

# **Staff Paper**

**THE ROLE OF MARKET INFORMATION SYSTEMS IN  
STRENGTHENING FOOD SECURITY: LESSONS FROM MALI**

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John M. Staatz, N. Nango Dembélé  
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Department of Agricultural Economics  
**MICHIGAN STATE UNIVERSITY**  
East Lansing , Michigan

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# THE ROLE OF MARKET INFORMATION SYSTEMS IN STRENGTHENING FOOD SECURITY: LESSONS FROM MALI

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John M. Staatz, N. Nango Dembélé, and Kimberly Aldridge  
Michigan State University<sup>1</sup>

Most definitions of food security stress its two components: ensuring adequate *availability* of food and assuring *access* to that food by the poor (Dioné). Improved market information strengthens both availability of and access to food. By improving the transparency of the markets, reducing the riskiness of participating in markets, and transmitting market signals more effectively to farmers and traders, they are encouraged to produce more for the market. Equally important, as outlined below, market information systems (MISs) can help drive down the real cost of food to the poor, thereby improving their access to an adequate diet.

At the same time, improved capacity to monitor and analyze market developments is critical to designing effective food policies. This is particularly important in Mali, where the cereals markets are evolving very rapidly in response to liberalization. The Cereals Market Information System (SIM) at the Office des Produits Agricoles du Mali (OPAM) plays a key role in helping provide the data and analysis that informs government and donor food policy decisions in Mali.<sup>2</sup>

This note briefly describes some of the lessons learned from Mali about the contributions of MISs to food security. We discuss MISs' roles in three areas: driving down the cost of food to the poor, monitoring the food situation to guide short-term government actions, and conducting analysis that strengthens understanding of the evolving food security situation.

## Driving Down the Cost of Food to the Poor

Much of the discussion about short-term food insecurity concerns how to avoid or mitigate famine. A well-functioning market is the first line of defense against famine. The hoarding and panic that characterize famines are not the symptoms of a healthy economy. They typically arise when the market fails to fulfill its traditional functions (Khan).

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<sup>1</sup>This note is based upon results of research carried out jointly with colleagues from the Malian Cereals Market Information System (SIM) based at the Malian Office of Agricultural Products (OPAM). This research was conducted under the Food Security in Africa Cooperative Agreement between Michigan State University and USAID. We have also benefitted from the comments of our colleague Michael T. Weber on an earlier draft of this paper. While very appreciative of the intellectual and financial support from our colleagues and the institutions involved in this research, the authors assume sole responsibility for the views expressed here.

<sup>2</sup>In this paper, we use the acronym MIS to refer to market information systems in general. The term SIM (Système d'Information sur le Marché) refers specifically to the Malian cereals market information system based at OPAM.

One of the tasks of a well-functioning market is to reduce the real cost of food to net purchasers of basic staples--who in Mali and much of the Sahel include a large number of farmers (Dioné). Here, MISs make an important contribution. Many of these contributions take place over the long run. By making markets more transparent, MISs help reduce marketing costs by:

- (a) Reducing marketing margins due to risk premia and monopoly power in the system. Information diffused by the MISs strengthen the bargaining power of more dispersed group in society, especially farmers and low-income rural and urban consumers. MISs thus help not only to reduce monopoly overcharges but also to increase the real incomes of these spatially dispersed groups. Their higher incomes allow them to acquire more food through the market. Recent complaints by some rural assemblers in Mali about how the SIM broadcasts have reduced their profit margins suggest that the SIM is having this effect in Mali.
- (b) Reducing the need for market participants to bargain over price and other attributes of the terms of trade. Retailers in Bamako cite this as one of the major benefits of the SIM because the transaction costs of taking and transferring ownership of cereals are reduced. For this potential cost-saving to be realized fully, however, MISs need to improve their monitoring of different qualities of grain. Otherwise, it is not clear what quality of product the price diffused by the MIS refers to.
- (c) Smoothing out the supply of food over space and time by encouraging arbitrage by both traders and consumers. For example, one of the earliest impacts of the SIM in Mali was to allow consumers in Bamako to find the markets within the city with the lowest prices. (The SIM monitors 13 different markets in the capital.) This led to very large shifts in the market volumes handled by different neighborhood markets in Bamako (Dembélé, Staatz, and Egg).
- (d) Encouraging long-distance trade by giving merchants reliable information about conditions in distant markets. This reduces wholesalers' risk of being misled by their sales agents, who may report that prices were lower than they actually were, and pocket the difference. Fear of such behavior historically has restricted the development of long-distance trade (North). Increased intra-regional trade has the potential to make major contributions to food security in the Sahel (Dembélé and Staatz).
- (e) Providing a stronger basis of information on which farmers and traders can plan about future production and marketings, thereby encouraging investment in the food system.
- (f) By giving policy makers a better view of how the system works, encouraging more productive public policies towards the grain subsector.

In addition, by helping increase income growth over the long run, MISs contribute to building the effective demand for cereals and products such as livestock that use cereals as an input. Over the long run, MISs' role in reducing marketing costs and increasing incomes are perhaps their most important contributions to food security.

### Monitoring the Evolving Food Situation in the Short Run

Although assuring a well-functioning, low-cost marketing system is a first line of defense against hunger, crises will still arise in which some part of the population will not have enough income to meet its food needs through the market. A second role for the MISs is to monitor these on-going situations to identify food crises that may call for special relief actions.

In Mali, monitoring has focused primarily on price levels, with some attention being paid to quantities. The price of cereals reflects the balance of demand relative to supply. When prices rise relative to cash incomes, consumers' real incomes decrease, and hence their access to food falls. The Malian SIM has focused on reporting prices weekly not only through the press, but also to key government ministries. In the previous regime, for example, weekly reports were sent to the "Comité du crise" of the politburo (BEC) of the governing party. Based partly on the SIM reports, the BEC made decisions regarding the release of emergency food aid.

Indications of the quantities available on the market can also be important food security indicators. These indicators often don't need to be highly precise. The most important indicator is simply whether any product is available on the market. For example, during the unrest that accompanied the coup d'état in Mali in March, 1991, OPAM and many large merchants lost large amounts of grain to looters. The transitional government, fearing a food shortage in Bamako, requested the release of several thousand tons of food aid from the PRMC.<sup>3</sup>

In responding to the request, the PRMC had two concerns: 1) avoiding a food crisis if the shortage was real and 2) avoiding further increasing the losses of merchants if there was indeed no crisis. The PRMC thus agreed to the release of the food aid, but only if the SIM reported no product available on several key Bamako markets for two successive weeks. Subsequent SIM reports showed that not only was product available, but prices were falling, as looters hurried to sell their stolen goods. The SIM thus played a key role in avoiding further disruption of the market during a period in which merchants had already suffered large losses.

In the future, MISs should consider monitoring at least three other types of data to help track the short-term food security situation. Information on quantities sold, and eventually on stocks held by farmers and traders, will be a valuable complement to price data. However, precise data on quantities are notoriously difficult to collect, particularly in countries where the private trade views the government with suspicion. Thus, initially, MIS efforts should focus on getting information on the order of magnitude of such quantities and indications of how and why they are changing.

In addition to information on the absolute level of cereals prices, MISs eventually should consider collecting information on the price of cereals relative to a few other key products, such as livestock. The FEWS project and the Malian SAP (Système d'Alerte Précoce) have shown how the price of small ruminants relative to millet is a key indicator of the purchasing power of pastoralists. Between January, 1989 and March, 1991, for example, the terms of trade between

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<sup>3</sup>Projet de Restructuration des Marchés Céréalières, the multi-donor funded cereals market reform project.

goats and millet in markets monitored by the Malian SAP in Mali fell from approximately 1 goat = 120 kg. of millet to 1 goat = 40 kg. millet (FEWS, p. 18). If pastoralists' production of goats remained unchanged during this period, their purchasing power fell by 2/3, suggesting a serious reduction in their food security.

Eventually MISs could also monitor key types of conduct associated with food insecurity. For example, in Mali, some food-insecure households are often forced to sell grain immediately after harvest to meet pressing cash needs. They then frequently go into debt or sell off assets to purchase back grain at higher prices during the *soudure*. (Dioné; D'Agostino and Staatz). If MISs could accurately monitor changes in the sales behavior of such households from year to year, they would have a strong indicator of changes in household food security.

### The Role of Analysis

MISs need to *analyze* as well as simply *monitor* the evolving food security situation. Indeed, analysis plays a key role in decision in deciding which variables to monitor. Analysis of consumption studies, for example, identifies the most important foods in the diet of the poor. If the MIS is concerned with food security, it needs to make sure that its surveys cover these foods. Similarly, analysis of production statistics indicates where production shortfalls have occurred. MIS price data for these regions can act as a valuable cross-check on the production figures. If prices do not rise when official production figures indicate shortages, the production figures should be re-examined and the possibility of increases in unrecorded imports should be explored.

Fundamentally, the role of the MIS is not simply to monitor *how* the market is behaving. MISs need to explain *why* the market is behaving in a particular way. Understanding the evolution of the market is essential to designing policies and new products that will enhance the food security of the poor. In Mali, for example, MIS analysis of the structure, conduct, and performance of grain markets has played a key role in helping understand the reasons for high prices in the Kayes region and in stimulating debate about policies that might reduce those prices (Traoré, Tefft, and Keita; Dembélé, Staatz, and Egg).

Analysis of market integration can also aid in the design of relief efforts. For example, where correlations of prices of across markets indicate a high degree of market integration, officials can have some confidence that food aid released into the market in a few key cities will reach surrounding markets in a short period. In contrast, where analysis indicates poor market integration, much more direct government action may be needed to ensure that supplies reach smaller, more remote areas. The analysis also needs to focus on how, in the long run, to improve market integration so that the market system becomes more self-correcting. Similarly, analysis of MIS price data can indicate how food aid releases affect cereals prices in various markets.

Understanding the evolution of markets requires detailed knowledge of the local environment and strong analytic skills. While MIS staff in the Sahel often have the detailed local knowledge, they frequently lack strong analytic skills. There is therefore a high payoff to investing in strengthening the analytic capacity of the national staff of MISs. If MISs are to play exploit their potential to improve food security in the Sahel, they must move beyond being just market

news services and provide some of the analytical insight needed to help design more effective food policies.

The process of improving the quality of market news data also requires analysis of those data to evaluate their potential usefulness. It is often only in trying to analyze the data that one learns about their weaknesses. Hence, increased analytical capacity is therefore necessary to the long-term process of improving the quality of data collected by the MISs. Too often, MISs limit themselves to simply collecting data for others to use. Final users of the data may eventually discover weaknesses in the data, but rarely are these weaknesses communicated back to the MISs in a constructive and timely manner.

### Citations

- D'Agostino, Victoire C. and John M. Staatz. "The Impact of Import and Export Policies on Malian Coarse Grain Producers." A Presentation to the USAID Workshop on Food Security and Economic Growth in the Sahel. Washington, D.C., September 6-8, 1989. East Lansing: Michigan State University, Agricultural Economics Staff Paper no. 89-85, 1989.
- Dembélé, Niama N. and John M. Staatz. "Impact des Echanges Régionaux des Céréales sur la Sécurité Alimentaire en Afrique de l'Ouest." Invited paper, CILSS/Club du Sahel Seminar on Regional Trade in West Africa, Lomé, Togo, 6-11 November 1989. East Lansing, Michigan: Agricultural Economics Staff Paper no. 89-93, 1989.
- Dembélé, Niama N., John M. Staatz, and Johny Egg. "L'expérience du Mali." Paper presented at CILSS/Club du Sahel Conference on Cereals Market Information Systems in the Sahel, Bamako, Mali, 23-25 April, 1990. Paris: Club du Sahel.
- Dioné, Josué. "Sécurité alimentaire au Sahel: Point sur les études et projet d'agenda de recherche." Bamako: Institut du Sahel, Programme Régional de Renforcement Institutionnel en Matière de Recherche sur la Sécurité Alimentaire au Sahel (PRISAS). Document de Recherche No. 90-02, Octobre 1990.
- FEWS Project, Tulane/Pragma Group. Vulnerability Assessment, June 1991. Arlington, Virginia: FEWS, 1991.
- Khan, Akhter Hameed. "A History of the Food Problem." ADC Reprint. New York: Agricultural Development Council, October, 1973.
- North, Douglass C. Institutions, Institutional Change and Economic Performance. New York: Cambridge University Press, 1990.
- Traoré, Abdramane, James F. Tefft, and Francis Keita. "Pourquoi les prix des céréales sont-ils tellement élevés dans la région de Kayes?" Bamako, Office des Produits Agricoles du Mali (OPAM), Système d'Information du Marché, Etude de Cas no. 1, mars 1992.