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Staff Paper

The Response of Cereals Traders to Agricultural Market Reform In Mali

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1. INTRODUCTION

Since 1981, the Government of Mali has undertaken a broad range of reforms aimed at transforming the economy by fostering a much greater role for the private sector and market processes in allocating the nation's resources. These reforms have involved the dismantling and sale of state enterprises, permitting the private sector (including independent farmer and trader organizations) to compete in areas of the economy formerly reserved for the state, and removal of many barriers to trade, both domestically and internationally. These changes, combined with the liberty of association and expression that came with Mali's democratization starting in 1991, are having profound effects on the Malian economy and society.

Because of the importance of the cereals subsector in the Malian economy, both as an employer of millions of rural Malians and the major source of basic staples in the country, the Malian government and donors have given high priority, as part of the reform process, to improving the performance of the cereals market. The lead element of the economic reform program since 1981 program has been the liberalization of cereal marketing, which has occurred under the multidonor-financed cereals market restructuring program, known by its French acronym, PRMC (Programme de Restructuration du Marché Céréalière).

The effect of any policy reform depends on how economic actors react to it. In the case of the PRMC, its success hinged upon whether private traders were willing to fill the vacuum created by the retreat of the public sector from direct involvement in cereals marketing. This willingness, in turn, depended on how the reforms affected the profitability and riskiness of investing in the cereals trade.

The purpose of this chapter is to analyze how Malian traders of coarse grains (millet, maize, and sorghum) have reacted to the cereals market reforms since 1981. The focus is on the coarse grains trade because these cereals historically have comprised the majority of the cereals consumed by Malians and because the response of the rice sector to the reforms is discussed elsewhere in this book (Diarra and Staatz 1999; Dimithè 1999). Dioné (this volume) discusses coarse-grain farmers' response to the reforms, so that topic is only discussed briefly here. The chapter draws heavily on a large body of research carried out by Malian, North American and European researchers since 1985 and on a recent evaluation of the PRMC in which the authors participated (Dembélé, Traoré, and Staatz 1999; Shields, Staatz, and Dembélé 1999; Egg, 1999).

2. A BRIEF HISTORY OF THE PRMC

2.1 Grain Production in Mali

Approximately 70% of the total calories in the Malian diet come from cereals. Millet, maize and sorghum (hereafter referred to as coarse grains) are the major rainfed staples, and, up until the mid 1980s, accounted for about 85% of the cereal calories, with rice providing most of the

remaining 15%. Most rural residents produce at least some of their own cereals supplies, with the result that only about 15%-20% of total grain production enters the market. In urban areas, consumers devote on average between 18% and 31% of their total expenditures to cereals (depending on the city); hence, cereals prices strongly influence urban real incomes (Rogers and Lowdermilk 1988). Rice is much more important in the cities than in rural areas, accounting for more than half the cereals calories consumed in urban areas. Because of the importance of the cereals subsector in the Malian economy, donors and the Malian government have given a high priority since the late 1970s to trying to improve cereals production and marketing.

Grain production in Mali has historically been highly variable due to fluctuating rainfall. This variability, combined with a low percentage of total production entering the market, makes market prices and quantities highly volatile. For example, in the between 1986 and 1988, millet and sorghum prices varied by a factor of 1:4 from year to year (Staatz, Dioné, and Dembélé 1989). Such instability makes cereal marketing risky, whether carried out by the public or private sector.

In recent years, millet and sorghum production has increased at roughly 2.7% per year, roughly the rate of population growth. Most of this growth has resulted from expansion of area cultivated, not an increase in yields. In contrast, technological progress in maize and rice production, combined with the impacts of market reforms, have resulted in rapid expansion of the production of those two cereals (table 1). Thus, millet and sorghum, while still the most widely consumed cereals in Mali, represent a smaller share of total national production and consumption than when the market reforms began in 1981.

Table 1. Share of Various Cereals in Mali's Total Grain Production

| Cereal | Annual Rate of Growth 1980-97 (%) | Share of Total Production in 1980 (%) | Share of Total Production in 1997 (%) |
|------------------|--------------------------------------|---|---|
| Millet & Sorghum | 2.7 | 80 | 56 |
| Maize | 12.5 | 6 | 16 |
| Rice | 9.0 | 14 | 27 |
| Total | 4.7 | 100 | 100 |

Source: Egg 1999, p. 17.

2.2 Genesis of the Reforms

The history of the Malian government's participation in the cereals market dates to 1964 when the state created an official grain marketing agency, the Office Malien des Produits Agricoles (OPAM), and granted OPAM a legal monopoly on the grain trade. Through OPAM the government fixed official producer and consumer prices for cereals, with the stated aim of

achieving three objectives: an increase in rural incomes, provision of cheap cereals to urban areas, and extraction of a surplus from agriculture to finance state investment in other sectors.

Although the private trade was repressed, OPAM handled only between 20% and 40% of total grain marketed in the country (Humphreys, 1986, p. 5). Since only about 15% of total production was marketed, merely 3-6% of total production moved through OPAM at official prices. OPAM's share of rice marketings was much higher than its share of coarse grains (millet, maize, and sorghum), as rice destined for the market was produced largely in government-run irrigation schemes, such as the Office du Niger (ON). The repression of the private trade, while not enough to eliminate it, undoubtedly increased transaction costs. In general, the government was more tolerant of the private trade during good production years, when supplies were abundant, than during years of shortage.

Up until the mid 1960s, Mali was a net exporter of cereals. During the drought years of the late 1960s and early 1970s, however, Mali had to import large amounts of grain on both commercial and concessional terms. OPAM was obliged to sell the commercial imports at low official consumer prices, which led to an increasing budget deficit. In an effort to stimulate cereal production after the drought, the government raised official producer prices without a proportional increase in consumer prices. As a result, OPAM was forced to absorb the implicit consumer subsidies, and its cumulative budget deficit reached CFAF 20 billion (US \$80 million) by 1976/77, equivalent to three times its annual grain sales (Humphreys, 1986, p.7) .

Donor pressure for cereal market reform mounted during the late 1970's as a result of OPAM's accumulating deficits (which the donors were increasingly reluctant to finance), concerns about OPAM mismanagement, and the perception that OPAM's official monopoly and the system of official prices acted as major disincentives to domestic grain production. In March 1981, the government of Mali agreed to a policy reform program that aimed at increasing producer and consumer prices, liberalizing grain trade, and improving OPAM's operating efficiency.

The reforms embodied in the PRMC were based on the idea of using food aid to finance market liberalization. In exchange for a series of proposed reforms, 10 major international agencies and donors pledged multi year shipments of program food aid. The food aid was sold with the reflow money going into a common fund used to finance specific market restructuring actions agreed to by the donors and the Malian government.¹

Long-term benefits were expected both at the trader and producer levels. For traders, potential benefits included a reduction in transaction costs, as private merchants no longer would be forced to operate clandestinely. This, in turn, was expected to lead to an increase in the scale and degree of specialization in trader's operations, thereby reducing marketing costs (Berg 1978, pp 165-169; Wilcock, Roth and Haykin 1987). Reducing the risk of trading cereal would stimulate entry

¹The international agencies and donors included the World Food Programme (the project secretariat), Belgium, Canada, the European Community, France, Great Britain, the Netherlands, the United States, West Germany, and Austria. Over the period 1981-98, as Mali's food production has increased, many of the donors have replaced their food aid with cash contributions to the PRMC.

into cereal marketing, thereby increasing farm level demand and hence farmers' incentives to produce cereals for the market. Eliminating restrictions on inter regional grain shipments would allow equilibration of supply and demand over space, thereby helping eliminate localized gluts and shortages. This in turn would contribute to a more stable market, thereby encouraging greater private investment in grain production and marketing (Staatz, Dioné, and Dembélé 1989).

2.3 Relation of the PRMC to Mali's Structural Adjustment Program

The PRMC was related to, but not officially part of, a broader structural adjustment program (SAP) in Mali supported by the World Bank and the IMF. The SAP aimed first to re-establish macro-economic balance by cutting government expenditures and improving revenue collection, as well as improving the efficiency of government services. These changes implied layoffs of government workers, changes in tax codes and collection policies, and closing of state enterprises, all of which affected the cereals trade. At the same time, the SAP promoted a liberalization of the economy, which aimed at promoting three distinct, but related, transitions in the economy (Griffon 1998):

- A transition from an administered economy to a market economy. Addressing this challenge was one of the first activities of the SAP, and involved the selling of state enterprises and the abolition of official monopolies, and the opening of various domains of the economy, including the cereals trade, to competition.
- A transition from an economy dominated by a few oligopolies to a more competitive structure. Even in the period of "state control" of the Malian economy prior to 1981, state enterprises did not have sufficient control to monopolize all trade. Rather, they tended to work with a few large traders in each sector, who acted as agents for the state enterprises. Moving from such a structure to a more competitive economy is a major challenge for a reform process, as it is much more complex than simply "getting the government out of the market." The government must be fully engaged in putting in place a set of rules of the game that promotes free and fair competition, reduces barriers to entry into the market, and facilitates speedy resolution of commercial disputes.
- A transition from a subsistence economy to a commercial economy. This is a longer-term and more fundamental transition than the other two other transitions just discussed. The transition from a subsistence to a commercial economy is essential for sustained economic growth because, as Adam Smith noted over two centuries ago, the key to economic growth is specialization and trade. Bringing about such specialization and trade involves: (a) increasing the productivity of farming and other rural activities in order that rural residents can produce a surplus for the market and (b) just as importantly, reducing the costs and risks to these people of engaging in trade. Without reliable input and output markets, as well as well-functioning markets for consumer goods, rural households will have few incentives to move away from trying to produce everything for themselves towards a system where they try to increase their incomes through specialization and trade (Staatz 1994).

Although the reform of cereals marketing played a key role in the broader process of economic reform undertaken as part of the structural adjustment process, the philosophy of the PRMC was not identical to that of the Bretton Woods institutions supporting the SAP (Egg 1999). The World Bank and the IMF focused mainly on getting the state out of direct buying and selling activities in the economy and refocusing on the production of facilitating services (effective law enforcement and other public goods), both to help reduce the government deficit and to open the economy to market forces. The PRMC, rather than just calling on the state to withdraw from the cereals market, attempted to “accompany” the state as it changed its role, through supporting government actions to reform the management of the grain board; to establish and manage a national emergency grain stock; to provide market information to consumers, farmers, and others in the private and public sectors; and to develop tools, such as the food crisis early warning system (*Système d’Alerte Précoce*), to prevent and mitigate disasters. Occasionally, this more supportive role of government action put the PRMC in disagreement with the Bank and the IMF regarding levels and types of government expenditures that should be accepted.

2.4 Phases of the Reforms

Since 1981, the PRMC has gone through 5 phases. The objectives for each phase were mutually agreed to by the Malian government and the donor agencies supporting the reforms. These objectives fell into three main categories (Egg 1999):

- **Sectoral adjustment measures:** these involved changing the roles of the state in cereals production and marketing, largely through the restructuring of OPAM and the Office du Niger (the largest government-supported rice production and marketing operation). The PRMC helped negotiate changes in their mandates (including elimination of their statutory monopolies in grain trade), provided assistance to improve their management, financed severance pay to the large number of employees of that were laid off, and helped cover the organization’s operating deficits as long as they met agreed-upon benchmarks for reform.
- **Strengthening the market,** through assistance to the private sector as it took on greater responsibilities in the newly reformed markets. The PRMC financed supporting services to the private sector, such as the establishment of a public cereals market information system (SIM-*Système d’Information sur le Marché*), subsidized marketing credit to private traders and village associations, tested improved techniques for cereals cleaning and processing, and , for a brief time in the late 1980s, provided export subsidies.
- **Food crisis prevention and mitigation.** The overall goal of the PRMC was, of course, to improve food security of the country by improving incentives to produce and market cereals efficiently. But in addition to this broad goal, the PRMC also supported activities aimed at dealing with short-term food crises. These activities included the financing of the national security stock, the food crisis early warning system, and the transport of food aid to areas requiring emergency food distribution.

Notably absent from the PRMC's activities were any actions aimed directly at improving farm-level food production. The PRMC defined its domain of action "from the farmer's field to the cooking pot," leaving issues of increasing farm-level productivity to others.

As shown in table 2, the share of the PRMC's financial resources devoted to these three objectives varied markedly in the different phases of the program. During the first seven years of the program (PRMC I), over 70% of the resources were devoted to sectoral adjustment activities, such as the improvement of OPAM's management. During this period, OPAM still tried to defend an official floor price for cereals, and the state required traders to have licenses to import or export coarse grains. The restrictions on the rice trade were removed even more slowly than those on the coarse grains, as the state tried to protect the value of its investments in the Office du Niger by continuing to protect the domestic rice industry. It was only in 1987 that farmers in the ON were allowed to sell their rice to anyone other than the Office.

The high proportion of PRMC resources going to sector adjustment activities led some observers (e.g., Humphreys 1986, Dioné in this volume) to remark that it seemed ironic that a "market reform" program devoted the bulk of its assistance to the state marketing board. Yet at least some of this assistance was probably necessary to build the political support for allowing the private sector to play a greater role in the system. (E.g., some of the laid-off employees used their severance pay to finance their entry into private business and thus became supporters of a more liberalized market).

Table 2. Allocation of the PRMC Budget by Major Category of Activities (in millions of CFA francs)

| Objective | Phase I (1981-87) | Phase II (1988-90) | Phase III (1991-93) | Phase IV (1994-96) | Phase V (1997-99) |
|-------------------------------------|----------------------|-----------------------|------------------------|-----------------------|----------------------|
| Sectoral Adjustment | 11,051 (72%) | 1,316 (11%) | 2,311 (17%) | 20 (0.4%) | 525 (8%) |
| Strengthening the Market | 1,102 (7%) | 5,939 (51%) | 5,958 (45%) | 1,109 (25%) | 658 (11%) |
| Food Crisis Prevention & Mitigation | 1,526 (10%) | 2,272 (19%) | 4,426 (33%) | 2,925 (65%) | 4,928 (80%) |
| Other ^a | 1,636 (11%) | 2,185 (19%) | 527 (4%) | 448 (10%) | 32 (0.5%) |
| Total | 15,267 (100%) | 11,721 (100%) | 13,222 (100%) | 4,502 (100%) | 6,143 (100%) |

Source: Egg (1999)

^a Includes mainly operating costs of the PRMC.

The subsequent six years of the program (PRMC II and III, 1988-93) devoted roughly half of its budget to activities aimed at strengthening the role of the private sector through the provision of supporting services, such as credit and market information. Particularly important during this period was the establishment of the SIM, established in 1989, which for the first time provided consumers, farmers, and traders with an independent source of information on market prices and conditions. This information, broadcast weekly on the radio and television in French and local languages and published in newspapers, fundamentally changed the bargaining power between farmers and traders and contributed to greater market integration (see below).

As the liberalization consolidated its gains, attention shifted to helping those believed to have been bypassed by the reforms (poor consumers) or those at risk from the continuing instability in the market. During PRMC IV and V (1994-99), the majority of the budget has gone to food crisis and mitigation activities. Malian officials have become much more concerned about the vulnerability of the poor to such crises in recent years because of the large number of refugees returning to the Northeast following the peace settlement and because grain prices rose sharply following the 50% devaluation of the CFA franc in January 1994. Assuring secure and affordable food to returning refugees and former combatants in the Northeast is clearly important to consolidating the peace. The challenge was compounded by the effects of the devaluation. The now cheaper CFA franc made Malian cereals much more competitive in neighboring countries, spurring exports, and increased the price of imported rice. As a result, nominal prices for rose sharply, threatening to price the poor out of the market. Indeed, one of the greatest challenges facing the Malian government in the future will be how to assure improved food access for the poor without reversing many of the gains achieved through the market reforms.

3. TRADERS' RESPONSE TO THE REFORMS

Up until 1981, OPAM enjoyed an official monopoly for all cereals transactions. OPAM agents and the local administration in rural areas, later expanded to include private merchants under contract, undertook direct purchases from farmers for OPAM. Indirect purchases were performed by cooperatives and Opérations de Développement Rural (ODRs). OPAM also pre-financed crop purchases from the production ODRs for resale to OPAM, paying for everything according to the annual "bareme" or official price schedule. While private traders in the coarse grain trade were usually tolerated, they either worked openly as grain assemblers for OPAM (under contract) or clandestinely, through networks of personal relationships with other traders and with agents of the state.

The PRMC reforms, by legalizing the private grain trade, attracted many more traders into the coarse grains market in Mali, increasing competition. In addition, traders expanded their investments in the grain marketing business, particularly in storage and transport capacity. Many traders also changed their methods of operation, relying more on the open market than having to coordinate their economic activities solely through personal networks. As a result of these changes and of the improved market information and removal of restrictions on grain movements, Malian cereals markets became more integrated, both among themselves and with markets in neighboring countries.

In understanding the dynamics of trader response to the reforms, it is important to understand that there were two distinct groups of traders involved in the coarse grains trade. The private marketing structure comprises two substructures, which Dembélé (1994) refers to as the “core” and the “periphery.” The core and the periphery differ by their scale of operations, their managerial ability, their access to formal credit markets and to the court system, and by the type of markets they serve.

The core comprises small-scale traders who lack sophisticated managerial skills. These traders also typically lack access to formal credit and to the court system to enforce contracts. The core deals in the domestic market, assuring the spatial and temporal allocation of grain in the domestic market. Thus, the core is responsible for the coordination of production and domestic consumption. Traditionally, these are the traders who had, in the days of the OPAM monopoly, operated on a small scale to supply local towns with grain, but were not heavily involved in contracting with OPAM or with international trade.

The periphery comprises large-scale and skilled traders, many based in Bamako, who have access to formal credit market and to the court system to enforce contracts. They are often also involved in the import-export business and the rice trade. The periphery connects the domestic market to the international markets. It is responsible for most of the large scale cereals exports and imports. Prior to the liberalization, many of these traders worked hand-in-glove with state enterprises.

3.1 Expanded Entry into Cereals Marketing

As OPAM gradually withdrew from cereals marketing in the early and mid 1980s, wholesale coarse grain traders already in the market expanded operations and others entered the trade. The growth in the wholesale trade was faster for coarse grains than for rice (where the market was dominated by four large import-export firms, which had the sole import licenses and also held contracts with the Office du Niger for most of the domestically produced rice destined for the commercial market). The expansion in the number of traders also occurred more rapidly in Bamako (the main urban consumption market) than in secondary cities, such as Koutiala (in the main surplus producing zone) and Mopti.² For example, research showed that in 1985/86, 51% of Bamako coarse-grain wholesalers entered the market after liberalization, with many of these specialized in the grain trade. (Prior to the reforms, many grain traders diversified their operations to include other goods to reduce the risks involved in this illegal trade.) In contrast, only about a third of the wholesalers in Koutiala, Sikasso, and Mopti had entered the markets after the reforms. (Mehta 1989, p. 40). Subsequent research in 1988/89 documented an expansion of market entry into the coarse grains trade in these other cities later in the decade and increased specialization among in the grain trade compared to the mid 1980s (Dembélé 1994).

² In the secondary towns, particularly in the main production zones, wholesalers needed to develop networks of assemblers to buy from farmers, and government officials may have been slower in implementing the reforms.

As detailed below in the discussion of investment behavior, many of the initial entrants into the grain trade appeared to be smaller-scale traders in the core. These were the actors for which the former barriers to entry had been most daunting. Among the periphery, there was some restructuring of the trade, particularly as medium-sized urban firms formed joint ventures in an effort to improve their access to bank and PRMC credit (Mehta 1988). A more recent phenomenon has been the entry of younger, recent graduates of secondary and post-secondary schools into the grain trade, particularly in the rice trade, but also coarse grains. These new entrants, operating on a smaller scale but with many of the stronger managerial skills of the periphery traders, may eventually serve as a bridge between the two groups.

As a result of the increased entry, the wider availability of market information, increased specialization, and removal of movement restrictions, the coarse grains trade became more competitive. Between 1986 and 1992, for example, marketing margins for millet and sorghum between Bamako and its two major supplying areas (Zangasso and Sirakorala) fell by 20% (Staatz and Dembélé 1992). Most evidence suggests that the reduction in marketing margins was passed back to farmers in the form of higher prices (Egg 1999).

3.2 Expanded Investment in the Cereals Trade

A major objective of the reforms was to increase the private sector's investment in the grain trade in order to improve efficiency and, it was hoped, increase market stability by inducing the private sector to hold greater stocks of grain. While it was anticipated that large traders would lead the way in making these investments, it was actually the smaller traders (the "core") who responded most dramatically. The lower margins in the grain trade, due to the greater competition, and the increased opportunities in other areas of the more liberalized economy, probably induced the larger traders in the periphery to invest elsewhere.³

Overall, coarse grains merchants increased their investments in transport and infrastructure dramatically in response to the reforms (figure 1). Dembélé (1994) found that for a sample of 18 coarse-grain wholesalers from Bamako, Koutiala, and Mopti, net real investment in trucks and storage facilities grew at an annual rate of 19% between 1981 and 1989, with the increase in net investment split equally among the two (approximately 180 million CFA F in each). However, because there had been much less investment in trucks than storage facilities by traders prior to the reforms, the annual rate of increase in trucking investment was much larger (53%) than for storage capacity (11%).

Average total storage capacity per trader (both rented and owned) rose from 61 tons to 761 tons between 1981 and 1989 for traders operating in Bamako, Koutiala, and Mopti, with the rate of

³ The structure of marketed surplus requires labor-intensive marketing techniques at the rural assembly and urban retailing level. Low-skilled and small-scale traders from the core are ready to supply the necessary labor at low returns because of lack of alternative employment. Thus, labor supply within the core is likely to be less responsive to changes in marketing margins. In contrast, traders from the periphery have alternative uses for their skills and their capital. Thus, the supply of skills and capital within the periphery may be very responsive to changes in marketing margins.

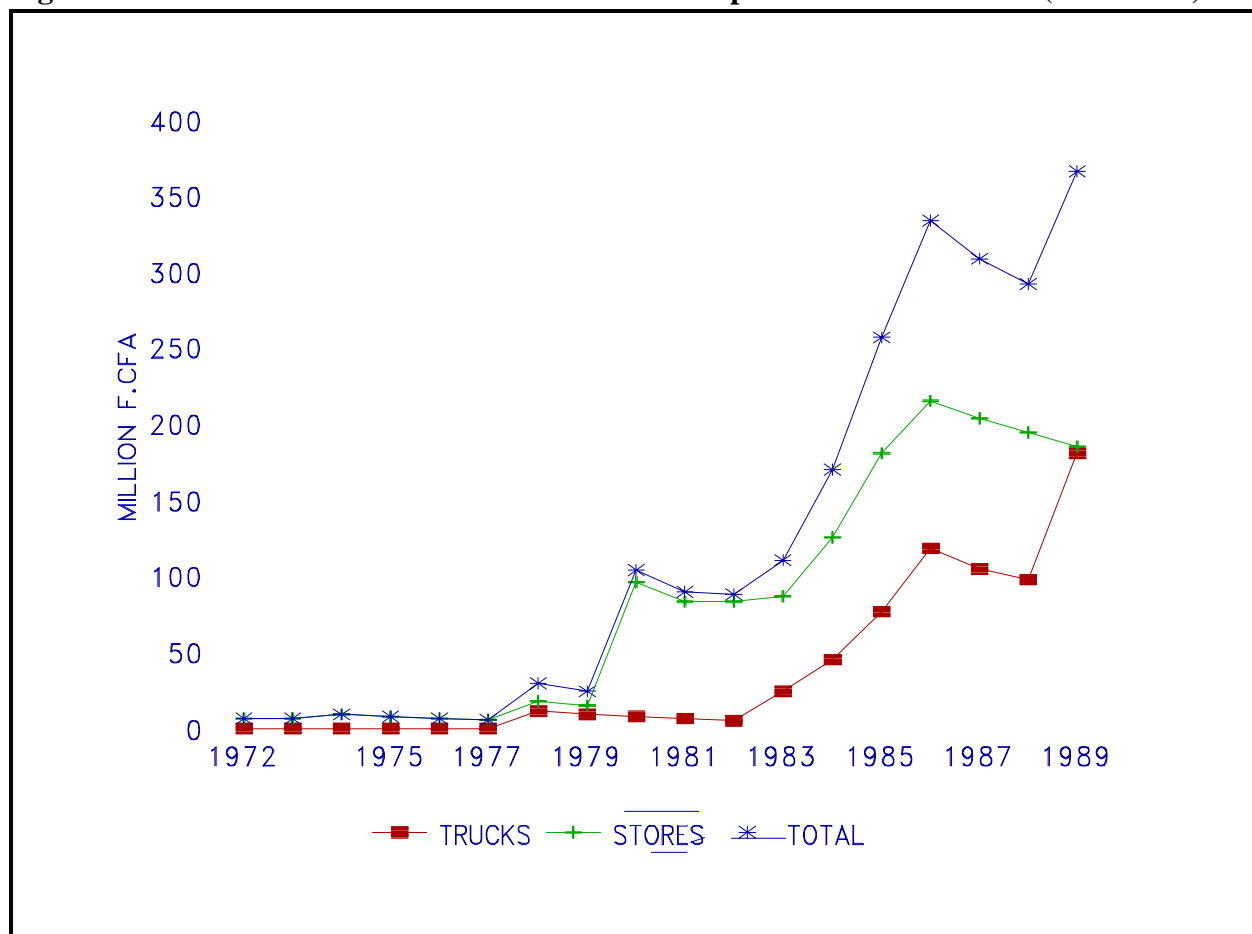
growth of owned storage facilities outpacing the growth in use of rented facilities (Dembélé 1994). The increase in owned storage capacity may reflect a growing confidence of traders in the permanence of the market reforms and an improvement in incentives brought about by the overall liberalization of economic activities. Previous studies (Mehta, 1989 and Steffen, 1992) found that urban traders tend to own more storage capacity than wholesale assemblers from producing zones and that urban cereals trade appears more concentrated than wholesale assembly. Thus, some of the increased profits that may have resulted from concentration of urban cereals trade appear to have been reinvested in marketing facilities (Dembélé 1994).

Two characteristics of the increased investment are particularly striking. First, in areas where feeder roads were good, wholesalers tended to substitute investment in trucking for investment in warehouse space. In other words, they found it more profitable and less risky to continue to have the bulk of the grain in the be held in storage at the farm level, and draw it off the farm as needed through purchases, than to buy and hold the grain themselves. Farmers probably preferred this approach as well, as they typically want to hold a substantial reserve in case the next year's rains are poor. In 1988, 74% of wholesalers and semi-wholesalers operating in major southern markets stored cereal for 1.5 weeks or less. Only sixteen percent of wholesalers and 13% of semi-wholesalers in 1988 stored cereal for more than 3 months (Dembélé 1994). The preference of traders for rapid turnover over stock holding reflects not only the need to reduce the risk of storage activities that results from unexpected adverse price changes, but also the desire to reduce the cost of financing. A rapid turnover of cereals stocks constitutes an effective strategy to reduce the high interest rates charged on informal loans for traders with no access to formal credit markets. In contrast, in areas of poorer roads and limited physical access, particularly in the Northeast, traders have invested much more in storage capacity and hold grain for much longer periods, frequently up to three months (Steffen 1995).

Second, the bulk of the new investment in storage and trucking facilities came from the smaller, more traditional traders (the "core"). Whereas traders in the periphery accounted for 93% of the net investment in storage before the reforms, that share had fallen to 55% by 1989. Similarly, traders who relied on relational contracting (informal or formal long-term agreements with trading partners, either within the country or outside), accounted for the bulk of net investment in storage and transport prior to the reforms, but their share fell dramatically after the reforms, as traders who relied on the spot market for sales increased their investments substantially. (Dembélé 1994).

The picture that emerges is that prior to the reforms, the bulk of the investments were held by larger, more "modern" traders (the periphery) who were well linked in to the official marketing system and the import-export business. Meanwhile, the more traditional wholesalers, who had a network of rural assembly agents to buy cereals from farmers and distribute them within the country, were forced to operate in a more clandestine manner that discouraged investments in visible assets such as warehouses and trucks. Trade was conducted in the shadows, with little reliance on the open spot market, at least for wholesale transactions. The reforms, by allowing these traders to operate more openly, stimulated their investments in storage and trucking, which likely allowed them to gain economies. The reforms also allowed greater use of the open spot market to coordinate economic activity. This, in turn, encouraged new entrants into the trade, as

Figure 1. Evolution of Real Net Investment of a Sample of 55 Traders Mali (1972-1989)



one now did not have to invest as much in developing a series of highly personalized relationships with other traders to succeed in the business. All of these changes lowered marketing costs, contributing to the to the reduced marketing margins discussed above. Source: Dembélé 1994.

3.3 Impact on Market Integration

As a result of the freedom of traders to operate openly on the market, the improved market information, improved market infrastructure, and traders' investments in transport and storage, the integration of coarse grains markets with each other increased dramatically. Prices in one market were quickly transmitted to others, and traders moved cereals to areas where prices were most attractive. The average correlation of retail millet prices across major urban markets in Mali (a measure of market integration) increased from .70 in the mid 1980s to .97 during the 1990s (Dembélé, Traoré, and Staatz 1999).⁴

⁴ The figures refer to the mean of pairwise correlations of retail market prices between Bamako, Mopti, Sikasso, and Ségou, and between those cities and the other regional capitals. Correlations for retail sorghum and maize prices showed very similar trends. The correlation coefficients for the 1980s may be biased downwards

Lack of reliable data for neighboring countries prevent statistical analysis of the degree to which Malian markets became more integrated regionally and internationally. Yet there is plenty of anecdotal and other evidence that the removal of import and export restrictions, both by Mali and its neighbors, has led to much greater trade flows and market integration. Regional trade flows of cereals (which are poorly captured in official statistics) appear to have increased sharply since the CFA franc devaluation of 1994, which made Malian grains much more competitive in the region compared with imports from throughout the CFA franc zone. (Observatoire des Marchés Agricole 1999; Egg 1999). This increased regional market integration has had both positive and negative effects:

- It has resulted in more effective transmission of production incentives (in the form of prices) back to farmers and opened profitable new market opportunities for Malian traders and surplus coarse grain producers;
- It has led to greater physical availability of grain in food-deficit areas.
- It has put Malian consumers more clearly in competition with consumers in neighboring countries (particularly Côte d'Ivoire and Senegal) who have higher purchasing power, raising the risk that some Malian consumers may be priced out of the market.
- It has meant that market instability in neighboring countries such as Niger, where production is more unstable than in Mali, now spills over more into the Malian market.

Each of these effects is discussed in the following section.

3.4 Impact on Market Prices and Availability

Nominal prices for coarse grains increased during the early years of the reform (1981-85), which were poor rainfall years (figure2). They subsequently dropped in 1986 and fluctuated substantially from year-to-year between 1986 and 1993 but showed no distinct trend. Following the 1994 devaluation, nominal producer prices for coarse grains roughly doubled, as did consumer prices in Bamako. (If one takes a slightly longer-term perspective, nominal retail millet in Bamako increased only by approximately 25% between 1990/93 and 1994/97; the increase immediately after the devaluation was more dramatic because prices had been exceptionally low in 1993). In addition, prices became significantly more variable following the (Dembélé, Traoré, and Staatz). Indeed, one of the most striking features of coarse grain prices throughout the past 18 years has been their high degree of instability. For example, between 1990 and 1996, average monthly retail millet prices in Bamako ranged between 70 CFA F/kg and 250 CFA F/kg. (Dembélé, Traoré, and Staatz 1999). Producer prices showed a similar pattern, and they were more volatile in percentage terms than were retail prices.

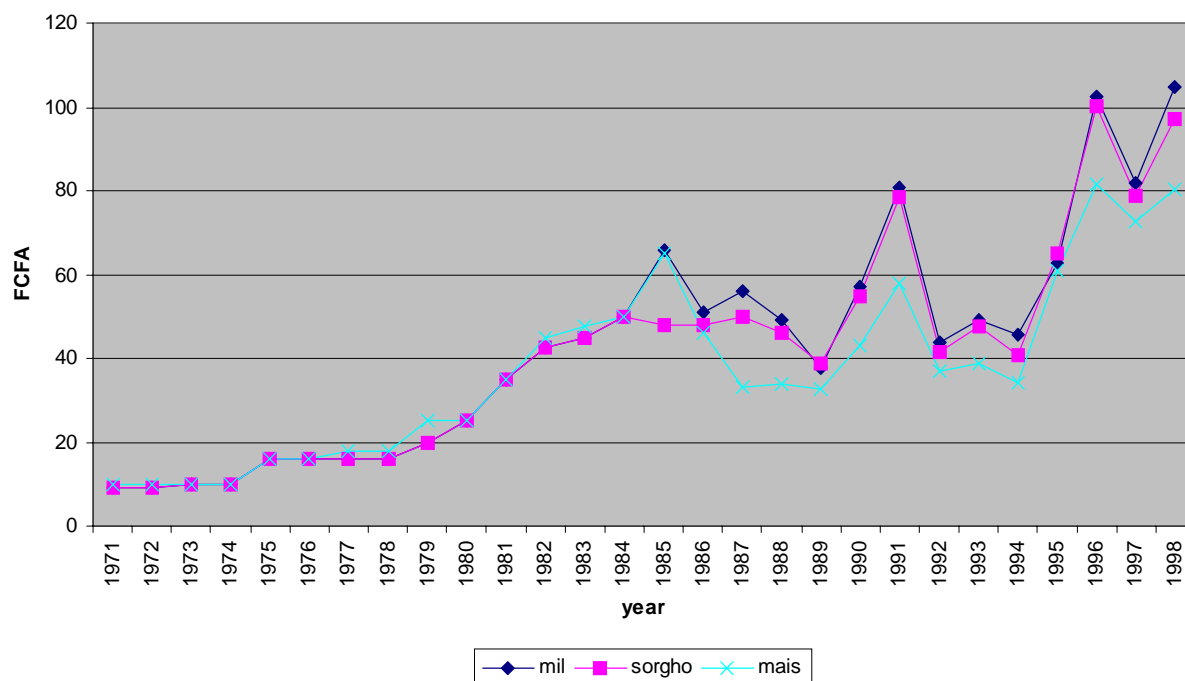
slightly due to the weaker quality of price data that existed before the creation of the cereals market information system (SIM).

When prices are expressed in real terms (i.e., when nominal prices are deflated by the GNP deflator), a different pattern emerges. Real retail prices of coarse grains in Bamako fell by approximately 20% during the period 1981/82 and 1997/98, although there were still substantial year-to-year fluctuations. Real producer prices showed a slight downward trend (but with substantial inter-annual variation) from 1981 until the CFA franc devaluation in January 1994; thereafter, real producer prices show an upward trend (Egg 1999). The rise in real producer prices since 1994 while consumer prices were still falling implies that marketing margins were falling, with the benefits being shared by both consumers and producers.

Even though real consumer prices of coarse grains were falling, they may not have seemed lower to many urban consumers, particularly in the post-devaluation period, because these consumers' incomes were falling even faster. The broader structural adjustment programs and the devaluation strongly turned the urban-rural terms of trade in favor of the countryside, reversing years of urban bias in Malian agricultural pricing policies. As the price of internationally traded goods, such as cereals, increased following the devaluation, the purchasing power of urban salaries eroded. Tefft, Staatz, and Dioné (1997) estimated that the real income of an average Malian civil servant (cadre A) fell by 19% between 1994 and September 1997. Thus, many urban residents associate the PRMC with higher, not lower, real prices.

The physical availability of cereals in most markets improved with the reforms, due to greater competition, improved flows between deficit and surplus areas, and improved consumer information about prices. This improved availability was especially important for rural grain-deficit households. During interviews carried out in 1987/88, members of such households southern Mali (the OHV and CMDT zones) cited improved, less costly access to cereals in the markets as the major benefit to them of the reforms (D'Agostino 1988).

Figure 2. Nominal Retail Prices for Millet, Sorghum, and Maize in Mali, 1971-98



Source: Egg 1999

Note: Prices prior to 1981 reflect official prices and thus probably understate price volatility during this period.

4. LESSONS LEARNED AND REMAINING CHALLENGES

Several conclusions emerge from this brief review of the response of Malian coarse grain merchants to the market reforms undertaken by the PRMC.

1. **Effective market reform needs to be seen as an ongoing process, not a one-time event.** The PRMC has gone on now for nearly two decades, and the willingness of the Malians and donors to continue to work on the process of reinventing the market has been an important key to the program's success. In contrast to reforms undertaken in some other countries, the PRMC did not focus on just the first-stage issues of sectoral adjustment ("getting the state out of the market"). It went on to tackle the much more challenging tasks of building an effective market system by redefining the rules of the game and providing supporting services to the private sector (such as improved market information). It also addressed the "second-generation" problems of the needs of those left behind by the reforms.

This willingness to see reform as an ongoing process has fostered greater collaboration between the donors and the Malian government, on the one hand, and between the

government and the private sector on the other. The approach has also encouraged learning-by-doing, as the PRMC, other donors, and the Malian government have largely avoided doctrinaire approaches, preferring to invest in research to learn more about market processes, and to strengthen local analytic capacity to monitor and analyze agricultural markets, particularly through the SIM.

2. **Market reforms were effective in increasing competition, lowering costs and improving physical access to coarse grains by consumers.** The removal on restrictions on who could legally trade grain led to an influx of new entrants and a greater reliance on the open market for coordinating economic activity. The increased competition, combined with better market information provided through PRMC-supported activities, led to lower marketing margins, which benefitted both consumers and producers. In addition, food deficit households in rural areas reported that it was now easier to find grain to buy when they needed it, as they no longer had to get authorizations to buy from OPAM and could buy in whatever quantities they needed.
3. **Once convinced of the permanence of the reforms, coarse-grains traders invested substantially in market infrastructure.** The greatest investments were in trucks and warehouses, with the type of investment depending critically on the state of the roads in the area where the trader operated. In areas of good roads, most coarse grain storage continues to take place at the farm. In these areas, particularly in the production zones, traders focused more on truck ownership than investment in warehouses. In areas of poor infrastructure, such as the northeast, the lack of reliable transport requires traders to hold stocks for much longer periods, and hence they put more of their investments into expanded warehouse facilities.

The need of northern traders to hold stocks for longer periods puts them at greater risk of losses due to food aid distributions. These findings imply that food-aid distribution in infrastructure-poor areas of the country should be well-managed to avoid disrupting normal commercial storage activity.

4. **Market reforms did not resolve all the problems of cereals marketing and food security in Mali.** The market reforms were effective in reducing the costs of grain distribution, particularly in the south, where transport infrastructure was relatively good. They also substantially reduced the unsustainable government budget deficits incurred by the old official marketing system. Yet substantial problems remain in assuring reliable access of consumers to coarse grains in Mali. Most of these problems are due to *structural problems* in coarse grain production and transportation in Mali. These are problems that a program like the PRMC, which limits its actions just to marketing issues, is unlikely to resolve. These problems include:
 - Instability of millet and sorghum production, which are highly dependent on rainfall. Production of these crops remains highly variable, and most growth in their production has resulted from area expansion, not yield increases. Until more improved, shorter cycle varieties become available and technologies to conserve

water and stabilize yields are more widely adopted, the erratic nature of sorghum and millet production is likely to remain. The contrast between the response of the rice subsector and the coarse grains subsector to the PRMC (see Diarra, this volume) illustrates that policy reform by itself is unlikely to lead to a robust supply response. Policy reform needs to be coupled with technological and institutional improvements in production and access to inputs.

- Poor transport infrastructure in many areas of the country, which continues to limit access and contribute to local market instability. Although the PRMC reforms were very effective in strengthening the integration of coarse grain markets between major cities and within the rural areas of the south that benefitted from a good network of feeder roads, the integration remained much weaker in more remote areas, particularly in the Northeast (Steffen 1994). Poor roads raise traders' costs and discourage trade, whether it is legal or not. A better use of food aid in these areas, as food for work devoted to the building of roads, could help ameliorate this situation.
- Poverty continues to limit access to cereals in Mali. While the PRMC reforms were effective in lowering marketing costs (and thus helping hold down cost of basic staples to consumers), there remain a large number of poor consumers in Mali who lack the purchasing power to assure their access to an adequate diet. The problem has become more acute as the Malian cereals markets have become better integrated with markets in Côte d'Ivoire and Senegal, countries with higher purchasing power whose consumers can outbid the Malian poor for available supplies. A market, no matter how efficient, only responds to those with *effective demand*, i.e., needs backed up with purchasing power. Assuring the poor's access to adequate cereals will require a much broader effort to reduce poverty and develop targeted social safety nets in Mali. Promoting well-functioning markets for basic staples needs to be an important part of that strategy, but it cannot do the job by itself.
- The threat of major drought remains. The PRMC has yet to be tested by a major drought. Although the early years of the reforms (1981-85) were very low-rainfall years, the reforms were in their nascent stages, OPAM was very active in the market, and the market was far from liberalized. Now, however, Malians rely almost entirely on the open market for their grain supplies. It remains an open question whether, when faced with a major food crisis, the political support to maintain the market reforms would remain. This will depend in part on the rules that evolve to help the market deal with such a crisis. The temptation to restrict grain shipments, either to neighboring countries or across boundaries of the newly created rural communes, in order to maintain local supplies, could be very great. It is appropriate that the most recent phases of PRMC have focused much of their resources on crisis prevention and mitigation, for it is likely that a major drought will be the ultimate test of how committed Malians are to the reforms carried out since 1981 under the PRMC.

5. LIST OF REFERENCES

- Berg, Elliot. 1979. "Reforming Grain Marketing Systems in West Africa: A Case Study of Mali." In Proceedings, International Workshop on Constraints to Development of Semi-Arid Tropical Agriculture, 19-23 February, pp. 147-72. Hyderabad, India: ICRISAT, 1979.
- D'Agostino, Victoire. 1988. "Coarse Grain Production and Transaction in Mali: Farm Household Strategies and Government Policy." Master's Thesis, Michigan State University.
- Dembélé, Niama Nango. 1994. "Economic Analysis of Trader's Response to Cereals Market Reforms in Mali." Ph.D. Dissertation, Michigan State University.
- Dembélé, Niama Nango, Abdramane Traoré, and John Staatz. 1999. "L'impact des reformes sur les indicateurs de performance du marché céréalier: Analyse des données de prix du SIM." Contribution to the PRMC Study Etude sur l'impact de la libéralisation sur le fonctionnement des filières céréalières au Mali, Bamako.
- Diarra, Salif B. and John M. Staatz 1999. Chapter in this book.
- Dimithè, Georges. 1999. Chapter in this book.
- Dioné, Josué. 1999. Chapter in this book.
- Egg, Johnny. 1999. Etude de l'Impact de la Libéralisation sur le Fonctionnement des Filières Céréalières au Mali: Rapport de Synthèse. Bamako: Programme de Restructuration du Marché Céréaliier/Comité d'Orientation et de Coordination du Système de Sécurité Alimentaire.
- Humphreys, Charles P. 1986. "Cereal Policy Reform in Mali." Draft report. Washington: World Bank.
- Mehta, Mona. 1989. "An Analysis of the Structure of the Wholesale Cereals Market in Mali." Master's Thesis, Michigan State University.
- Observatoire du Marché Agricole (Ministère du Développement et de l'Eau and Assemblée Permanente des Chambres d'Agriculture du Mali). 1999. Bulletin de Conjoncture no. 97-01, April.
- Beatrice L. Rogers and Melanee Lowdermilk. 1988. "Food Prices and Food Consumption in Urban Mali." Report Presented at USAID Seminar on Cereals Policy in the Sahel. Washington, D.C. Tufts University School of Nutrition. October.

- Shields, Will, John Staatz, and Niama Nango Dembélé. 1999. "Review of MSU Studies on Cereals Market Reforms in Mali." Contribution to Module 4 of the PRMC Study *Etude sur l'impact de la libéralisation sur le fonctionnement des filières céréalières au Mali*, Bamako. Also available in French under the title: "Synthèse des études faites par MSU sur les réformes des marchés de céréales au Mali."
- Staatz, John M. "The Strategic Role of Food and Agricultural Systems in Fighting Hunger through Fostering Sustainable Economic Growth." East Lansing: Michigan State University, Agricultural Economics Staff Paper no. 94-39, June, 1994.
- Staatz, John M., Josué Dioné, and N. Niama Dembélé. 1989. "Cereals Market Liberalization in Mali." World Development 17, no. 5: 703-18.
- Staatz, John M. and N. Nango Dembélé. 1992. "Has AID's Investment in Market-Facilitating Services had an Impact?" East Lansing: Michigan State University, Agricultural Economics Staff Paper no. 92-93, December.
- Steffen, Philip. 1995. "The Roles and Limits of the Cereals Market in Assuring Food Security in Northeastern Mali." Ph.D. Dissertation, Michigan State University.
- Tefft James, John Staatz, and Josué Dioné. 1997. "Impact of the CFA Devaluation on Sustainable Growth for Poverty Alleviation: Preliminary Results." Bamako: INSAH/PRISAS, September.
- Wilcock, David C., Alan D. Roth, and Stephen M. Haykin. 1987. "Cereals Marketing Liberalization in Mali: An Economic Policy Reform Assessment." Report to USAID, Bureau for Africa, Office of Development Planning. Washington: Robert R. Nathan Associates and Development Alternatives, Inc.