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DESCRIPTION AND ANALYSIS OF THE CONDUCT AND PERFORMANCE OF THE WHOLESALE MARKET FOR COARSE GRAINS (MILLET, MAIZE, SORGHUM) IN MALI

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I. INTRODUCTION

This paper is the logical continuation of Working Paper 86-04, which focused on the structure of the wholesale market for coarse grains (millet-sorghum-maize) based on data collected by the MSU-CESA Food Security Project between 1985 and 1987. This paper deals essentially with the conduct and performance of the wholesale market of coarse grains. The objectives, methods, and the theoretical approach are presented in Working Paper 86-04.

It should be noted that the analyses presented in these two papers are preliminary and essentially descriptive. More quantitative and refined analyses will be included in future papers. It should also be noted that the results presented in these two papers are based on observations made during the 1985/86 marketing season, which was a good season following two consecutive drought years. Therefore, any generalization of the results might be misleading.

II. CONDUCT OF WHOLESALERS IN THE COARSE GRAIN MARKET

A. Price Formation Mechanisms

Price formation is essentially a function of supply and demand. In fact, the initial results indicate that the wholesale market of coarse grains seems generally competitive despite some exceptional cases of large traders. These traders are not usually regular grain traders, but they may occasionally have large grain delivery contracts with OPAM, and in most cases they rely on several regular grain wholesalers to supply them with the required quantities of coarse grains. Under such circumstances it is very unlikely that any individual trader would have enough influence to manipulate grain prices. In fact, the results show no indications of the existence of any collusion in the wholesale market for coarse grains during the 1985/86 season.

B. Risk-Sharing Mechanisms

The informal interviews seem to indicate that wholesalers in the production zones bear most of the risk during grain collection and transportation, while storage risks are generally borne by the wholesalers in the urban centers, who undertake most of the storage function.

Risks linked to price fluctuations are entirely borne by those involved in financing the primary collection of coarse grains, mainly independent collectors and wholesalers in the production zones, although producers may often bear part of the losses.

C. Wholesalers' Purchasing and Storage Strategies for Coarse Grains

Grain purchases by wholesalers are mostly a function of their financial capacities, of their access to credit and especially of the conditions of demand. The initial results indicate that although wholesalers make regular purchases throughout the year, the bulk of most wholesalers' purchases are made during the harvest period. The existance of regular supplies throughout the year implies that producers are partially involved in the storage function.

Grain sales, on the other hand, tend to be more spread out in time. The length of storage, however, is relatively short, rarely exceeding two months. This rapid turnover of grain stocks

may be due to the limited financial resources available to grain wholesalers, which do not permit them to undertake any long-term planning, and due to OPAM's intervention, which distorts the normal seasonal price variations.

OPAM's intervention during a good year such as 1985/86 causes a sharp increase in producer prices during the official marketing season. However, once OPAM's funds are exhausted, producer prices exhibit a sharp decline, reaching an equilibrium price far below the official support price. This induced movement in prices causes a greater share of the producers' marketable surplus to be drained towards OPAM's stocks, reducing subsequent grain availability and resulting in higher consumer and producer prices. Moreover, traders have no incentives to store for long periods given the opportunity of making immediate profits by selling to OPAM. Storage is, thus, partially relegated to the producers, while OPAM assumes much of the rest of the storage function.

D. The Conduct of Wholesalers towards Other Participants in the System

Given that access to informal credit is largely a function of trust relationships, there is always the possibility that wholesalers with large financial resources might have significant influence in the coarse grain market. In general, however, it seems that wholesalers do not intervene directly at the producer's level. Instead, wholesalers in the major urban centers such as Bamako and Mopti, who control most of the grain storage capacity, tend to impose their prices on the wholesalers in the production zones. The initial results, however, show no indication of any influence by wholesalers on the retailers.

III. PERFORMANCE OF THE WHOLESALE MARKET

A. Some Cost Items

A.1. Grain Collection

The partial survey results indicate an average cost of 3.5 F.CFA for one kilogram of coarse grains collected in the Zangasso market and delivered to Koutiala, consisting of 2.5 F.CFA/kg for transport, 0.5 F.CFA/kg for bagging, and 0.5 F.CFA/kg for maintenance. This cost structure is generally the same for all zones and for all coarse grains.

A.2. Transport

The average transport costs between the rural markets and Koutiala are about 0.10 F.CFA/kg/km, and 0.02 F.CFA/kg/km between Koutiala and the urban centers. This large difference in costs is due to the poor quality of rural roads as compared to the roads between Koutiala and Mopti or Bamako, which are paved and well maintained. Moreover, grain transport from the rural markets is often done by small trucks, with loads rarely exceeding one ton, while transport to the urban centers is usually done by large trucks with 20 to 30 ton loads. Therefore, it appears that economies of scale exist in grain transport in terms of both distance and volume, which indicate that transport and collection costs could be reduced significantly if rural markets could increase their grain supplies to 10 to 30 tons.

A.3. Storage

Storage costs are very hard to estimate given that most warehouses are never full and are often simultaneously used to store goods other than grains. Moreover, it is very difficult to determine the prevailing interest rate in the informal sector, which makes it hard to have accurate estimates of the opportunity cost of capital and the costs of financing grain storage, which constitute a substantial share of total costs. For instance, when the formal interest rate of 18% is used, financial costs represent 42% of total costs. On the other hand, a 30% interest rate, which is probably a closer estimate of informal rates, would result in a 31% increase in total storage costs. Therefore, this would imply that if wholesalers had access to formal credit, storage costs would be reduced significantly, providing an incentive for more storage.

B. Gross and Net Margins

B.1. Gross Margins

The following average spatial gross margins were calculated between Koutiala and Mopti during the period of October 1985 to March 1986: 28.8 F.CFA/kg for millet, 22.6 F.CFA/kg for sorghum and 2.2 F.CFA/kg for maize. The corresponding figures calculated between Koutiala and Bamako were: 15.8 F.CFA/kg for millet, 14.1 F.CFA/kg for sorghum and 13.9 F.CFA/kg for maize.

Temporal gross margins were calculated for millet and sorghum in Bamako and Mopti during the period January to March 1986. In Bamako, wholesalers who bought millet in January were able to make a 14 F.CFA/kg margin for sales in February and 12 F.CFA/kg for sales in March. In Mopti, the corresponding figures were 2 F.CFA/kg in February and 4 F.CFA/kg in March. Margins on sorghum sales in Bamako were 15 F.CFA/kg in February and 19 F.CFA/kg in March. In Mopti, these margins were 4 F.CFA/kg in February and 0.7 F.CFA/kg in March.

These observations reinforce the evidence that wholesalers in Mopti are not involved in significant storage activities due to limted profit incentives and, thus, they fail to provide regular supplies throughout the year, especially during bad years. In Bamako, however, the margins are large enough to allow wholesalers to make profits on storage and, consequently, to permit them to better serve the Bamako market throughout the year.

B.2 Net Margins

The calculated net margins represent revenues available for the wholesaler to cover not only the opportunity cost of his time but also to include costs related to losses and tax payments.

The spatial net margins were used to calculate the rate of return for one turnover coarse grain stocks, using the 30% annual interest rate of the informal market. The rate of return was estimated at about 7.1% in Bamako, 2.1% in Mopti and 2.9% in Koutiala. It should be noted that these rates of return calculations were based on one stock turnover in March 1986 and, therefore, they should be considered as indicative rather than average rates of

return. These results seem to indicate that the wholesale market of coarse grains performs well in its role of transferring grains from surplus to deficit zones with moderate margins, despite the lack of access to bank credit.

Net margins on storage for a three month period were calculated for Koutiala, Sikasso, Bamako and Mopti, using the 30% informal interest rate and, for the sake of comparison, the calculations were repeated using the formal annual interest rate of 18%. The results indicate that, between January and March 1986, only the Sikasso and Bamako wholesalers were able to realize positive margins, which would explain why storage time rarely exceeded a week in Koutiala and 10 days in Mopti. When the formal interest rate of 18% is used, net margins increase by 114% in Bamako and by 95% in Sikasso. This is an indication that the main constraint for storage is the lack of access to formal credit.

It clearly seems that, under the current circumstances, storage is not a profitable activity for wholesalers given the high costs of capital. Another constraint to storage is OPAM's policy of intervention in the coarse grain market when prices increase above a certain level, especially the fact that this level is fixed across time and space. Such a policy tends to induce wholesalers to stop all storage activities once the intervention price is reached, until prices decline at the beginning of the new harvest. This means that storage capacities are under-utilized and, consequently, wholesalers would have no interest in specializing in coarse grains given the slack periods involved in the grain storage activities.

C. Effects of Regulations on Performance

The current regulations in Mali seem to slow down the entry in the coarse grain trade given the (theoretical) obligation for trader to respect official prices and to keep detailed accounting. It is important to note that the requirement that grain traders respect official prices is very unrealistic. In fact, the activities of collection, transport and storage of coarse grains will not be performed by wholesalers unless they are profitable activities. If the prices fixed by the state do not allow a certain level of profits, traders would either abandon all grain trade activities, or they would resort to the parallel market and charge consumers a risk premium.

The practice of uniform pricing over time and space also constitutes a constraint to the movement of grains over long distances and to their storage over time. Such practices, if strictly enforced in the long run, would become an obstacle to the expansion of the private trade in coarse grains given that few wholesalers would have the incentive to invest in marketing structures. In practice, the regulations are often ignored, but periodic enforcement raises traders` transaction costs.

CONCLUSION

The observation of the coarse grain market in Mali during the 1985/1986 season indicates that the market seems to be generally competitive and, therefore, the private sector seems capable of transferring grains from one region to the other with margins compatible with transfer costs.

However, it should be noted that the storage function is not yet adequately ensured by the system given the limited access of wholesalers to bank credit and the uncertainty created by OPAM's intervention in the coarse grain market. It appears that the access of wholesalers to bank credit and the variation in time and space of OPAM's intervention prices, would permit the grain wholesalers to perform the storage function better.