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Staff Paper

The Food Security Debate in West Africa Following the WTO Agreements on Agriculture

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Staff Paper 2003-05

April, 2003



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ABSTRACT

This paper examines the environment within which West African countries are designing their regional self-reliance food security strategy following the Uruguay Round Agreements on Agriculture (URAA). The self-reliance strategy combines regionally-coordinated domestic food production with food imports. Three aspects of the URAA-food security linkages were emphasized in this study. First, while the regional model may increase efficiency in regional food production and distribution systems, it may also restrain the flexibility and/or the effectiveness of using tariff protection when needed. Second, a formal test of structural change in food availability suggests that there have been increases in average per capita food supply in the post-URAA period. Third, under a scenario of URAA-led increases in food prices, food access may be weakened in West African net-food purchasing households, even when regional food production responded to price incentives. Besides the macro linkages emphasized in this study, microeconomic and anthropometric linkages between food security and URAA are equally important and should be addressed in subsequent studies.

(33 pages, including Appendix)

Kofi Nouve is graduate student and John Staatz is professor, both in the Department of Agricultural Economics at Michigan State University. Financial support for this research is provided through the Sahel Regional Program of the Food Security II/III Cooperative Agreement between Michigan State University (MSU) and US Agency for International Development (USAID). While gratefully acknowledging the financial contribution of USAID and the research facilities provided by MSU, we take full responsibility of the views expressed in this paper.

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1. Introduction

Over the past four decades, the food security debate in West Africa has followed very closely the debate in the developing world in general. In the 1960s, food security strategies emphasized sufficient food supply through expansion of domestic agricultural production (Phillips and Taylor). These strategies have broadened over time to focus on food access and nutritional security in the 1980s (Davis, Thomas and Amponsah; Staatz, D'Agostino and Sundberg). Today, the notion of food security rests upon the three pillars of *availability*, *access* and *utilization* (Staatz). In West Africa, these conceptual developments shifted from excessive focus on national and regional food self-sufficiency to a more all-encompassing strategy based on regional self-reliance. The latter strategy emphasizes not only exploiting regional comparative advantage through coordinated use of regional resources, but also active participation in the global agricultural markets. The goal is to complement regional food production with imports and to strengthen food access through increased income-generating trade opportunities.

Since the Uruguay Round Agreements on Agriculture (URAA), the food security debate in West Africa has gained a renewed importance. The URAA has direct implications for the region's food security, affecting its capacity to generate foreign exchange necessary for importing food products. Most West African countries are net food importers and, with the exception of Nigeria, primary exporters of non-food agricultural commodities. Besides the traditional concerns about low productivity, huge price fluctuations and output variability, the URAA has increased the uncertainty regarding the effectiveness of the self-reliance food security strategy. This is essentially due to two reasons. First, seven years after its entry into force in West Africa, the URAA still delivers a mixed result regarding some national indicators of food

security, particularly food availability. Second, the expected reforms in global agricultural trade policies, particularly the promised cuts by high-income countries in tariffs and non-tariff barriers and reductions in domestic supports and export subsidies, have been very slow to materialize (Diao, Roe and Somwaru). Thus, the aim of the ongoing food security debate in West Africa is to capitalize on the URAA experience in order to refine the regional self-reliance strategy. The central objective throughout this paper is to describe the environment within which West African countries are trying to redefine this strategy.

The choice of West Africa to adopt a regional approach to food security is justified, in part, by the relative dynamism of the region's economic integration efforts, when compared to regional integration experience in other parts of Sub-Saharan Africa (DFAIT). Given this characteristic, many have argued that the region could build upon the momentum of the integration dynamics and develop a regional approach to global agricultural trade negotiations (Blackhurst, Lyakurwa, and Oyejide; Nogue et al.). The regional approach could strengthen West African bargaining power in the international negotiations¹, with the objective to make the international trading environment compatible with the (self-reliance) food security strategy. In Section II, we document how the regional integration dynamics are explicitly or implicitly translated into articulated positions of the region regarding various WTO issues. The section focuses on the food security debate, highlighting the region's perceptions of how WTO could effectively contribute to strengthening the self-reliance strategy.

In addition, this paper also addresses two sets of issues that are directly related to the self-reliance strategy. The first, treated in Section III, deals with structural change in food availability between the periods before and after the URAA. The question arises because of claims that URAA may have led to decreased food availability in the developing world (Madeley). We

formally test this proposition, which has not previously been done for West Africa. The second set of issues, addressed in Section IV, is the general discussion on the linkages between food security and trade and non-trade factors. While Section II focuses on the regional dynamics and their linkages with a trade-based food security strategy, and Section III proposes a formal test of changes in the level of food availability, Section IV recasts the regional food security debate within a more global perspective. The conclusions of the paper are drawn in the last section.

2. Western African Participation in the URAA Process²

West African countries, like many poor countries, face very similar issues in the WTO agricultural negotiations (Nouve et al.). Central to the issues are traditional questions of market access, domestic support, export subsidies, and non-trade concerns, with a prominent importance given to food security (Diaz-Bonilla et al., 2002a; Trueblood and Shapouri). The participation of West Africa in the URAA since 1995 has been marked by what may be called the “two sides of the implementation issue”. On the one hand, the region has supported demands that rich countries observe the terms of the URAA by (i) offering greater access to foreign products in their markets through reduced tariff (including tariff peaks and tariff escalation) and non-tariff barriers, and (ii) reducing or eliminating the use of support policies, such as domestic support and export subsidies. On the other hand, implementation also entails compliance of West African countries with the URAA, and such compliance requires financial resources and technical expertise that are largely lacking in the region. Thus, countries in the region are also strong advocates of technical assistance and special and differential treatments for the least-developed countries. Diaz-Bonilla et al. (2000b) argue that the lack of these resources is the most important factor constraining developing countries’ participation to the URAA process.

The positions of the region regarding all the issues mentioned above are covered in detail in Appendix 1 (issues position matrix). The positions presented are those identified by Nogue et al. and Yade, Nogue and Staatz, and represent four groups of countries: (i) West Africa, which is a group of eight West African countries that have submitted individual negotiating proposals to any WTO forum between 1999 and 2002³; (ii) the West African Economic and Monetary Union (WAEMU), which adopted a common position on WTO negotiations in 2002; (iii) the Conference of Agricultural Ministers of Western and Central Africa (CMA/WCA), and (iv) the Permanent Interstate Committee for Drought Control in the Sahel (CILSS). While each of the last three groups has adopted a joint position on various aspects of WTO negotiations, the first group was constructed by identifying the consensus and differences between countries from individual countries' positions. Thus, the constructed consensus does not represent the official position of any regional organization, but rather serves to identify those issues likely to be included in subsequent statements by regional organizations.

The existing literature deals extensively with consensus and differences among countries on the various issues mentioned earlier, and there is no need to cover them in detail in this paper⁴. Instead, as mentioned in Section I, we focus on the linkages among participation in the multilateral liberalization process, preferential trade arrangements, and food security.

The objective of food security is central to development goals in all countries in West Africa. Trade has a direct link with food security, and this linkage is well understood and explicitly acknowledged in the common position of WAEMU and CILSS, and indirectly in the positions of CAM/WCA (through the development box) and ECOWAS (through support for the special and differential treatments and for the proposition to using domestic supports and special safeguards to protect domestic food industry against adverse effects of imports). All four

regional institutions have developed (or are making progress towards developing) a common framework for implementing their agricultural policy. Common objectives include achieving food security, improving market efficiency and strengthening rural livelihoods through increased real incomes. In addition, Sahelian countries under the umbrella of CILSS share a common policy for managing scarce natural resources, particularly water. West African countries also resort to common external trade regulations through the harmonization of tariff categories (both in ECOWAS and WAEMU) and the use of common external tariffs (in WAEMU). The aim of these various policies is to strengthen economic development in general and food security in particular, through improved opportunity for spatial arbitrage of production and commercial activities among countries in the region. The regional approach increases the interdependence between countries and strengthens complementarities between economies through regional specialization. However, it may also facilitate transmission of negative externalities across regional borders. For example, West Africa is characterized by its longstanding trade between Sahelian and coastal countries. Thus, epidemics in livestock production in the Sahel or climatic shocks to cereal and root production in the coastal regions could drastically affect regional flows of meat or other foodstuffs of regional origin.

More importantly, political unrest in any given country in the region could disrupt the entire food production and distribution system, as spatial arbitrage mechanisms are likely to fail both in output and input markets. Staatz and Camara have recently shown how the 2002-2003 armed conflict in Côte d'Ivoire disrupted the regional food system, causing substantial increases in transportation costs by forcing traders to source in and out their products using alternative routes that are often longer and less practical. Worse, trade may even not occur when alternative routes are missing. The Ivorian conflict has also increased transaction costs by increasing

marketing risks and fueling corruption. All these disruptions inflict high short-term damage to food security in the region. Yet, the long-term impacts may even be more significant. Conflicts undermine countries' faith in the regional food security model, pushing them into seeking alternative, perhaps more expensive, options to achieving food security.

The regional food security model also has strong interdependence with the global food system in general. We will return to a more complete discussion of the linkages in Section IV, but we highlight two key independences that are relevant in this section. First, there is a general perception among Sahelian countries that regional supply opportunities are often disrupted in coastal markets due to low-priced imports of livestock products (meat and dairy), mainly from the European Union (EU). Second, West African countries increasingly perceive that the legal distinction between “developing” and “least-developed countries” (“LDCs”) within the same region undermines the region’s options for reaching preferential trade agreements with the EU. There are at least two preferential trade opportunities between Western Africa and EU. The first is the Regional Economic Partnership Agreements (REPA), which was introduced in the Cotonou Agreements of bilateral cooperation between EU and the African, Caribbean and Pacific (ACP) group⁵. The status of LDC qualifies a country to benefit from the EU’s Everything But Arms (EBA) initiative, which extends a duty-free and quota-free access to most exports originating in LDCs (except the so-called “protocol products”: banana, rice and sugar). West African developing countries, such as Côte d’Ivoire, Ghana and Nigeria, do not benefit from this special treatment. The immediate consequence is that LDCs could still benefit from non-reciprocal access to the European markets while developing countries could only access these markets under reciprocal terms. Due to the interconnectedness of the regional economies, which underscores the regional food security model, the enforcement of the reciprocity requirements

(allowing EU countries reciprocal access to “developing country” markets) is likely to expand European share of the food market in the region, as the EU countries would also gain de facto access to markets in the LDCs as well. This is perceived as a potential risk for the region, particularly given the current state of the world agricultural trade where political economy forces continue to protect very high levels of support in most OECD countries. West African countries mainly fear that the reciprocity requirements could strengthen the penetration of subsidized EU’s food exports into any given developing country, which then will serve as port of entry to the wider and interconnected regional markets.

The regional food security model also has strong linkages with other issues commonly discussed in the existing literature (DFID; Trueblood and Shapouri). These issues include: (i) erosion of trade preferences (with possible weakening of the region’s foreign exchange position, thereby its capacity to import food), (ii) worldwide food price instability, and (iii) declining food aid. The discussion of these linkages in the context of West African economies is, however, delayed until Section IV. We now turn to the examination of the *state* of food availability in the pre- and post-URAA periods.

3. State of Food Availability in the Pre- and Post-URAA Periods

Distinguishing between “state” and “impact”

There is no study documenting the *impact* of URAA on food availability in Sub-Saharan Africa, and particularly in West Africa. Similarly, the existing literature does not provide any definite answer to the sensitive question regarding the impact of further reductions or elimination of trade barriers and support measures on food security in low-income economies. FAO (2000a) suggests that this lack of analysis is primarily due to the near-impossibility of disentangling the

specific effects of URAA from other major changes and shocks that have affected the world economic system in the post-URAA era.

The second half of the 1990s was marked by significant economic and climatic shocks, including the Asian financial crisis, El Niño, and the global economic slowdown since the turn of the millennium. In francophone Africa, the beginning of the URAA was preceded in 1994 by a 50% devaluation of the CFA franc, a currency pegged to the French franc and shared among fourteen Western and Central African countries and Comoros. Before URAA, most African economies had embarked on extensive structural reforms under the IMF-World Bank structural adjustment programs (SAPs). Many African countries have also registered civil strife and political unrest since the late eighties, when the so-called Eastern Wind of democratization started to blow across the continent.

The causal relationship between URAA and food availability in West Africa could, in theory, be established from changes in prices due to the URAA and subsequent supply response behaviors in agricultural production (both for domestic consumption and exports). However, the task of quantifying these changes is complicated not only by the difficulty in quantifying the extent to which URAA were implemented since 1995, but also by the difficulties involved in specifying an appropriate model that is able to encompass the multiplicity of shocks that have interfered with trade reforms in recent years. A more manageable task is to establish a somewhat weaker relationship between URAA and food availability in West Africa by examining structural change in the level and the composition of food availability in the pre- and post-URAA periods. This latter approach is weaker in the sense that it addresses the *state* of food availability in the two periods, but not the *impact* of URAA on food security. Though not accounting explicitly for

each relevant shock besides URAA, investigation of the state of food availability implicitly considers those shocks, as their resulting impact is the observed state.

The purpose of this section is to examine changes in the state of food availability before and after the URAA, with the understanding that the state reflects to some extent the impact of many factors, including URAA.

A Simple Exponential Growth Model

The state of food availability is investigated using a simple exponential growth model and testing for structural change between two periods, that is, the pre- and post-URAA eras. The test is performed on both the aggregate food availability and its major components, particularly grain and root/tuber production, imports and food aid.

Let y_{it} be any per capita food availability series, where i is the country index and t denotes a continuous time. The exponential growth function is given by:

$$(1) \quad y_{it} = A \cdot \exp(\alpha_1 t + \mu_{it})$$

where A and α_1 are constant and μ_{it} is a stochastic shock that knocks y_{it} off its growth path.

Taking logarithm of both the left and right sides of Equation (1) yields Equation (2), after replacing $\ln A$ with α_0 :

$$(2) \quad \ln y_{it} = \alpha_0 + \alpha_1 t + \mu_{it}$$

The growth rate of y_{it} is represented by α_1 . The problem is to examine whether there is any difference between α_1 in the periods before and after the URAA, roughly assumed to have a noticeable effect from 1996. Thus, a dummy variable denoted D_{URAA} was created to capture the possible difference in α_1 across the two periods ($D_{URAA} = 1$ if $t \geq 1996$, and 0 otherwise).

Equation (2) can be expanded by including the dummy variable and the interaction between the dummy variable and the time t , yielding Equation (3) below:

$$(3) \quad \ln y_{it} = \alpha_0 + \alpha_1 t + \alpha_2 D_{URAA} + \alpha_3 t * D_{URAA} + \mu_{it}$$

Changes in the state of food availability are determined by testing whether α_2 and α_3 are jointly different from zero.

Beside changes in the level of food availability and its components, the variability of food supply is also a critical indicator of food security. Variability in y_{it} is measured using the index of variability, $I(y)$, as proposed by Sadoulet and de Janvry (p. 126):

$$(4) \quad I(y) = \sqrt{\frac{1}{NT} \sum_{i=1}^N \sum_{t=1}^T \hat{\mu}_{it}^2}$$

where there are N countries and T time periods; and $\hat{\mu}_{it}$ are relative residuals defined as

$$\hat{\mu}_{it} = (y_{it} - \hat{y}_{it}) / \hat{y}_{it}, \hat{y}_{it} \text{ being the fitted value of } y_{it}.$$

The empirical estimates are done using panel data for 17 West African countries (including Chad, which is a CILSS member) over 13 years, from 1989 to 2001. The model is applied to five different series of food availability. These series are routinely used by the Economic Research Service (ERS) of the US Department of Agriculture (USDA) in its food availability outlook, the Food Security Assessment (FSA) report. The five series are: (i) aggregate availability (PCAA), (ii) grain production (PCGP), (iii) root/tuber production (PCRP), (iv) commercial imports (PCM) and (v) and food aid (PCFA).

Data

Data are taken from various FSA reports (1997, 1998, and 2003) in order to check consistency. While series for grain and root production, commercial imports and food aid are reasonably consistent for these years, the 1997 data for aggregate availability of all food were substantially different from the data in other years. We therefore retain the latest data, which are

deemed to be more accurate⁶. Population data are taken from the FAO statistical database. Summary data are provided in Appendix 2.

Results

Results indicate no structural change in four components of the West African aggregate food availability in the period before and after the URAA (Table 1). However, there was evidence that the growth in the total per capita food availability slowed down slightly (α_3 less than zero) in the post-URAA period, if compared to pre-URAA period. Thus, the observed changes in total availability may have come from other components of total food availability that were not included the first four indicators in Table 1. They may also be partly due to aggregate marginal effects of each of these four series. Though the growth in per capita food availability slowed down in the post-URAA period, it was not reversed ($\alpha_1 + \alpha_3$ remained marginally positive). Consequently, average food availability in the post-URAA period was higher than the average in the pre-URAA period. In other words, food availability at national level has not worsened in the post-URAA.

The relative decline in the growth of food availability in the post-URAA was not only specific to West Africa. A series of Food Security Assessments Reports of the Economic Research Service (ERS) of the US Department of Agriculture (USDA) (ERS-USDA, 2001; 2002; 2003) has also documented a relative intensification of food insecurity in many vulnerable countries, particularly in Sub-Saharan Africa⁷. The aggregate food situation in 67 low-income countries (70 countries in the 2003 report) deteriorated between 2000 and 2001, and further, between 2001 and 2002. The decline was attributed to two forces: (i) shortfalls in production in many countries, and (ii) reduced food imports due to shortage of foreign exchange following the global economic slowdown of the turn of the century (ERS-USDA, 2002).

Regarding the variability of aggregate food availability and its components, it can be seen from Table 1 (last segment) that food aid presented the highest index of variability, that is more than twenty times the observed variability in commercial imports in Western Africa. This is consistent with previous findings as reviewed in Barrett.

Table 1: Regression Results of Structural Change in Food Supply in West Africa

Dependent variables	ln(pcgp)*	ln(pcrp)*	ln(pcm)*	ln(pcfa)*	ln(pcaa)*
Coefficients (p values)					
α_0	4.660 (0.000)	2.909 (0.000)	2.943 (0.000)	2.657 (0.000)	5.334 (0.000)
α_1	0.010 (0.750)	-0.022 (0.799)	0.071 (0.119)	-0.171 (0.005)	0.046 (0.000)
α_2	-0.130 (0.753)	-0.418 (0.735)	-0.122 (0.849)	-0.350 (0.685)	0.208 (0.123)
α_3	0.018 (0.695)	0.057 (0.683)	-0.011 (0.881)	0.081 (0.407)	-0.036 (0.019)
R-squared	0.001	0.001	0.003	0.081	0.166
Prob > F (test $\alpha_2 = \alpha_3 = 0$)	0.921	0.917	0.725	0.498	0.022
Variability index					
1989-2001 [$I^0(y)$]	0.442	18.616	2.093	48.844	0.039
1989-1995 [$I^0(y)$]	0.457	15.811	1.971	42.360	0.047
1996-2001 [$I^1(y)$]	0.425	21.889	2.235	56.408	0.032
t-test for [$I^0(y) = I^1(y)$]	0.358	-1.329	-0.247	-0.532	1.971

*pcgp: per capita grain production; pcrp: per capita root production (in grain equivalent); pcm: per capita grain imports; pcfa: per capita food aid; pcaa: capita aggregate food availability.

The variability index is less than one for both aggregate availability and grain production, suggesting that these two series may be relatively stable in West Africa. In contrast, root and tuber production⁸ was found to be much more volatile, with a variability index of 18.6. The root and tuber production sector tends to be less integrated into the global agricultural trading system, and thus, may be most and directly susceptible to local shocks.

Finally, the results suggest that aggregate food availability was less volatile in the post-URAA period as compared to the variability before URAA (the variability indexes were 0.032 and 0.047, respectively for the two periods, and their difference was found to be statistically different from zero at 5%). However, there was no statistical evidence of changes in the variability of the other series investigated. Thus, the West African data did not substantiate widespread concerns about possible increases in the variability in food availability following URAA. In addition to food availability, however, the region's self-reliance food security strategy involves a wider set of elements. Section IV discusses some of the most relevant elements that link food security to global agricultural trade reforms, as pursued under the URAA.

4. The Regional Food Security Model in the Global Agricultural Trading System

As discussed earlier, there are strong hopes in West Africa that the multilateral agricultural trading system will contribute to meeting the key objective of food security, both at national and regional levels. In this section, we summarize the conceptual debate and available evidence on the linkages between global trade liberalization and food security, with specific reference to West Africa whenever possible. The section is divided into the following four sub-sections: (i) conceptual debate on the "appropriate" level of liberalization; (ii) illustration from the 1999 FAO symposium on food security and trade; (iii) price instability issues; and (iv) looking beyond trade.

The Conceptual Debate: Shock Therapy, Protection or Gradualism?

There are several schools of thought regarding the contribution of the global trade reforms to meeting the objectives of food security. A good summary of the state of this debate is provided in WTO (2002). The debate primarily centers on the identification of the appropriate market reform strategy that may deliver the best results in terms of achieving a desired level of

food availability. These reforms (or liberalization) consist of reducing tariff and non-tariff barriers as well as eliminating or reducing domestic supports and export subsidies to agriculture.

A trade-based strategy calls not only for further reforms of domestic agricultural markets, but also for a push towards greater reforms in other countries. While some countries hold the view that reforms in agricultural markets would improve food security, others defend the need to maintain continued protection and supports to their agricultural sector. Between the two groups are countries that hold a middle ground, advocating gradual liberalization. West Africa fits best into the latter category.

Advocates of continued protection and supports rest their argument on any of the following three sets of evidence or conjecture: (i) there is a high probability that existing barriers to free agricultural trade will remain in high-income countries for some time; (ii) imports are often not affordable or accessible, mainly due to lack of foreign exchange (which implicitly means that their currency is overvalued); and (iii) small farmers need a support package to maintain their multifunctional agricultural business.

Opponents suggest that it is necessary to separate long-term concerns of food security from short-term problems. They argue that while short-term problems are well addressed through targeted food aid, reducing chronic food insecurity will require increases in income, an objective that is best served through a greater reduction in agricultural trade barriers. A counterargument is that trade would lead to specialization, which in turn can increase the risk of food shortages in the event of adverse climatic or political shocks. Thus, an appropriate approach to achieving trade-based food security may be the one that combines short-term solutions (such as emergency food aid or donor-financed food imports) with a gradual shift towards increased removal of trade barriers. This approach seems to be the framework sought in the Ministerial Decision on

Measures concerning the Possible Negative Effects of the Reform Program on Least-Developed (LDCs) and Net Food-Importing Developing Countries (NFIDCs). The NFIDC Decision is an integral part of the URAA, adopted by WTO member countries at Marrakesh in April 1994. It was motivated by the fear expressed by LDCs and NFIDCs that implementation of the URAA trade reforms would reduce or eliminate structural surpluses in developed countries, leading to sharp increases in prices and, thereby, inflated food import bill. This could diminish or offset any benefit associated with the reforms. In West Africa, fourteen of the seventeen countries covered in this study are LDCs, Côte d'Ivoire is NFDIC, whereas Ghana and Nigeria are neither LDCs nor NFIDCs.

An Illustration: The FAO Symposium of Agriculture, Trade and Food Security

The 1999 FAO Symposium on Agriculture, Trade and Food Security (see FAO, 2000a) provides a typical illustration of the conceptual controversies and misinterpretations of the linkages between food security and trade. The symposium was based on a background study that surveyed the experiences of fourteen developing countries with global agricultural trade liberalization following the URAA. Senegal was the only West African country among the fourteen developing countries covered in the FAO background study⁹. Reviewing the FAO study, Madeley argued that the general finding of this cross-country investigation was that imports surged in the post-URAA era, without accompanying expansion in exports. However, Madeley's review overlooked contributions, such as those from Diaz-Bonilla (see FAO, 2000a) that depict positive trend in some key indicators of food security following the URAA. Diaz-Bonilla suggested that developing countries may have benefited from the URAA process. He particularly pointed to the decreasing share of food imports as a percentage of total exports, suggesting that developing countries may have strengthened their ability to finance food imports.

This share was found to be even lower if tourism, which is an export of services, is included in total merchandise exports. He concluded that “International trade has thus certainly helped, but food security remains a domestic issue, involving questions of land structure, infrastructure, domestic policies in general, domestic institutions and processes” (see FAO, 2000a, Chapter 3). For West African as a whole, there was no substantial change in this indicator before and after the URAA, the regional trade-weighted average of the share of food imports as a percentage of total merchandise exports were 21% and 21.2%, respectively for the pre- and post-URAA periods (Appendix 3). There were noticeable differences between countries, some of them having improved (Benin, Cape Verde, Guinea), and other worsened (Mauritania, Sierra Leone) their capacity to finance imports. More formally, one may apply the model in Section III to examine the significance of these changes. Regression results (not shown here) confirm that there was no statistical difference in the food import shares between the two periods¹⁰. Similar results are obtained with the net imports of cereals at regional level, although countries differences exist.

Diaz-Bonilla also pointed to another indicator of food security, the share of food imports as a percent of total food production. For the LDCs as a whole, this proportion was 4% in the 1960s, increased to 8% in the 1980s, and it has been decreasing since the 1990s. A subset of LDCs, the low-income food-deficit countries (LIFDC), the proportion remained between 6% and 10% over the past four decades (FAO, 2000a).

Thus, the situation of food availability in the post-URAA period may be viewed as not substantially different from the previous situation. Besides trade, there are many other fundamental factors that determine the state of food availability in a given country. We return to this in the last sub-section, after discussing the issue of the potential impact of future price changes arising in the post URAA era.

Price Change Scenarios

Though some studies predict no substantial changes (Charvériat and Fokker¹¹) or even a possible decline (DFID) in the world prices in the medium and long-run following implementation of the WTO accords, the majority of outlook reports (from leading institutions such as, FAO, USDA and OECD) and independent studies (e.g., Sarris) have forecasted medium to long-term increases in world prices of agricultural commodities, mainly due to a combined effect of reductions in the levels of domestic support and export subsidies. Trueblood and Shapouri discuss how rising food prices may affect food demand, depending on initial tariff rates in food importing countries. They argue that when the initial tariffs are high, rising world food prices may be absorbed domestically through reduced tariffs. However, resorting to this option may lead to reducing fiscal earnings, which may in turn result in a government budgetary crisis. Yet, when the initial tariff is low, increased world's food prices can be directly transmitted to domestic prices, with a consequence of reduced demand for imports. In WAEMU countries, the harmonized *ad valorem* tariff rates on food products vary from 5% to 20%, with lower tariffs on products with low income elasticities (necessity goods)¹². Consequently, changes in the world prices are not likely to be absorbed through substantial tariff cuts on necessity goods in the region.

Rising food prices have an additional impact on the supply side of the economy. Price increases can stimulate production and exports, except in situations where market and institutional inefficiencies preclude an effective price response by agents along the supply chain. In West Africa, the response of domestic agriculture to price incentives would determine whether the expected expansion of production and trade would be obtained. Individual commodity price response may be large, but in general aggregate agricultural price response is known to be low in

Sub-Saharan Africa, at least in the short run¹³. In addition, if price increases coincided with increased erosion of trade preferences, the expected surge in exports would be more difficult to achieve (Trueblood and Shapouri). West African countries direct most of their exports towards the EU markets under a preferential trade regime. Though the contribution of the European trade preferences to export expansion in the region is largely unknown, increased competition from other developing regions in the EU markets would further weaken the West African terms of trade with EU.

Looking Beyond Trade

While trade is important in any effective food security strategy, it does not solve the issue of poverty, which is the underlying cause of food insecurity (Staatz; Partnership to Cut Hunger and Poverty in Africa). Pinstруп-Andersen and Pandya-Lorch argue that the prospect for a food-secure world will remain bleak if the global community continues with business as usual. They further argue that food security can only be achieved in a holistic manner, through both increased food availability and strengthened food access. They also point to the six priority areas of IFPRI's 2020 Vision initiative, which, they argue, remain central to any strategy to achieving food security. These priorities include: (i) reinforced governance capacity in developing countries, (ii) enhanced productivity of the poor, (iii) strengthened agricultural research and extension systems, (iv) intensified agricultural production under and sound and sustainable management of natural resources, (v) developed efficient and effective agricultural markets, and (vi) expanded and more effective international cooperation and assistance (Pinstруп-Andersen and Pandya-Lorch). In a statement to the 1999 FAO Symposium of Agriculture, Trade and Food Security, a representative of WTO (Gretchen Stanton) identified similar priorities (FAO, 2000a).

Other works, including Trueblood and Shapouri and DFID, Diaz-Bonilla et al. (2002a), and Rosen (2002) have also stressed the need for a holistic approach to food security.

5. Conclusion

This paper has examined the environment within which West African countries are designing their regional food security strategy, seven years after the Uruguay Round Agreements on Agriculture (URAA) entered into force. The regional food security strategy is based on the concept of self-reliance, which combines regionally-coordinated domestic food production with food imports. The URAA has a direct bearing upon this strategy, affecting food and non-food production, as well as the regional capacity to generate foreign exchange needed for additional food imports. The paper has emphasized three aspects of the relationship between West African participation in the URAA process and the self-reliance food security strategy in the region.

First, the region's participation to the URAA is described in terms of the multiplicity of regional institutions dealing with multilateral trade reforms in the region. Despite major differences among regional institutions regarding member composition and activities, it was striking to notice that all of them share the same self-reliance food security objective. Both the West African Economic and Monetary Union (WAEMU) and the Permanent Interstate Committee for Drought Control in the Sahel (CILSS) explicitly state that meeting the food security objective is the desired outcome of URAA. The Conference of Agricultural Ministers for West and Central Africa (CAM/WCA) also supports the food security objective by defending the development box initiative. In addition, supports to the food security objective came out as a constructed consensus among several West African countries. From the perspective of these countries, the URAA process should result in effective special and differential treatments policies that allow use of targeted protection measures to strengthen food security in the region.

These positions reflect the so-called “two sides of the implementation issue” whereby West African countries expect developed countries to implement their URAA commitments while offering technical assistance and special and differential treatments to poor economies, in order to help them comply with their own commitments. However, after seven years of implementation of the URAA, it appears that additional efforts are needed in order to comply with URAA both in rich and poor countries. Similarly, despite noticeable efforts, it is possible to improve access to technical assistance and effective use of the provisions of special and difference treatments in poor countries. The flexibility in using trade policy instruments to foster food security may nonetheless be restrained within the limits allowed under bilateral loan agreements between Breton Woods institutions and West African states. Also, the effectiveness of these instruments in the region can be substantially reduced if the reciprocal Regional Economic Partnership Agreements (REPA) between West Africa and the European Union become effective from 2007. The reciprocity requirements could permit easier penetration of European food products to the interconnected regional markets, using the ports of entry in any of the three developing countries in the region (Côte d’Ivoire, Ghana and Nigeria). While increased penetration of cheap food could disrupt the regional production system, it could also strengthen food access, and the overall production and consumption net effects are ambiguous. This is an area where future research is needed to better inform on the tradeoffs both at national and regional levels.

The second aspect of the linkages between food security and URAA is the examination of structural change in per capita food availability before and after the URAA. Per capita food availability is one of the most commonly used indicators of national food security. Central to the structural change analysis was the assumption that any difference in the state of food availability

between the two periods may be viewed as reflecting, to a certain extent, the impact of URAA on national food supply. We found that on average aggregate per capita food availability maintained a positive but slower growth after the URAA, as compared to the pre-URAA rates. Thus, the overall food availability situation appears to have improved in the post-URAA period. This improvement comes both in the form of increased level and reduced variability of aggregate per capita food availability in the region. In addition, a parallel examination of the region's capacity to finance its food imports before and after URAA showed no evidence of a significant change between the two periods. Though the post-URAA era was characterized by many shocks to the world's agricultural and economic systems, food prices did generally not increase as expected, and support levels remained substantially high in OECD countries. As a consequence, both food availability and countries' food import financing capacity have not deteriorated in the post-URAA periods. Whether or not this performance would be maintained under a more extensive implementation of URAA remains essentially unknown in the context of West African economies, hence the need for further research also in this area.

The third and final aspect of the linkages between URAA and food security is a summary discussion on how the regional food security model fits into a general set of conceptual and empirical controversies. West African countries appear to adhere to a gradualist approach to agricultural trade reforms, putting the self-reliance food security objective to the center of these reforms. Such a choice is dictated by the importance of the agricultural population in these countries. The regional labor force is largely immobile, with a few farm and non-farm migration opportunities within the region. The region faces the traditional dilemma of preserving the agricultural labor force by making agriculture lucrative, but not to a point to penalize net rural food purchasers or urban consumers. In the event of price increases, governments in the

francophone part of West Africa are likely to have little leverage in absorbing surge in prices through tariffs cuts because the tariff levels on basic foodstuffs are already at their lowest levels. Even though price increases can stimulate domestic production, the actual capacity to respond to price incentives is largely unknown. Besides, increase in prices would certainly weaken food access for the net-food importing household. All the preceding scenarios prompt to the obvious areas where future investigations of URAA reforms could be concentrated.

While this study has focused on the macro dimension of food security in the context of regional integration and trade, food security is primarily a micro issue that goes beyond trade. Thus, a thorough coverage of the food security debate in West Africa following the URAA must also involve other determinants of food security at macro level, but particularly establish the link between URAA and microeconomic and anthropometric indicators of households' food security.

FOOTNOTES

1. Though accounting for less than one percent of the global merchandise trade (Sub-Saharan Africa as a whole accounts for less than two percent of the global trade in goods and services, and this share has been decreasing over the past years), the region still holds strategic shares in the world's cocoa (Côte d'Ivoire) and oil (Nigeria) export markets. West Africa also represents an important consumption market, with a population of nearly one-quarter billion people (more than 4% of the world's population). Thus, it is possible for the region to have some weight in the negotiations.
2. This section draws on two surveys realized on the issues, summarized in Nogue et al., and Yade, Nogue and Staatz.
3. This group may be loosely treated as the Economic Community of West African States (ECOWAS), which is formed by 16 countries. There was no information on the remaining countries when the positions were compiled. See Appendix 1 for details on country coverage.
4. Interested readers may consult the WTO webpage (www.wto.org), where several backgrounders routinely summarize the state of negotiations along with the positions of major players.
5. The Cotonou Agreements are extensions to the well-known Lome Conventions, which provided nearly three decades of preferential trade cooperation between EU and ACP countries. The Cotonou Agreements introduced at least two important innovations to the traditional ACP-EU trade conventions. Participating West African countries must: (i) offer reciprocal trade opportunities to their European partners, and (ii) show an acceptable level of political accountability under democratic rules. However, non-reciprocal arrangements are still in place during the transitional period towards full implementation of Regional Economic Partnership Agreements (REPA). Though non-reciprocal agreements violate WTO non-discrimination principle, the Doha 2001 ministerial conference upheld the provisional ACP-EU trade agreements up to 2007.
6. We thank Stacey Rosen (Economic Research Service, US Department of Agriculture) for explaining the most effective way to construct the time series.
7. ERS-USDA's estimates indicate that in 2001, Sub-Saharan Africa (SSA) accounts for 23% of the total population of a group 67 low-income countries, but 38% of the number of hungry people. About 57% of the total SSA's population, nearly 337 million people, were identified as hungry in 2001 (Rose, 2002). The estimated share declined slightly to 54% in 2002 (Rose, 2003). The situation is projected to remain essentially unchanged over the next decade (ERS-USDA, 2001; 2002; 2003), even under a scenario of increased commodity prices (12%) and expanded exports (30%). Trueblood and Shapouri attribute this relative persistence to three factors: (i) low supply-response to increased prices due to structural rigidities in low income economies; (ii) declining share of agriculture in total exports from developing countries; and (iii) food imports are small components of food availability in most of these countries.

8. “Production” here means “harvested output”, which tends to be more variable than gross biological output per year of these crops, as root crops, such as cassava, can be stored in the ground and harvested only when needed.

9. Beside Senegal, the study covered two other countries from Sub-Saharan Africa (Botswana and Kenya), two from Northern Africa (Egypt and Morocco), five Asian countries (Bangladesh, India, Pakistan, Sri Lanka and Thailand), and four Latin American and Caribbean countries (Brazil, Guyana, Peru and Jamaica). See FAO (2000b) for details.

10. This finding may partly contradict claims by other participants at the symposium, e.g., T. A. Oyejide who argued that by changing the external environment of the African agriculture, URAA has affected African economies in at least in two ways: impacts on (i) commodity prices and on (ii) food imports. Oyejide particularly stressed, “Since most African countries are low-income net food importers, their import bill has gone up. At the same time, they have suffered from preference erosion, due to the Uruguay Round. Their export earnings have not risen as fast as their import bills, and this is a negative impact which one can ascribe to the Agreement” (FAO, 2000a, Chapter 3). In general, real food prices have been on a declining course since 1998 (FAO, 2002), suggesting that any increase in food import bill would be associated with changes in relative price of imports compared to domestic production, and to other adverse shocks to local supply.

11. The argument is that there currently is excess food production capacity in OECD countries, and that these capacities may be fully used to gain efficiency if domestic supports and export subsidies are effectively removed. The removal of these support measures would also push inefficient firms out of the industry, leading to overall efficiency gains. The result may be that prices may not change substantially if the subsidies are removed.

12. For example, average harmonized tariffs in WAEMU are about 5% on milk powder, wheat, corn and rice; 10% on most fish products; and 20% on meat, dairy specialties and temperate fruits and vegetables (see WAEMU).

13. Schiff and Montenegro have argued that there are problems with the low estimates of Sub-Saharan African aggregate supply response that are based single equation time-series models. First, these estimates assume substitution, instead of complementarity, between price policy and investments in public goods that are necessary for effective transmission of price incentives to producers. Second, they do not capture changes in output mix following price reforms. These are best understood in a general equilibrium framework. Third, they are subject to Lucas critique, that is, response estimates solely based on price level would be inaccurate if price reforms affect both the level and the variability of prices, or induce changes in the formation of expectations on prices and on other variables. Consequently, time-series estimates may capture past behaviors of price response, but are inadequate to forecast future responses. However, market institutions and infrastructure remain relatively weak in most countries in Western Africa, suggesting that these public institutions may fail to complement the effect of price changes.

14. See Nouve et al. (2002)

15. Directive No. 01/2001/CM/UEMOA (of the Council of WAEMU's Ministers) regarding common positions of member states of the Union on the multilateral agricultural trade negotiations of WTO.

16. Conference of Agricultural Ministers of Western and Central Africa—Key conclusions and recommendations from the International Conference on Technical Support to Western and Central countries on the agricultural aspects of multilateral trade negotiations, held in Dakar, October 2-6, 2000.

17. Permanent Interstate Committee for Drought Control in the Sahel—Negotiating positions on agricultural and food security issues in the international trade negotiations, Bamako Workshop, November 1-5, 2002.

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APPENDICES

Appendix 1: Synthesis of the Positions of Regional Organizations with Regards WTO Agricultural Negotiations*

Criteria	West Africa ¹⁴	WAEMU ¹⁵	CAM/WCA ¹⁶	CILSS ¹⁷
Member countries	Burkina Faso, Côte d'Ivoire, Gambia, Mali, Mauritania, Nigeria, Senegal and Sierra Leone	Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo	Benin, Burkina Faso, Cameroon, Cape Verde, Côte d'Ivoire, Congo, The Gambia, Gabon, Ghana, Guinea, Guinea Bissau, Equatorial Guinea, Mali, Mauritania, Niger, Nigeria, Central African Republic, Chad, Senegal and Togo.	Burkina Faso, Cape Verde, Chad, Gambia, Guinea Bissau, Mali, Mauritania, Niger and Senegal
Key Characteristics	Any West African country that has submitted a negotiating proposal or made a statement at any WTO forum between 1999 and early 2002 Have same characteristics as WAEMU countries, except that Nigeria is not considered as LDC	Except Côte d'Ivoire and Senegal, the six remaining members are LDCs and HIPC Exporters of agricultural products and food importers Aim of the agricultural policy of the Union (PAU) is ensure adequate food self-sufficiency among in the Union, with gradual and timely adjustments		
Issues	Implementation	Effective liberalization of agricultural policies in developed countries Strengthen exemptions in favor of developing and the least-developed countries	Avoid using social and environmental norms as non-technical barriers to trade Reduce use of tariff escalation Concerned about the reduction in their opportunities to use protectionist tools	Tariff and non tariff barriers and agricultural subsidies in DCs have led to highly unbalanced outcome of the URAA

Criteria	West Africa¹⁴	WAEMU¹⁵	CAM/WCA¹⁶	CILSS¹⁷
Market Access (tariff barriers)	Duty-free market access to products originating in LDCs	Substantial reduction in tariff peaks and tariff escalation	Renegotiate safeguard measures	Same as WAEMU And...
	Eliminate tariff peak, tariff escalation, and countervailing duties or avoid their arbitrary use	Free access of LDCs' products into DCs Extend special safeguards to developing and LDCs, even if most of these countries used tariff ceilings instead of tariffication		Redefine unfair competition using production cost and not domestic prices Introduce effective means for protection in LDCs and developing countries using flexible taxation
	Condition further reduction to substantial reductions in all distorting policies in DCs			
Domestic Support	Abolish subsidies to agriculture in DCs	Reduce substantially supports	Renegotiate in order to make measures more transparent	Reduce all types of support
	Reform support policies in order to make them minimally distorting; reforms must account for special development needs of LDCs and help address poverty issues in poor households	Critical review of green and blue boxes, and no abuse of green box measures Eliminated coupled support measures Increase the de minimis for developing countries		Redefine the criteria for classify support policies into boxes Redefine reference periods for LDCs and developing countries that have implemented SAPs Increase the de minimis for developing countries
Export Competition	Eliminate exports subsidies to agriculture in DCs over time	Eliminate exports subsidies		Eliminate exports subsidies
	Find a definitive solution to the issue of export financing	Discipline the use of export credits		Discipline the use of export credits
	Reforms should help development in LDCs			Control and target the use of food aid
	No abuse of food aid			Export supports in LDCs should benefit from special and differential treatments

Criteria	West Africa¹⁴	WAEMU¹⁵	CAM/WCA¹⁶	CILSS¹⁷
Non-Tariff Barriers (especially SPS)	<p>Adopt a transparent rules of origin</p> <p>Remove market access difficulties associated with SPS, inappropriate conditionalities and, potentially, with environment and labor standards</p> <p>Do not use NTBs for disguised protection</p>	Effective provision of technical assistance to developing countries in order to reinforce human and material capacities for laboratory analyses	Create regional centers for technological development to improve capacity in complying with grades and standards	<p>Increase participation of LDCs to standard setting boards</p> <p>Provide adequate training experts, and assist with material needs</p> <p>Develop regional expertise in SPS, with strong national representations</p>
Special and Differential Treatments (SDTs)	<p>Give due importance to SDTs by applying SPS and TBTs as part of SDTs</p> <p>Pay special attention to problems faced by LDCs by maintaining asymmetric and preferential agreements</p>			
Contingency Measures	<p>No arbitrary use or abuse of anti-dumping measures</p> <p>Reform and develop safeguards measures to adapt them to LDCs</p>			
Technical Assistance	Assist countries to build their capacity, improve trade infrastructure and help them address supply-side constraints; make assistance binding under WTO			
TRIP			Ratify the revised Bangui convention	<p>Recognize the Convention on biodiversity, farmers' practices (giving priority to agriculture)</p> <p>Technological transfers and benefit sharing</p>

Criteria	West Africa ¹⁴	WAEMU ¹⁵	CAM/WCA ¹⁶	CILSS ¹⁷
Aims of development box/Food security		Increase food supply	Support the development box	Protect domestic production capacity
		Achieve agricultural development		Increase food security, which must be accounted for in the negotiations
		Improve food security		Protection against low-priced imports
				Need flexibility to support small producers and create jobs in rural areas
Marrakech Ministerial Decision	Implement	Adopt operational mechanisms	Make it operational	Develop effective control and follow-up mechanisms
Regional Approach/Organization of the Negotiations			Harmonize positions between countries	Negotiate on a common regional platform
			Create national coordinating units and a permanent regional negotiating committee	
			Reinforce capacity of national regional negotiators	
			Reinforce role and capacity of governmental international organizations	

Source: Adapted from Yade, Nogue and Staatz (2003) and Nogue et al. (2002)

Acronyms—WAEMU: West African Economic and Monetary Union; CAM/WCA: Conference of Agricultural Ministers of Western and Central Africa; CILSS: Permanent Interstate Committee for Drought Control in the Sahel; HIPC: Heavily Indebted Poor Countries; LDC: Least Developed Country; DC: Developed Countries; URAA: Uruguay Round Agreements on Agriculture.

Appendix 2: Food Availability in West Africa Before and After the URAA (in Kg/Capita)

Countries	PCGP		PCRP		PCM		PCFA		PCAA	
	Before*	After*	Before	After	Before	After	Before	After	Before	After
Benin	120.5	136.8	161.4	223.9	39.3	24.2	2.8	2.4	268.4	348.7
Burkina Faso	229.6	214.7	2.4	2.0	11.9	15.8	4.9	3.2	240.6	261.0
Cape Verde	24.8	38.0	9.7	4.9	59.7	74.3	178.0	122.8	329.7	369.4
Chad	119.6	128.7	34.5	30.8	4.5	4.7	4.2	3.3	176.3	237.9
Cote d'Ivoire	79.3	78.2	120.6	114.6	42.2	57.8	3.1	1.5	278.9	300.5
Gambia	102.3	99.4	2.0	1.6	77.1	83.1	8.7	4.2	279.6	287.9
Ghana	84.2	86.3	123.6	175.8	16.7	16.7	6.4	2.9	241.2	274.1
Guinea	83.3	86.0	36.9	48.5	43.7	37.8	3.9	2.2	228.7	248.3
Guinea-Bissau	149.7	110.0	23.3	27.4	52.4	48.2	10.8	6.0	291.9	260.5
Liberia	39.2	39.2	75.6	64.9	11.6	52.9	64.7	24.1	220.8	259.8
Mali	213.2	207.6	0.8	2.0	8.1	10.5	3.9	1.6	255.9	261.5
Mauritania	67.9	68.0	0.7	0.4	81.3	156.0	28.8	9.1	279.2	330.9
Niger	248.6	251.9	10.8	7.3	8.4	22.7	5.3	3.7	286.9	338.7
Nigeria	180.3	180.5	146.1	168.6	10.2	21.8	0.0	0.0	308.7	345.7
Senegal	121.9	95.4	3.0	3.5	75.6	89.6	6.0	2.0	301.3	299.0
Sierra Leone	69.4	49.5	15.4	25.6	38.0	45.2	9.3	10.1	164.5	193.5
Togo	132.2	156.4	101.2	108.4	26.1	30.3	2.7	1.1	221.9	273.7

Source: Food Security Assessment Report (ERS-USDA), 1997, 1999, 2003.

* Before: annual average from 1989 to 1995; After: annual average from 1996 to 2001.

PCGP: Per capita grain production; PCRP: Per capita root production (in grain equivalent); PCM: Per capita grain imports; PCFA: Per capita food aid; PCAA: Per capita aggregate availability.

Appendix 3: Share of Food Imports in Total Merchandise Exports in Western Africa

Shares in percent					
Countries	1989-95	1996-99	Countries	1989-95	1996-99
Benin	41.4	28.3	Liberia	.	.
Burkina Faso	32.6	38.6	Mali	23.3	20.3
Cape Verde	89.9	49.4	Mauritania	26.7	40.3
Chad	11.8	12.0	Niger	24.1	28.2
Cote d'Ivoire	11.0	9.5	Nigeria	6.3	8.4
Gambia	33.4	33.3	Senegal	23.0	24.6
Ghana	15.5	9.0	Sierra Leone	52.9	114.1
Guinea	17.2	19.1	Togo	12.0	10.6
Guinea-Bissau	110.2	54.1	West Africa		
			Unweighted average	33.2	31.2
			Trade-weighted average	21.0	21.2

Source: Food imports (FAOSTAT) and Total Merchandise Imports (World Development Indicators 2001, The World Bank).