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Research Paper No. 2006/60

Does the WTO Agreement on Agriculture Endanger Food Security in Sub-Saharan Africa?

Samuel K. Gayi*

June 2006

Abstract

The paper examines the state of food security in Sub-Saharan Africa (SSA), based on an analysis of a selection of indicators of food security and nutritional wellbeing during the period 1990-2002 within the context of the WTO Agreement on Agriculture. It argues that it may be advisable for those SSA countries with both static and dynamic comparative advantage in agriculture to pursue policies towards 'food self-sufficiency' as a means to attaining food security, considering their large rural farming population, at least until such time that international trade in agriculture is fully integrated into the WTO disciplines. This is particularly relevant in view of the fact that high agricultural protectionism in the north currently distorts price signals and thus the opportunity costs of allocating factors of production in these economies. The SSA countries that lack comparative advantage in agriculture may want to aim for a 'food self-reliance' strategy to attain food security.

Keywords: food security, WTO Agreement on Agriculture, Sub-Saharan Africa, special and differential treatment

JEL classification: Q18, N57, F1, F13

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Acronyms

AMS	aggregate measurement of support
CAP	common agricultural policy
DES	dietary energy supply
DRC	Democratic Republic of the Congo
FIC	food import capacity
FAO	Food and Agriculture Organization of the United Nations
GATT	General Agreement on Tariffs and Trade
LDCs	least developed countries
MFA	multi-fibre arrangement
NTBs	non-tariff barriers
NFIDCs	net food importing developing countries
Prot/cap/day	protein/capita/day
SDT	special and differential treatment
SP	special products
SPS	sanitary and phytosanitary
SSA	Sub-Saharan Africa
SSM	special safeguard mechanism
STE	state trading enterprises
TBT	technical barriers to trade
ToT	terms of trade
TRQ	tariff rate quota
UNCTAD	United Nations Conference on Trade and Development
WTO-AoA	WTO Agreement on Agriculture

Figures and tables given at the back of the paper.

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1 Introduction

The use and application of the concept *food security* changed significantly with the seminal work of Sen (1981) on the causes of famine. The concept of *entitlement* (the means or the ability to access food) rather than aggregate food supplies, has since then been critical to the food security debate. The Food and Agriculture Organization (FAO) and the World Bank introduced a dynamic perspective to this concept when they defined it as the access by all people at all times to nutritious food for an active and healthy life (FAO 1996c; World Bank 1986; see also Maxwell 1989; Drèze and Sen 1989; Sen 1981; and Schulthes 1994). And guided by this long-term framework, the World Bank (1986: 1) identifies two types of food insecurity: chronic and transitory.

In most developing countries, an important determinant of food security is food production. This is because most of the food-insecure people live in rural areas, earn a substantial share of their income from agriculture, and meet a significant share of their food requirements directly from their own food production (Salih 1994: 7; Maxwell 1996: 157; FAO 1996d: 3). Experiences of the famine that ravaged Africa in the mid-1980s have, however, exposed the dynamic and long-term notion entailed in the concept. The overriding concern of these famine victims was not only short-term access to food, but also the preservation of their assets, future livelihoods, and resilience to future shocks (Maxwell 1996: 157-8) primarily defined within the *food production* framework thereby emphasizing food self-sufficiency. On the other hand, the notion of food security for the non-rural (urban) households, who do not meet most of their food needs from own agricultural production, would generally entail not only the ability to command access to food, but also the availability of food supply in the long term. Central to this second interpretation is the notion of *food availability* in which food imports could play a significant role, as the major concern in this scenario is food self-reliance.

In a recent work, the FAO acknowledges that food security is a multifaceted concept, which incorporates the availability of adequate food supplies at the global and national levels as well as the principle of all people at all times having economic access to adequate and nutritious food (FAO 2003b: 25-9), thereby emphasizing the stability of both access to, and availability of, food.

The WTO Agreement on Agriculture (WTO-AoA), thus, clearly has implications for food security in poor countries of Africa, as it is aimed at attaining enhanced liberalization in international agricultural trade in three main policy areas: domestic support, export subsidies and border measures.¹ Full implementation by developed countries of the three reduction commitments embodied in the WTO-AoA was expected to lead to increased variability in world food prices and world food price increases (Greenfield, de Nigris and Konandreas 1996; UNCTAD 1995b), although with significant regional differences (Africa, for example, was expected to increase its dependence on food imports [Greenfield, de Nigris and Konandreas 1996]).

¹ This has spawned a wide range of literature on the potential impact of the Agreement on the prices of food imports; and on the agricultural production. See, for example, Greenfield, de Nigris and Konandreas (1996); Hamilton and Whalley (1995); Konandreas and Greenfield (1996); Lindland (1997); and UNCTAD (1995a, 1995b; and FAO (1996a, 1996b, 1996c, 1996d, 1999, 2003a, 2003b).

The objective of the paper is to examine the state of food security in Sub-Saharan Africa (SSA) during the period 1990-2002 within the context of the WTO-AoA, and suggest a policy framework for improving food security in the region. It attempts to find answers to the following questions:

- i) Are there identifiable changes in the food security situation (and in domestic food production) in SSA countries in the post-Uruguay Round period?
- ii) If so, could these be explained by the WTO Agreement on Agriculture?
- iii) What domestic policy options under the Agreement are available for these countries to improve their food security situation?
- iv) What improvements in the Agreement (within the framework of the on-going negotiations in agriculture) are likely to safeguard food security in net food importing/deficit countries in SSA?

The paper attempts to identify trends in the food security situation of SSA based on selected indicators: e.g., food import dependence; food import capacity; and daily energy supplies (or, calories per capita per day). These are supplemented by an analysis of selected indicators of nutritional wellbeing such as nutritional levels, under-five mortality rate and life expectancy. It also analyses the trend in food aid levels since 1990. Issues of intra-household food security, and the differential impact of the WTO-AoA on urban and rural households are not examined, as a serious analysis of these would require more disaggregated data.

It argues that considering the large rural farming population in those SSA countries with both static and dynamic comparative advantage in agriculture, it may be advisable for them to pursue policies towards food self-sufficiency as a means to attaining food security—at least until such a time when international trade in agriculture is fully integrated into the WTO disciplines—for four main reasons. First, the agricultural sector has large multiplier effects in these economies; second, it is a major source of livelihoods and income for the majority of the populations living in rural areas; third, agricultural development is the best means of preserving the livelihoods (entitlements) of the rural poor as well as developing the rural areas; and fourth, arguably, current agricultural production structures in SSA have evolved in response to agricultural protectionism in the north (i.e., distorted price signals) and might require a transitional period to (re)adjust liberalized trade in agriculture. Those SSA countries that lack comparative advantage in agriculture may want to aim for a food self-reliance strategy (i.e., meeting most of their food requirements through imports) to attain food security.

The study is structured as follows. Section 2 briefly discusses the concept of food security and the main elements of the WTO-AoA, while the relationship between trade liberalization and food security is examined in section 3. The food security situation in SSA in the post-Uruguay Round era is discussed in section 4. This is followed by an investigation into the permissible policy options contained in the WTO-AoA that could be utilized by SSA to attain its food security (or agricultural) objectives; and an exploration of improvements in the WTO-AoA (within the context of the Doha Round on the on-going negotiations in agriculture) likely to safeguard food security in SSA is given in section 5. The last section presents some concluding remarks.

2 Main elements of the WTO Agreement on Agriculture²

Agricultural trade is one of five new areas³ included in the agenda of the Uruguay Round of trade negotiations. The concluded WTO-AoA was expected to initiate a process of greater liberalization in international agricultural trade, as it brought the sector under the disciplines of the General Agreement on Tariffs and Trade (GATT). It aims at attaining enhanced transparency in three main areas: market access, domestic support and subsidies. Specifically, developed and developing countries are to reduce tariffs by at least 15 per cent and 10 per cent, respectively, on particular products (*market access*); all indirect subsidies to agriculture are to be restrained (domestic support); while *export subsidies* are to be rationalized and reduced (see Tables 1 and 8).

The least developed countries (LDCs), two-thirds of which are in SSA, are required—like other countries—to ‘tariffy’ non-tariff barriers (NTBs) and bind their tariffs, although within a longer timeframe. Unlike other countries, however, they are exempted from all reduction commitments. Additional special and differential treatment (SDT) measures with respect to the implementation of the WTO-AoA are provided for the LDCs and a group of net food-importing countries, which includes almost all countries in SSA,⁴ in two ministerial decisions and declarations annexed to the main agreements.⁵ Some of these measures are taken up in section 5 on policies.

3 Trade liberalization and food security in SSA

The link between trade policy (or liberalization) and food security is complex, and can be better assessed in country-specific or regional contexts. For food-importing countries, changes in trade policy orientation could have a significant impact on their foreign exchange earnings, and therefore have critical implications for their food security situation. In SSA, for example, the relative ease of collecting taxes on international trade as well as the lack of alternative ‘tax handles’ have increased governments’ dependence on taxes levied on imports and exports. This makes total revenues highly vulnerable to changes in the value of export earnings (UNCTAD 2003), (stemming from changes to trade policy orientations) which could jeopardize food security. Trade policy changes in these countries may also have positive or negative implications for rural incomes, depending in particular on how these changes impact on

² Current negotiations taking place within the framework of the Doha Round are not directly addressed here as most of the issues are still under negotiation. For progress on these issues, see WTO (2004) (for July 2004 Package); and UNCTAD (2004); and Laird, Peters, and Vanzetti (2004) (for an analysis of the issues involved for developing countries).

³ The other new areas are: services, intellectual property rights, investment measures, and trade in textiles and clothing, which had hitherto been conducted within the framework of the multi-fibre arrangement (MFA).

⁴ As of July 1999, five SSA countries (Botswana, Côte d’Ivoire, Kenya, Senegal and Mauritius) were on this list in addition to the 33 African LDCs. Note that Senegal has since then been classified as an LDC.

⁵ These are the ‘Decision on Measures in Favour of Least Developed Countries’, and the ‘Decision on Measures Concerning the Possible Negative Effects of the Reform programme on Least developed and Net Food-Importing Developing Countries’.

the country's main agricultural exports, and on domestic food prices. In countries where these changes encourage economic activities in the tradeable sector, they could in time be expected to lead to increased income for primary crop producers in rural areas, particularly if other government policies do not interfere with the transmission mechanism of border prices and if there is a positive supply response.

The aggregate impact of changes in trade policy on the food security of a particular country would depend on the relevant strategy pursued: food self-reliance or food self-sufficiency. Self-reliance in food is when a country pursues an externally oriented trade regime with a view to earning enough from its exports of goods and services to finance its food requirements. On the other hand, the food self-sufficiency approach entails the country meeting its food requirements—or a substantial part of it—from domestic production.

In situations where countries are prone to terms-of-trade (ToT) losses that reduce their purchasing power (foreign exchange earnings), greater external orientation could increase variability in food supplies, thus creating conditions that threaten food security.⁶ This risk is particularly great for SSA, which has been plagued by secular declines in ToT, exacerbated by price fluctuations in its major exports⁷ (FAO 2003a; UNCTAD 2003). According to UNCTAD research (2003), for example, all commodities lost more than half their purchasing power in terms of manufactured goods between 1997 and 2001.

Another risk associated with the food self-reliance strategy of SSA relates to the emergence of competitive advantage as distinct from comparative advantage (FAO 2003a). This stems primarily from the strategic position of certain economic actors (in particular, multinational firms) in the value chain, the power that goes with this position and the ability of these actors to exploit rents from comparative advantage (UNCTAD 2003; FAO 2003a; see also Kaplinsky 2000, 2002; and Fitter and Kaplinsky 2001). The asymmetrical nature of power in these value chains has led to unequal distributions of total income. Small producers in developing countries incur large income losses (relative to the retail prices they received in the past) while traders and firms have reaped significant benefits (Fitter and Kaplinsky 2001). The impact of the constantly diminishing share of total income accruing to these small producers has been devastating in terms of social dislocation, reduced entitlements and poverty as well as food insecurity (UNCTAD 2003).

The fact that the benefits of trade liberalization have failed to match its positive predictions in SSA also means that the strategy of self-reliant food security entails some risks in the countries of the region. In particular, the fallacy of composition, a perennial problem faced by commodity producers, suggests that the value of exports may not increase as fast as increases in volume (Mayer 2002; UNCTAD 2003; FAO 2003a). Thus, despite its potential beneficial effects, trade liberalization may not guarantee food security for SSA countries, as decreasing commodity prices and escalating tariffs in

⁶ The collapse of the international price of coffee, for example, has been cited as the major factor undermining food security in Central America, where four countries faced food emergencies in 2000-03 (FAO 2004).

⁷ For more discussions on secular declines in terms of trade for Africa, see UNCTAD (2003: 33); and for the risks these pose for food security, FAO (2003a: 43-4).

OECD countries remain major hurdles to increasing income and food security in SSA (Pingali and Stringer 2003: 6).

3.1 WTO-AoA and food security

The trade-liberalizing impact of the WTO-AoA, at least in the short run, was expected to lead to higher food prices with diverging effects on net food-importing and exporting countries, as the practical outcome of the OECD countries' protectionist regimes has been to lower world market prices. It would also entail significant redistributive impact in both developed and developing countries with gains and losses to producers and consumers, respectively, in the developing countries (Laird, Peters and Vanzetti 2004). While higher export prices are good for producers (and exporters), they hurt those countries that depend on subsidized imports (and hurt the urban poor) as they face higher food bills (and prices for basic foods). This could undermine food security.

The WTO-AoA is expected to have a positive impact on net food-exporting countries because higher world food prices increase export revenues, even if export volumes were to remain fairly stable, or do not fall more than the proportionate increase in price. Thus, depending on the transmission effect of world prices, producer income and their food security could be boosted.

For the group of net food-importing countries, the level and variability of prices induced by the WTO-AoA raise two interrelated issues: first, how would these influence household food security; and second, how to track this impact with regard to the different sections of the community, in particular the urban and rural poor, and producers versus consumers. This in turn raises one conceptual and practical issue—what are the main income (entitlement) sources of the poor, and how will liberalization impact on these? Considering that labour is the income source for most of the poor, how will liberalization affect real wages? And for those poor who earn a part of their income from the production and sale of agricultural products (as in SSA, for example), what will liberalization do to their profits (Panagariya 2002)?

The increase in world food prices attributable to the WTO-AoA has been modelled to be much lower than predicted at the beginning of the Uruguay Round. This in particular concerns grains vis à vis certain types of meat, sugar and dairy products, while World Bank and OECD estimates suggest the reverse (UNCTAD 1996: 62; Tyers and Anderson 1992: Table 2). Trade liberalization as encompassed in the WTO-AoA is also expected to lead to net increases in income in primary agriculture and agro-industrial production as well as in agricultural trade (Diao, Diaz-Bonilla and Robinson 2003). If all developing and OECD countries attain full liberalization of their goods market by 2005, global welfare gains have been estimated at US\$260 billion (Anderson, Hoekman and Strutt 1999). Developing countries are estimated to gain more than US\$45 billion per annum from liberalization in international trade in agriculture (Anderson 2004), but increases in net agricultural trade in SSA are relatively small (Diao, Diaz-Bonilla and Robinson 2003).

Concerns had been expressed about the possible impact of the WTO-AoA on poverty and food security in LDCs and net food-importing countries before the conclusion of the Uruguay Round (Husain 1993), and after the Agreement became effective (FAO 1999; Michalopoulos 1999, 2000). Indeed, much of the pre- and immediate post-

Uruguay Round literature suggests that the WTO-AoA would impact negatively on food security in much of Africa through higher and more volatile food prices and declining levels of food aid (see, for example, UNCTAD 1995b). However, it has been noted that the predicted price increases and volatility would depend on the pace of agricultural liberalization in the OECD countries and the specific response to the Agreement of the (developing) countries with comparative advantage in agriculture (Gayi 1998). Furthermore, changes in world food prices reflect the on-going liberalization of agriculture in developed countries rather than the WTO-AoA *per se* (Page and Davenport 1994). Differences in regional response to the Agreement have also been highlighted, with Africa increasing its food import dependence (Greenfield, de Nigris and Konandreas 1996), although some analyses also suggest that the case for food price increases and volatility might have been exaggerated (Greenfield, de Nigris and Konandreas 1996; Sharma, Konandreas and Greenfield 1996).

These notwithstanding, the WTO-AoA could potentially have great repercussions on food security in SSA. This impact would depend on the response of developed countries' food exports and SSA agricultural exports to the actual level of liberalization attained in international agricultural trade (which, to date, is limited), and the elasticity of SSA's import capacity to changes in international food prices as well as the amount of food requirements the region covers from its imports and food aid.

4 Post-Uruguay Round food security situation in SSA

SSA is highly dependent on the agricultural sector for the livelihood of its population, growth of real output, and export earnings. About 64 per cent of the region's population derive their livelihood from the sector⁸ (the highest for any region in the world). The sector contributes about one-fifth of total gross domestic product, and about 12 per cent of the total export earnings for the region. The sector is particularly important for the poor, most of whom reside in the rural areas and undertake subsistence agriculture. About 95 per cent of the rural population is engaged in the agricultural sector. Thus, raising agricultural productivity, output and exports is critical not only for the region's economic growth, but also for its food security.

However, low productivity and output, stemming from a lack of investment in the sector, (e.g., irrigation facilities, high-yielding seed varieties and improving soil quality) mean that the region has been relying on food imports and food aid to close the gap between demand and supply. In this regard, the region's export performance is critical in determining the food security in these countries. This extends to the ability to attract additional foreign exchange from other sources such as remittances (a measure of its ability to finance food imports), international (and donor countries') policies regarding food aid (which affect the overall level of available food aid), and trade policies agreed within the framework of the multilateral trading system (which impact on food production and supplies, and therefore food prices).

⁸ The proportion of total population engaged in agriculture for some individual SSA countries is very high: for example, about 90 per cent in Burkina Faso and Burundi.

It would appear that the concerns over higher and more volatile world food prices and food security risks for the developing countries, in particular the net food-importing nations (which includes much of SSA) in the post-Uruguay Round, have been exaggerated, as the long-term trends depict falling real food prices (FAO 2003a; Valdés and McCalla 1999). High prices have not materialized because of increased productivity and yields driven by substantial subsidies in the major producing countries (World Bank 2001: 3), suggesting WTO-AoA's weak effect in reducing such subsidies (domestic support). At the global level, other food security indicators also indicate positive trends: consumption and average kcal/person/day have increased, and there is a growing diversification of diets away from starchy (roots and tubers) to non-starchy foods (eggs, meat, and milk). The same trend is witnessed in the developing world where the incidence of undernourishment has declined from about 20 per cent of total population (1990-92) to less than 17 per cent (1999-2001) (FAO 2003a).

About 60 per cent of the total number of the undernourished people are in Asia and the Pacific, but SSA, with 33 per cent of its population undernourished, registers the highest incidence of undernourishment. Over the past two decades, developing countries have, on the whole, reduced the incidence of undernourishment from about 28 per cent to 17 per cent of their total population in 1999-2001, but in absolute numbers the decline has been much slower, particularly in SSA and Latin America, where the decline in the proportion of the undernourished population is more than offset by population growth (FAO 2004).

The rest of this section assesses the state of food security in SSA based on the trends in selected indicators such as world food prices, daily energy supplies (or calories per capita per day), food import dependence, and food import capacity. This is supplemented by an analysis of selected indicators of nutritional wellbeing such as nutritional levels, under-five mortality rate, and life expectancy. It also analyses the trend in food aid levels since 1990.

The free-market food price index between 1994 and 2003 depicts a more or less steady decline in real food prices, in particular during 1997-2002, after the post-Uruguay Round peak of 1996. Prices, particularly for rice and sugar, have fallen the most, with real prices in 2002 at about two-thirds and half of their 1990 levels, respectively. A slightly different picture, however, emerges from the analysis of the prices of vegetable oilseeds and oils. These increased steadily between 1994-98, experienced a slight decline thereafter, with the 2002 prices 10 per cent higher than the 1990 prices but still below the 1994 level. Thus, the predictions of price hikes in food after the implementation of the WTO-AoA appear not to have been borne out. The line of best-fit clearly shows a declining trend for world food prices during 1994 and 2003 (Figure 1).

Price instability or trends in stocks and flows of global cereal markets are, however, less robust indicators of food security compared to a country's ability to finance its import requirements from export earnings (FAO 2003a: 14). Considering that about 40 per cent of SSA relies on food imports to meet its total requirement, and the fact that the region's import dependence⁹ increased from by about 10 per cent to 13.6 per cent between 1973 and 1993 (FAO 2003a: 4), food import capacity (FIC) is probably a more reliable indicator of its food security level. Following Valdés and McCalla (1999), food import

⁹ Import dependence is defined (calculated) as the share of food import costs to total import costs.

capacity is defined as the ratio of food import value (expenditure) to the total export value/revenue (excluding services). Essentially, the FIC captures changes in food import requirements for a particular country and its ability to finance these from its own resources.

Over the period 1990-92 and 2000-02, FIC decreased (that is, increased ratio of FIC) for about two-thirds (29 nations) of the 42 SSA countries for which there are data. Overall, the situation is serious for the eighteen countries for which food import dependence increased, even though their capacity to import food has diminished (Table 3). The situation appears to be most serious for the Gambia, which suffered a marginal increase in food import dependence but a collapse in food import capacity (an increase in FIC ratio from 157 per cent to 606 per cent).¹⁰ Although Sierra Leone suffered the largest collapse in FIC, the country reduced its food import dependence by about 20 per cent over the period. Generally, a high FIC (more than 0.25) suggests some level of vulnerability to food insecurity that may stem from domestic harvest shortfalls or higher world prices (shortfalls in export earnings) which would require measures to improve food security: food or financial aid, and diversification of the economic base, including improvements in agricultural productivity (Valdés and McCalla 1999). Thus, the increase in FIC for the majority of SSA countries over the period suggests added vulnerability to food insecurity in the region, particularly in view of the fact that just over half of all these countries have increased their dependence on food imports (Table 3).

In terms of a food availability indicator, dietary energy supply (DES), average kcal/person/day at the global level has grown by about one-third, and the proportion of non-starchy food in total food consumption has increased by about 8 percentage points since the mid-1960s (FAO 2003a). Data on DES between 1990 and 2002 confirm the long-term positive trend in food security identified by the FAO at the global level as well as in all regions of the world. Indeed, the 4 per cent increase in the annual average value of DES of SSA between 1990-92 and 2000-02¹¹ is slightly higher than the 3 per cent average for both the world and Africa as a whole, although marginally below that of other developing-country regions. However, the DES was the lowest in SSA in the two periods with per capita calorific intake still below that of all developing countries (by 21 per cent) and Latin American and Caribbean countries (by almost 30 per cent), which registered the highest DES among developing countries (Table 4). Based on daily per capita calorific intake, food security has improved in SSA over the period 1990-92 and 2000-02. Out of the total of 48 SSA countries for which DES data are available, the number of countries recording less than 2000 calories per day (the minimum non-adjusted calorie limit per day needed to sustain moderate activity) dropped from fifteen

¹⁰ These results have to be interpreted with caution because FIC is overestimated for countries with large workers' remittances and service (or tourism) exports (such as Cape Verde, Seychelles, Mauritius, and to some extent, the Gambia) as these are not taken into account in tallying the export receipts used in calculating it. The FIC is generally high (that is, a ratio of more than 0.25) for small island developing countries (such as Sao Tome and Principe among the 18 countries), while the converse is true for large countries. That is they have rates lower than 0.25 (Valdés and McCalla 1999).

¹¹ Barring inconsistency in data, this would seem to suggest that the fall in FIC identified earlier did not translate into lower food supplies per capita.

to ten. Four additional countries also exceeded the higher limit of 2310 calories per day¹² (that is, an increase from 14 countries to 18 over the period) (Table 5).

All five SSA countries (Burundi, Comoros, Democratic Republic of the Congo–DRC, Guinea Bissau and Liberia), which suffered a 5 per cent decline or more in DES over the period under consideration (Table 5), experienced political instability in one form or the other. Unsurprisingly DES declined in the Democratic Republic of the Congo by as much as a quarter. For the other countries, the decline can be explained by civil war in Sierra Leone, a worsening and erratic economic performance in Zambia and Tanzania, respectively, and probably the high incidence of HIV/AIDS in Botswana and Swaziland.¹³

The FAO reports that as of August 2003, 60 per cent of the countries worldwide¹⁴ experiencing serious food shortages that required international intervention were in Africa. These food shortages are exacerbated by the HIV/AIDS pandemic affecting various aspects of food production, including marketing, transport and utilization. More than half of the reported food emergencies in Africa are, among other reasons, due to civil strife and refugees while conflict and economic problems were cited as the main cause in more than a third of the cases¹⁵ between 1992 and 2003 (FAO 2004). Most conflicts in SSA have led to large internal displacement of populations, which makes communities less food secure. These communities—even those previously food self-sufficient—are forced to rely on food aid. Often this situation persists long after the cessation of conflicts while victims await mine clearance for their agricultural lands, and/or because non-agricultural businesses have been destroyed.¹⁶

For a more complete picture of the food security situation in SSA, trends in protein supply per capita per day, under-five mortality rates and life expectancy at birth are examined as proxies for the overall wellbeing of the population. The daily protein supply per capita remained generally stable in the early 1990s at about 51 before increasing marginally to 53.4 during 2000-02, which is slightly better than the developed and developing country averages for the period, (but much below the average for the LDCs [Figure 2]). In 2002, SSA registered the worst under-five mortality rate in the developing world—174 deaths per 1000, three times the rate (54 per 1000) for the Middle East and North Africa, the second worst region. Also, life expectancy in SSA deteriorated from 51 to 49 years over the 1990-2002 in contrast to other developing regions, which experienced increases (World Bank various issues).

¹² The FAO estimates that the daily energy supply or per capita food supply, measured as calories per day required to sustain moderate activity is between 2000-2310 calories, although this has been adjusted to 2600-2950 calories per day, considering moderate inequality in food consumption (FAO 1996b: 4-5).

¹³ The explanatory factor(s) in the decline of kcal/person/day in this category of countries, however, need(s) to be properly analysed based on prevailing specific domestic social and economic conditions during the period under consideration.

¹⁴ This means 23 out of the total of 38 countries needing international intervention were in Africa.

¹⁵ The International Food Policy Research Institute also reports a strong association between food insecurity and conflict (Messer and Cohen 2004).

¹⁶ For the costs associated with internal conflicts, including food insecurity, in the LDCs, see, for example, UNCTAD (1997: 125-47).

Based on the incidence of undernourishment in the total population, however, the food security situation in the majority of countries in SSA has remained more or less the same. Over the periods, 1990-92 and 1999-2001, about 25 per cent of the populations of thirty countries were undernourished, and 35 per cent of the population of sixteen nations were undernourished (FAO 2000: Table 1; FAO 2003a: Table 2). While the proportion of the undernourished population dropped between 1990-92 and 1999-2001, the number of undernourished people increased by 20 per cent to almost 200 million over the same period (FAO 2003a: 31-3). The incidence of undernourishment is greater in all regions of SSA (with the exception of West Africa) than in all the developing-country regions. The main reasons here appear to be the civil wars, deterioration in some economies since the late 1990s and possibly in some instances the HIV/AIDS pandemic.

What is the domestic situation in terms of food production, imports and exports? In absolute terms, food production grew by about a third between 1990 and 2002, although it stagnated in per capita terms (Figure 3). Food exports increased by about 20 per cent, while food imports increased by 30 per cent over the same period (Figure 4). Food aid levels fluctuated. By 2002 cereal and non-cereal food aid shipments to SSA were almost 25 per cent and 10 per cent below their 1990-92 levels, respectively (Figure 5), suggesting that SSA food requirements were being met increasingly from food imports rather than food aid. This tends to confirm the observation by Pingali and Stringer (2003) that only a small part of concessional food aid goes to SSA.

These selected indicators of food security suggest that, on balance, the food security situation in SSA has at best improved, or at worst remained stable (Table 6). This situation appears to have little to do with the WTO-AoA, as the predicted food price increases never materialized. Thus, one would have to examine other factors which could be influencing the state of food security in SSA. Our analysis seems to suggest that weak agricultural performance, political instability and the poor economic performance of these countries are the main culprits.

More than other factors, political instability and macroeconomic performance appear to be the main explanatory factors for the food insecurity situation. For example, Botswana, Mauritius and Seychelles (except perhaps Comoros)—the SSA countries that stopped receiving food aid in the last four decades—have become much richer. And Burundi, Guinea Bissau, DRC, Liberia and Sierra Leone—the countries in which food insecurity appears to have increased—have all experienced serious internal conflicts in one form or the other over the past decade. This has resulted in the contraction of their economies; or economies have not performed well, as in Zambia.

Can the weak agricultural performance of SSA be explained by the policy restrictions stemming out of the WTO-AoA? It is indeed very doubtful if this were the cause. First, per capita food production in SSA has more or less stagnated since the 1980s, although the absolute level of food production has increased, suggesting that high population growth rates are at the heart of per capita declines in food production. Furthermore, the failure of food production to keep pace with population growth could be explained by the low productivity of African agriculture as depicted in the use of agricultural inputs, for example, fertilizer and irrigation. In the developing world, Africa has the highest agricultural area per capita but the lowest irrigated area (3.7 per cent) and fertilizer consumption (12.6 kg/ha/arable land) compared with the developing-country average of 22.7 per cent and 109.0 kg/ha/arable land respectively (Table 7).

Indeed, if the WTO-AoA has not had a negative impact on the SSA food security situation to date, it could be explained by various factors. Liberalization attained under the AoA is limited because of the choice of baseyears with high rates of protection, uneven product coverage, and ‘dirty tariffication’¹⁷ in developed countries (Gayi 1998; World Bank 2001: 9). Also, restrictions on domestic agricultural policies in very poor countries of the region are not as constraining as they might first have appeared. While price support policies operating through producer (or administered) prices to farmers have to be reigned in, there are no constraints on policies that target the poor and vulnerable directly; for example, policies to promote agricultural investments, (rural) infrastructure, nutritional and other poverty-reducing programmes. Domestic policies which are likely to have a more direct impact on food production, food stock, prices and food security in SSA are permitted under the ‘green box’ or special and differential treatment (SDT) measures specifically granted for poor developing and least developed countries (Gayi 1998). For instance, governments could provide input subsidies or diversification support to poor farmers (see also Table 8). The critical issue for SSA countries is the lack of technical and administrative capacity to establish clearly defined criteria for selecting groups that are vulnerable to food security, and to design and implement programmes targeted at these groups. Fiscal constraints and restrictions (or conditionalities) under various IMF/World bank supported programmes may also limit ability of these countries, and constrict their policy space, in undertaking such programmes.

Within the context of the discussion above, what then are the policy options for SSA if it is to improve the state of its food security?

5 Policy issues

The predicted price increases stemming from the WTO-AoA, and associated possible negative impact on food security in SSA have yet to materialize (or, at least, not on the scale predicted). The corollary of this is that SSA’s expected supply response has also been weak, and may remain so in the short to medium term. One may thus be tempted to conclude that in this context, SSA would be better off pursuing a strategy of food self-reliance. This may be particularly true when one considers that the standard neoclassical economic argument against erecting trade barriers to promote food self-sufficiency is that barriers will hurt food security as they increase the price of imported food.

Nonetheless, on a deeper analysis, this recommendation may in the context of SSA be somewhat flawed, not least because a number of these countries have static or dynamic comparative advantage in agriculture. For a variety of additional reasons, discussed below, this group of SSA countries might want to take advantage of the WTO-AoA to increase agricultural sector investment as a means of diversifying into more high-value products, and increasing productivity and output (food production) to attain food security (that is, a strategy of food self-sufficiency)—at least, until such a time that the agricultural sector is fully integrated into WTO disciplines. As acknowledged by the

¹⁷ This refers to the overestimation of NTBs in the tariffication process resulting in post-Uruguay Round tariff levels that are higher than the pre-Uruguay Round tariff levels, even after the mandatory reductions for temperate products like cereals and meat.

World Bank, food security objectives are best pursued through increased agricultural productivity (World Bank 2001: 2). It is important to note that these are not arguments against liberalization *per se*, but are intended just to signal the potential problems for vulnerable regions like SSA as well as highlight the need for appropriate action, particularly at the national level, but also at the multinational level, to forestall these problems.

First, the experiences of African famine situations in the mid-1980s suggest that the poor are primarily concerned about their resilience to future shocks to food supplies, and therefore the preservation of their assets and future livelihoods (entitlements). Increasing investment in agriculture offers a solution. In the medium to long run, agricultural development may also enable these countries to trade their way out of poverty, as is often suggested by various writers (see, for example, Winters 2000; Diao, Diaz-Bonilla and Robinson 2003).

Second, the neoclassical argument in favour of a self-reliant strategy for food may not necessarily hold for countries with large rural farming populations, which is the case of those SSA nations with a comparative advantage (static or dynamic) for agriculture or food production. While food import restrictions may have some adverse effects on food security in these countries in the short run, higher world food prices could serve as an incentive for farmers to produce marketable surpluses, particularly if these are accompanied by complementary policies that promote agriculture, increase productivity, and facilitate access to export markets (see discussion below). Within an appropriate incentive policy framework for agriculture, food security in the medium to long run could be enhanced, particularly as agriculture could have multiplier effects, creating non-farm jobs in distribution and marketing and even in processing. Estimates suggest that for every US\$1 generated through agricultural production in developing countries, economic linkages can add another US\$3 to the rural economy (Diao, Diaz-Bonilla and Robinson 2003; Watkins and von Braun 2003).

Third, recent attempts to reform the common agricultural policy (CAP) of the EU remain modest, with the EU subsidies set to continue to rise until 2013 (Diao, Diaz and Robinson 2003). Proposed reforms are focused on domestic support measures (which do not directly affect consumer prices and are therefore less trade-distorting), not on trade, and contain no new provisions on tariffs or improving market access for African agricultural exports (UNCTAD 2003: 26). And border measures, one of the pernicious means of agricultural protection in these countries, remain more or less intact (Hoekman, Ng and Olareaga 2002). However, without a significant reform of CAP or agricultural trade barriers in the industrialized countries, import liberalization in the developing countries will simply perpetuate unfair competition, and undermine the gains the latter could derive from trade liberalization.¹⁸ Indeed, simulation exercises have shown that developing-country benefits from eliminating agricultural support measures are relatively small compared to total elimination of trade barriers (Hoekman, Ng and Olareaga 2002).

¹⁸ About 70 per cent of the increase in the value of exports from SSA, for example, is estimated to come from liberalization in the EU alone. And when Haiti liberalized its rice market in 1995, prices collapsed by about 25 per cent, with grave consequences for local farmers who became displaced (see, Diao, Diaz-Bonilla and Robinson 2003)

It should also be mentioned that developing-country gains from the liberalization of international trade in agriculture can only be assured with an objective application of various measures on sanitary and phytosanitary (SPS), technical barriers to trade (TBT) and environmental standards, which are increasingly being deployed as non-tariff barriers, even as tariffs are being eliminated. Recent evidence suggests that the overly stringent application of these standards has led to significant losses for developing countries in terms of export revenues (Wilson and Otsuki 2001; CUTS 2002).

Fourth, we recall that the agricultural sector makes an immense contribution to the economies of these SSA countries in terms of GDP, export earnings, and employment (rural livelihoods/entitlement). Considering that the agricultural sector's role is particularly critical in rural economies, it deserves special treatment. Several studies have suggested that agricultural-led growth strategy may, for the world's poorest countries, produce greater multiplier effects to the rest of the economy than other alternative growth strategies. Prominent among these are the dual economy models of Lewis (1954) and Ranis and Fei (1961), which underscore the importance of promoting the agricultural sector as a necessary condition for industrial and overall development of underdeveloped economies. Recent studies also suggest that even modest investments in agriculture could yield high returns (World Bank 2001: 4). Increased profits from agriculture could stimulate expanded economic activity, with knock-on effects in four areas: (i) employment (creation of farm and farm-related activities with spin-offs in non-farm and non-rural sectors); (ii) land (increased agricultural profits reinvested in the sector); (iii) capital (additional attraction of investments which in turn augment growth); and (iv) technology (better investment climate leads to technological improvements which in turn increase productivity) (Diao, Diaz-Bonilla and Robinson 2003).

From cross-national observations, the most important strategy for national food security relates to economic growth and widespread income improvement. Thus, an evaluation of any food security strategy must be within the context of its impact on economic growth, and, in particular, the opportunities it creates for improving the income of the poor. Thus, it is sensible for food security policy in poor countries to focus on the income of food producers (Summer 2000). And finally, as argued by Herrmann (2003), full liberalization of the agricultural sector may create opportunities for the production and exports of not only those products that receive direct production support in OECD countries but also for other items that are potential substitutes. For example, locally grown millet and sorghum (flour) are close substitutes for imported wheat (flour) and rice, and locally produced palm oil for imported vegetable oil.

Fifth, examples abound of countries where trade has not attained sustained growth due to the lack of supply capacity or its weakness (Laird, Peters and Vanzetti 2004). This is particularly the case in poor developing countries, and highlights the fact that free trade may not—and should not—be regarded as an end in itself. Benefits accrue only if countries implement complementary policies at the domestic level to increase agricultural productivity and meet the burgeoning national and international safety requirements (e.g., SPS measures) in order to increase competitiveness in global markets. In SSA these policies would typically encompass institutional issues such as land reforms and improved access to agricultural inputs (credit, fertilizer, pesticides, etc.) as well as infrastructural developments (irrigation facilities) and improvements in marketing channels (rural roads).

Sixth, as discussed earlier, SSA is highly vulnerable to international price fluctuations as reflected in secular declines in the terms-of-trade over the past few decades. Therefore if trade liberalization leads to added dependence on food imports to attain food security (food self-reliance), this could increase the vulnerability of these countries to food insecurity in the event of a severe terms-of-trade deterioration. As observed by Summer (2000), in some cases, import barriers and other policies to enhance food self-sufficiency may reduce variability in food prices, or at least reduce the likelihood of a high spike or other access interruptions.¹⁹

In the light of the foregoing discussions, it might be rational for SSA countries, which have some comparative advantage in agriculture, to aim for food self-sufficiency strategy, at least in the short to medium term. This would limit their exposure to fluctuations in both world food and commodity prices—that is, until such a time when international trade in agriculture becomes fully liberalized. At present, agricultural production structures in these countries have evolved more or less in response to agricultural protectionism of the north (and to some extent benign policy neglect in individual countries),²⁰ and arguably these do not reflect the true comparative (and competitive) advantage of the region's agricultural sector. As contended by Diaz-Bonilla and Gulati (2003), depressed world prices of many food products caused by the north's agricultural protectionism 'may have contributed to some developing countries becoming net food importers, pushing them into a more extreme specialization in tropical products'.

With national governments implementing the necessary agriculture policy reforms within a context of on-going agricultural trade liberalization in the north, allocation of resources in SSA countries should in time reflect optimal outcomes. A clear and an unambiguous international commodity policy²¹ should also contribute to improving food security (Summer 2000), in particular if it guarantees remunerative prices for producers and therefore reduces the possibility of a sharp ToT deterioration for these countries. Under these conditions, countries could then move gradually from a strategy of food self-sufficiency to self-reliance, as full agricultural liberalization combined with an international commodities policy would help ensure some protection of the entitlements of individual rural producers (income) as well as national governments (export revenues).

Fortunately, macroeconomic stability has been attained in all but a handful of SSA countries, where inflation is still in double digits, and anti-agricultural bias in domestic policies in these countries has been addressed. The conditions are therefore propitious for the implementation of specific policies to increase agricultural investment for the development of the rural and entire economy. The question then is what type of

¹⁹ He cautions though that while this is a theoretical possibility, its practical application depends on internal and global commodity price distributions (Summer 2000). Our argument in this paper is that the facts in the case of SSA suggest this would be case, hence the recommendation of a food self-sufficiency strategy as interim strategy pending the full integration of agriculture into WTO disciplines.

²⁰ This could also be attributed to the wrong signals that food dumping sends to SSA governments, which are more interested in cheap food for their urban populations than in developing agricultural sector for the benefit of small-scale farmers (Watkins and von Braun 2003).

²¹ See UNCTAD (2003: 45-60) for examples of these policies.

agricultural investments could these governments make to improve agricultural productivity, enhance food security and reduce the vulnerability of the poor to food insecurity? What policies are these countries able to implement to develop their agricultural sectors without falling foul of the WTO-AoA? The next section attempts to respond to these questions.

5.1 Agricultural development policies consonant with the WTO-AoA

As argued in the previous section, an important element in safeguarding food security in SSA is the performance of the agricultural sector, particularly in countries with a comparative advantage in the sector. Government policies aimed at increasing investment in the agricultural sector, improving productivity on smallholder farms, improving the supply of inputs and facilitating the marketing of output through the provision of rural infrastructure, and generally supporting rural development are becoming important. Most crucially, the gamut of policies that can be deployed to support poor farmers in remote rural areas and the agricultural sectors of SSA falls within the ‘green box’. That is to say, they are not proscribed by the WTO-AoA. Neither is there a ban on other measures such as increasing expenditure for agricultural research, extension, training with regard to specific food crops (including measures to facilitate the transfer of information and research results to producers), pest and disease control and even marketing. SSA governments could also provide infrastructure in support of agricultural development without falling foul of the provisions of the WTO-AoA. These include physical infrastructure to promote agricultural activities, including roads, electricity, water, dams and drainage schemes,²² environmental programmes and assistance for the deprived regions.

It is also important to note that the calculation and application of the aggregate measurement of support (AMS) is not product-specific and as such, guarantees some flexibility in domestic support policies as long as global commitments reflected in individual country schedules are not exceeded.²³ LDCs and other poor developing countries, including SSA, are accorded special and differential treatment. This enables governments to use a special category of production support policies that are exempt from the calculation of the country’s current total AMS. These policies encompass agricultural input subsidies to low-income or resource-poor producers, investment subsidies, and government assistance to encourage agricultural and rural development. These exemptions allow considerable leeway for SSA governments to support their agricultural sectors.

If governments are able to design effective programmes and implement them successfully, agricultural productivity should increase and farmer incomes boosted. A dynamic agricultural sector should provide inputs for agro-processing industrialization, thus expanding employment opportunities in both rural and urban areas, and thereby contributing significantly to enhanced entitlements. General rural development programmes should also create opportunities for off-farm income—generating activities in rural areas—thus boosting incomes from these sources. All of this should have a positive impact on food security. Also possible are the knock-on effects such as

²² This, however, excludes subsidies to inputs or operating costs, or preferential user charges.

²³ The problems relating to this for most of the developing countries are discussed later.

qualitative improvements in rural life, and expansion of domestic demand for consumer goods, which in turn will stimulate increased domestic demand for food or production of consumer goods, and or/or higher imports of these goods (UNCTAD 1997: 45).

One important and worrying observation, however, is the clearly limited ability of SSA governments to finance all these programmes in view of the resource constraints, including the paucity of administrative and technical expertise that these countries face. Second, while these programmes are permissible within the framework of the WTO-AoA and the WTO in general, some could be prohibited under various IMF/World Bank programmes (standby arrangements) explicitly as part of the conditionalities governing these programmes; or implicitly because of requirements, limiting the level of fiscal deficits each country can incur within a budget cycle. These highlight the need for donor assistance (technical and financial resources) in supporting the programmes, and the importance of policy coherence, whereby international financial (or development) institutions ensure that their respective policy advice and prescriptions to these countries are in consonance and not in conflict with each other, if not at the national level, then at the sectoral level.

5.2 The Doha Round of trade negotiations: what difference does it make? ²⁴

The continued availability of these policies and exemptions for the use of poor developing countries depends on the outcome of the on-going agricultural negotiations within the context of the Doha Round (which incorporates the revision of the WTO-AoA as part of the built-in agricultural sector agenda). As of yet, there does not appear to be a threat to this country group of a roll-back of these special and differential treatment measures. Nevertheless, it is important as a starting point to continue to defend these and then seek clarification and improvement by arguing specifically that food security enhancement measures be incorporated into the WTO-AoA.

It is worth noting therefore that since the late 1990s, special and differential treatment measures (e.g., preferential market access and certain exemptions from domestic disciplines) have been proposed as the solution to the food security problems that might arise from the WTO-AoA (see, for example, Whalley 1999; Fukasaku 2000; Michalopoulos 2000). These measures continue to be discussed within the context of the Doha negotiations; and it has been argued that they should form an integral part of the negotiations, taking into account the special development needs of developing countries, including food security and rural development (UNCTAD 2004). Much of this discussion is taking place with reference to instituting a new 'development box' to address food security, rural development, and other needs of developing countries (see Laird, Peters and Vanzetti 2004). See Table 9 for the specific concerns and issues on agriculture raised by developing countries in the Doha negotiations.

One specific measure under discussion is allowing developing countries to make lower reductions for trade-distorting domestic support over longer implementation periods, with those that allocate almost all *de minimis* support for subsistence and resource-poor

²⁴ Discussions in this paper on reform of the WTO-AoA during the on-going Doha negotiations are limited to those likely to have a direct impact on food security in poor countries. For further details on other proposals currently being discussed for the reform of the WTO-AoA, see for example, WTO (2004) and UNCTAD (2004: 16-23).

farmers to be exempted from *de minimis* reductions. Indeed, it may be in the interest of all poor countries, including those in SSA, to argue for more flexibility in the application of *de minimis* support, such as reducing its level to take into account special and differential treatment (UNCTAD 2004); and/or presenting a case for a 5 per cent ‘aggregate’ *de minimis* support instead of the current 10 per cent product-specific *de minimis* (Josling and Tangerman 1999: 138-9). This is because almost all developing countries (with the exception of twelve) have zero commitments for domestic support. That is, most have submitted a ‘zero base’ AMS.²⁵ In the case of poor developing countries, this implies that combined with the regulation of the current AMS not exceeding the base AMS, these countries can only provide product-specific support up to 10 per cent of the value of production; and non-product-specific support up to 10 per cent of the value of total agricultural production.

The on-going agricultural negotiations are also considering the proposal to subject developing countries to a lower level of liberalization for designated ‘special products’ (SP) that would be based on a set of criteria reflecting food and livelihood security, and rural development. In this connection, a number of these countries have called for a special safeguard mechanism (SSM) that allows them sufficient policy flexibility with respect to food security, including the selection of SP, based on livelihood security and rural development criteria (UNCTAD 2004; see also WTO 2004: Annex A, paras 41-42).²⁶

These specific proposals addressing the special needs of poor developing countries including SSA, may have to be situated in a broader context of a revised WTO-AoA to tackle some of the shortcomings of the current agreement such as ‘dirty tariffication’, greater trade liberalization in products like sugar and meat, reducing tariff escalation for a number of product chains, and reviewing the special safeguards in place for products subject to tariffication that allows an additional duty to be imposed when imports of specific agricultural products exceed a trigger level, or when the import price falls below a trigger level.

Efforts have to be intensified to attain the main objectives of the Doha mandate in the agricultural negotiations. This would include substantial improvements in market access; reductions in all forms of export subsidies with a view to phase these out, and a substantial reduction in trade-distorting domestic support (UNCTAD 2004). Indeed, developing countries have to argue not only for larger reductions in domestic support, but also for tighter rules (or disciplines) to limit the distortions of the developed countries. A revision of green box policies or disciplines, including time limits and ceilings, may also be useful to speed up the agricultural liberalization process, particularly because of the reliance of the EU on such policies to delay liberalization.²⁷

²⁵ That is a declaration of not providing any domestic support for agriculture in the baseyear, 1986-88.

²⁶ This proposal could be defended as part of the ‘collective preferences’ proposal of the former EU Trade Commissioner, Pascal Lamy, as an intellectual basis for accommodating non-trade concerns in the WTO framework to ensure that liberalization does not override domestic policy choices, which could enable countries to limit imports deemed as threatening to collective preferences in particular if there was, *inter alia*, ‘a coherent underlying social demand’ (available at: grictrade.cta.int/wto/).

²⁷ OECD policies have been designed to conform to blue and green boxes, with more than half of the total OECD domestic support notified to the WTO being exempted from reduction requirements.

6 Concluding remarks

Assessing the impact of trade liberalization measures highlights several complex conceptual and practical difficulties, not least in establishing cause and effect relationships in situations where the impact of many intervening variables cannot be ignored or adequately assessed. This assessment of the impact of WTO-AoA on the food security situation in SSA is no exception. It is, nevertheless, possible to make some general deductions based on the analysis of proxy variables such as daily per capita calorie intake, per capita food supplies, under-five mortality rates, food import capacity and dependence on food imports.

The analysis presented in this paper suggests that the WTO-AoA has had little or no impact on food security in SSA to date. More important explanatory factors for the state of the Sub-Saharan food security situation between 1990-2002 include country-specific issues such as political instability and macroeconomic performance, especially the state of the countries' agricultural sector. This underscores the relevance of government policy or action in determining the state of food security in each country.

In this regard it has been noted that the WTO-AoA does not explicitly condemn any specific agricultural policy for all WTO members; the use of agricultural support measures has been regulated merely to forestall abuses, which could have production and trade-distorting impacts. Concessions, albeit limited, have been granted to poor developing countries, such as those in SSA, within the context of special and differential treatment incorporated into various agreements, as those included in the WTO-AoA, and reinforced in two specific ministerial decisions. The objective was to limit any food insecurity problems that these countries might encounter on account of the implementation of the Agreement. Without a doubt, the implementation of these decisions has been fraught with practical problems, and only limited progress has been made to date.

The surest guarantee to the attainment (or improvement) of food security in SSA would be for these governments to ensure that the poorest population sections have sustainable livelihoods or 'entitlements' (the discussion of which with regard to stable political systems falls outside the scope of this paper). As discussed in the previous section, there is some policy leeway under the current WTO-AoA for SSA countries to develop their agricultural and rural sectors, and to enhance food security. Nonetheless, it does appear that SSA countries have yet to take advantage of the available policy options. This paper advocates a self-sufficient food strategy to address food insecurity in SSA, particularly for those countries with a comparative advantage in agriculture in view of its multiplier effects of agriculture for the whole economy. Implementing such a policy would be rational, at least until such a time when international trade in agriculture is fully liberalized, particularly in view of the north's heavy agricultural protectionism that currently distorts price signals and thus opportunity costs of allocating factors of production in these economies. A reform of international commodity policy should also contribute to achieving food security objectives by reducing the vulnerability of SSA export revenues (entitlements) to sharp ToT decline or fluctuations.

Green box support in OECD countries doubled between 1986-88 and 1995-98, and has been higher than AMS over the entire implementation period (OECD 2001: 4).

Food security could also be enhanced via intra-African trade, the huge potential of which has yet to be fully exploited, as the analysis by the UNCTAD secretariat reveals (UNCTAD 1998: 202-7; 2003: 54). This would, however, need to be encouraged by removing both physical (many check points and harassment at the borders, etc.) and non-physical barriers, the later, for example, through the harmonization of customs documentation and procedures.

In the final analysis, however, more research on how trade impacts on different households (rural and urban) would yield robust data on the patterns of poverty and levels of vulnerability to food insecurity. These could then form the basis of targeted policies to reduce the risk to, and improve, food security in both rural and urban areas of Sub-Saharan Africa.

That there is a case for enhanced liberalization in international trade in agriculture cannot be disputed. This is all the more evident when considering the huge inefficiencies in the current system, including huge resource transfers to a few rich farmers in the north, while their counterparts in the SSA struggle to make ends meet. It is in this context that the WTO-AoA has opened up the potential for the SSA countries with the comparative advantage in agriculture to increase their agricultural exports, even if the level of liberalization currently attained in international agricultural trade is limited. The major challenge now is to ensure that agricultural liberalization is extended to its logical conclusion by making the provisions of the WTO-AoA fully compatible with WTO disciplines. This, and an objective application of WTO Agreements on SPS and TBT to reduce their unintended impact as nontariff barriers should enable the SSA countries to utilize their huge agricultural potential, provided they implement the necessary domestic policy reforms.

While there may still be some role for food aid, particularly the emergency type food aid, this will have to be delivered more efficiently, using improved data (for more effective targeting of food-insecure groups), and improved management for reduced response times. Donors should also apply more flexibility by using, wherever the opportunity exists, triangular transactions and local purchases more often. This would not only encourage inter- and intra-regional trade, but also support regional agricultural production as well as provide food-aid recipients with local coarse staples (which could become the preferred choice instead of the foreign grains that could be detrimental to future demand for local staples).

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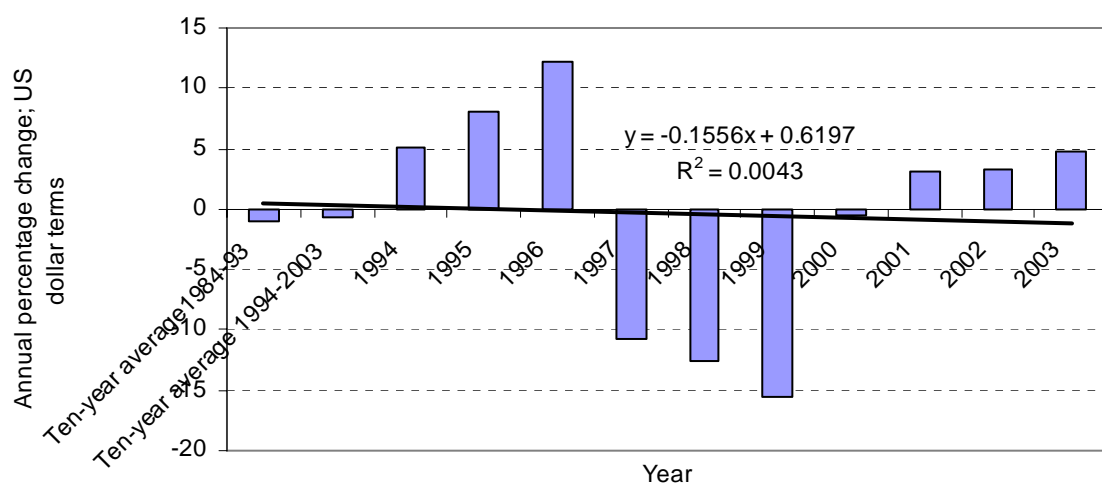
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Figures and tables

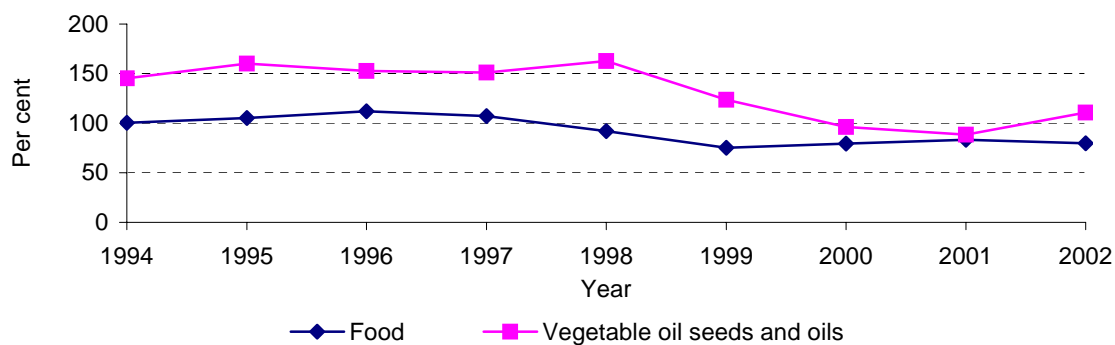
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Figure 1
Food price trends in Sub-Saharan Africa, 1984-2003

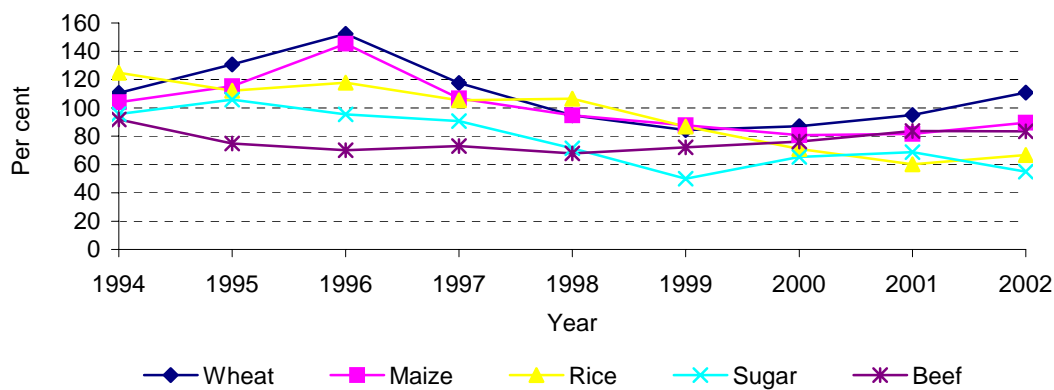
Panel A: Food prices, 1984-2003



Panel B: Annual & quarterly indices of the free market prices of selected primary commodities, 1994-2002, 1990=100

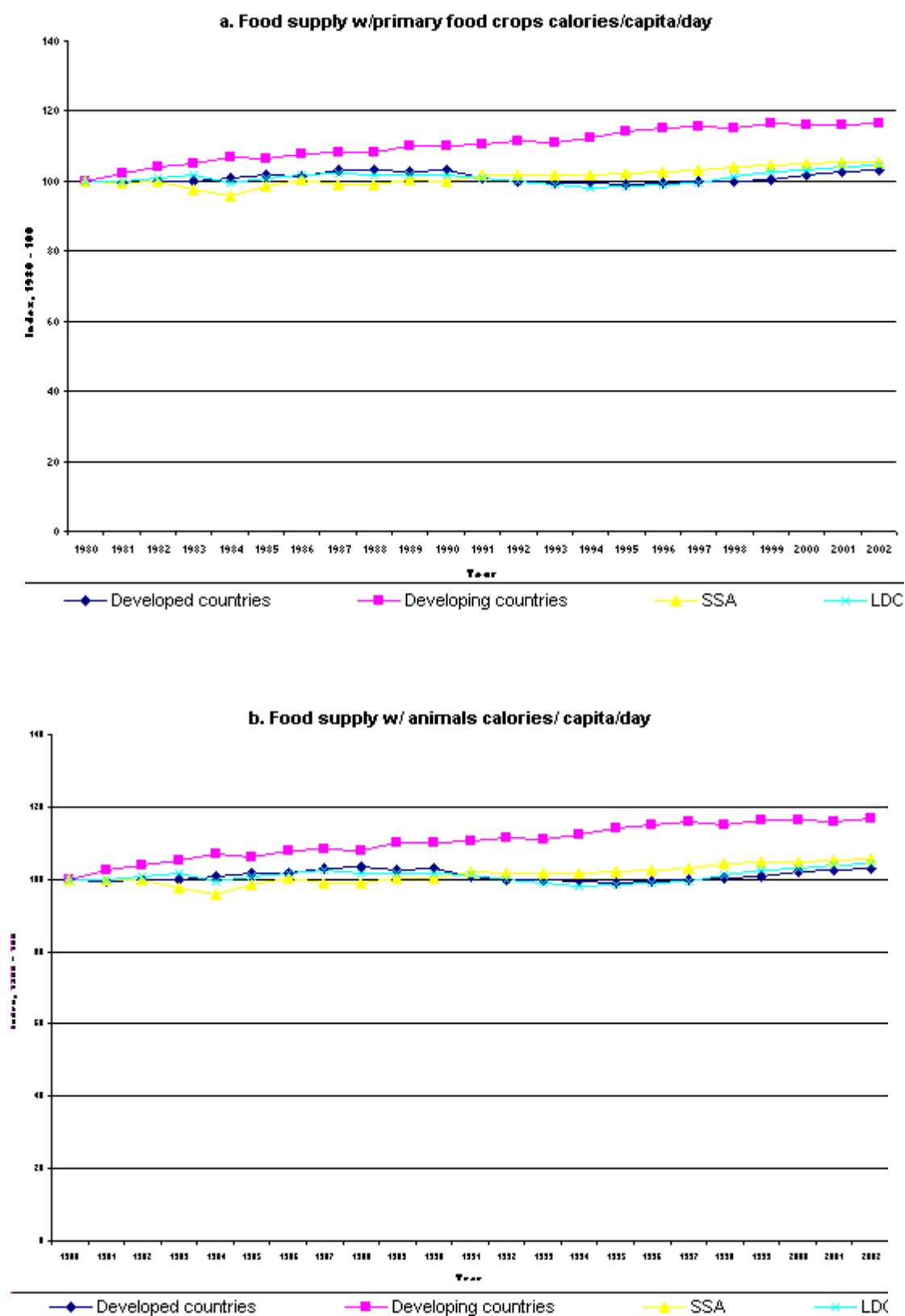


Panel C: Annual & quarterly indices of free market prices of selected primary commodities, 1994-2002, 1990=100



Source: Computations based on FAO online data.

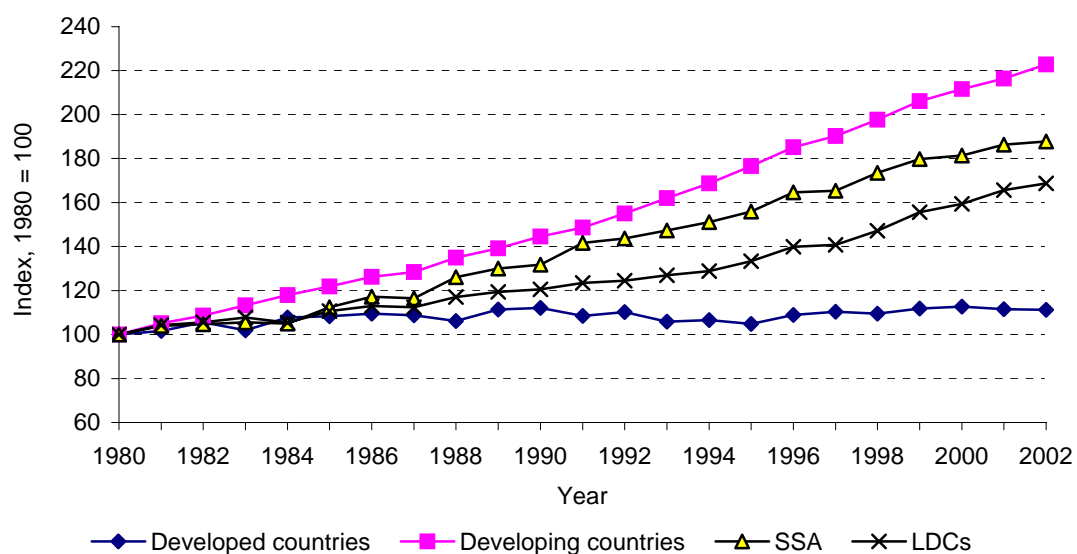
Figure 2
Food supply in selected country groups, 1980-2002



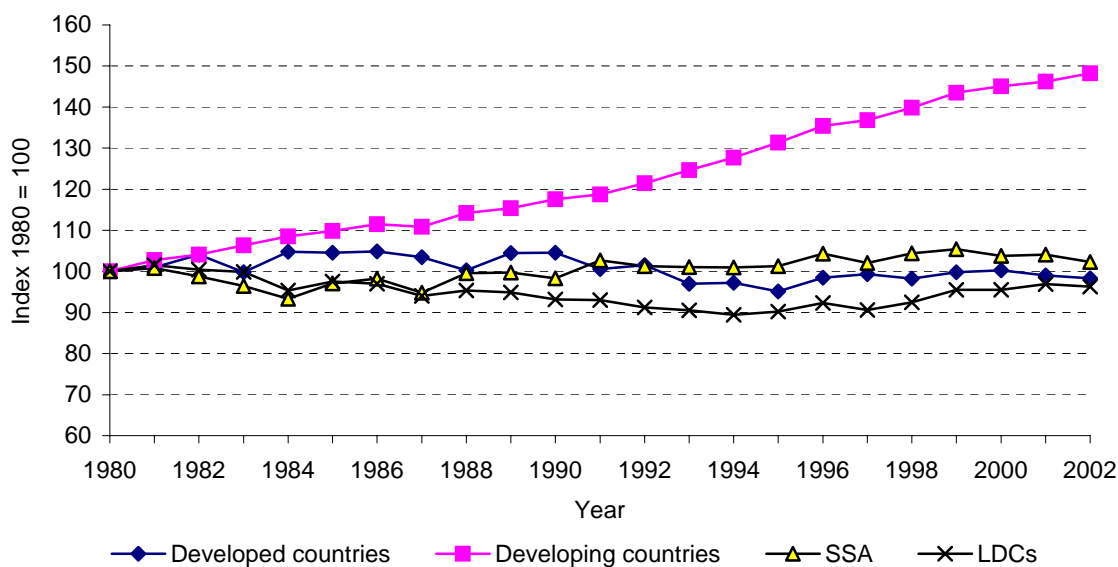
Source: Computations based on FAO online data.

Figure 3
Food production in selected country groups, 1980-2002

Panel A: Food production

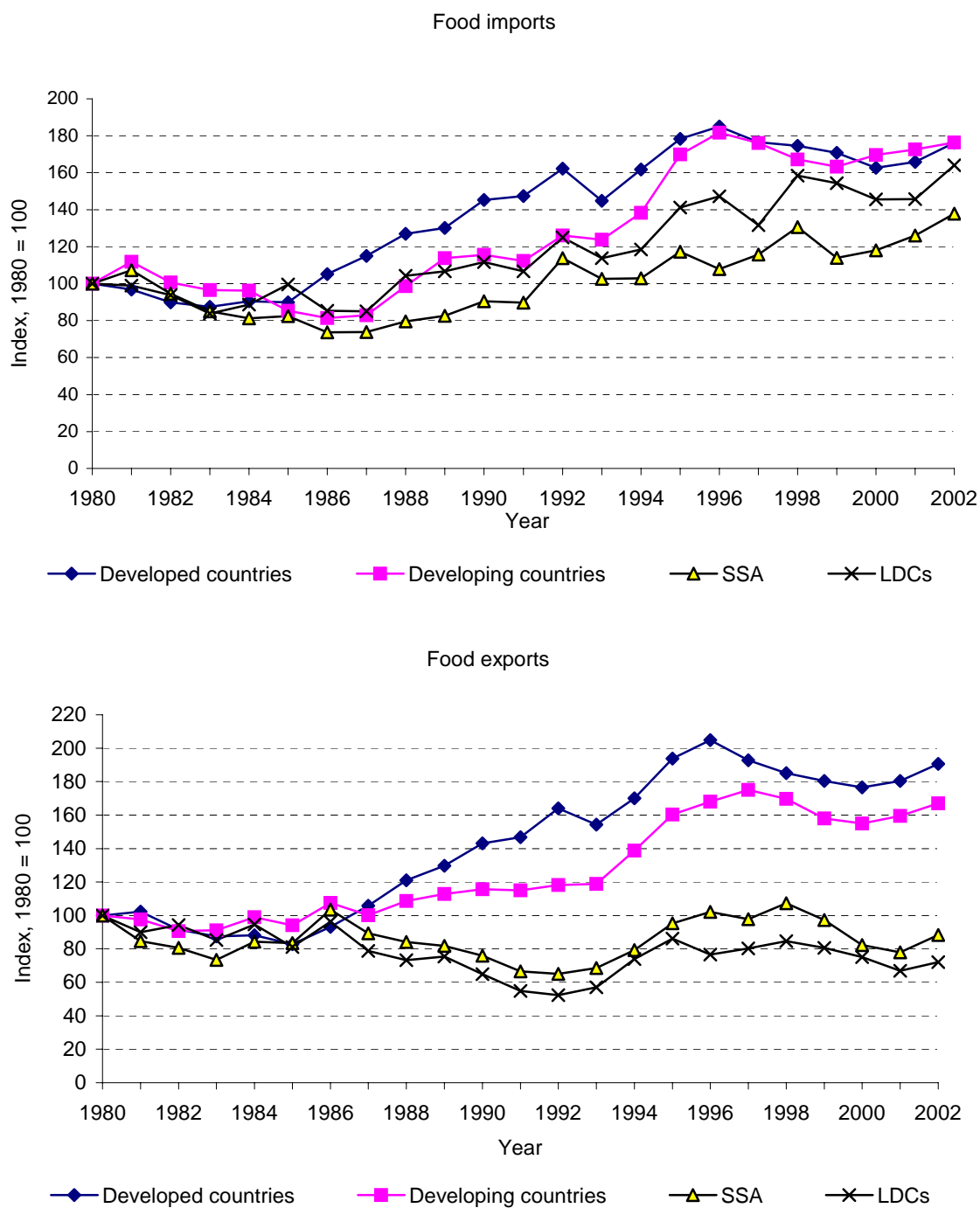


Panel B: Food production per capita



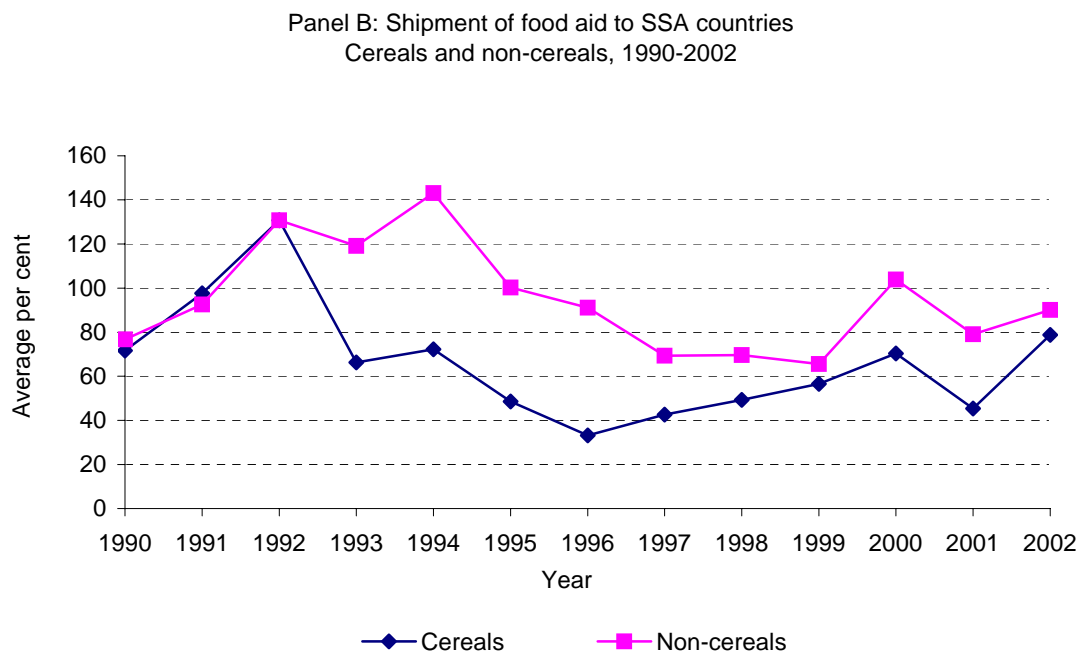
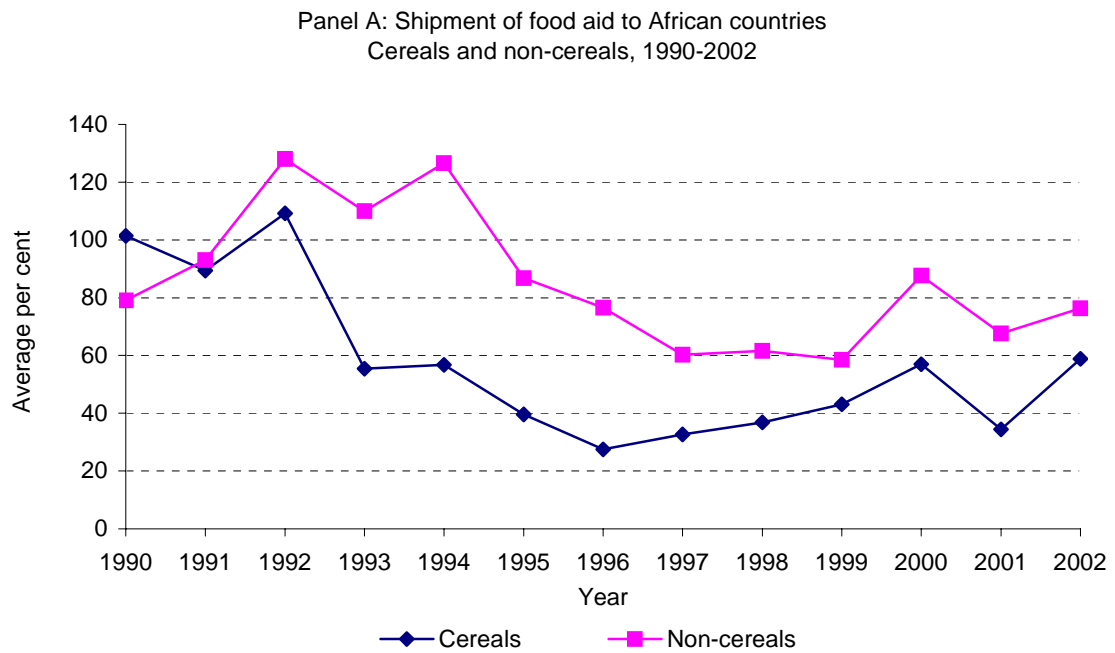
Source: Computations based on FAO online data.

Figure 4
Food imports and exports in selected country groups, 1980-2002



Source: Computations based on FAO online data.

Figure 5
Shipment of food aid to African countries, 1990-2002



Source: Computations based on FAO online data.

Table 1
Summary of selected provisions in the WTO Agreement on Agriculture

	Rules	Liberalization	Safeguards	Special treatment
Market access	i) 'Tariffy' of all NTBs ii) Bind all tariffs iii) No new NTBs	i) Cut overall tariffs by 36% over 6 years (1995-2000); developing countries by 24% over 10 years (1995-2004) ii) Minimum tariff cut by 15%; developing countries by 10%	i) Guaranteed current or minimum access ii) Protection against import surges	i) No reduction by LDCs ii) Longer implementation period of tariffication (10 years)
Domestic support	Specify 'amber' type and 'green box' policies	Reduce total outlays (calculated as aggregate measure of support during base period of 1986-88) on 'amber' policies by 20% over 6 years. Developing countries to reduce by 13.3% over 10 years	'Green box' policies can continue	i) <i>De minimis</i> rule (i.e., product and non-product specific domestic subsidy excluded if less than 10% of value of agricultural production) ii) Decoupled support payment excluded iii) Extra exemptions for developing countries and LDCs (SDT measures)
Export subsidy	i) Commodity-specific categorization of assistance ii) No new subsidies on other commodities	i) Reduce expenditure by 36% (base period, 1986-90) in equal instalments over 6 years; developing countries over 10 years ii) Reduce volume of subsidized imports by 21% (base year, 1986-90) over 6 years; developing countries to reduce by 14% over 10 years	i) Adhere to food aid rules ii) Export credit provisions and guarantees	Internal transport and marketing costs exempted for developing countries and LDCs

Notes: SDT – Special and differential treatment; LDCs – Least developed countries

Sources: GATT (1994) and WTO (1995).

Table 2
Effects of the implementation of the WTO Agreement on Agriculture
on world food prices by the year 2000 (percentage change)

Commodity (a)	FAO (b)	UNCTAD (c)		OECD/WB (f)
		(1) (d)	(2) (e)	
Wheat	7.0	8.6	3.2	6.6
Rice	7.0	9.6	0.7	1.3
Maize	4.0	-	-	-
Millet/sorghum	4.0	-	-	-
Other grains	7.0	-	-	-
Coarse grains	-	9.0	2.9	3.3
Oil-seeds	-	7.7	3.8	-
Vegetable oils	-	5.9	2.5	4.6
Fats and oils	4.0	-	-	-
Beef	8.0	10.1	5.3	2.3
Pork	10.0	6.3	2.7	0.6 (g)
Lamb	10.0	10.2	5.5	2.3
Poultry	8.0	9.3	4.9	0.6 (g)
Dairy products	-	7.9	4.5	2.5
Milk	7.0	-	-	-
Sugar	-	11.3	4.5	3.0
<i>Weighted average</i>	6.6	8.6	3.8	3.3

- Notes:
- (a) The three institutions adopted slightly different definitions for commodities; e.g., FAO's category 'other grains' includes 'coarse grains';
 - (b) FAO data taken from FAO (1995);
 - (c) Revised figures from UNCTAD (1995c), which are different from those in the original source, UNCTAD (1995b);
 - (d) This assumes no price response in non-OECD countries to changes in world market prices;
 - (e) Assumes a price response in non-OECD countries;
 - (f) Scenario allows for unemployment;
 - (g) Other meats.

Source: UNCTAD (1996: 62).

Table 3
Import dependence and import capacity of food in Sub-Saharan Africa

Country	Import dependence of food ratio (%)		Food import capacity ratio (%)	
	1990-92	2000-02	1990-92	2000-02
Angola	27.5	23	5.8	14.3
Benin	31.6	22.2	57.7	61.7
Burkina Faso	17.2	18.1	24.1	63.6
Burundi	9.9	16	29.1	60.1
Cameroon	18.5	17.2	12.9	16.6
Cape Verde	33.3	32.9	431.6	345.1
Central African Republic	18.6	26.1	25.1	24.6
Chad	19.8	8.9	27.3	30.5
Comoros	31.9	21.9	87.6	139
Congo, Republic of	17.2	20.9	8.8	8.8
Congo, Democratic Republic of the	13.5	26.5	12.1	23
Côte d'Ivoire	21.5	19	16.3	11.7
Djibouti	28.3	27	315.7	329.9
Equatorial Guinea	26.5	11.2	30.9	4.7
Ethiopia	12	11.4	38.6	40.9
Gabon	17.6	18.5	6.6	6.7
Gambia	33.6	34.5	156.9	605.5
Ghana	11.2	12.8	13.8	19.5
Guinea	22.3	23.6	23.3	27.3
Guinea-Bissau	13.8	27.2	93	36.1
Kenya	11.9	12.8	18.8	23.8
Liberia	20	9.3	15.6	20.2
Madagascar	11.8	17.1	18.9	30
Malawi	8.4	15.8	12.7	23.9
Mali	25.5	15.1	43.2	20.3
Mauritania	27.4	26.4	16	28.1
Mauritius	12.6	16.3	17.4	21.4
Mozambique	26.8	14	165.1	29.3
Niger	24.3	38.8	51.9	64.5
Nigeria	8	19.9	4.2	7.1
Rwanda	11.9	19.3	35.7	92.7
Saint Helena	15	16.8	56	140.8
Sao Tomé and Príncipe	21	36.5	112.7	313.9
Senegal	29.2	23.7	53.7	66.2
Seychelles	20.3	18.8	72.9	56.3
Sierra Leone	35.5	27.9	40.8	227.9
Somalia	41.4	58.2	43.4	93.6
South Africa	6.2	4.8	5.3	4.8
Tanzania, United Republic of	5.2	14.5	17.9	31.4
Togo	24.1	21.2	43.1	34.7
Uganda	7.9	13.5	23.3	30.8
Zambia	6.9	9.8	7.7	13.5
Zimbabwe	8.3	8.3	12.6	9.2

Note: Import dependence of food-ratio of food imports to total imports.

Source: Computations based on FAO online data.

Table 4
Annual average value of DES (kcal/person/day)
Africa and other regions, 1992-2002

Regions	Annual average		% change
	1990-92	2000-02	
Africa	2,315	2,389	3
Sub-Saharan Africa	2,116	2,200	4
Asia	2,548	2,687	5
Latin America & the Caribbean	2,705	2,848	5
Memo items			
World	2,704	2,795	3
Developed countries	3,259	3,300	1
Developing countries	2,531	2,657	5

Source: Computations based on FAO online data.

Table 5
Annual average value of DES (cal/person/day) African countries, 1992-2002, Grand total

	Annual average value		% change
	1990-92	2000-02	
Ghana	2073.3	2619.3	26.3
Djibouti	1802.2	2201.8	22.2
Chad	1782.5	2145.5	20.4
Mozambique	1735.2	2033.4	17.2
Malawi	1880.8	2154.9	14.6
Angola	1782.8	2040.8	14.5
Guinea	2105.3	2381.8	13.1
Congo, Republic of	1861.0	2085.5	12.1
Ethiopia PDR*	1637.8	1826.1	11.5
Namibia	2061.0	2268.9	10.1
Kenya	1921.0	2107.0	9.7
Mauritania	2555.6	2770.6	8.4
Benin	2337.8	2515.4	7.6
Cameroon	2114.4	2266.7	7.2
Lesotho	2445.3	2617.1	7.0
Togo	2151.4	2296.2	6.7
Cape Verde	3010.8	3209.0	6.6
Nigeria	2537.6	2704.6	6.6
Gabon	2454.3	2613.6	6.5
Seychelles	2311.2	2452.4	6.1
Côte d'Ivoire	2471.7	2620.3	6.0
Central African Republic	1874.4	1976.9	5.5
Niger	2020.4	2130.0	5.4
Rwanda	1947.1	2048.7	5.2
Sao Tomé and Príncipe	2272.2	2389.9	5.2
Sudan	2159.4	2260.0	4.7
Uganda	2274.6	2362.7	3.9
Tunisia	3151.7	3271.3	3.8
South Africa	2826.8	2917.2	3.2
Zimbabwe	1975.2	2024.0	2.5
Southern Africa	2293.6	2349.0	2.4
Mauritius	2886.5	2955.3	2.4
Burkina Faso	2353.1	2407.7	2.3
Senegal	2276.0	2279.7	0.2
Mali	2215.7	2199.7	-0.7
Madagascar	2084.0	2061.4	-1.1
Zambia	1929.2	1904.1	-1.3
Sierra Leone	1990.7	1925.7	-3.3
Swaziland	2454.7	2360.3	-3.8
Gambia	2366.7	2269.3	-4.1
Tanzania, United Republic of	2049.5	1958.7	-4.4
Botswana	2263.4	2155.4	-4.8
Guinea-Bissau	2299.9	2101.4	-8.6
Comoros	1914.7	1747.7	-8.7
Liberia	2211.0	1996.6	-9.7
Burundi	1896.2	1635.4	-13.8
Congo, Democratic Republic of the	2172.5	1627.1	-25.1
Unweighted average	2195.6	2281.8	4.2

Note: * Including Eritrea.

Source: UNCTAD calculations based on FAO online data.

Table 6
State of food security in SSA, 1990-2002
Summary of indicators

Indicators	Direction	Impact on food security	
		Positive	Negative
World food prices	Reduced	X	
Food import capacity	Reduced		X
Daily energy supply	Increased	X	
Prot/Cap/day	Increased	X	
Under-five mortality	Increased		X
Life expectancy	Reduced		X
Undernourishment	Reduced	X	

Source: Compiled by the author.

Table 7
Land use
SSA and developing regions, 2001

Region	Agriculture area per capita (ha/person)	Arable land (% of agric. area)	Irrigated area (% of arable & permanent crops area)	Fertilizer consumption (kg/ha/arable land)
World	0.82	27.9	17.8	98.3
Developed countries	1.36	34.3	10.7	84
Developing countries	0.67	24.5	22.7	109
Asia & the Pacific	0.32	39.8	33.2	163.2
Latin America & the Caribbean	1.49	19	11	84.8
Middle East & North Africa	1.12	18.9	28.5	70.9
Sub-Saharan Africa	1.51	15.8	3.7	12.6

Source: FAO (2004: 175-81).

Table 8
Permissible domestic policy measures ('green box' policies)

Type of policy	Description of measures
General services	<ul style="list-style-type: none"> Research, extension, training, pest and disease control, inspection, marketing and promotion and infrastructural services.
Direct payments	<ul style="list-style-type: none"> Decoupled income support, income insurance, safety net programmes, disaster relief, retirement schemes, structural adjustment policies, Environmental and regional assistance programmes.
Food stocks	<ul style="list-style-type: none"> Purchase at market prices; part of national food security programme.
Domestic food aid	<ul style="list-style-type: none"> Nutritional programmes and programmes for poverty relief.

Source: Extracted from the WTO Agreement on Agriculture.

Table 9
The Doha Agricultural Negotiations
Summary of issues raised by developing countries

General

- ❑ The final balance, equity and sequencing between and within the three pillars of the agricultural negotiations, as well as within the single undertaking. Credible and expeditious commencement and completion of the implementation of the negotiated commitments.

Domestic support

- ❑ The choice of a reduction formula for the AMS that reduces the currently applied support on a product-specific basis so that substantial reduction is achieved for all products of export interest to developing countries;
- ❑ Setting stringent criteria for the blue and green boxes to prevent box shifting;
- ❑ The implication of *de minimis* cuts by developing countries, and identifying the type of *de minimis* support that qualifies as being given to subsistence and resource-poor farmers

Export competition

- ❑ Set credible date for the elimination of all forms of export subsidies, in particular direct export subsidies;
- ❑ Role of export credits and STE used by developing countries in their development strategies, and their appropriate reflection in SDT provisions;
- ❑ Due priority given to putting in place mechanisms (trade, aid and financing mechanisms) to alleviate possible negative impacts on LDCs and net food importing developing countries (NFIDCs);

Market access

- ❑ Choice a tariff reduction formula that effectively eliminates tariff peaks and tariff escalation in developed countries for products of export interest to developing countries;
 - ❑ Restraining the flexibility given to sensitive products of developed countries (product selection, tariff cuts and tariff rate quota (TRQ) expansion) so as not to undermine market access opportunities for developing countries. The elimination of special safeguard measures for developed countries;
 - ❑ Ways to link market access improvement to market entry enhancement;
 - ❑ Appropriate degree of 'proportionality' in tariff cuts for developing countries, taking into account the fact that tariffs are the only protection given to their agricultural producers to counter subsidized production and exports of developed countries;
 - ❑ Design of SP and SSM that would allow developing countries sufficient policy flexibility with respect to food security and rural development.
-

Source: UNCTAD (2004: 11).