|
Major result highlights:

- Prices are an important driver of market entry for the small ruminant livestock keepers.

- Larger proportion of groups are used for purposes of savings thus discourage selling.

- Large stock sizes boost on the numbers of animals released into the market.
- Poor road networks reduce accessibility of livestock keepers to markets
- Access to cash and food relief discourages participation of livestock keepers in livestock market.
- Acquisition of credit promotes production and thus selling of small ruminants in the market
Recommendations

• There is need to **improve the road network** in ASALs.

• Improvement of **efficiency in the market chain** through timely dissemination of price information to farmers and developing good infrastructure.

• There is need to **enhance small ruminant production** through consistent and regular extension services to livestock keepers.
• There is need to promote investment in 
diversification of activities in ASALs to reduce 
reliance of pastoralists on relief.

• There is need to develop packages on credit 
access, utilization and benefits accrued to 
provide training to pastoralists in increasing 
financial capital.
Acknowledgements

- Moi Univ.
- KARI Directorates (KASAL PCU)
- Participants (interviewers and interviewees)
- AFMA
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