Cattle Markets Integration and Price Discovery in Three Developing Countries of Mali, Kenya, and Tanzania

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INTRODUCTION
One of the growing agricultural sub-sectors, in developing countries (DC), is livestock. Livestock accounts for a third of the total agricultural GDP in DC (2007). However markets in DC are less efficient compared to those in developed world (OECD), leading to economy underperformance. Market reforms policies have been introduced in many DC, especially in Africa either by their governments or international organizations such WB and IMF since the 1980s. The goal of these reforms were to create a transparent and free market economy. In the last decade similar programs funded by USAID have been introduced in some African countries to create transparent markets in the livestock sector. Cases of livestock market information systems in Mali, Kenya, and Tanzania are examined in this research.

OBJECTIVE
This research examines cattle market integration in three developing countries of Mali, Kenya, and Tanzania. Cattle price discovery and leadership were as well studied. We used weekly cattle prices in the three case studies. Data in Mali were collected on 6 markets from November 2008 to September 2010. Data in Kenya were collected from June 2006 to December 2009 on 6 markets while in Tanzania prices were collected on 4 markets from February 2006 to January 2010.

THEORETICAL BACKGROUND
➢ Competitive market and equilibrium: general equilibrium theory by Arrow and Debreu (1954)
➢ Role of information in economics (Stigler 1961; Stiglitz 1985)
➢ Spatial equilibrium model and the Law of One Price

METHODS
➢ Error correction model:
\[ \Delta P_t = \beta_1 \Delta P_{t-1} + \beta_2 \Delta P_{t-2} + \mu + \epsilon_t \]
➢ Vector autoregression
\[ y_t = A_0 + A_1 y_{t-1} + \epsilon_t \]
➢ Innovation accounting
\[ VMA: \ P_t = \sum c_i \epsilon_i \]
➢ Directed acyclic graphs (DAG)

CASE STUDIES

RESULTS

Mali: markets are less integrated

Kenya: markets show signs of integration

Tanzania: markets show strong signs of integration

Conclusions
➢ Mali: markets are less integrated, exhibiting signs of independence across time
➢ Kenya: markets are integrated, showing signs of price interdependence across time with Chepakeria leading
➢ Tanzania: markets are integrated and show strong signs of price interdependence with Pugu as a leader
➢ Cattle markets are more integrated (less exogenous) in Tanzania and Kenya than in Mali with Tanzania showing a higher level of integration

Possible reasons:
- livestock market information system that uses cell phone to disseminate price data has been in place longer in Tanzania and Kenya than in Mali
- Government involvement in multiplying the price information channels is more noticed in Tanzania than Kenya and Mali

REFERENCES

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FURTHER INFORMATION
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The views presented here are those of the authors.