Impact of Regional Cereals Trade on Food Security in West Africa

Niama Nango Dembélé et John M. Staatz

Projet Sécurité Alimentaire CESA-MSU-USAID, Bamako
Department of Agricultural Economics, Michigan State University

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This document reflects the personal opinions of its authors and is not necessarily an expression of the views of the OECD, the Club du Sahel or the CILSS.
For a long time in most West African countries, the concept of food security was confused with that of food self-sufficiency. This confusion seems to have arisen out of the 1973 food crisis, when most countries were unable to provide sufficient food for their populations. In the vast majority of cases, disaster was only avoided through food aid.

The distinction between food security and food self-sufficiency is that the objective of food self-sufficiency is to produce adequate food supplies locally, while food security may be defined as "the ability of a country or region to ensure that its food system provides the whole population with an adequate and steady supply of food, in line with their nutritional requirements" (Eicher and Staatz, 1987). This definition of food security is based on two concepts: supply and demand. If West African countries are to ensure the food security of their inhabitants, therefore, it is not enough for them to simply possess sufficient food to cover their requirements: they must also have the means to ensure that the people have access to that food.

Food security also has a transitory and a chronic dimension. Transitory food insecurity occurs when an individual's food consumption falls below adequate levels because of short-run fluctuations in supply or effective demand (real income). Chronic food insecurity describes a situation where an individual persistently lacks the real income to assure an adequate diet.

Improving a country's food security typically requires both short-run and long-run measures. Short-run measures involve actions to assure that the poor have access to food through various forms of real-income transfers, such as rations and subsidized distribution of food. Such short-term solutions are needed to address both transitory food insecurity (e.g., famine relief) and chronic food insecurity (e.g., targeted food subsidies). Long-run solutions involve creating food production and distribution systems and other forms of remunerative employment that assure adequate access of the poor to food through income generation and an efficient supply system for food, either domestically produced or imported. The long-run solution therefore essentially lies in economic development, with particular emphasis on income generation for the poor. One of the key tasks for policy makers and researchers, working together, is to devise short-run solutions that do not have deleterious long-run effects. For example, how can intra-regional trade, commercial imports and food aid be used for short-term relief of hunger without undermining the long-term development of the national food system?

Food products can be acquired through national production, trade and food aid. It is true that some countries have more supply sources than others. However, the dependency of these countries as a whole on food aid and trade has greatly increased, partly because local production is not keeping up with demographic growth but also because food habits are changing and West Africans are consuming more and more imported products. According
to Delgado, between 1960 and 1980, rice and wheat imports to West Africa increased by 6.6% and 8% respectively (Delgado, 1988, p.2). The shift in consumption towards rice and wheat appears to reflect primarily the ease of preparation of these cereals relative to traditional coarse grains rather than changes in relative prices (Delgado, 1989). The ease of preparation is particularly important as the population becomes more urbanized and the opportunity cost of women's time and of cooking fuel increase. Nonetheless, in some countries, particularly those outside the CFA zone, severely overvalued currencies have also made imported cereals very cheap compared to locally produced cereals, thus biasing consumption towards imports.

As a result of the increasing dependence of West African countries on external sources for their food supplies, the governments concerned have adopted agricultural and trade policies aimed at increasing the quantity of food generated by the national production system. In order to augment the capacities of their production system and supply their population with food, Sahelian countries have chosen to implement a price support policy to maintain the price paid to the producer.

The importance given to this price support policy during the 1980s was such that it seems to have blinded many West African countries to one of the basic tenets of food security, which is to ensure that the entire population receives an adequate and balanced food supply. An overall surplus of agricultural produce in a given country does not necessarily solve the problem of food security at the regional or household level. The issue of food security affects every household in each of the regions in the country concerned.

Unlike food self-sufficiency, which strives to ensure that sufficient cereals are available through policies encouraging local agricultural production, food security looks beyond the national borders for its supplies. A food security policy therefore needs to strike a calculated balance between national production policies, external trade, food aid and the creation of remunerative employment.

Much of the debate about regional protection of grain markets focuses on how two of the components of food security policy - commercial imports and food aid - affect the other two components: domestic production and the creation of remunerative employment. The proponents of regional protection argue that cheap imports, particularly of rice, undermine the incentives for national food production. The opponents argue that the major constraints to staple food production in West Africa, particularly in the Sahel, are primarily technological and institutional rather than simply low prices. These opponents of protection also argue that higher food prices limit the creation of remunerative employment outside of the cereals sector by raising the price of the basic wage good and input into agroprocessing and livestock enterprises. Opponents also argue that higher cereals prices would hurt the large number of net buyers of cereals, not only in urban areas but in rural areas as
well (Weber et al.). Both advocates and opponents of protection agree, however, that using trade policy to increase the stability or predictability of cereals markets (as distinguished from raising the average level of prices) may be important in encouraging the emergence of a more vibrant cereals subsector in West Africa. (For a summary of these arguments see Shapiro and Berg; Gentil and Ledoux; Jayne and Minot).

This paper is an introduction to the debate on the effects of regional trade on food security in West Africa. The first part examines the limits of food self-sufficiency policies as a means of achieving food security, at least in the short term. The paper highlights the need to make trade an instrument of food security policy, and refers to Mali as an example. It also stresses the need for greater empirical research on the way the cereals market functions in order to develop more effective food security strategies for West Africa.

The limits of food self-sufficiency policies

The basic objective of food self-sufficiency policies is to increase national food production. In West Africa, policy instruments vary from country to country but the basic idea is to encourage food production by maintaining the price paid to the producer at an artificially high level with or without subsidies for agricultural inputs. The government generally keeps prices high by buying from the national cereals board, as in Senegal, or by protecting the national market through external trade controls, as in Mali.

Whichever strategy is adopted, the fact remains that West African countries were unsuccessful in defending a minimum producer price during the years of surplus cereal crops. In some cases, this was because their cereal boards did not have sufficient funds to keep prices high by means of a regulatory stock. In other cases, it was because the quantity of clandestine goods entering the country made it difficult to increase prices through trade policies. For example, in Mali during the 1985/86 crop year, the OPAM (Mali's cereal board) had been given the task of defending a minimum producer price of 55 FCFA/kg. As this was far higher than the free market price, all the traders rushed to sell to the OPAM. In three months, the OPAM had purchased almost 82,900 tons of cereals and had exhausted its funds in the process. The producer price consequently plummeted from 51 FCFA/kg to 28 FCFA/kg on certain rural markets (see Staatz, Dioné and Dembélé, p.13).

Even if Sahelian countries were in a position to pay high producer prices, they would still have to face short-term food security problems as high producer prices generate high consumer prices - unless subsidies are handed out to the consumers. The bitter experience of Mali in this field has proved the inability of Sahelian countries to pay this type of subsidy for any length of time, mainly because the funds used are not backed by external aid but are obtained simply by overspending on budgetary resources.
High producer prices do not guarantee increased production, at least not in the short term. The degree to which producers can increase production in response to higher prices depends on their access to additional inputs, capital resources, and marketing outlets. This, obviously, varies from region to region within West Africa. For example, increased staple food prices in Nigeria resulting from the ban on rice imports seem to have stimulated increased production of gari (cassava) (Spencer). In most Sahelian countries, on the other hand, it seems that in the short term, rainfall and technological constraints have more effect than prices on cereal production.

Even if it is true that policies backing high producer prices are necessary to encourage local production in the long term and to reduce the dependency of a country on outside aid, they are nevertheless a cause of acute food security problems in the short term, particularly in rural areas, which receive little in the way of cereal imports. This is because policies of this nature tend to gloss over the differences between producers and assume that they all produce enough for their own needs.

In reality, this assumption is unfounded. Studies have shown that in Mali, 43% of millet, sorghum and corn producers in the most productive regions of the country (CMDT and OHV) were net purchasers of cereals in 1985/86 and 1986/87 (good harvest years) and that only 16% of producers were net sellers, attaining a figure of about 75% (see Diône).

Therefore, any price support policies intended to assist producers in Mali will actually hurt at least 43% of them as well as increasing existing disparities. Similar results have been found in several other African countries, including Burkina Faso (Reardon, Matlon, and Delgado), and Zimbabwe, Senegal, Somalia, and Rwanda (Weber et al.). In Burkina Faso, for example, during the drought year of 1984/85, less than 5% of the households studied by Reardon, Matlon, and Delgado in the Mossi plateau and the Sahelian region were self-sufficient in cereals. The households that were most successful in coping with the drought were those with diversified sources of income which permitted them to purchase grain from the market. Clearly, such households would be hurt in the short run by higher grain prices.

In the long term, the dilemma of protecting the large number of low-income consumers from high food prices while maintaining the incentives to domestic food production can only be resolved by reducing production costs through technological change in agriculture. Such cost-reducing technological change will allow real food prices to fall while helping to maintain the profitability of food production.

If the negative effect of price support policies on the short-term food security of the rural population is to be reversed, policies aiming to increase national food production must become an integral part of an overall food security policy. It should be possible for a State to successfully pursue twin
objectives of food independence and food security if it can strike a balance by associating policies to increase national food production with external trade policies, food aid and the creation of remunerative employment.

The impact of external trade on food security

It is sometimes poited that greater food self-sufficiency would increase food security at the national level by reducing the risk of depending on unstable world markets, particularly for rice. However, as Shapiro and Berg point out (p. 27), the shift from reliance on external trade to domestic production does not necessarily reduce risk. It simply shifts the type of risk faced from price fluctuations in international markets for a country's imports and exports to the instability of domestic food production. Given the highly volatile climate of the Sahel, a shift of the Sahelian countries towards greater self-sufficiency may thus incur more risk, not less, at the national level. Properly managed, external trade can compensate for fluctuating local production and thereby stabilize the price of food products. This increased stability may increase farmers' and traders' incentives to invest in the cereals system in the long term. Moreover, as the varying price of food products is one of the causes of food insecurity, external trade would have a stabilizing effect and safeguard the purchasing power of the population in the event of a sudden drop in local production.

For example, simulation results based on data covering three years of grain transactions of 190 farm households in southern Mali show that modest reductions of within-year price variability, as might result from greater intra-regional trade, would benefit primarily the large number of farmers who are net buyers of grain, particularly those who are forced to sell soon after harvest to meet urgent cash needs and then purchase grain later in the season to assure home consumption. Similarly, reduction of year-to-year price fluctuations resulting from trade would help net purchasers in years of low production, while benefiting net sellers in years of higher production and consequent low prices. D'Agostino and Staatz show that in a year of relatively poor production, such as 1987/88, a very modest degree of stabilization from trade could reduce deficit farmers' grain expenditures 4-8%, or, equivalently, allow them to expand their grain consumption per capita by 4-8% given their current income.

In Mali, the government has historically tried to use trade policy to stabilize national grain supplies. According to official figures, annual cereal imports between the good and bad years varied between a minimum of 38,500 tons (in 1987/88) and a maximum of 428,600 tons (in 1984/85) (OSCE). Over the past ten years, therefore, a 7% drop in local production has resulted in an increase in cereal imports of almost 10% (figure calculated by the authors from raw OSCE data). This flexible import figure (the main import being rice) has, according to Coelo, helped stabilize prices in Mali.
For such results to be achieved, however, commercial imports and food aid deliveries need to be carefully coordinated with national production. Badly managed, such imports can destabilize rather than stabilize the market. For example, on a number of occasions during the years of abundant harvests, the local rice crop had to be sold at a loss because the quantity of imported goods had forced the price down inside Mali. In order to protect national rice production, the government decided to suspend imports towards the end of the 1986/87 crop year. As a result, the average consumer price of RM40 rice shot up from an annual average of 175 FCFA/kg in 1987 to 210 FCFA/kg in 1988, i.e., a total increase of 20%.

Faced with this increase in rice prices, the consumers turned to millet, sorghum and corn. Coelo commented: "Huge production surpluses and reduced purchasing power of consumer has resulted in a major move away from rice towards millet, sorghum and corn (abundant and reasonably-priced). This is a healthy change in food habits." This statement would be accurate if there had truly been huge production surpluses of coarse grains in 1987/88, but in reality production had fallen by 7% compared with the previous year (OSCE). Reduced supply and increased demand led to sharply higher coarse grain prices, with millet prices in Bamako rising from 79 FCFA/kg shortly after harvest in November, 1987, to 147 FCFA/kg in July, 1988. The impact on rural consumers was particularly severe. Prices paid by grain-deficit farm households in the northern OHV region rose from under 30 FCFA/kg at harvest in November, 1987 to over 130 FCFA/kg in September, 1988 (D'Agostino and Staatz).

Unlike imports, exports can maintain national producer prices during surplus crop years. Exporting goods broadens the market for agricultural produce and encourages the different West African countries to specialize. Exporting cereal surpluses can therefore encourage an increase in local production in the same way as a price support policy. If exports are an expression of comparative advantages, they can also ensure that all available land and labor are used to the full in rural areas. Exports of cereal surpluses between Sahelian countries or between Sahelian countries and coastal countries can push up producers' incomes. This in turn can encourage the introduction of new technologies in rural areas and increase the productivity of the factors of production.

Food aid can make a positive contribution to creating trade flows in cereal surpluses between Sahelian countries. Food aid - particularly involving triangular transactions - attenuates the effects of circumstantial crisis or food insecurity suffered by the sectors of the population whose purchasing power has dropped as the result of a natural catastrophe or structural adjustment. For example, in 1986, France paid cereal surplus funds to Mali to help Mauritania. Triangular transactions between regions in the same country would be another possibility.

In addition, more and more Sahelian governments are starting to export commodities to each other. For example, the Commissariat
à la Sécurité Alimentaire in Senegal intends to buy more than 10,000 tons of cereals from Mali during 1989 to cover its cereal deficit.

However, exports play exactly the same role as a producer price support policy and can therefore create problems in the short term for net cereal purchasers in exporting countries, particularly when there is a significant difference between the incomes of the countries concerned. If a free trade policy is exercised between Sahelian countries, then the food security of a low-income country such as Mali could well suffer in the short term, because free market prices in the subregion would diminish the purchasing power of a large proportion of the population. The impact of such exports on long-term food security depends on how farmers and traders reinvest their profits from the export trade. If the profits are reinvested in improving the domestic grain production and marketing system, e.g., by providing traders and farmers with improved equipment, and in creating new employment, the long-run effect on food security may be positive. For example, few would argue that the world's major grain exporters, such as the United States and Canada, endanger their food security through such exports.

At the beginning of the 1988/89 crop year, Mali decided to crack down severely on clandestine exports in order to palliate the adverse short-term effects of exports on national food prices. Exports were finally legalized some months later when the final assessments of crop surpluses were made public. It should be noted that traders had nevertheless smuggled 50,000 tons of produce to Senegal, Mauritania and Côte d'Ivoire. These clandestine exports helped push up both producer and consumer prices, especially in border areas. For example, in Kita, the average producer price for millet fell from 59 FCFA/kg in January 1989, when parallel export trade was at its peak, to 40 FCFA/kg when the flow stopped in May 1989, i.e., a drop of 32% (see SIM/OPAM bulletins, 1989).

Although exports have helped keep producer prices fairly high, given the record cereal production figures attained in Mali, consumers have also had to pay high prices. While the clandestine exports were leaving the country, the average consumer price in the border town of Kayes was 96 FCFA/kg as compared to 78 FCFA/kg when the exports stopped. It therefore seems that at the start of the crop year, exports maintained a price balance between Mali, Senegal, Mauritania and Côte d'Ivoire for coarse grains. However, as Malians have far lower incomes than their neighbors, and as the Malian economy is suffering from a liquidity crisis, border town consumers were badly hit by exports.

The reluctance of the Malian government to authorize the export of cereal surpluses at the beginning of the 1988/89 crop year was understandable. It wanted not only to keep sufficient stocks inside the country but also to stop consumer prices from shooting upwards. During the 1988/89 crop year, the Malian government was therefore faced with the dilemma described by Timmer, Falcon and
Pearson, i.e., how to go about offering the producer an attractive price whilst offering low cereal prices to consumers.

It is in dealing with the potential food price dilemma that food aid may play a particularly critical role. Food aid can make at least three key contributions to improving food security in West Africa in addition to emergency relief. First, it can provide a bridging mechanism, helping to assure urban food supplies while countries make difficult economic adjustments needed to get their economies back on an employment-oriented path of growth. Many of these adjustments, such as currency devaluation, may create inflationary pressures, particularly in situations when technological, institutional, and infrastructure constraints hinder the ability of the domestic economy to respond with greater food production in the short run (Mellor). Food aid can help dampen these pressures. At the same time, receipts from sale of program food aid may provide the resources needed to help overcome some of these constraints. Mali's multi-donor financed Programme de Restructuration du Marché Céréalier (PRMC) represents one attempt to use food aid in this manner.

Second, markets for basic staples, particularly in the Sahel, are extremely volatile because of the thinness of the market and the variability of both demand and supply (Staatz, Dione, and Dembéle). Reducing this volatility and adding more predictability to these markets may be very important in convincing farmers and traders to make the investments necessary over the long term to increase productivity of the staple food system. As discussed above, food aid and commercial imports, if they are properly managed, can be used to help impart some degree of stability to these markets.

Third, even where food markets are working efficiently, some people will simply lack the resources to obtain enough food from the market. That is, the full delivered price of food in the market will exceed their purchasing power. Food aid may provide a means of assuring these people adequate consumption, but a critical challenge is targeting the food aid to the poor so that it does not disrupt local production incentives and the incentives for market agents to serve those members of the population who do have adequate purchasing power. If the poor eat a significantly different mix of commodities from the rest of the population, it may be possible to identify "self-targeting" foods and subsidize these, either through providing them directly via food aid or by using receipts from sales of food aid to finance the subsidies. Consumption studies in urban Mali and Burkina Faso, however, indicate that it may be difficult to identify such self-targeting foods in these countries, as the budget shares going to different staples is remarkably stable across income classes (Rogers and Lowdermilk; Reardon, Thiombiano and Delgado).

For food aid to contribute to food security in these ways and not end up simply disrupting West African food systems, it must be carefully managed and coordinated. The call for donor coordination embodied in the draft CILSS/Club Food Aid Charter
is an important step. Equally important is the Charter's recognition that food aid must be managed in a way that generates incomes for producers and traders as well as satisfying consumers' needs (CILSS/Club du Sahel). For example, the charter calls for donors and recipient countries to "sell [program] food aid in a way that does not undercut free market prices."

However, to move beyond just the good intentions embodied in the Charter to actually designing specific actions to achieve the Charter's aims will require much greater empirical information. Currently, our empirical understanding remains weak in most countries regarding how domestic and regional food markets operate, how food aid interacts with them, and how producers and consumers make their grain production and consumption decisions. What specific steps could be taken to ensure that food aid helped to develop trade in cereal surpluses between West African countries, helped to compensate for losses in the purchasing power of low-income countries affected by this trade, and to involve the private sector in triangular transactions?

To provide such information requires strengthened analytic capacity at the national level to carry out applied research and policy analysis. Here, again, food aid reflow money may provide an important resource, as it has in Mali. In Mali, the PRMC has financed the establishment of a cereals market information system within the national grain board, OPAM. This unit provides market participants and policy makers with current information on prices and market dynamics, and over the long term also intends to carry out in-depth studies to provide a stronger empirical base on which to plan food security policies. (For details, see Dembélé and Staatz). The unit also intends to offer traders and farmers information on planned arrivals and disbursements of food aid and commercial imports as well as projections of grain production both nationally and in neighboring countries in order to enable the traders to plan their business operations better.

**Conclusion**

The main objective of food self-sufficiency is to encourage local production to provide adequate cereal supplies. Food security differs in that it looks beyond the confines of national borders for supplies. It is perfectly reasonable for West African countries to want to increase national food production with a view to decreasing their dependency on external aid. However, policies should not be implemented in the pursuit of this objective without a preliminary study to determine their effects on the food security of the population groups concerned. National production policies must therefore be an integral part of a food security policy.

Policies aimed at increasing national food production should back measures to increase rural productivity such as research into new agricultural techniques, producer access to inputs and agricultural credit or the development of efficient, private marketing circuits. If West African countries are to diversify
their economies, it is particularly important for growth in cereals production to come through increased productivity rather than just higher prices. Staples represent a wage good, so trying to stimulate growth simply through higher prices is likely to hinder growth in other sectors of the economy by driving up labor costs. A food security policy implemented in conjunction with a policy to increase national production is needed. Such policies could develop trading in cereal surpluses between countries, create remunerative employment and encourage the use of food aid in triangular transactions. This would compensate for the reduced purchasing power of the population following a national catastrophe or structural adjustment operations.
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