

# The Effect of ICT-Based Market Information Services on the Performance of Agricultural Markets: Experiences from Ghana

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## ABSTRACT

*This study is concerned with how markets of agricultural commodities have responded to the improved ICT-based market information services in Ghana since 2005. The data employed are monthly prices wholesale from 2001-2010, covering four markets in the Northern and Greater Accra regions. The data was used to estimate a threshold autoregressive model to measure the level of spatial price integration between the four markets, and focusing on maize. In addition, data on market structure and conduct was collected from 486 marketers to explain performance indicators. The study finds that, the speed of price transmission in maize markets increased by 6 percent after 2005, however there has not been marked reduction in transactions costs. Despite increased use of the mobile phone, market-based exchanges still rely heavily on visual inspection. The implication is that more should be done to improve transport infrastructure and to ensure enforcement of standardization rules.*

*Keywords: Food Commodities, Market Information Services, Market Infrastructure, Market Integration, Mobile Phones*

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## 1. INTRODUCTION

In the last decade, policies of food and agriculture and information communication technology (ICT) in developing economies have recognized the central role of market informa-

tion. Without market information markets do not function well. Small traders in particular suffer opportunistic behaviour by other service providers in the market. Market-based exchanges that rely on visual inspection result in high transaction costs which impede access to better paying markets and entrenched poverty (Fafchamps & Hill, 2005; Fafchamps & Gabre-

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Table 1. Characteristics of Ghana's ICT industry in 2010

Element	Ghana	Kenya	Nigeria	South Africa
Governmental Agency	National Communications authority			
Number of Telecom Service Providers	5	4		
Number of Internet Service Providers	100			
% Mobile Penetration	74	51	41	100
Ghana's Broadband Bandwidth Supply	STM-16 nationwide			

Madhin, 2006). In Ghana, the government has demonstrated its concern for the development of market information through the agricultural and ICT policies (Ghana, 2003, p. 24). There has been marked improvement in the ICT industry; the infrastructure, network coverage and user charges have improved tremendously in the last five years (Table 1). The sector is completely liberalized, resulting in improved penetration and broad band width supply. The national optic fiber bone infrastructure is critical in enabling rural areas to access the cheaper and faster undersea cable bandwidth.

The National Communication Authority (NCA) which is responsible for regulating the communication industry, has licensed six telecoms and about 100 internet service providers to allow for telephone and internet usage by all. The government is also establishing community information centres (CICs) in the districts for training all categories of professions and the youth in ICT use. The Ministry of Food and Agriculture (MoFA) has created agricultural information centres (AIC) in a few markets spread across the country to allow for easy and ready access to information and to allow speedy response to requests from market participants. The ESOKO Ltd. (formerly Tradenet), a private firm, has created a platform that loads price and location information on a wide range of food stuffs (including grains and tubers) on the internet. It has partnered with the mobile telephone companies to operate *sms* alerts for

subscribers to this platform. The United States Agency for International Development (USAID) supported the International Centre for Soil Fertility (IFDC) to organize agribusiness centres under its Market Information Services for Trader Organizations in West Africa (MISTOWA) project. Members of the Ghana Agricultural Producers and Trader Organization (GAPTO) in Accra were hooked onto the ESOKO platform and mobile alerts. CORDAID Netherlands, and the International Institute for Communication and Development (IICD), have also supported SEND Foundation West Africa to link participants in the Corridor Agro-Market Information (ECAMIC) project, located in the Northern region, to ESOKO's mobile alert system.

A key research question then is: How have the improvements in the ICT-based market information services environment influenced the performance of agricultural commodity markets in Ghana? This is an important question because clarity on the extent to which ICT-MIS initiatives have worked in the last decade is needed to direct policy and new private initiatives – lessons from these initiatives have to be learned, challenges identified and opportunities for new initiatives and upscaling uncovered. Changes in commodity prices inform arbitrage and the movement of persons engaged in marketing (Oladepo & Momoh, 2008). This makes prices an important tool in the economic analysis of markets, after any

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