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**FOOD SECURITY AND  
AGRICULTURAL DEVELOPMENT  
IN SUB-SAHARAN AFRICA**

**Building a case for more public support**



**BACKGROUND DOCUMENT**

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## **FOREWORD**

It has been the case that most African Governments have been taxing farmers and subsidizing urban consumers, while at the same time doing very little in terms of policy and investment to favour the rural sector. The ratio of investment to GDP in most Sub-Saharan Africa (SSA) has been well below the ratios attained in Latin America and Asia. Similarly, Africa's private sector investment in agriculture has been curtailed by a combination of financial capacity, and lack of security, financial services and regulatory framework.

However, Africa needs to investment more and encourage increased private sector investment - both domestic and external - to ensure agriculture based economic growth and sustain it. This notion seems to have been understood by African Governments when the Heads of State and Governments have, in approving the New Economic Partnership for Africa's Development (NEPAD) Comprehensive Africa Agriculture Development Programme (CAADP) at their Summit in Maputo in 2003, committed themselves to increase resource allocation to agriculture to 10 percent of the national budget by 2008. In this context, the Policy Assistance Unit (SAFP) of the FAO Subregional Office for East and Southern Africa, in collaboration with the Agriculture Policy Support Service (TCAS) of the FAO Policy Assistance Division (TCA) embarked in 2004 on a study to analyze the status of food security and agricultural development.

Implementing the Maputo commitment of budgetary increase is however likely to be difficult in view of resource constraints of counties against daunting challenges, especially in the public service sectors. One of the main objectives of the study was therefore to provide objective rationale why agriculture should be supported in the African context.

The study had four components: (a) preparation of 10 country studies representing Central, East, West and Southern Africa, (b) preparation of a background document that looks into the conceptual issues and development paradigms and the prioritization of agriculture, review of relevant lessons from developed and developing countries who have successfully eliminated food insecurity, (c) organization of high-level workshop to discuss the findings of the study and (d) preparation of a report based on the above as well as extensive desk based research by Senior FAO Officers. The paper represents the Background document which attempts to provide conceptual and empirical underpinning to the overall study.

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## EXECUTIVE SUMMARY

### **Food insecurity in sub-Saharan Africa: a chronic widespread condition, whose main cause is low household income.**

Almost 33 percent of the African population, some 200 million people, are malnourished, which is the highest prevalence in the world. The number of malnourished Africans has almost doubled since the late 1960s, increasing roughly at the same rate as population growth, a fact that indicates a lack of successful strategies in poverty alleviation and food security improvement. Food crises occur when shocks such as drought, flood, pests, economic downturns or conflicts harm the livelihoods of this chronically insecure population. Annually, around 30 million Africans are affected.

The analysis of average food availability among a representative set of African countries confirms this distressing situation and also reveals a high degree of heterogeneity among countries. In one third of African countries, the average daily caloric intake availability is below the recommended level of 2 100 kcal (Ethiopia, Kenya, Rwanda, and Tanzania in East Africa; and Angola, Madagascar, Mozambique, and Zambia in Southern Africa; Sierra Leone in West Africa). In a few countries (Burundi, Democratic Republic of the Congo, Eritrea, and Somalia) the mean availability is below 1 800 kcal, which is considered the minimum intake level. In some countries (Botswana, Burundi, DR Congo, Gambia, Liberia, Madagascar, Senegal, Sierra Leone, Somalia, Tanzania, and Zambia), the situation has been deteriorating over the last ten years while in others (Ghana, Malawi and Nigeria) aggregate figures show some improvement. Less than 50 percent of sub-Saharan African countries have levels of malnutrition under 30 percent, and only three of them are under 10 percent (Gabon, Namibia and Nigeria). Despite economic growth and sufficient aggregate food availability, some countries still display increasing malnutrition, as measured by the prevalence of stunted growth among children. Such is the case in Mali.

Average food availability is calculated by adding domestic production, imports and food aid, then subtracting exports. Statistical analysis of several countries shows the marginal impact of exports. Inadequate average food availability is consequently the result of insufficient domestic production and imports.

Analysis of domestic production and external trade shows a striking lack of recourse to imports to provide adequate food availability in situations where domestic production is insufficient. Poverty statistics, as well as national income trends (as measured by GDP) indicate that the food insecurity problem is related to "access": food-insecure households do not have the means to pay the prices for imports. But in a world where adequate food supply is globally available, trade should in fact provide deficit countries with the volume of food required to feed their populations. Also, increased income should generate a strong rise in food demand among food-insecure households. If this is not the case, and no bottleneck is restricting access to international trade, then the problem stems from the lack of solvent demand due to insufficient income.

### **Low labour productivity and non-solvent demand as primary roots of insufficient income**

The persistence of chronic, widespread food insecurity in Africa raises the difficult question of why the household income of a large share of the population is so low. Factors constraining economic growth and job opportunities, especially among low-income households, need to be examined.



At the national level, income is defined as the sum of household incomes (including remittances). Among poor households, income is generated by selling goods produced at home and by selling labour. If income is not sufficient to meet the basic needs of the household, several factors may be responsible. Selling goods may not produce sufficient income because products are not competitively priced. Therefore, low household income can be directly related to **low labour productivity**. But the level of sales may also be insufficient due to the **lack of solvent demand**, which is directly related to low income. The lack of solvent demand in turn explains the lack of economic growth and job opportunities. Production factors, such as labour, may be underutilized as a result.

Several root causes are responsible for low labour productivity. The **lack of public goods** in Africa is now seen as a main cause of insufficient pro-poor growth. Public investment in soil and water management would allow rural populations to cope with droughts and floods as well as to improve yields. Transport infrastructure is another problem: already in the 1960s, the level of transport in Africa was far lower than in Asia, partly because of too low a population density. The fact that this situation still exists, despite the huge amount of development aid devoted to the problem between the 1960s and the beginning of the 1980s may be attributed to faulty project definition, poorly conceived planning systems, lack of coordination between ministries and donors and a lack of coordination between public and private investment. In addition, there has been an enormous cut in public expenditures since the beginning of the 1980s as a result of the decline in aid combined with macroeconomic stabilization policies.

The **low level of capital endowment** per capita reflects the risks faced by farmers, traders and processors. Farmers face both yield and output price instability. Output price instability not only affects income, but also ex post returns on investments in farming, marketing and processing. All participants react to the uncertainty induced by market instability by reducing their level of investment, in both physical and human capital. This phenomenon is particularly prevalent among poor farmers, who are highly risk-averse and do not resort credit to ease consumption and investment difficulties. The inadequacy of public goods, such as irrigation facilities, extension services and roads, further decreases the profitability of private investment and discourages investors and other private actors from investing in the agricultural sector.

Counterintuitively, perhaps, the decline in the measured capital stock per worker in Africa is not the primary source of the decrease in output per worker in sub-Saharan Africa from 1980 to 2000. It is not so much the limited growth of capital per worker during the last 20 years as its inadequacy to Africa production constraints (such as land available per worker, weather conditions and market institutions) that hampers productivity growth. **Inadequate technical agendas** in agriculture, with for example the very low level of inputs, can be partly explained by limited access to markets for agricultural inputs and outputs as well as for non-agricultural goods, and partly by the lack of adequate public research on African agriculture and the dearth of efficient agricultural services (extension and credit, for example).

The **lack of scale effect**, mainly in agroprocessing and marketing activities, is directly related to physical isolation, exacerbated by the absence of good-quality roads. Farmers and other actors face a very thin market with very high transaction costs. This considerably reduces the benefits of trade and discourages economic activity. Risk considerations also lead to a **lack of specialization**, because one main strategy to cope with the uncertainty of output prices and yields is to diversify production activities.

Insufficient solvent demand also has several root causes. The lack of income among a large share of the population depresses solvent demand. This is directly related to low labour productivity and the lack of job opportunities. In addition, imported goods are often preferred

by the richest consumers, and exports subsidies and food aid have a negative impact on agricultural output prices and divert part of the local demand to foreign supply. The burden of debt repayment also affects the national income and thus is another factor in low solvent demand. As already mentioned, the drastic cut in public expenditures since the mid-1980s, has led to a sharp drop in public demand. At the same time, **foreign demand** is hampered by high transaction costs, isolation of local markets from the rest of the world, low competitiveness of local goods due to low productivity and foreign market protection (e.g. through tariffs and nontariff barriers).

Low productivity and low demand are linked by a circular relationship. Early development theorists used to wonder why income growth in economically backward areas was stagnant. Starting with the demand size of the problem, the most documented determinants are transport facilities, which Adam Smith singled out for special emphasis. Reductions in transport costs enlarge markets, in the economic as well as the geographical sense; but reductions in *any* cost of production tend to have the same effect. Thus, the size of the market is determined by the general level of productivity and by the level of domestic factors used. Capacity to *buy* means capacity to *produce*. In turn, the level of productivity depends largely on the use of capital in production. But what if the use of capital is inhibited by the small size of the market? A vicious circle results. What is the way out?

### **Using policy as a way out of the circle linking low productivity and the small size of the market**

The root causes of chronic food insecurity should be turned into priority objectives for development. Policy-makers whose countries have been facing chronic food insecurity should, first of all, aim to improve productivity, and second, to boost demand for the products and labour of food-insecure households. The first objective is widely accepted among policy advisers and academics, except for external (foreign) demand for labour. The second goal is far more neglected, and indeed often ignored. When applied to the rural sector, it goes beyond agricultural policy *per se* and involves clearcut choices in terms of growth and development policies. **Refocusing on demand growth, both local and external, should be a top priority for any development policy that aims to enhance food security.**

The review of policy measures actually implemented in African countries highlights the vanishing of agricultural policies in their OECD or post-independence acceptance. With the exception of some subsidies on inputs in few Southern African countries, cotton in some West African countries, some minimum price guarantee schemes for maize in some African countries, VAT exemptions, limited import tariffs (although far below the banded rate) and scattered public investment in rural areas, the scope of public intervention is narrow. This narrowness points to the scandalously limited policy response by African countries today to the predicament of African populations. **A reallocation of budgets toward rural populations is urgently needed to overcome the unaddressed causes of food insecurity.**

It is worth recalling that available policy measures are much more numerous than those now in use in Africa. Policy tools for the rural sector include: border measures (fixed tariffs, variable tariffs and quotas, both on imports and exports); domestic support (minimum pricing, output and input subsidies, consumption subsidies, direct transfers and stabilization); indirect taxes (VAT exemptions); investment funding and incentives (subsidies); interest rate subsidies; and provision of agricultural services in remote areas (credit, irrigation and storage facilities). Successful food security strategies in Indonesia, Europe and Central America over the past several decades have demonstrated that there is no orthodox, one-size-fits-all policy package. The larger the spectrum of measures available, the higher the probability of utilizing Tinbergen's efficiency rule, according to which one policy measure must be targeted at only one objective – following the dictum that “you cannot hit two birds with one stone”. In fact, the

root causes of food insecurity provide a large scope for policy objectives. **Significant widening and greater flexibility in the choice of policy measures is essential to overcoming food insecurity.**

The impact of international or regional commitments on African countries does not convincingly explain the narrowness of public interventions targeted at food insecurity. The room for ambitious agricultural policies at the World Trade Organization (WTO) is wide, with total exemption of tariff and support reduction being granted to least developed countries, most of which in sub-Saharan Africa, while developing countries enjoy a special and differential treatment rehabilitating some of the pre-Structural Adjustment Programme (SAP) instruments (such as input subsidies, as long as they are targeted at the poorest). Examination of bilateral agreements such as the Economic Partnership Agreement (EPA) initiated following Cotonou Partnership Agreements between EU and ACP countries and regional agreements reveals no significant constraints on any kind of domestic support, since the primary constraint relates to external tariffs. The most stringent constraints seem to stem from the conditions imposed by donors and international financial institutions (the International Monetary Fund and the World Bank) and other aid agencies adopting the same agenda. **Upgrading in a coherent framework the set of rights and obligations of the governments of food-insecure countries towards the international community, and specifically toward the Bretton Woods institutions and other aid agencies is urgently needed to overcome the unaddressed causes of food insecurity.**

Economists have tried to identify the losses, dysfunctions and failures associated with particular policy instruments. For African countries, two major factors in the analysis of agricultural policy must be considered:

- A first body of research has focused on agricultural policy instruments giving access to a limited amount of specific free or subsidized goods or services (inputs, credit, extension) or limited access to a particular market (a foreign market, for example). This limitation in quantity gives rise to subsidies, and people will compete to get these subsidies and devote resources to such competition. Depending on the allocation method used, the kind of resource provided will differ. When allocation of trade licenses is decided by government officials, different kind of expenses will be involved to influence the decision: a trip to the capital, office rent in the capital, lobbyist services and even money (i.e. a bribe). Therefore, waste of resources is a primary problem with the use of such instruments. Increasing inequality and corruption are others.
- A second group of analyses aims to explain the apparent preference of African governments for input or credit subsidies and projects instead of higher prices for agricultural commodities. According to these analyses, the role of pressure groups can be important, but the search for power by the state elite is the main issue. The first objective of African governments is to secure political control over their rural population. By using projects instead of higher prices, government can exercise discretionary power; choose regions, groups or even individuals as beneficiaries; and can also intervene in the staffing of the project. By choosing some specific groups, the government gains their support and weakens any opposition by dividing the rural world.

Together, these two avenues of research have discredited the 1960s and 1970s agricultural policies, but before ruling them out completely, one should remember that low farm gate prices were at the same time stable and predictable – i.e. stabilized. Ample evidence shows that agricultural supply responds to price stability just as much as to mean price level. As a consequence, providing stable prices to farmers is just as important for production as high prices. A trade-off was expected to occur between low and stable agricultural prices, allowing

for productivity gains in agriculture through risk-free investment in capital goods, along with productivity gains in labour-intensive activities in all sectors, thanks to moderate wage increases allowed by moderate food prices. This trade-off did work in some places, such as Europe and Indonesia, but it completely collapsed in most African countries because too narrow a role was allowed to market forces between farm gate and consumer plate.

In spite of their poor outcomes, the policies maintained during the 1960s and 1970s were not totally without merit or justification. One should consider the rationale behind them. Relatively low farm gate prices at a time when international prices were high meant profits for marketing boards and similar agencies. Economists, who developed the concept, intended such profits to be spent on increased investments and long-term development measures that the market usually fails to secure, and **which by necessity must be funded by the state**. One may question the choice to have such development measures funded by poor farmers rather than by richer people, but the central question is, **why were these profits not spent on development by the states** responsible?

A further lesson can be drawn from the economic literature. Although controversy continues, academics tend now to promote budget-funded, targeted policy instruments to consumer-funded price instruments, because the latter suffer from poor targeting and distorting (inefficiency) effects. On efficiency grounds, the “modern” food policy relies heavily – at least in theory - on freeing market prices, which means near-zero tariffs, decoupled support (compensation and insurance transfers), and investment in public goods such as research, infrastructure, education, health and the enforcement of the rule of law. These measures can make market institutions work properly, and even “work for the poor”. **But when no such public investment budget is made available, the case for such an agricultural policy vanishes.**

How best to use an agricultural budget in an accountable manner cannot be defined in terms of policy measures at this stage. This can only be done on a country-by-country basis with the participation of local stakeholders throughout the policy-making process. A framework for action has been set forth in this document, envisioning a step-by-step definition of agricultural policies that will ensure their legitimacy inside and outside the country, at all levels of negotiations, within and among ministries. The initial step is to identify the characteristics of food insecurity on a country-by-country basis, followed by the identification of the root causes. This will provide grounds for policy action, as long as such causes relate either to market failures or government failures as described above. Checking for country commitment and possible perverse effects of such policy, because of subsidy-seeking or any counterproductive effect current knowledge helps prevent, leaves room for the final design of sound agricultural policies embedded in demand-led growth which secures food.

## **Chapter 1: An Introduction to food security and sub-Saharan Africa**

Food insecurity has been increasing recently in sub-Saharan Africa (SSA) and is a source of growing concern to African governments. FAO estimates of the number of undernourished people in SSA show an increase from 165.5 million in 1990-92 to 198.4 million in 1999-2001 (FAO, 2003). Although the proportion of undernourished people remained about constant during this period, the increase in the absolute number reflects the fact that the supply of domestic or imported food is not sufficient to cope with population growth.

It is generally acknowledged that the problem is particularly acute in rural areas. For instance, the final statement of the World Food Summit organized by the FAO in 2002 concludes: *“the goal of halving the number of hungry requires that the most food insecure and impoverished countries promote the alleviation of rural poverty, especially through sustained growth of agricultural production, particularly in sub-Saharan Africa”* (FAO, 2002). The idea behind this statement is that agricultural development can both increase the supply of food and also be the main tool for generating the income required to ensure access to food by food-insecure people.

It is a lesson of history that most political regimes founded their legitimacy on their ability to secure food<sup>1</sup>. It is not surprising that, without even speaking of human dignity and charity, food security is in the front rank of the preoccupations of the political class. This is one of the reasons that the New Partnership for African Development (NEPAD)<sup>2</sup>, supported by the Johannesburg summit on sustainable development in 2002, places emphasis on agricultural development and the eradication of rural poverty. Indeed, NEPAD envisages a kind of Marshall Plan for Africa, in the hope of repeating the outstanding success of the help the United States provided to Europe in the aftermath of the Second World War in a similar situation of food shortage and pervasive poverty.

At the same time, there are many powerful reasons why food security and agriculture have been neglected, and why, if they were turned into policy priorities, they could consequently be mutually supportive:

- (i) Agricultural projects are difficult to implement, and have lower ex–post rates of return than projects in other sectors;
- (ii) there are serious problems of absorptive capacity in many countries, especially in the agricultural sector;
- (iii) due to slow disbursement in agriculture and poor performance of the sector, the ministries of finance have been less and less inclined to fund agricultural projects;
- (iv) conflicts have attracted priority attention and expenditures in a large number of SSA countries;
- (v) food insecurity is often not perceived by leaders as a priority problem because experience has shown that in many cases, trade and emergency food aid can cope with any serious problem of food shortage;

<sup>1</sup> For instance, historians note that relatively strong local powers existed in the Sahelian regions of SSA long before colonization, while such institutions are much less frequently encountered in the equatorial regions, and relate this situation to the necessity of collective management of granaries in arid climates (Illid, 1995; Dun and McShaw, 2001). Even in the Bible, the story of Joseph can be interpreted as a pamphlet by the King of Egypt, claiming political authority over the Middle East on the ground of his ability (probably unique at time) to avoid the consequences of droughts and diseases through public stocking.

<sup>2</sup> This initiative was launched by several African leaders (the presidents of Algeria, Egypt, Nigeria, Senegal, and South Africa) at the Lusaka conference in 2001, to finance African development in general. The fact that agriculture is one of the components of the NEPAD programme is significant.

- (vi) food security is a complex concept, difficult to measure, and therefore an awkward basis for policy design, implementation and monitoring;
- (vii) agriculture is not seen as a dynamic sector carrying much potential for future development of a “modern” country; and
- (viii) the political economy in many SSA countries tends to induce an anti-rural and anti-agriculture bias in policies and programmes.

Thus there are considerable obstacles to assigning high priority to reducing food insecurity, especially if it means boosting the agricultural sector. In the eyes of many African leaders, other sectors seem to have greater development potential and ability to create wealth, including the capacity to generate the financial resources required to import food. The question is whether this view is correct, and whether the income generated really goes to the food-insecure population. Also, food aid is usually felt to be a relatively easy to mobilize and cheap source of food in case of emergency, while donor countries – and their publics – are more disposed to provide emergency food aid than longer-term development aid. But doubt remains whether this is the most effective way to use limited financial resources and whether this approach is conducive to development.

These two approaches can translate into very disparate development strategies and policies: vigorous measures to improve the agricultural situation on the one hand, or neglect of agriculture and reliance on other ways to achieve some form of food security on the other. The purpose of this study is to determine the best policy in the range that exists between these two poles. To that end, the first questions to be answered are, “What is food security?” and, “To what extent has food insecurity increased in SSA recently?”

## 1.1 Has food insecurity worsened in SSA recently?

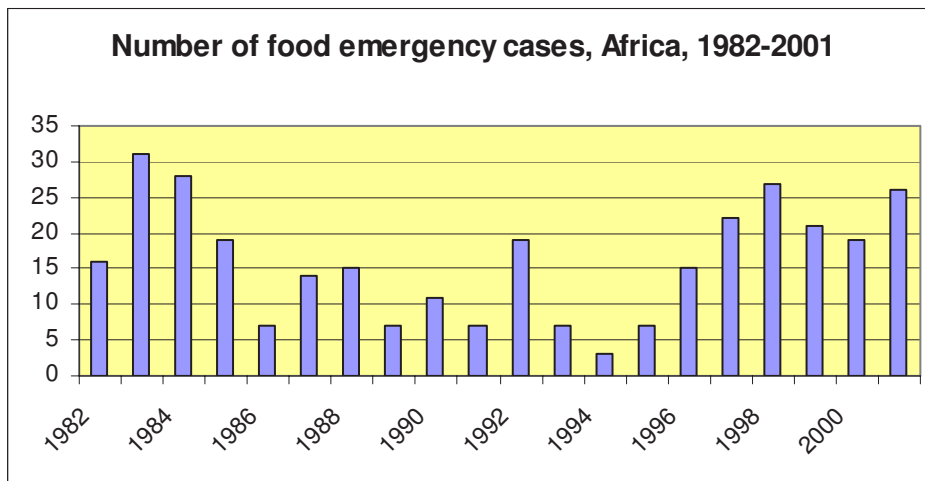
FAO has provided a clear and widely (although not necessarily universally) accepted definition of food security: “Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food for a healthy and active life (World Food Summit Plan of Action, para. 1). This involves four conditions: (i) adequacy of food supply or availability; (ii) stability of supply, without fluctuations or shortages from season to season or from year to year; (iii) accessibility to food or affordability; and (iv) quality and safety of food”.

Unfortunately, such a definition cannot easily be translated into one simple statistical indicator, the evolution of which would provide an unambiguous answer to the above question. Existing measurements, derived from guidelines by international organizations<sup>3</sup>, are at best approximations, which place emphasis on one or another of the four aspects just listed. And because these indices are not available over sufficiently long periods, they do not allow for an adequate assessment of evolving patterns. This limits the possibility of giving a detailed and long-term picture of the evolution of food security in SSA. Yet there are indicators that permit an overall diagnosis; these indicators are examined in figures 1 to 4.

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<sup>3</sup> See, for instance FAO, *The state of food insecurity in the world*, Rome, various reports from 1999 to 2003. Another more detailed technical reference is: Riely, Frank, Mock *et al.*, 1999. See Shapouri and Rosen, 2004 for the definition of the interesting notion of a “food gap”.

Figure 1.1: Reported cases of food emergency in Africa



Source: T. Parris *et al.*, The number of cases is reported from the International Disaster Database, Louvain University, Belgium.

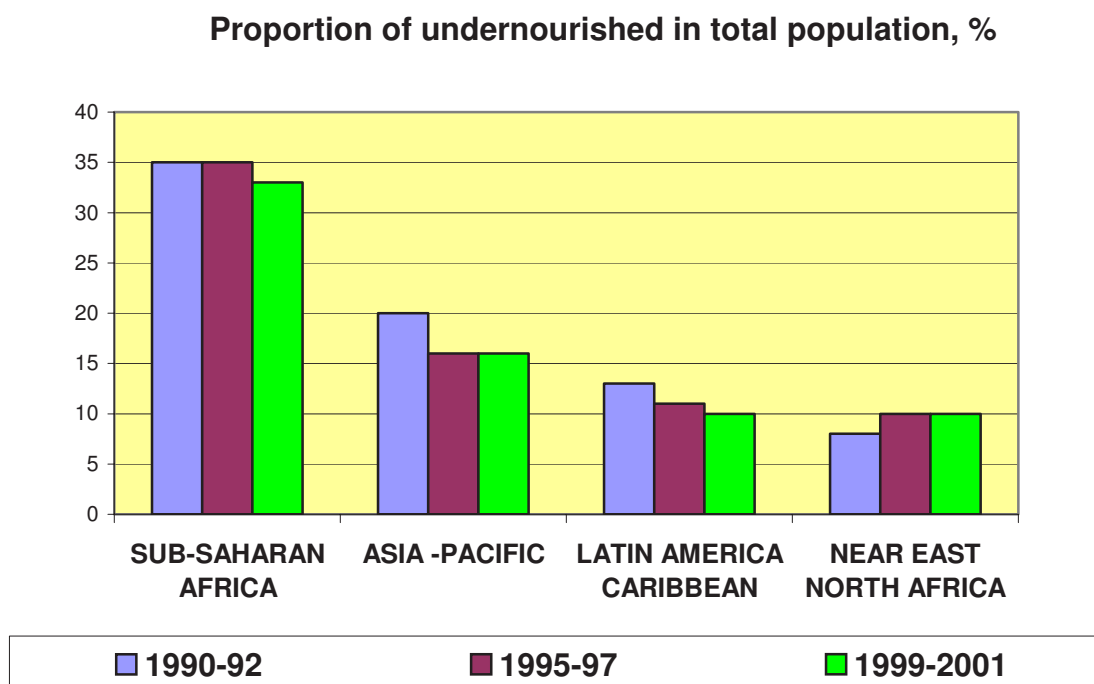
Figure 1.1 shows that in Africa the number of emergency cases reported by the Centre of Research for the Epidemiology of Disaster is not very different in the first decade of this century from what it was in the 1980s. However, after a significant decline during the early 1990s, the number of reported food shortage cases recently increased again. Such a phenomenon relates to point (ii) above, regarding temporary food shortages. More significant, perhaps, is the information provided by Figure 1.2.

Figure 1.2 compares the situation in Africa with other developing countries. The food insecurity indicator here is the proportion of malnourished people, according to FAO standards, in the total population. Thus, it concerns a different aspect of food security: the permanent lack of access to food for significant segments of the population. At first glance, it seems to confirm that the level of food security did not change very significantly during the last 15 years, beyond a slight improvement. Such a conclusion might be misleading because these figures are in *relative* terms and reflect the *proportion* of people suffering food shortage. But a constant proportion of a growing basis means a parallel growth in the *absolute number* of people involved. Indeed, this constancy of relative figures indicates that the growth of the problem progresses at the same rate as the population – which, in SSA, is quite significant, amounting to about 3 percent per year.

The most disturbing as well as tragic lesson to be derived from this figure is that, in Sub Sahara Africa, the situation is worse than elsewhere by a magnitude of 1 to 2.

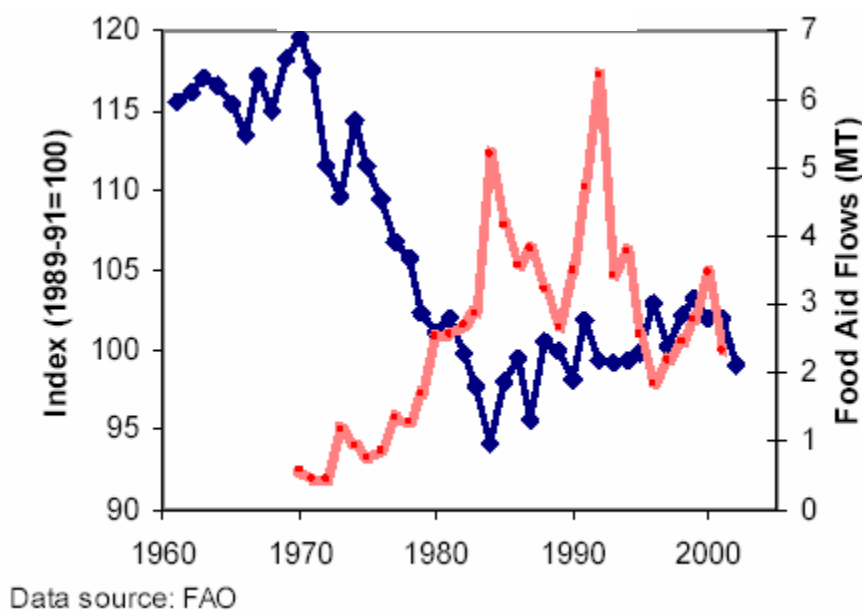
Is this a consequence of insufficient production or of insufficient food aid? Figure 1.3, derived from a study by the International Food Policy Research Institute (IFPRI) (Awudu, Barrett and Hazell, 2004) tends to show that while there has been modest recovery over the past 15 years, overall food production in sub-Saharan Africa remains almost 20 percent below the levels of the early 1970s in per capita terms. Over the same period that food production per capita declined, food aid into sub-Saharan Africa increased nearly fivefold. Food aid flows then became extremely volatile, but have remained in the range of 2.0-4.0 million metric tonnes per year for the past decade.

Figure 1.2: Evolution of a food insecurity indicator in various regions of the world



Source: FAO, 2003.

Figure 1.3: Sub-Saharan Africa per capita food production vs. food aid flows



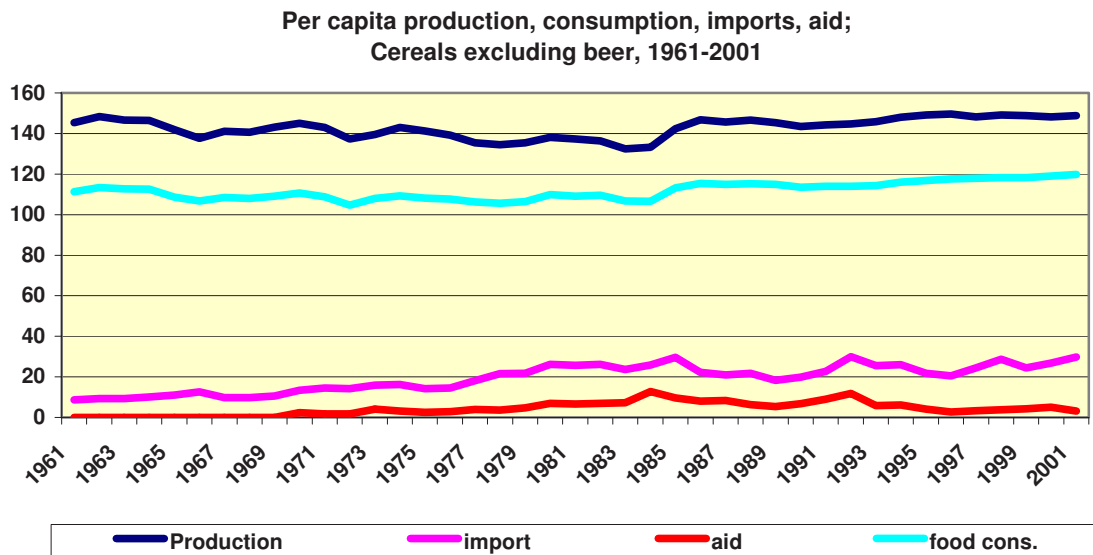
Source: Awudu, Barrett, and Hazell, 2004

Again, one must not be confused by statistics. Since food aid is measured as a total volume, while the production curve corresponds to a per capita index, one should be cautious in interpreting Figure 1.3. Indeed, in view of the demographic increase, the aid flow per capita may have *decreased* significantly in the last few years, together with a modest food production per-capita recovery.



Figure 1.4, based on FAOSTAT data<sup>4</sup>, gives the absolute values in kilograms (kg) of per capita production, imports and food aid. The striking fact here is the stability: there is a strict parallel between food consumption and domestic production. The parallel is less strict with food aid, which generally occurs one year after a significant decrease in consumption imports, while, for unknown reasons, imports increase one or two years after food aid. In general, consumption, food aid and imports display a clear tendency to increase, albeit at a small rate (far less than 1 percent a year).

**Figure 1.4: Long-term evolution of cereal availability, Africa south of the Sahara**



Source: FAOSTAT, 2004.

The most important fact shown by Figure 1.4 is that the bulk of food consumption comes from domestic production. Imports account for only a small percentage of available food, and food aid an even smaller percentage. Does this mean that imports and food aid are not important? The answer is two-sided.

On one hand, neglecting imports and food aid would be a great mistake, because the important point here is not total, but marginal availability: a person might starve with a "normal" food consumption secured for eleven months if they were totally deprived during the twelfth month. Indeed, in the present situation, food imports are obviously necessary in SSA as a whole. Similarly, it would be foolish to deny the importance of food aid when no imports and no domestic production are available. In such cases, aid is a prerequisite for rapid recovery after the end of whatever catastrophe that triggered famine. This is the message conveyed by the aforementioned IFPRI study (Awudu *et al.*).

On the other hand, these figures also tell us something else: because the gap between needs and domestic production is not large, it should be possible to fill it at minimal cost. Doing something in this respect is the more tempting option, because most starving peoples stay in rural areas and are not capable of any activity other than agriculture; very often, they are unemployed but willing to work. Why then should governments beg for humanitarian aid, or waste foreign currency reserves on food imports, when so many other more fruitful uses of

<sup>4</sup> Notice that figure 1.4 concerns cereals only, while figure 1.3 is based on a "total food index". Yet cereals are fairly representative of total food. Notice also that production is larger than consumption. This is because a significant share of production is either used as stockfeed or exported.

aid and funds are possible? Answers to this question must be made on a case-by-case basis, requiring careful attention to the various situations faced by African countries today.

## 1.2 Food insecurity in Africa: Ten stylized facts

Almost 33 percent of sub-Saharan Africans are malnourished, which is the highest prevalence in the world. In one-third of African countries, the average daily calorie intake remains below the recommended level of 2 100 kcal<sup>5</sup> (Ethiopia, Kenya, Rwanda, and Tanzania in East Africa; Angola, Madagascar, Mozambique, and Zambia in Southern Africa; Sierra Leone in West Africa).

Maps provided by international organizations (FAO, the United Nations Development Programme and the World Bank) highlight the variable performance across subregions of Africa. The best performance can be found in North Africa, where less than 20 percent of the population is still malnourished and the average daily calorie intake per capita is far above requirements. West Africa also performs relatively well in terms of average calorie intake (above 2 100 kcal per capita in most of the countries, and above 2 400 in some of them), but the share of malnourished people (above 20 percent of the population in most countries) and the prevalence of micronutrient deficiency are still worrisome. The situation is worse in Central and Eastern Africa, with a few exceptions. The daily energy supply is far from sufficient, and malnutrition and deficiencies affect more than 40 percent of the population. In a few countries (Burundi, Democratic Republic of the Congo, Eritrea and Somalia), the mean availability per capita is below 1 800 kcal, which is considered the minimum intake level. In several countries (Botswana, Burundi, DRC Congo, Gambia, Liberia, Madagascar, Senegal, Sierra Leone, Somalia, Tanzania and Zambia) the situation has been deteriorating over the last ten years, while others (Ghana, Malawi and Nigeria) exhibit a trend toward sustained recovery. Less than 50 percent of sub-Saharan African countries have malnutrition figures below 30 percent, and only three countries are below 10 percent (Gabon, Namibia and Nigeria). Despite economic growth and sufficient aggregate availability of food, some countries still exhibit increasing malnutrition, as measured by the prevalence of stunted growth in children<sup>6</sup>, as in the case of Mali.

**Stylized fact 1:** Malnutrition, in its various forms, appears a chronic widespread condition in Africa.

Rampant food insecurity degenerates into food crisis when shocks such as droughts, floods, pests, locust invasion, economic downturns, and conflicts destabilize the precarious existence of the chronically food-insecure. Food crises are dramatic and are widely reported by the media. They affect approximately 30 million Africans on average per year, while 200 million are chronically insecure.

**Stylized fact 2:** Food crisis, jeopardizing household livelihood, exacerbates chronic food insecurity for households close to the food insecurity (or “vulnerability”) line.

In order to bring more insight to problems of food insecurity in selected countries representative of African diversity<sup>7</sup>, international statistics have been used in the discussion that follows. They are complemented by household surveys, where available. The quality and

<sup>5</sup> Energy requirements vary according to age, sex, and activity.

<sup>6</sup> Daily kcal availability is not sufficient to define adequate nutrition. Micronutrient deficiencies, for example of iodine, iron, vitamin A and zinc, are also widespread and responsible for irreversible disabilities. Only two countries in sub-Saharan Africa had less than 20 percent of children stunted (the Congo and the Gambia).

<sup>7</sup> Namely, Burkina Faso, Ethiopia, Ghana, Malawi, Mali, Mozambique, Tanzania, Zambia and Zimbabwe.

coverage of data is highly heterogeneous, especially when related to food production and consumption at the household level. Surprisingly, and despite the renewed interest from international institutions in food security issues, data for the household level are sparse or even totally lacking in most African food-insecure (poor) countries<sup>8</sup>, and it is easier to study average domestic food availability than food access.

### **1.2.1 Food availability at the national level**

What is the food insecurity picture given by trends in average domestic food availability per capita over the last 40 years, as well as by malnutrition changes at the household level? In the following tables and figures, national food availability is computed after conversion in kcal of the main aggregates available from FAOSTAT<sup>9</sup>. The official daily food availability supplied by FAOSTAT is also given, the difference stemming from feed used, seeds and post-harvest losses, as well as stock variations, which are not considered in our computation.

Each case study country<sup>10</sup> is presented so as to give a picture of differences and similarities in current levels and trends in domestic food availability, expressed in calories per capita, as well as the share of international supply in total food availability.

**Stylized fact 3:** Food availability is uneven across countries the bulk of whose population is close to the food insecurity (“vulnerability”) line.

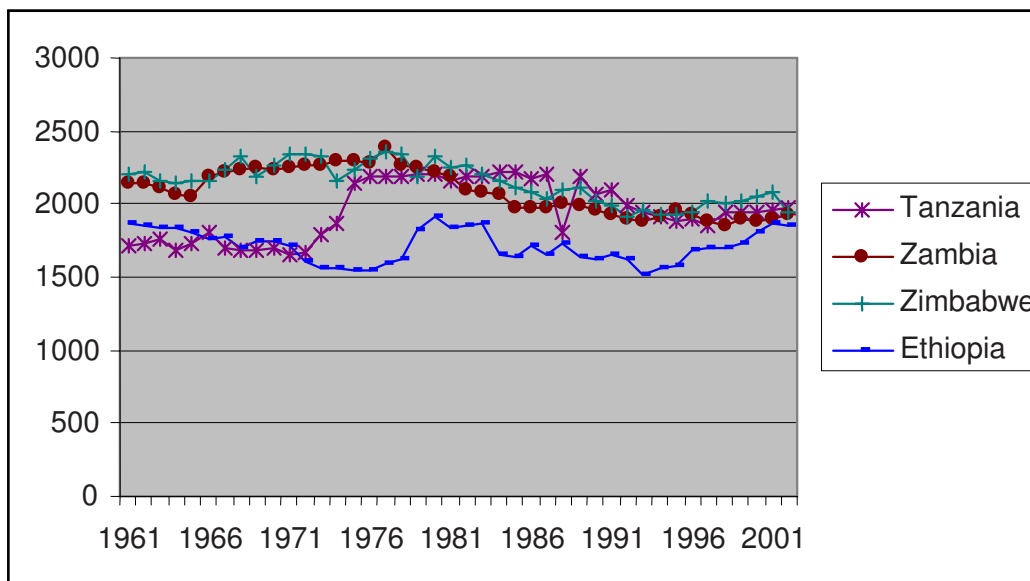
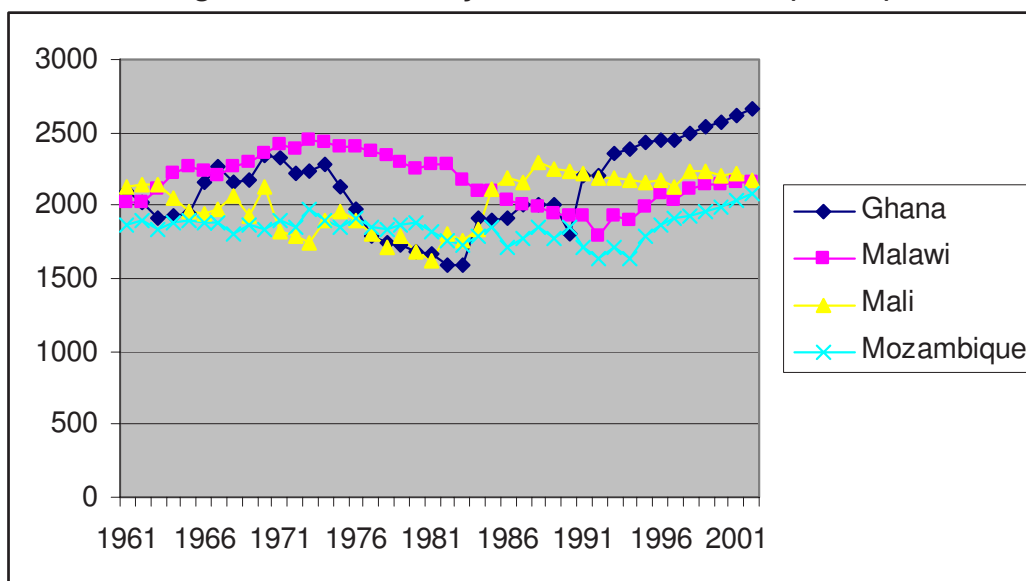
Assuming an average daily requirement of 2 100 kcal per capita, the African situation is characterized by an uneven food deficit at the national level, as shown in figures 1.5 and 1.7. Most of the countries are close to the food-insecurity line, with a slight recovery over the past ten years. Extreme situations are found in Ghana, whose availability has been well above the food-insecurity threshold for the past ten years, and at the opposite end of the spectrum in Ethiopia, where availability is stationary around the critical values of 1 500-1 800 kcal.

Mozambique (Figure 1.6) exhibits a slightly better pattern, with an improving trend since the end of the 1990s, bringing the country close to the food-insecurity line today. In Zambia and Zimbabwe, levels of food availability have been deteriorating since the beginning of the 1980s. In these countries available kcal per capita was around 2 200 kcal from the 1960s to the mid-1980s, but fell below 2 000 kcal in the 1990s.

<sup>8</sup> For example, the Living Standard Measurement Study (LSMS) dataset of the World Bank includes only five African countries: Ghana, Côte d'Ivoire, Morocco, South Africa and Tanzania (<http://www.worldbank.org/lsmis/>).

<sup>9</sup> Daily kcal availability is calculated as  $(\text{production} + \text{imports} + \text{food aid} - \text{exports}) / \text{population} * 365$ . The products considered are FAOSTAT aggregated categories, i.e. cereals, fruits, vegetables, roots and tuber. Because the precise kg caloric value of each product in a single category varies across products, weighted averages of kcal have been used for each category, the weight being calculated as the product's share in sub-Saharan African consumption.

<sup>10</sup> Except Ethiopia, for which data on population size before 1993 are lacking. However, recourse to the foreign supply of food (aid included) often represents more than 15 percent of total availability since the mid-1980s.

**Figure 1.5: Food availability in selected countries****Figure 1.6: Availability in selected countries (cont'd)**

The situation of Malawi deteriorated in the 1970s and 1980s but seems to have recovered since the mid-1990s, returning to the 2 200 kcal level over the last couple of years.

In Tanzania, the situation improved in the early 1970s but deteriorated at the end of the 1980s. The food intake is now stable but it hardly reaches 2 000 kcal per capita. In Mali, the situation has improved since the mid-1980s and seems to be stable at around 2 200 kcal per capita per day. In Ghana, available kcal per capita was around 2 100 in the 1960s, But deteriorated sharply between the mid-1970s and the mid-1980s. Ghana recovered at the beginning of the 1990s and has exceeded 2 500 kcal ever since 1999.

Finally, the situation is worrisome everywhere except in Ghana, Malawi, Mali and Mozambique, the countries that exhibit the most promising trends. It is worth remembering, however, that figures 1.5 and 1.6 represent per capita kcal availability and reflect the sharp increase in African population size over the last 40 years.

### **1.2.2 Food availability at the household level**

Restoring aggregate food availability does not ensure that every household and individual enjoys sufficient access to food. In most countries studied, areas of excess food supply coexist with deficit areas. Chronically food-insecure households are spread across regions, whereas food crises are transitory and region-specific. The situation is exacerbated in rural areas, which have a higher share of the malnourished population and stunted children, even if the quality and amount of available food in urban centres are also at worrisome levels.

**Stylized fact 4:** Chronically food-insecure households are widespread and scattered across regions, whereas transitory food crises are more often region-specific.

Food insecurity does not usually affect the whole population, but particularly harms specific social groups who do not own enough production factors, such as land, labour and capital, to buy adequate food. In all countries, orphans, female-headed households, the disabled and the very old are the most vulnerable, and as such deserve specific attention and support. In some countries HIV has considerably worsened the vulnerability of populations. Given the high share of undernourished people in most countries, however, food insecurity is not confined to one group nor to any particular region (see for example the case of Burkina Faso in Box 1).

In most countries, more than 30 percent of the population is undernourished. In countries such as Malawi and Mali, the figures are still perturbing despite adequate aggregate supply of food at the national level. Only Ghana has succeeded in reducing significantly the number of the undernourished over the last ten years. The mere fact that rising imports occur along with rising per capita food production and food security improvement illustrates the fact that there is no contradiction between food imports, increases in domestic food production and food security (Figure 1.7).

**Stylized fact 5:** Despite inadequate levels of calorie intake among a large share of the population, imports from foreign providers do not match the complementary food requirements. To put it in another way, the issue is not that there are too many imports, but the national production level being given, that imports are too low.

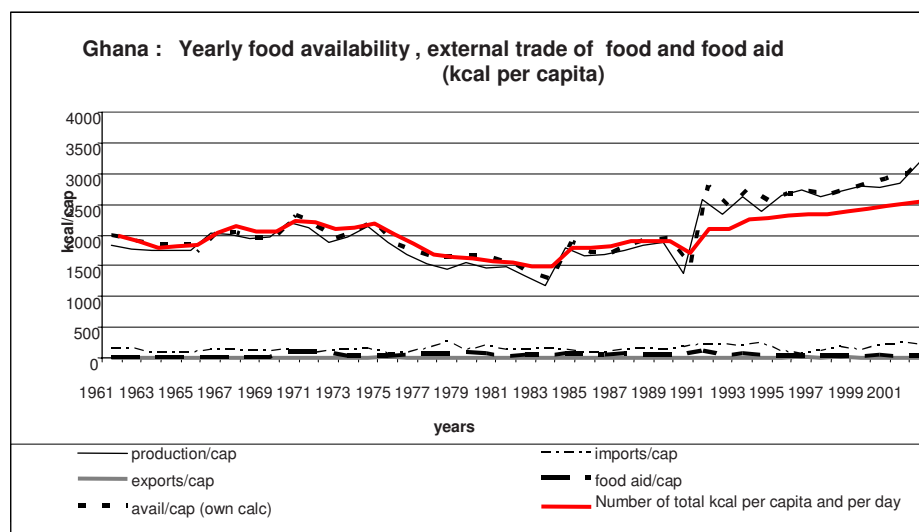
In Malawi, Mali, Zambia and Zimbabwe, production is highly unstable due to droughts, floods and other factors. In other countries, even when average daily availability appears relatively stable, it is worth remembering that the kcal aggregates presented here smooth the series and that crop production in tonnes are actually much more unstable. Most of the countries under study report high dependence on climatic factors for agricultural performance and income. Most of the time, technical solutions exist that would reduce this high vulnerability of yields to climatic disturbances, but they require investments beyond the means of the population concerned.

**Stylized fact 6:** Most countries report high dependence on climatic conditions and exhibit persistent instability in production levels.

The fact that food aid is a significant component of availability only when domestic production drops tends to show the efficiency of international food aid delivery. However, food aid may also have produced a drop in prices, discouraging farmers to harvest, and this is something that our aggregated data cannot show. This phenomenon occurs in Ethiopia, for example, and because it cannot be reflected in the data, it places a limitation on the analysis of yearly aggregate data on food availability. Food aid seems to act as an adjustment variable, with higher volumes occurring when domestic production drops. On the other hand, the yearly

approach does not help us to check whether the supply of food aid (because of the downward pressure on prices) is causing the drop in domestic production<sup>11</sup>.

**Figure 1.7: Food availability, trade and food aid in Ghana**



**Stylized fact 7:** Foreign supply share in domestic availability is not a determinant of performance of agriculture in food-secure countries.

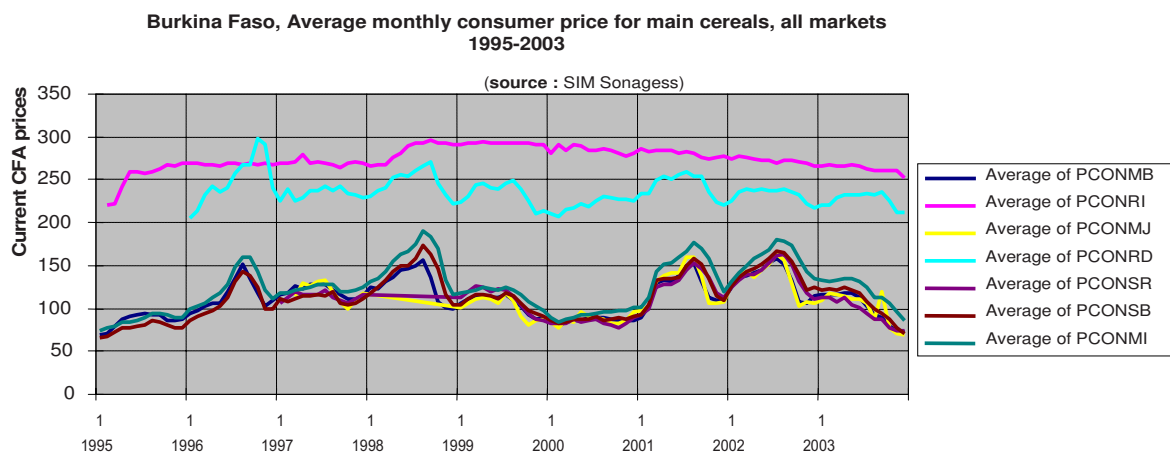
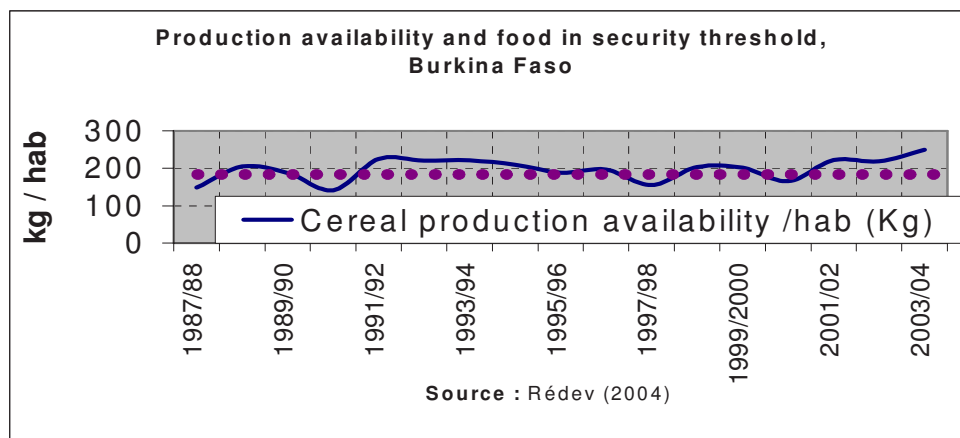
The share of foreign supply in food availability varies. In countries such as Ghana, Malawi, and Mali, imports (as well as food aid) are significant only during years with record-low levels of production because of agroclimatic shocks. In others, such as Mozambique, where food security is improving, foreign supply plays a significant role in overall availability. In Zimbabwe, recourse to foreign supply is also important, but the food security situation is worsening. The same low performance is seen in Tanzania and Zambia, which have a low level of foreign supply of food. Finally, foreign supply as a share of domestic availability does not seem to be a determinant in the performance of countries in achieving food security (Table 1.1).

**Table 1.1: Share of foreign supply in food availability and total food availability per capita, 1990-2002 and 2000-2002**

|            | Share of foreign supply in food availability |           | Availability (calories per capita per day) |           |
|------------|--|-----------|--|-----------|
|            | 1990-2002                                    | 2000-2002 | 1990-2002                                  | 2000-2002 |
| Ghana      | 8%   | 8%        | 2400                                       | 2619      |
| Mali       | 5%   | 5%        | 2196                                       | 2200      |
| Malawi     | 17%  | 7%        | 2024                                       | 2155      |
| Mozambique | 25%  | 17%       | 1855                                       | 2033      |
| Tanzania   | 5%   | 8%        | 1954                                       | 1959      |
| Zimbabwe   | 20%  | 21%       | 1984                                       | 2024      |
| Zambia     | 17%  | 15%       | 1909                                       | 1904      |

<sup>11</sup> To overcome this limitation, we should look at monthly data, with special attention to the pre-harvest period.

### Box 1.1: The case of Burkina Faso

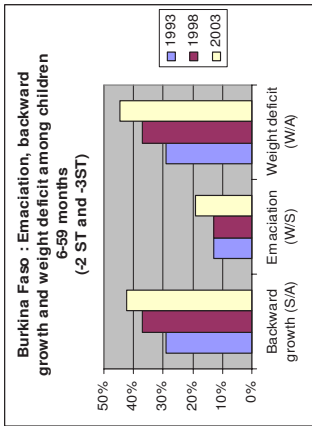


Although fluctuating, availability of food in Burkina Faso is only insufficient on a temporary basis. Cumulated inflation over the 1995-2003 period was 28,30 percent, so that the decline in the purchasing power of producers is striking (Figure 8). Consumer prices in 2003 were 0.03 f.cfa/kcal for maize (the cheapest cereal), followed by millet (0.04 f.cfa/kcal) then rice (0.07 f.cfa/kcal). Meat was sold at 5.70 f.cfa/kcal, which gives terms of trade for 1 kcal of meat against 81k.cal of millet.

An optimization model of food rations for an adult living in Ouagadougou (August 2004) enables us to simulate the minimum threshold of expenses to satisfy basic food requirements. For a food ration equivalent to 2 340 kcal, the budget projected is 13 295 f.cfa per month, or 160 000 f.cfa per year. By comparison, the poverty line is set at 87 672 f.cfa/adult/year in Burkina Faso.

This means that the poorest are food insecure, but that food insecurity is also not restricted to the poorest. The following maps demonstrate that prevalence has risen over the last decade and is not confined to particular region.

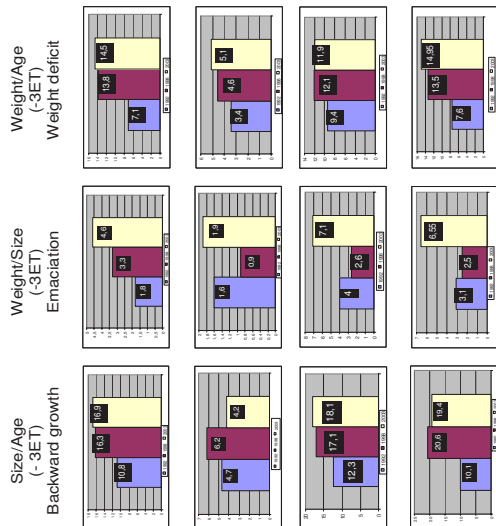
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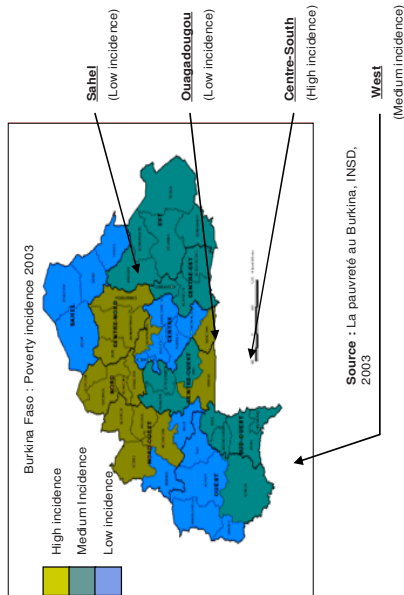
Source : EDS, 1992,1998, 2003, Macro Int

The **size-on-age** (S/A) indicator signals backward growth.  
 The **weigh-on-size** (W/S) indicator reflects current nutrition status. Children whose weigh-on-size indicator is below -2 SD suffer from moderate acute undernourishment, while those beyond -3 SD suffer from acute and severe undernourishment.  
 The **weigh-on-age** (W/A) integrates into one single indicator the two indicators above.

**Share of 5-year children considered as undernourished according to S/A, W/S and W/A (1993, 1998, 2003)**



Source : EDS, 1992,1998, 2003, Macro Int

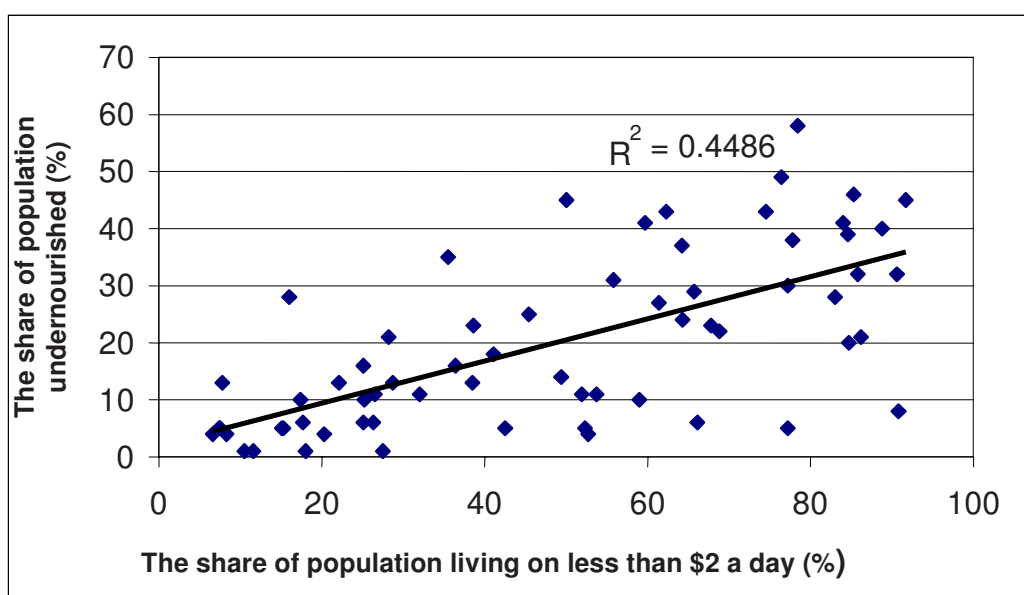




### 1.3 Explaining food insecurity by access

The figures presented thus far demonstrate both the persistent lack of food available to the population and the absence of significant foreign supply (except when climatic disturbance, war and violence significantly affect domestic food production). Because a large share of the population is still malnourished, the increase in the demand for food in the wake of income growth would be very high. This demand should be supplied either from international markets or domestic production. As noted above, lack of food availability persists as neither imports nor domestic production increased. Hence, in the absence of trade ban or conflict or some element forbidding international trade flow, it must be related to the means to pay for food. The assumption is that widespread poverty, combined with low national income, creates the chronic food insecurity in the region.

**Figure 1.8: Poverty and Food Insecurity in development countries and transition countries (65 countries)**



**Stylized fact 8:** There is a correlation between chronic food insecurity and widespread poverty.

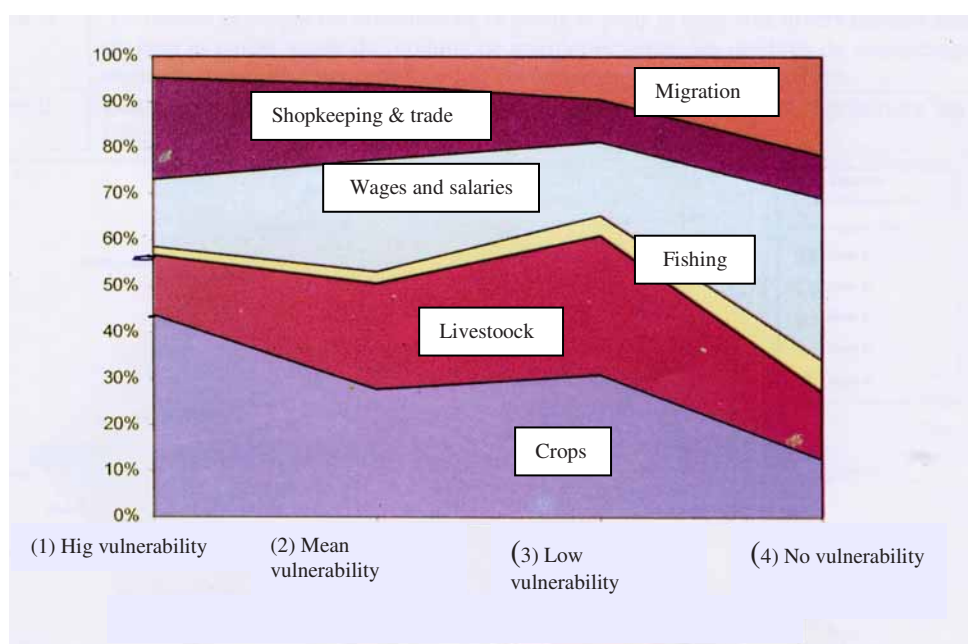
**Stylized fact 9:** Poverty statistics and national income trends measured by GDP both indicate that the food insecurity problem is basically related to access: food-insecure households have limited means to pay the price for imports and to access an adequate supply of food. (In a world where adequate food supply is globally available, trade should theoretically provide deficit countries with the necessary volume of food to properly feed their population)

**Stylized fact 10:** Household vulnerability is dependent upon income sources: the higher the share of agricultural income, the higher the vulnerability.

Poverty and food insecurity are closely intertwined (Figure 1.8). The case of Senegal exemplifies this point (Figure 1.9). Vulnerability of rural households in Senegal depends significantly on income sources: the higher the share of agricultural income, the greater the vulnerability. The conclusions can be extended to other poor countries in Africa and beyond.

First, because agricultural income is only a part of rural income, declining food security requires a broad policy response going beyond agricultural policy *per se*. In particular, improving the access of the most vulnerable to nonfarm activities seems crucial. Second, because vulnerability is higher among households whose income depends on agriculture, agricultural policy has not performed with any degree of success in addressing food insecurity in SSA, with a few and temporary exceptions<sup>12</sup>. Improving access to food through by raising rural incomes is the key issue for food policy-makers today.

**Figure 1.9: Food vulnerability and income sources, Senegal (2003)**



**Source:** WFP, 2003

For the poorest quintile, casual nonfarm wage income accounts for about 16 percent of total income. This drops to around 15 percent for the second quintile, and continues to fall monotonously across quintiles to only 2 percent for the top quintile. In contrast, regular nonfarm wage income shares rise sharply with the income quintiles – from only about 4 percent among the poorest quintile to as much as 21 percent for the richest.

<sup>12</sup> See Africa Success Story reviewed by IFPRI, *Successes in African Agriculture: Building for the Future*, Pretoria, South Africa, December 1-3, 2003, available at <http://www.ifpri.org/events/conferences/2003/120103/papers/papers.htm>.

### **Box 1.2: Ten stylized facts on African food insecurity**

**Stylized fact 1:** Malnutrition, in its various forms, appears primarily as a chronic widespread condition in Africa.

**Stylized fact 2:** Food crisis, jeopardizing household livelihood, superimposes on chronic food insecurity for a high share of households close to the food security (or “vulnerability”) line.

**Stylized fact 3:** Food availability is uneven across countries whose bulk is close to the food-security (“vulnerability”) line.

**Stylized fact 4:** Chronic food-insecure households are widespread and scattered across regions while transitory food crisis are more often region specific.

**Stylized fact 5:** Despite inadequate level of calorie intake among a large share of population, imports from foreign providers do not match the complementary food requirements. To put it in another way, the issue is not that there are too much imports, but the national production level being given, that imports are too low.

**Stylized fact 6:** Most countries report high dependence on climate conditions and exhibit persistent instability in production level.

**Stylized fact 7:** Foreign supply share in total availability is not a determinant of food security countries performance.

**Stylized fact 8:** There is a correlation between chronic food insecurity and widespread poverty combined with low national income

**Stylized fact 9:** Poverty statistics as well as national income trends, measured by GDP, indicate that the food insecurity problem is basically related to “access”: food insecure households have limited means to pay the price for imports and access to adequate supply of food. (In a world where adequate food supply is globally available, trade should theoretically provide deficit countries with the necessary volume of food to properly feed their population).

**Stylized fact 10:** Household vulnerability is dependent on income sources: the higher the share of agricultural income, the higher the vulnerability.

## **1.4 How can the problem be tackled?**

When analyzing domestic production and external trade, the absence of sufficient recourse to imports to maintain adequate food availability when domestic production is insufficient is striking. Poverty statistics, as well as national income trends measured by GDP, indicate that the food-insecurity problem is related to access: food-insecure households do not have the means to pay for imports to ensure an adequate supply of food. In a world where adequate food supply is globally available, trade should provide deficit countries with the necessary volume of food to feed their populations. An increase in income should generate a high response in food demand among food insecure households. If this is not the case, and no bottleneck restricts access to international trade, the problem is linked to the lack of solvent demand due to insufficient income.

What kind of policy would be needed to eradicate the continuously worsening food-security situation in Africa? Examples from history must be examined before tackling this question. The first lesson relates to past intervention policies.

Intervention policies were common in Africa in the 1960s. They failed, as demonstrated by the remarkable stability of per capita indicators noted in Figure 1.4. Admittedly, there has been a large increase in production since the 1960s; however, it was absorbed by parallel population growth, so that, in per capita terms, there was no substantial change, despite the enormous sums spent on developing agriculture. This failure, and the public deficit and macroeconomic imbalances it implied, brought on board the “structural adjustment” policies initiated in the 1980s.

The core idea behind structural adjustment was that private interest would be the best engine of development. According to the famous statement of Adam Smith, *"It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest"*. Hence it was felt that the state should withdraw from direct production; inefficient and corrupt parastatal companies should be privatized or dismantled. Taxes, which deprived farmers of the benefit of their work, should be reformed (yet at the same time, more effectively collected!). Trade policies were to be modified to allow world prices to be better reflected in domestic markets.

The impact of these policies is not illustrated in the trends depicted by Figure 1.4. This is not to say that the impact has been negligible; on the contrary, many analysts contend that it has been significant, and indeed detrimental. It has frequently been noted that structural adjustment programmes have often impoverished various population segments (as will be shown below). But as far as the long-term trend in per capita cereal production and consumption is concerned, the least that can be said is that the effect of structural adjustment programmes is not visible. And this, of course, is the tragedy, precisely because structural adjustment was meant to boost development and solve the recurrent food problem. It has failed to do so.

An increasing number of organizations and specialists feel that it is necessary to reconsider current policies and find new ways to support agriculture. Such methods must propel agricultural development forward and contribute to improved food security, yet avoid the pitfalls of the policies of the 1960s and 1970s. This view is further supported by the evidence that food insecurity has a cost for development, whereas foregoing agricultural development can have considerable implications for development as a whole and the dynamics of any given country.

Before trying to set up a new policy, first it would of course be necessary to understand the reasons for the previous failures mentioned above. This document attempts to provide answers that can be widely embraced by policy-makers in developing countries, as well as by their cooperating partners.

## **Chapter 2: Does food aid foster or impede economic development?**

Since the early 1960s, the controversy over the opportunity cost of food aid for food recipient countries has continued unabated. While there is no doubt that targeted and temporary food aid is a major positive factor in emergency relief, some policy-makers and development practitioners among the nongovernmental agencies (NGOs) emphasize the increasing costs of food aid programmes over time.

First of all, recipient countries incur budgetary costs for storage, transport and delivery of food aid funded by donors. Second, when poorly targeted and used over long periods, in large quantities and in situations where there is no real food shortage, food aid can exert a downward pressure on domestic prices and act as a disincentive to produce and invest. Finally, excessive reliance on food aid may become politically unsustainable. Political legitimacy may erode with the decreasing credibility of the state as provider of the basic needs of the population and its perceived dependence on (and accountability to) donors rather than its own citizens. These arguments must be carefully reviewed in relation to the specific conditions of SSA.

The question posed by this chapter's title entails a review of the theoretical and empirical impacts of food aid. But short-term and even static analyses of food aid have generally been privileged, while long-term, dynamic effects are scarcely addressed. In addition, numerous market failures encountered in food-aid recipient countries further restrict the usefulness of standard micro-econometric approaches to the analysis of the impact of food aid on heterogeneous households. Our review underscores the idiosyncratic impact of food aid, which makes the debate moot; there is no case for or against food aid, because food aid simply is not a panacea for development, nor is it the main culprit in the disappointing past performance in African countries. Learning to use food aid *so as to no longer need it* turns out to be the main problem that food-aid recipient countries should be tackling today.

### **2.1 The theoretical impact of food aid**

Concerns over food aid's potential disincentive effects for domestic agriculture have been discussed extensively in the development literature since the seminal contribution of Schulz (1960) over PL 480<sup>13</sup>. First, it is crucial to make a distinction among three main types of food aid:

- Programme food aid, which is usually supplied as a resource transfer for balance of payment or budgetary support activities. This form of food aid is not targeted to specific groups and is sold on the open market and provided by donor countries either as a grant or as a loan.
- Project food aid, which supports specific poverty-alleviation and disaster-prevention activities. It is usually freely distributed to targeted beneficiary groups, but may also be sold on the open market. It is often referred to as "monetized" food aid. It is usually provided on a grant basis

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<sup>13</sup> Schultz, 1960. The P.L. 480 (also known as the Agricultural Trade Development and Assistance Act) was enacted in 1954, in line with the U.S. policy of using its agricultural productivity to enhance the food security of developing countries. It authorized the U.S. government to fund very long-term credit (30 years) for emergency food exports.

- . Emergency food aid, destined to victims of natural or man-made disasters. It is freely distributed to targeted beneficiary groups and usually provided on a grant basis.<sup>14</sup>

It is indisputable that food aid has saved countless lives and improved the nutritional status of large population groups in emergency situations. Food aid has also contributed to investment in rural areas by helping to finance transport and production infrastructure. It is also acknowledged, however, that food aid can impact product and factor markets by affecting three key variables: food prices, factor prices and risk, whose food-aid-induced variations are determinants of food security and poverty (Awudu, Barrett and Hazell, 2004).

### **2.1.1 Food price effect**

In some cases, food aid may exert downward pressure on food prices, and this pressure is greatest in places where targeting of aid is poor. This may occur when food aid delivery increases supply faster than it stimulates demand, thereby depressing the prices paid to local producers and traders. This short-term negative effect is relatively more likely in cases of programme or project food aid. It may create disincentives for producers to invest in improved technologies or for marketing intermediaries to invest in storage and transport capacity, thereby turning a short-term negative effect into a long-term one (Awudu, Barrett and Hoddinott, 2004).

These negative impacts, however, only affect those producers who are selling their products on the market, which may be a small proportion of total producers. In case of subsistence farmers whose food products are not actually sold, price changes may not affect decisions, or may affect them in a counterintuitive way<sup>15</sup>. De Janvry and Sadoulet (2002), for instance, emphasize the high transaction costs faced by rural households in developing countries because of poor infrastructure and low human capital. In such conditions, there exists for every household a price band within which the household has no incentive either to buy or sell (Key et al., 2000). This also holds true for the production factors that the household may own (and particularly its own labour force). Within the price band, the producer does not respond to market prices, but to an “implicit” price, clearing the supply and demand at the household level. For example, households facing constraints for the marketing of food crops (as when high transaction costs limits the number of market transactions) will not respond to a cash-crop price increase as much as would households facing no transaction costs in a perfect market situation; the former household is thus constrained by a minimum production level for its own consumption. Winters (2000) insists on the impact of such behaviour on poverty; as long as households are constrained by market failures (credit access, for example) they are unlikely to react to price changes, at least not as much as the classical model, in which the farmer acts to maximize his profit<sup>16</sup>. The implications for food aid are that price changes give limited information on households’ possible shifts between net buyer or net seller positions, and that net impact on income and food security cannot be assessed until transaction costs have been taken into account. But transaction costs differ from farmer to farmer, and therefore the implicit price such costs induce differs as well. A given change in market price may result in quite different consequences for different households, according to the specific situation. Transaction costs and price bands are idiosyncratic; food aid price impacts are also idiosyncratic.

<sup>14</sup> Intergovernmental working group for the elaboration of a set of voluntary guidelines to support the progressive realisation of the right for adequate food in the context of national food security, *Food Aid and the Right to Food – Draft information paper*, FAO, Rome June 2004.

<sup>15</sup> See the example in de Janvry *et al.* (1991).

<sup>16</sup> Löfgren *et al.* (1999) integrated a “transaction cost-constrained” household into a computable general equilibrium model. Simulations show that the household’s response to price changes is nil.

Other effects of food aid may affect all households. They are briefly reviewed below<sup>17</sup> :

### **2.1.2 Income effect**

Food being a normal good with an income elasticity of demand of less than one, each dollar of food aid received by beneficiaries will induce an increased food demand of less than one dollar. Although the propensity to use additional income for consuming food is higher when income results from food distribution, shipments of food aid inevitably induce an increase in food demand, the magnitude of which is lower than the amount of the aid. Consequently, as income elasticity of demand for food is highest among the poorest population groups, food aid distributed exclusively to poor recipients in an emergency situation generates minimal food-market distortions relative to untargeted programme food aid sold on the open market<sup>18</sup>.

### **2.1.3 Substitution effect**

When the commodity imported as food is the same as the commodity locally produced or is a substitute, the distributed food aid adds to the total supply of that good. As discussed in the previous section, in general, the increase in demand induced by the income effect is less than the additional supply. So even well-targeted food aid will tend to result in a fall in prices in non-emergency situations. The more poorly targeted the food aid is, the more severe the adverse price effects. In the case of substitute commodities, no direct supply effects are expected, only demand-side effects. It turns out that the cross-price effects of food aid are more ambiguous than the own-price effects. Food aid transfers tend to decrease the demand for substitute commodities, and to increase demand for complementary commodities.

The net cross-price effect of food aid is therefore uncertain, and depends on the relative magnitude of the (generally negative) substitution and (generally positive) income effects. Producers of complementary foods tend to benefit from food aid, while the market prices of substitute foods can either rise or fall, depending on how income and substitution effects net out.

In the longer term, continuous programme or project food aid can also help bring about changes in consumption patterns by generating demand for exotic food products (e.g. wheat bread and other wheat-based products in the Sahel).

### **2.1.4 Factors price effect**

Households derive income both from selling products and labour. Economic textbooks assert that a fall in agricultural output price generates a less-than-proportionate fall in rural wages because of declining demand for wage workers (Krugman et al., 2001). Regular income transfers, whether in cash or kind, tend to induce increased demand for leisure and further reduce the supply of labour, leading to significant diversions of labour from the market. Evidence shows that labour supply becomes more responsive to changes in income as people grow wealthier, and that poorly targeted food aid magnifies labour market disincentives by contributing to a withdrawal of labour supply from the market, with a negative consequence on wages. In particular, food for work programmes (FFW), if poorly targeted, can attract workers away from vital activities, especially if the wages offered under FFW are at or above prevailing market rates. As a consequence, these activities should be scheduled at times when there is a surplus of labour available.

Effects on capital markets are likely to be more positive. In situations of rural financial market failures, high interest rates and stringent seasonal liquidity for smallholders, the income transfer generated by food aid enables cash-strapped recipients to escape liquidity constraints and undertake productive investments through the purchase of high-return inputs,

<sup>17</sup> Gabre-Madhin, Barrett and Dorosh, 2003.

<sup>18</sup> Barrett, 2003.

as has been demonstrated in Kenya (Bezuneh, Deaton and Norton, 1988). But this is conditional upon the income transfer component of food aid being well-timed and well-targeted.

### 2.1.5 Risk-management effect

Food insecurity results from the cumulative risks faced by producers that contribute to low productivity; these include climate, disease, pests, and civil unrest or war. Food aid can act as a last resort, but how effective food aid is in helping smallholders manage their risk is the key question. Food aid targeting and timeliness have been of mixed effectiveness at best, and therefore food aid has been an unreliable insurance against shocks. According to Awudu, Barrett and Hazell (2004), much of food aid substitutes for informal social insurance flows, generating little net additional insurance coverage. They also underline the well-known hazard that people who have been assured of food aid have less of an incentive to take all reasonable precautions to avoid losses. This is true for governments as well, with long-term development implications. As long as food aid in emergency situations can be taken for granted, the incentive is reduced to undertake precautionary actions such as investment in irrigation, agricultural research and extension. This can have potentially damaging consequences on productivity and growth. The possible impacts are summarized in Table 2.1.

**Table 2.1: Potential impact of food aid on food product and factor markets**

| Potential adverse impact   | Potential favorable impact   |
|--|--|
| <b>Food price impact</b><br>1. Lowers local food prices to the detriment of farmers<br>2. Many shift preferences to imported foods                                       | <b>Factor price impact</b><br>1. Stimulus to demand for complementary foods<br>2. Income effects on demand when food aid is well targeted  |
| <b>Factor market effects</b><br>1. Labour market disincentive  | <b>Factor market effects</b><br>Food-For-Work public goods and private inputs can help productivity and markets<br>1. Alleviate binding (temporary/seasonal) liquidity constraints |
| <b>Risk-management effects</b><br>1. May act as disincentive for recipient governments and farmers to invest in agriculture<br>2. Moral hazard effects of free insurance | <b>Risk-management effects</b><br>1. Smooths income variations and reduces costly risk mitigation  |

## 2.2 Empirical evidence

Are these theoretical impacts observed in reality? The empirical evidence is puzzling. To quote the above-mentioned IFPRI report (Awudu, Barrett and Hazell, 2004), “there exists negligible empirical evidence to either refute or confirm the pervasive belief that food aid has significant disincentive effects on recipient food production at both micro and macro levels. Empirical evidence remains country specific, and to a few exceptions, no systematic finding emerges on the overall impact of food aid on food security, poverty alleviation and development”.

We use the analytical framework of Table 2.6 to track the variables that control food aid effects. On the basis of country and cross-country analysis, we try to isolate some possible consensual effects (although, as with any empirical study, results should be treated with care). The review of recent literature covered Bangladesh, Ethiopia, India, Mozambique and Tanzania, whereas cross-sectional analysis found generally applied to sub-Saharan Africa. Results are summarized in Table 2.2. Country references in the text are to be found in the table.



**Table 2.2: Observed impact of food aid<sup>19</sup>**

| <b>Disincentive impact through:</b>  | <b>Negligible or positive impact through</b>  |
|--|---|
| <b>Food price</b><br>Sub-Saharan Africa: Awudu, Barrett and Hoddinott (2004)<br>Ethiopia: Yamano, Jayne and Strauss (2000)<br>Bangladesh: Dorosh, Shahabuddin, Aziz and Farid (2002) | <b>Food price</b><br>Sub-Saharan Africa: Barrett, Mohapatra and Snyder (1999)<br>Sub-Saharan Africa: Awudu, Barrett and Hazell (2004)<br>Mozambique (Maputo): Dorosh, del Ninno and Sahn (1995)<br>Bangladesh: Del Ninno and Dorosh (1998)<br>Ethiopia (Levinsohn, Mc Millan, 2004) |
| <b>Factor market</b>   | <b>Factor market</b><br>Sub-Saharan Africa: Awudu, Barrett and Hoddinott (2004)<br>Ethiopia: Hoddinott (2003); Holden, Barrett and Hagos (2003)<br>Kenya. Bezuneh, Deaton and Norton (1988)   |
| <b>Risk management</b>   | <b>Risk management</b><br>Sub-Saharan Africa: Barrett and Heisey (2002)<br>Ethiopia: Hoddinott (2003)   |

The empirical findings to be derived from our literature review follow.

### **2.2.1 General findings**

The literature cited in table 2.2 highlights negative or negligible food price effects, positive or negligible factor price effects, and positive (short-term) risk-management effects of food aid. Discrepancies are striking, with sometimes opposite results occurring within the same country. Factor and risk effects are poorly documented compared to output price effects. An important result – or at least an issue to be further clarified – is the potential of food aid to obviate liquidity constraints. Results in sub-Saharan Africa underscore the importance of factor-market failures (labour and capital) in limiting productivity.

### **2.2.2 Targeting of food aid is essential**

A second and more specific lesson relates to the relative efficiency of different types of aid. (Self) targeting, timeliness and direct distribution schemes (in kind or cash) seem to limit more than FFW does the possible disincentive effects of food aid (as in Bangladesh and Ethiopia). While much of the literature on food-for-work (for example, Barrett, Holden and Clay, 2004) has found that self-targeting employment schemes are effective in reaching the poor, recent evaluations have found alternative explanations for the targeting of food aid: bureaucratic inertia and the history of past receipts of food aid seem to be among the most important determinants. Moreover, direct payment of food-for-work appears to be best limited to programmes with a short duration during the transition from relief to recovery. As a famine management programme evolves from relief to recovery, cash wages are likely to become a more efficient, valuable instrument for delivery of assistance as the commercial food supply improves. But as the recovery progresses, the continued provision of a wage in-kind does not appear justified, because it increasingly becomes a less efficient mechanism for provision of welfare-enhancing aid (in Ethiopia, for example).

### **2.2.3 The development impact of food aid is ambiguous**

Impact on development is difficult to analyse. Food aid can play a useful role in furthering development and poverty alleviation if the recipient country is generally following an

<sup>19</sup> The reader might be surprised to find the same author on both columns of this table: it only demonstrates that the question is country-specific and even household-specific; an author may find different and sometimes opposite results according to situations.

appropriate development strategy. Otherwise, it can create dependency and sustain inappropriate policies (Svrinivasan, 2000). In India, it is the availability since the mid-1960s of high-yielding dwarf varieties of wheat and rice, rather than food aid and donor pressure that have put an end to famine. Domestic economic policy based on a strong political will at the highest level – probably linked somewhat to India’s political system, based on democratic elections – had a substantial role in helping to stabilize food consumption, develop production and reduce food insecurity.

#### **2.2.4 Food aid as a subsidy for building infrastructure**

It has been contended that food aid could be used as a “capital accumulator” through “food-for-work” programmes to build infrastructure (such as roads, irrigation schemes and so on), while incurring only the cost of feeding workers. Furthermore, such programmes will not offend the dignity of recipients in the way that “food for nothing” might. Although this logic is seductive, it must be applied very carefully. First, there are cases where “food-for-work” was offered at harvest or ploughing time, when the opportunity cost of labour is at its highest. In such cases, FFW will depress agricultural and food production rather than increase it. More generally, it contributes to the idea that “the labour price is the cost of workers’ subsistence”. We shall see below that this is the key of the “Malthusian trap” (see Box 3.4), which must be avoided.

#### **2.2.5 The cost of food aid for recipient countries is not clear**

The cost to recipient countries of food aid, if often neglected, is far from nil, yet it has not been clearly assessed. In order for imported food aid to reach target recipients, roads, harbours, trucks and even railways are necessary. Part of that cost is borne by donors, such as the World Food Programme (WFP), which does fund extensions of ports and the building of bridges. But this sometimes requires heavy investment, of which the beneficiary government often has to bear at least a part. Also, an administration must be set up to manage the food provided and protect it from being stolen. On the positive side, such infrastructures, equipment and institutional arrangements are at least in part those that would have to be put in place anyway for the market to work properly, even though the infrastructure put in place by donors is usually more adapted to reducing the cost of transport and facilitating the flow of goods between import points (ports) and main consumption centres, rather than from the producing areas within the country to the main consumption centres.

### **2.3 In conclusion**

According to our review, food aid usually exerts downward pressure on food prices (although this may be negligible), with that pressure greatest in places where targeting is poor, but at the same time enables productivity gains through positive factor-market effects. The experiences of Bangladesh, India and Pakistan demonstrate that, with appropriate government policies, rapid technological change in agriculture can enable countries to expand food production even in the face of substantial inflows of food aid and despite their expected adverse producer price-incentive effects. Successful policies are those that make investments in rural infrastructure, assuring input supply to farmers and maintaining remunerative producer prices. In Bangladesh, which reached record levels of grain production in 1999/2000 and 2000/2001, “green revolution” technology such as small-scale irrigation, expansion of improved seed and fertilizer use contributed to the doubling of rice output and increases of wheat production several fold over the past two decades. In this period, food aid has evolved from the use of monetized food aid funds for public expenditures in the 1970s and early 1980s to reforms in the late 1980s and 1990s to improve targeting and reduce leakages (Dorosh *et al.*, 2002). This is not in contradiction with Awudu, Barrett and Hazel (2004), who conclude that “food aid’s apparent historical success<sup>20</sup> in

<sup>20</sup> Apparently, in Ethiopia, Kenya and Rwanda.

stimulating food productivity in Africa suggests that the relatively unheralded factor market effects of food aid may trump the oft-repeated product market disincentive effects”, and that “the collapse of per capita food productivity in Sub-Saharan Africa over the decade to the mid-1980s would have been still more severe without the sharp simultaneous increase in food aid flows to the region”. The key question is whether productivity gains would have been even greater with sound agricultural policies targeted on farm support. This leads us to examine the various options found both in literature and history.

## Chapter 3: Why did development policies go wrong?

Because improving food security requires an increase of real income per capita, especially for the poorest people, the only sustainable way of removing hunger is development. But what is development, and how can it be nurtured? This question has long preoccupied economists, some with a theoretical (and sometime ideological) point of view, and also other researchers who have sought to check empirically (and historically) the validity of theoretical thinking. The next two chapters review the research findings.

This chapter deals mainly with the basic facts and theory of development, using examples primarily from the nineteenth- and twentieth-century economic history of developed countries. At the beginning of the nineteenth century, these countries were not in a better situation than Africa is today. In chapter 4, specific agricultural situations will be discussed. But first we will consider the main choices a development policy-maker is always confronted with.

### 3.1 Development dilemmas

Development is conceived today as consisting in developing demand-driven markets, which will stimulate and absorb production and create employment opportunities. Such development can be oriented inward (developing domestic production for domestic markets) or outward (developing domestic production for export). Although the two alternatives seem opposite, they turn out to be equally difficult to achieve. The problem is the same from the producer's point of view, because the ultimate destination of the product – the domestic or the international markets – is immaterial. (Though of course, the export and domestic markets are not identical, and might require different commodities, at least in terms of quality norms. But at this stage of the analysis, assuming complete substitutability makes the central argument easier to understand.) A number of sub-options remain open and these will be described below, including a review of how they have been used historically in what are now the developed countries.

#### **3.1.1 Encouraging industry or agriculture?**

Economic policies can be designed to encourage agriculture or industry; for example, at the end of the nineteenth century, while Britain deliberately sacrificed its agriculture, France and Germany made it a priority (see Box 3.1). All three countries were rather successful. During the same period, the Uruguayan economy was almost exclusively based on meat production, and it was basically a failure (Jacobs, 1985). In the United States at the time of the Civil War, the contrast was striking between the South and the North. The North was industrialist and protectionist; the South was agricultural and liberal. Both were prosperous (on the surface at least, and if one forgets the situation of the slaves in the South and of the urban proletariat in the North).

These examples show that quite opposite policies can lead to success or failure, depending on specific conditions in the country. The basic reasoning here is based on the comparative advantage theory: if a country is doing well in some segments of nonagricultural production, the best course of action is certainly to develop this sector, while agriculture will release labour forces to expand it.

### **Box 3.1: Examples of opposite policy orientations in the United Kingdom, France and Germany**

In the mid-1800s, the British government decided to abolish the “corn laws”, which since the seventeenth century had protected farmers against food imports. The corn laws had been the result of a decision to protect domestic agriculture from the vagaries of international markets, on the grounds that it was the pillar of the British economy. Their abolition was a deliberate choice to sacrifice the agricultural sector in order to foster industrial development (already on a promising growth path, made possible in part by the relatively high productivity of the agricultural sector), now deemed the core of wealth and power. The existence of a highly competitive industrial sector, and the conviction that the international market supply was large enough to cover the gap between needs and domestic food production, allowed that choice. It was a conspicuous success until World War I, allowing for a brilliant development of the British industrial base.

Conversely, in the 1880s, Germany, followed by France, was confronted by a growing food deficit; they decided to discourage agricultural imports in order to let domestic agriculture develop. This policy was very successful in Germany, enabling German agriculture to sustain the consequences of a very large reduction of manpower availability during World War I. The success was less obvious in France, which remained for a long time with a farm sector cluttered by many poor peasants. A possible (but not demonstrated) explanation of this situation is that France never cut the flow of agricultural imports from the colonies, which were promising food exporters at the time.<sup>21</sup>

One must remember that the above accounts are simplifications. In fact, Britain was never completely indifferent to agriculture, and France and Germany never gave total priority to agriculture; quite the contrary. As we shall show below in greater detail, although the question has caused considerable discussion in government and university circles, it turns out that “balanced” growth based on both industry *and* agriculture is the only possible solution to development. The above examples should be applied with care, though they can still be a guide in some specific situations.

If agriculture is considered a priority sector for development, three strategic questions arise about what type of agriculture is to be pursued.

#### **3.1.2 Encouraging export or domestic market-oriented production**

The first and most important choice is between giving priority to export crops or production for domestic markets. It can be rightly contended that Africa has sufficient comparative advantages in the production of export commodities such as cotton, cocoa, oilseeds and so on to develop these products for export, and in exchange to import staple food commodities cheaply produced elsewhere. But although basically correct, this reasoning suffers from two flaws.

First, SSA is not the only possible producer of such commodities. There are strong competitors in other parts of the world, and demand for certain tropical commodities (coffee and cocoa in particular) is limited. In a highly competitive framework, it is not certain that competition would not end in a global disaster, which would see the ruin of all participants in the game. Indeed, a determinant of the short-run advantage is the existence of low wages relative to productivity of labour. If SSA had to compete with other regions with higher productivity of labour (through improved technology), competition could induce wage levels that would be close to a minimal survival wage, and that would certainly not help reduce food insecurity and alleviate poverty.

<sup>21</sup> These periods of history have been the subject of considerable research. The best synthesis probably can be found in Bairoch 1995. See also Bairoch, 1993.

Second, if a strong agriculture is developed for exports, it is probably also strong for producing domestic goods. In fact, during the last 50 years, experience with agricultural projects in Africa seems to demonstrate that there exists a synergy among different crops. For instance, in West Africa, food crops are benefiting significantly from fertilizers used on cotton fields. Other examples exist. Hence it is probably misleading to assume that there is an either/or choice between developing export crops or domestic market crops. They are in fact complementary (Lele, Van de Walle and M. Gbetibouo, 1998).

### **Box 3.2: Complementarity between food and export crops: the case of cotton in West Africa**

Since independence, and until recently, cotton in West Africa was cultivated under the supervision of the CFDT (Compagnie Française pour le Développement des fibres Textiles) and its subsidiaries (the SODECOTON in Cameroon, for example). These companies supplied seeds, fertilizers and often ploughing (when necessary). They guaranteed purchase of the harvest, retaining the advance payment made from the final payment. In addition, they offered advice and technical help.

Because the fertilizer doses were generous, food crops planted after cotton on the same soil in the following year benefitted from nutrient reserves accumulated in the soil. Because the cotton price was known in advance almost with certainty, peasants were able to make their own computations. As cotton represented a very safe speculation, they were even ready to take risks on non-supported markets, especially for food crops, because if food-crop prices collapsed, they were almost sure that receipts from cotton would give them a minimum income. This provided decisive encouragement to grow commercial food crops, the price of which could reach very high as well as extremely low values. Thus, the effect of the price guarantee on cotton was spilling over on food crops, and indeed was a condition of the development of the latter.

The CFDT itself was prudent in avoiding growing more cotton than it was possible to sell, thus implicitly stabilizing the cotton price paid to farmers at a relatively low but sure level. The main drawback of the system was that only some villages had access to cotton contracts, thus arousing jealousy from others. The CFDT system has been dismantled under pressures from the World Bank and IMF on the ground that it was not fair. Yet it is clear that nobody really benefited from its disappearance, while many African peasants suffered from it.

#### **3.1.3 Small or large (subsistence or commercial) farms?**

The relative advantages and disadvantages of small (or “subsistence”) and large (or “commercial”) farms have been the subject of vast debate. This would certainly not have been the case if large farms had benefited from a significant and decisive advantage. But neither does it mean that some advantages for the large farm may not materialize in some circumstances.

The major source of confusion arises from the failure to distinguish between “large farms” and “capital intensive technology”. Obviously, certain pieces of equipment, such as tractors or combine harvesters, must be employed on a certain scale, which is “large” by African standards. However, a tractor, a combine harvester or even a pair of oxen can be hired for a few hours or days on a small farm. The difficulty is that there are no harvesters or tractors to be rented in most rural areas in SSA. Thus, the reason for not employing tractors or combine harvesters in Africa is not because farms are small, but because there is a lack of capital, which is in fact one of the main constraints of SSA agriculture.

In many cases, this confusion was one of the reasons for the dismantling of “state farms” and other similar devices (along with the fact that they had often become a burden for the government’s budget) with the advent of the structural adjustment programmes. Such farms were organized on the same pattern as similar enterprises in industrialized countries. For

instance, in the 1970s, Gabon developed California-style “feed lots”. But the conditions were not the same as in California. In California at the time, manpower was scarce while capital was relatively abundant, and as a consequence, in Californian feed lots the quantity of capital per worker was enormous. In Africa, capital is the scarcest resource. In such a context, using the same technique as in California to produce meat just squanders of resources.

At the same time, monitoring workers is extremely difficult on a large farm. Since their salaries are guaranteed, workers have no incentive to work hard or to warn their supervisors if something goes wrong. For these reasons productivity of labour is often low on such farms, unless farm management exerts considerable power and authority over workers. And in fact, this was the case on large slave plantations, and accounted for their “economic success” (see Hicks, 1969). In the absence of a dictatorial authority (and dictatorial authorities must not be encouraged for other reasons), the financial collapse of such a system becomes unavoidable<sup>22</sup>.

On the other hand, even if “small farms” are not less efficient than “large farms” as long as production is considered in the strictest sense of the word (and indeed, small farms are often more efficient and labour is much more productively and carefully employed, because farmers “monitor themselves”), they still suffer from the structural inability to get the product to market. A small farmer has neither the time nor the transport to bring the harvest to remote markets. Hence an organization of the agricultural sector based on family farms implies the existence of large “post-harvest” networks to collect production, with roads, means of transportation, storage facilities, quality control systems etc. Some of these facilities must obviously be private (e.g. trucks) while others (such as roads) are of a public nature, requiring the state to intervene.

### **Box 3.3: Historical development of post-harvest networks in Europe**

In most European countries, the creation of such networks has been the task of local figures, often democratically elected, and sometimes because they were rich enough to pay for the necessary investments. Mostly politicians, they were in some instances motivated by their own interest and profit, but more often by power.

For the cleverest of the poor, the process functioned as a “social elevator”: in many cases, being elected as president of a cooperative or to the council of a local community was the only chance for a peasant to become an “important person”. At the same time, this process could not come about without a minimum of public support. At the very least, local public executives had to be available to discuss the opportunity envisaged by public investment.

In some cases, because of disputes, lack of economic culture or other considerations, such public support was probably not “optimally” utilized. Yet, on the whole, the result is evident: in the absence of such institutions, efficient small-family farming would not have emerged.

However they are created, such facilities are a prerequisite for “subsistence farms” to be turned into “commercial farms”. Such a transformation occurs very easily and often quickly when these facilities exist, as shown by innumerable examples, such as the transformation of

<sup>22</sup> For that reason, very large farms in Asia and in Medieval Europe evolved toward sharecropping. Indeed, with sharecropping contracts, workers are encouraged to work and “monitor themselves”, while landlords have incentive to provide not only land, but also capital goods. This type of contract is “inefficient” according to Alfred Marshall because the incentive is only partial. Since workers receive only a share of benefits, marginal productivity of labour does not exceed this reward, while landlords, too, invest less than what could be expected from the marginal productivity of capital. Yet, “a little” is better than “nothing”, and sharecropping could be considered at least as a transitory solution for mitigating labour supervision problems in the African setting.

"labourers" into commercial farmers in Europe during the nineteenth century, and also the evolution of many irrigation schemes<sup>23</sup>, for instance the "Office du Niger" in Mali.

Thus, the key idea is that "small" farming can be even more efficient than "large farming", but with the condition that there must exist a complex network of pre- and post-harvest institutions linking farmers and markets.

#### **3.1.4 Intensive or extensive farming?**

Intensive farming is a set of production techniques that involve a large quantity of inputs (be it labour, capital or other inputs) per unit of land. Typical intensive farming techniques are those derived from the "Green Revolution": heavy investments in irrigation, large quantities of fertilizer and high-yield varieties of seeds. Productivity is impressive, with often ten tonnes or more of grain per hectare per year over three crop cycles.

Such technology was developed in India and other high-population density countries in Asia. With something like 0.1 hectares of arable available per final consumer, there was no choice but to increase yields in order to ensure a minimum level of self-sufficiency. The situation is not the same in most parts of Africa, however, where land is generally not scarce (although this situation is rapidly changing in certain areas because of high population growth). SSA yields in traditional agriculture remain very low and are the result of low-input agriculture.

Technological choices do matter, of course. And the question in SSA is the type of technological development that is best adapted to prevailing conditions, and the level and type of intensification that should be advocated.

At present, with traditional tools, an SSA smallholder family can cultivate from one to five hectares (depending on agroclimatic conditions). Beyond this limit, there would not be enough time to harvest and weed at the appropriate time. With a yield of 0.5 tonnes of grain per hectare (from which 0.1 tonnes of seeds for the next year are to be reserved), this is hardly sufficient to provide enough calories for a small family of five or six persons, not to mention selling any surplus. With a pair of oxen (and the accompanying set of tools), this family could operate 5 to 15 hectares, which means more than tripling the productivity of labour. With tractors, harvesters, and other devices, one person can operate 100-200 hectares anywhere in the world. This represents an additional productivity multiplied by a factor of ten. Increasing labour productivity is the only way for a farmer to generate a higher income. Improving the genetic material used or using more inputs (fertilizers and pesticides, or other means of plant protection) can also contribute to an increase in labour productivity, through intensification of agriculture and a simultaneous growth of land productivity (yield). To adopt this second approach, the farmer still needs working capital for the purchase of additional inputs. Thus, increasing the quantity of capital per hectare or per worker is essential to obtaining higher labour productivity and greater income.

#### **3.1.5 The need for an evolutionary policy**

Development entails increasing the wealth of a nation as well as the average wealth of its inhabitants. As average income increases, the proportion of expenditure on food decreases. Relatively more is spent on other items such as housing, education, health, entertainment and luxury goods. Similarly, the composition of food consumption changes: vegetables, fruit and meat increase, while traditional staple foods decrease. These changes are reflected at the macroeconomic and demographic level.

As industry develops in response to increased non-food demand, an increasing number of people move to the cities (and to non-agricultural activities). Figure 3.1 illustrates this point,

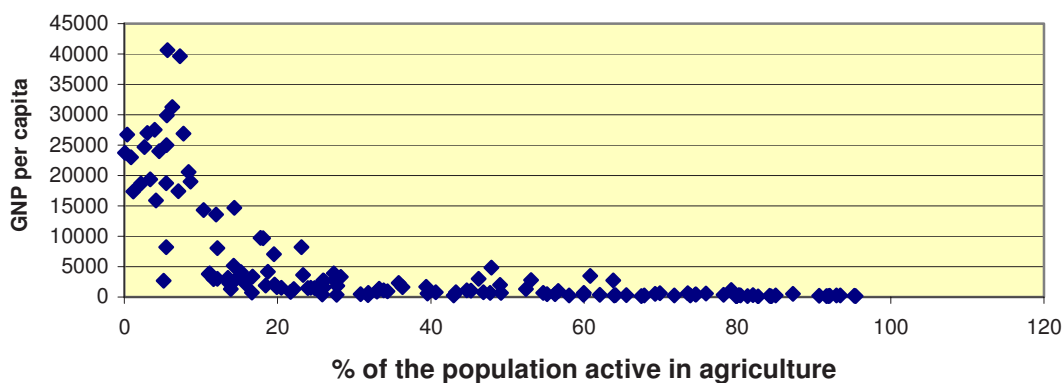
<sup>23</sup> Irrigation is in general a public investment, which in principle has nothing to do with the above-mentioned facilities. Yet, since the people in charge of an irrigation scheme want it to succeed, they often provide it as a "complementary facility". One could ask whether the "complementary facilities" are not just as essential as water in explaining most irrigation project successes.



showing the evolution of the proportion of the population working in agriculture as a function of per capita GNP. It is clear that there is a relation of inverse proportion between these variables: the wealthier the country, the less important the agricultural population. But because with a constant population food demand is about the same (and even slightly increases), agricultural production must become more capital-intensive to compensate for the loss of labour. Unless capital is available for agriculture to change in relation to economic and demographic trends, the country's food deficit will increase and it will have to rely increasingly on food imports.

Thus, if most of the agricultural area is occupied by, say, one farmer per 5 hectares, assuming a change that will lower this ratio to one man per 100 hectares means that the farm population must be divided by 20. Therefore, 80 percent of the population currently occupied by farming will have to change to another activity. Such statements often surprise (and even offend) people accustomed to think about agricultural policy. Yet it is merely logical, and must be considered seriously<sup>24</sup>.

**Figure 3.1: Percentage of population active in agriculture plotted against GNP per capita for 133 countries in 1990 (each point represents a country)**



**Source:** World Bank basic indicators

Under the best circumstances, people migrating to urban areas will be employed in industry or services, producing non-agricultural goods for domestic consumption or exports. This scenario is nothing other than the "normal" course of balanced development, which implies that sustainable growth in one sector requires concomittant growth in other sectors.

But there is another possible (and much worse) scenario: too rapid an expansion of "commercial farming" may result in an exaggerated pressure on land, the "rich" capital intensive farmers being in a position to maintain poor subsistence farmers in marginal areas, on the grounds that the latter "cannot make proper use of land" (which is true, in the absence of capital). From Algeria to Zimbabwe, such a situation has not been uncommon in colonial Africa. Since the poor, in that case, quickly run out of land, they have no choice but unemployment and living in misery. They are victims of predatory and other illicit activities and of insecurity. This can be avoided if industries and services expand in tandem with the farming sector.

<sup>24</sup> The thesis was very popular in the 1950s and 1960s, when the question was at issue in the United States and Europe. Nowadays it is surprisingly absent from the literature. Interested readers could consult Mellor, 1995; Niho, 1974; and Mazoyer and Roudart, 2005.

## 3.2 A quick historical sketch of ideas on development

Since the 1960s, almost all development theories have been tried in Africa, and most have been disappointing. Dwelling on conspicuous failures may not be necessary, yet learning from experience is useful if it can help to understand contemporary problems. For that reason, the main development doctrines and their outcomes have been reviewed below.

### 3.2.1 The socialist “industry-based” approach to development

Since the most obvious sign of development is the existence of industry, early proponents of development policies argued that forced industrialization was the only path to growth. But how does one force industrialization? The idea was to have workers build machines, which would help in building other machines, and so on, until consumer goods were available in abundance. To ensure that food was available for the population during the industrialization process, large state farms were established, which were expected to benefit from economies of scale. Countries adopting this strategy followed a command economy approach (central planning). The USSR was the leader in this line of thought, which was extremely popular in the 1960s.

This approach achieved some success<sup>25</sup> – first in the USSR itself, where there was rapid economic growth during the 1950s and the 1960s (and even until about 1980)<sup>26</sup>. There were also conspicuous failures, for instance in Madagascar and Tanzania. Especially in agriculture, economies of scale failed to materialize, largely because of labour supervision problems and the stifling of individual initiative, which put most state farms at disadvantage compared to peasant farmers. As noticed by Nobel Prize winner Amartya Sen, lack of incentive at all levels of the decision-making chain caused enormous difficulties each time unexpected situations occurred. Because in agriculture unexpected situations are the rule rather than the exception, the failure of such a system is not surprising. At the same time, in most of the countries that followed that line (Madagascar being a particularly illustrative case), because peasant farming was not within the scope of the plan, it was denied any support. As a consequence, not only did small farms not continue to supply free markets with even modest production, but most of the time their production shrank to a level only sufficient for subsistence of the household<sup>27</sup>.

In contrast to the “socialist approach”, alternative theories explicitly left room for the market. Yet until the 1990s, it was generally agreed that even in market economies, the state had a central role to play in the market, although there was considerable disagreement as to the best way for the state to intervene.

<sup>25</sup> Bairoch (1995) notices that, on the whole, a “planned” economy achieved slightly better results (in terms of growth) than a “market” economy in Third World countries during the period 1950-1980. He adds at the same time that this was more a matter of chance than of regime, as actual economies were never either pure planned or pure market economies.

<sup>26</sup> It remains to be seen if this USSR success justifies the theory. In fact, Russia was already a relatively well-developed country in the 1920’s, so that it could perform a basic capital accumulation from its own resources. And, despite the advertised “planning system”, markets continued to play a role in the USSR which should not be underestimated, especially in agriculture. “Individual plots” – that is, in essence, peasant farming – were the sources of a very significant proportion of overall food production.

<sup>27</sup> Curiously enough, such a scenario did not occur in USSR. One reason for that is that kolkhozian workers on “individual plots” were in fact indirectly supported by “large farms”, through a strange set of complementarities: The Kolkhozes were producing basic grain foodstuff, through capital intensive technology. A significant part of the kolkhozian grain production was more or less officially used by workers to sustain milk cows and other animal production which they had the right to raise on their “individual plots”. In principle, kolkhozian plots were intended to serve only family needs. In effect, most of the corresponding production was sold on the “kolkhozian market”, which accounted for a significant share of the USSR agricultural production.

### **3.2.2 Early theories of development based on agriculture**

#### *The colonial pact*

Yet another view was based on the fact that developing countries being mostly agricultural, they should base their development on agriculture. This idea was introduced very early and is at the root of the “colonial pact”. As a consequence of comparative advantage, the colony would specialize in agricultural export goods, while the colonizer would manufacture the industrial goods using its technological skill. Ironically, this doctrine is now current in many WTO circles, because it is strongly founded on the elementary Ricardian comparative advantage concept<sup>28</sup>. Indeed, the development of most colonial countries actually began with a “commodity boom”. Because tropical countries were so obviously in a better position to produce cotton, cocoa or rubber, it did not take a great economist to understand and seize such an opportunity. The many “Indian companies” of the eighteenth and nineteenth centuries did exactly that, and often with success, at least at the beginning.

Political reasons aside, a major weakness of this colonial approach to development is the phenomenon known as the deterioration of the terms of trade. The phrase “terms of trade” refers to the ratio export prices/import prices. Measuring it is not easy, because results may vary according to the weight given to each specific price in the indices calculation. Nevertheless, as shown in Figure 3.2, whatever the method of calculation, as time passes, it is a fact that the ratio of developing countries’ export prices over import prices follows a downward trend, compelling these countries to export increasing quantities of their products to be able to continue purchasing the same amount of imported goods (Ocampo and Parra, 2003).

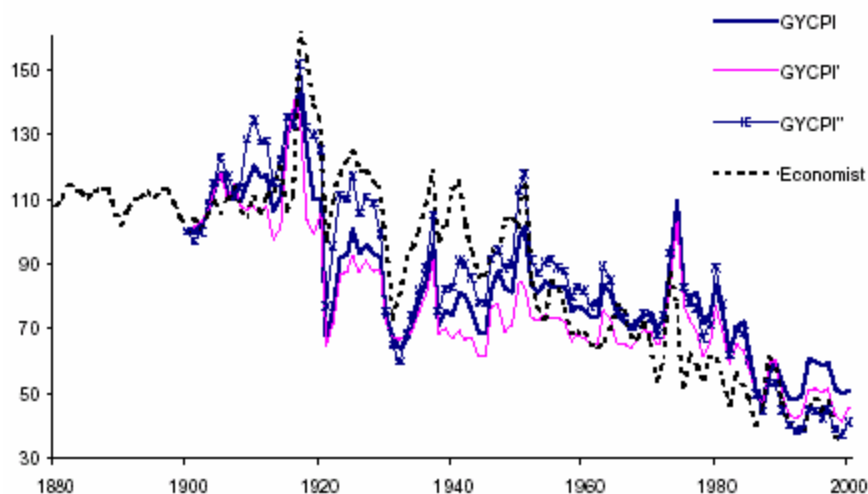
There are different interpretations of this evolution. One of them was given more than 200 years ago by Malthus,<sup>29</sup> who stated that if labour is to be sold on a competitive market (which actually is the case, if commodities sold on competitive markets are produced only by unskilled labour in developing countries), then its price must just equal the level at which workers reproduce themselves – that is, the “starvation point”, below which workers die and population becomes stable (Box 3.2).

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<sup>28</sup> Enunciated by David Ricardo (1772-1823). See Schumpeter (1954).

<sup>29</sup> Thomas Robert Malthus (1766-1834). See Schumpeter (1954).

**Figure 3.2: Various estimates of real commodity prices index evolution since the end of the nineteenth century**



**Source:** reproduced from Ocampo and Parra (2003)

GCPI: Total index, weighted by the share of total exports represented by each product in 1977- 1979; three sub-indices are also derived: food products, non-food products and metals. GYCPI' : Total index, weighted by the developing countries share of commodity exports in 1981. (The original index used weightings for 1977- 1979; since these weightings were unavailable, weightings for 1981 were substituted.). GYCPI'': Total index, weighted by the share of world exports represented by commodities during the year in question. Economist: Source: Grilli and Yang (1988); The Economist and calculations based on United Nations data.

### **Box 3.4: Robert Malthus and modern economists' views on the price of labour**

Robert Malthus's view regarding wages was pessimistic: anything preventing the poor from dying – especially charitable help – was going to increase the evil of low salaries. The only possible way to increase wages was to let the population decrease. Then labour would become scarce, and wages could increase again. Hence he would have disagreed with food aid programmes, probably on the grounds that they would just prolong the ordeal of the poor, who would be better off dying as quickly as possible. (Malthus was a priest, and practiced charity toward the poor in his parish for years. Such was the lesson he derived from this experience.)

But Malthus was not entirely right: another possibility is to employ the poor in creating new wealth, especially capital goods capable of raising the marginal productivity of labour, thus allowing for increased wages through growth and expansion. This is what economists discovered during the course of the following two centuries. Human needs are insatiable, and it is always possible to find usefulness in employing additional workers to satisfy them. As a consequence, if markets operated ideally, the wage rate should never fall below the subsistence level. If it does, from time to time (as was the case in Malthus's England), it is a consequence of bad organization of society and of "market failures", leading to situations in which, for various reasons, actual markets do not warrant an optimal use of production factors, one of which is labour.

Another interpretation<sup>30</sup> is based on the technological change that occurred in agriculture and on the structure of international agricultural markets. Because of technological progress,

<sup>30</sup> Based in part on the view of the "structuralist" economists (Prebisch, 1950).

productivity increases. In a competitive market, prices follow the production cost. Therefore, production costs must fall as productivity increases.

A third interpretation relies on the differences in income demand elasticity in developed (centre) and developing (periphery) countries. The elasticity of the demand for food and fibre with respect to income is lower in the centre than on the periphery. At the same time, it is higher on the periphery for industrial products imported from the centre. The consequence is that the process of growth, and hence of income expansion, raises import demand more in the periphery than at the centre, thus pushing up the prices of periphery imports vis-à-vis those of exports and lowering the terms of trade.

Whichever of these explanations holds in general, it must be recognized that all possible reasons for an adverse evolution of terms of trade are present today in SSA. Productivity increases less in Africa than in other regions; Africa produces relatively more low income-elasticity basic foodstuffs than any other region; and its only opportunity is to compensate for other disadvantages by reduced remuneration of labour. It is therefore not likely that Africa can develop by selling agricultural goods only – which, of course, does not mean that selling agricultural products must be ruled out altogether.

#### *The postcolonial self-sufficiency theory of development*

The main doctrinal change introduced in the postcolonial era (mostly in reaction to the "colonial pact" and its associated failures) was the idea that it was necessary to tax agriculture in order to pay for industrial development. The idea was not without logic: some sort of industrial development was needed, but the main obstacle to industrial development was the lack of capital. Increasing the stock of capital is possible through savings. This implied foregoing the consumption of part of the benefits accrued from exporting agricultural commodities, and importing capital goods from abroad (the socialist approach seen earlier amounted to saving the surplus of agricultural commodities produced and using it to pay for industrial development).

Because governments were not overly confident in the private individual's willingness to save, they decided to tax agriculture in order to generate the required savings. In some cases, this was achieved through explicit taxation: for instance, in Côte d'Ivoire, the government bought cocoa at a low price, and the commodity was then resold to exporters at a higher price, the difference being used to fund public investment. (This kind of policy came under fire by the IMF and the World Bank during the 1980s and 1990s, on the ground that it was "robbing farmers of their labour".) In other instances governments used "forced savings through inflation". Due to money creation, prices increased constantly and producers were paid apparently fair prices. But when, later on, they tried to use the money to buy consumer goods, they realized that prices had increased in the meantime, thus limiting their ability to consume. In that way, they were "forced to save". Obviously, such a trick can work for some time, but after a while producers tend not to keep liquidities during inflationary periods.

The major difficulty with this policy approach is the inability of the state to invest the accrued savings usefully. It has similar drawbacks to those seen in central planning: a bureaucracy can do a lot of things, but it cannot fulfil the role of an entrepreneur. Unfortunately, this is precisely what would have been necessary to ensure success of the forced savings policy. As a result, except in a few cases where charismatic leaders played a large role, state entrepreneurship mostly failed due to corruption, lack of accountability and mismanagement. Many state enterprises were asked by the state to perform non-commercial (political, social and economic) functions with a cost that would put them in deficit (overstaffing, provision of subsidized goods or services etc.). Indeed, most of these investments were miscalculated from the outset, because they were designed on the model of industrialized countries, without regard to African specificity.

### 3.2.3 Import-substitution policy and “development projects”

The “import-substitution policy” (see Box 3.5) is a natural corollary of the structuralist view that emphasizes the need for industrialization as a vehicle for development. If the diagnosis of the long-term evolution of the terms of trade was right, the development process could not rely on export-led growth based on primary products. If planned autonomous growth is not feasible and if there are difficulties in being competitive on the world market and in exports, then the import side of the balance of trade has to be reduced to create at least a balance, if not a surplus, to fund imports for the means of production.

#### Box 3.5: The import-substitution strategy and its denouement

The thrust of this strategy was a change of the development engine from the promotion of exports to the substitution of imports, and from investment in primary products (agricultural raw materials, minerals and fuels) to investments in the development of the manufacturing sector. Industrialization required a number of conditions:

- (i) Protecting infant industries from international competition;
- (ii) financial and fiscal support to these industries;
- (iii) the development of domestic infrastructure in the transport, communication and energy sectors;
- (iv) the enlargement of the domestic market so that it could absorb the manufacturing goods produced internally, to be achieved through suitable income distribution measures such as agrarian reform, social welfare and improved wages;
- (v) the contribution of direct and indirect foreign investment; and
- (vi) a strong and rational (i.e. planning-oriented) government of a new type, representing the aspirations of the emerging industry-related classes, as opposed to those of the traditional landowning and intermediary bourgeois groups.

This policy package was very successful in creating an industrial base and raising growth rates throughout most of the Latin-American region in the postwar decades, until the late 1970s and early 1980s. This happened, however, in a macroeconomic climate of recurrent economic cycles, fiscal and monetary permissiveness, mounting inflation and overvalued exchange rates, which led to recurrent fiscal and balance-of-payment disequilibria. It is generally acknowledged today that, in the end, these disequilibria led to the exhaustion of the model's development potential, at least under its traditional form. This happened roughly in two phases.

First, in the 1970s, the macroeconomic disequilibria, which had been generally moderate up to then, were exacerbated by the abandonment of convertibility by the United States and the consequent proliferation of flexible exchange regimes. This generated a relaxation of discipline in the international monetary system, exacerbated by the oil shocks, which led to international inflation. They were cushioned, however, by the undisturbed accumulation of a growing international debt in most countries in the region, facilitated by the enormous excess liquidity existing at the time in international capital markets, much of which found its way into Latin America in the form of international loans.

Second, in the 1980s, the disequilibria became unsustainable due to a combination of three factors: (i) the drying up of fresh capital inflows due to growing repayment difficulties; (ii) a big international increase in interest rates; and (iii) a long-lasting international recession, which resulted in a big drop in the prices of Latin American primary export products. These factors precipitated the so-called debt crisis (i.e. the inability to service the debt), which marked the end of the import-substitution strategy and the opening of the structural adjustment era.

Source: FAO, 2000

At the same time, import substitution should aim at building up an autonomous industrial capacity able to produce those goods for which world prices are improving. This can be done by heavily protecting local industries capable of producing goods that are import substitutes. Thus, for instance, investment goods that are unlikely to be produced in the country are imported free of taxes, while food, which is assumed to be more easily produced locally, is subjected to a high tariff. Simultaneously, subsidies are provided to investments in the most promising import-substitute industries, such as low-cost cars, or similar goods that are also heavily protected by tariffs on imports, to allow these new industries to be competitive on the domestic market. To complement these policies, government also has to set up public utilities, such as roads, dams, research institutions and so on. This type of strategy was widely adopted in Latin America (see box) and India in the 1970s and early 1980s.

To some extent, this idea can be traced back far into the past. It was at the root of the policy set up for France by Minister Colbert during the seventeenth century (hence the name “colbertism” given to this sort of action). In Africa during the 1950s and 1960s, this line of thought was very fashionable, although it is not clear that the philosophy was completely understood. Indeed, instead of setting up long-range plans, with consideration of possible future evolutions into which particular projects could have been progressively and consistently embedded, many African leaders were excessively preoccupied with starting a large number of projects as soon as possible. It led to deep misunderstandings between project leaders and governments. Understandably, project leaders were focused on the success of their projects, without regard to other considerations (all the more so because most of them were expatriates). Governments were not able to coordinate these activities. Thus, the overall economic policy was replaced by a set of “development projects”, each of them approved on its own merits, but with their integration into a whole not really being consistent.

It would certainly be wrong to be overly severe when assessing such policies. They possessed the main quality of being pragmatic, and (contrary to the political logics presented so far) almost completely without ideology. At the same time they had serious shortcomings. First, the model would now be contrary to the rules of WTO, which renders its application today virtually impossible. It also requires very careful and efficient governance, as well as an irreproachable bureaucracy. For these reasons, and many others, international organizations preferred to recommend a liberal approach in the 1980s and the 1990s.

#### **3.2.4 The “liberal” approach**

The most “natural” policy is not to do anything. This is the *laissez faire* (let it be done) doctrine, which promotes governmental abstention from interference in the workings of the market. This policy is recommended by the most liberal economists, on the ground that development is tantamount to all citizens’ enrichment. Since everyone likes to become rich, people are expected to act in order to achieve this goal. If the law prohibits unsocial behaviours, such as robbing or criminality, the only way to reach this goal will be to “cooperate” with other citizens by responding to market signals.

In this view, the government has nothing special to do in the economic sphere but prevent gain from unfair competition, and the best arrangement for growth emerges from the market, the reason being that the market is a unique and extremely efficient device for looking for new opportunities<sup>31</sup>: if competition is promoted no monopoly or unjustified benefit can stand for long, because surely somebody will discover that it is possible to make money by providing the same goods or services at a lower cost, thus destroying the monopolist’s source of income and power. Technically, it can easily be proven that perfect competition ensures *marginal cost* equating price. The marginal cost is the cost of the last useful unit of any good or service produced. If a larger quantity is produced, its marginal cost will be

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<sup>31</sup> Among many others, see Hayek (1979).

higher, and not worth being purchased at this cost. If a smaller quantity is produced, then at least one customer is ready to buy it at a price even greater than the cost. Thus, when marginal cost equals price, producers have no incentive to produce more, and consumers get the lowest price compatible with technology and other prices in the economy.

This economic theory – liberalism – became dominant in the 1980s and underpinned the structural adjustment approach, which replaced previous policies in most sub-Saharan African countries. The first principle was that nothing could be done for development if the main macroeconomic equilibriums were not secured: thus, the balance of payments and government budget – but also the accounts of all parastatal companies and other “projects” – had to be balanced.

In such a policy context, of course, there is no need for the state to tell investors what to do. Because developing countries possess manpower in abundance and are deprived of capital, the marginal productivity of capital should be high in developing countries, and it was expected that investors would be attracted by such a high profitability and hence eager to invest. The role of the government is limited to the minimum: e.g. securing property rights, external and internal security and rule of law and key infrastructure.

Unfortunately, it is now clear that the structural adjustment policy failed to trigger the investment and growth it was supposed to generate after what was expected to be a few difficult initial years necessary to absorb the heritage of the past and re-establish the basic equilibria. Agricultural markets, particularly in SSA, are far from perfect. After almost two decades of active structural adjustment, results in SAA, as detailed in chapter 1, have not been as hoped for, and the constraints facing SSA agriculture and food security call for additional support.

### **3.3 In conclusion**

The main conclusions of the review presented in this chapter can be summarized as follows:

- 1) There is no clear-cut recommendation on whether agricultural development should be export-led or export-oriented in order to satisfying local demand. It depends on local conditions. Common sense, however, suggests that in larger countries, opportunities offered by local demand and the increasing share of population living in urban areas can act as an important source of growth for the agricultural sector. Smaller countries with limited domestic production for export will necessarily have a larger role to play in the development of the agricultural sector. However, it is also apparent that there is a strong synergy between these two approaches.
- 2) Capital accumulation is the key issue for development. It may originate from private or public sources, or be funded internally or from abroad. It is necessary to identify the specific types of investments to be funded publicly or privately, and to put in place policies that attract private investment.
- 3) A sound food and agriculture policy should aim first, obviously, at feeding the nation (whether from local production or from imports), avoiding famines, generating employment for labour in rural areas and promoting agro-based value-added activities.
- 4) A sound agricultural policy should also manage the progressive movement of population and labour from agriculture and rural areas to other sectors and cities.



- 5) It may be necessary to "tax agriculture to finance development", insofar as agriculture is the main sector of the economy in SSA, and, therefore, the only possible source of fresh savings. Yet this must be done with prudence, and only if the government is prudent enough to make a proper use of the savings thus obtained. In any case, in view of the high interest rates practiced in the countryside, fueling agriculture with increased credit is certainly a feasible and promising way of increasing income and therefore savings.

In the next chapter, policies to make investment attractive in agriculture and agroprocessing industries and to handle intersectoral and rural-urban labour migration in such a way as to avoid shortages or overproduction will be discussed. It will be shown that specific conditions in the agricultural sector justify well-designed and targeted public intervention to complement the market. But first we must address the question of the place of agriculture within the whole economy.

## Chapter 4: Why has agriculture been neglected so far?

To understand why agriculture has been neglected so far in most development policies in Africa, we must look at three explanatory factors that are often debated. The first relates to the political economy of agricultural taxation, long documented after the seminal contributions of Krueger (1974) and Bates (1981, 1983). The second refers to the budget bias against agriculture, which was at the forefront of debate among agricultural ministers during the 2003 Maputo Conference. The decrease in agricultural public expenditure over the past decade tends to strip agricultural policies of their sector-specific components in favour of infrastructure, health and education spending. The third factor involves a review of market failures specific to agriculture, and an explanation of why, after a state withdrawal, the market itself may be reluctant to invest in agriculture.

### 4.1 The political bias against agriculture

It has long been recognized that low-income agrarian economies tend to discriminate against food producers. However, as economies develop and agriculture shrinks relative to the rest of the economy, policies progressively tend to favour farmers. This was particularly true for the period between independence and the first wave of structural adjustment programmes in the 1980s, when most African countries implemented policies that underpriced food through an overvalued exchange rate.

In examining the origins of cheap food policies and food subsidy programmes, de Janvry and Subramanian (1993) found that most were started in response to economic and political pressure on the state:

1. Food price controls were introduced in Bangladesh, India and Pakistan to stem inflationary pressures associated with war scarcities and droughts.
2. Cheap-food policies also originated as a side-effect of the import-substitution industrialization strategy pursued through strategic protectionism and overvaluation of the domestic currency, which occurred in much of Latin America during the 1950s and 1960s and in parts of Africa until the beginning of the structural-adjustment programme period. This policy was often reinforced by access to food aid or concessional imports. Because food prices are a major determinant of the real wages of urban workers, cheap food policies have contributed to keeping industrial wages low. While selected commercial farmers succeeded in tapping institutional subsidies, mostly on export markets, smallholders were at a disadvantage because they lacked access to cheap credit, subsidized irrigation, improved seeds and other inputs. Smallholders' income tended to stagnate or decline.
3. Food subsidy programmes aimed at the entire population were instituted at a high cost to government budgets under socialist or populist regimes, in which the state engaged in redistributive measures (for example, in Egypt and Sri Lanka).

By reinforcing the economic and ideological arguments for cheap food policies and food subsidies, electoral and pressure-group politics provided some convincing arguments in favour of their perpetuation in spite of poor economic achievements of the 1970s. Clientele-seeking in middle- and upper-income classes was a major motivation of cheap food policies through overvalued exchange rate in Latin America (Lattimore and Schuh, 1976). In Africa, public procurement at below-market prices benefited certain groups. Bates demonstrated that in many African countries, parastatal agencies may not have succeeded in handling

more than 20 to 30 percent of marketed output (Bates, 1981). At the same time, state-sponsored agricultural development projects provided subsidies to large farmers in the form of subsidized irrigation, fertilizers, credit and other inputs. But the targeting of benefits toward the clientele most necessary for political support did not include those groups most at risk nutritionally.

#### **Box 4.1: Types of food and nutrition policies before the structural adjustment period**

1. Cheap food policy at no direct cost to government. Food prices may be depressed, either across the board or selectively, by imports at an overvalued exchange rate or through concessional aid, state monopoly procurement and sale or export taxes and levies.
2. Untargeted food-subsidy schemes. Food prices are lowered by the introduction of a consumer subsidy. Producer prices may be at the same level or above consumer prices. Part of the demand may be fulfilled by imports subsidised by the state. Little or no restriction is placed on access to subsidized food, and coverage of the population is often fairly uniform.
3. Targeted interventions. Access to subsidized food or to nutritional supplements is restricted geographically, by means tests or to segments of the population that are considered to be at high risk of malnourishment, such as school children, pregnant mothers and babies. The benefits of cheap food to the poor can also be restricted by subsidizing only those foods that, while nutritionally sound, are considered inferior by the rich.

**Source:** de Janvry and Subramanian (1993)

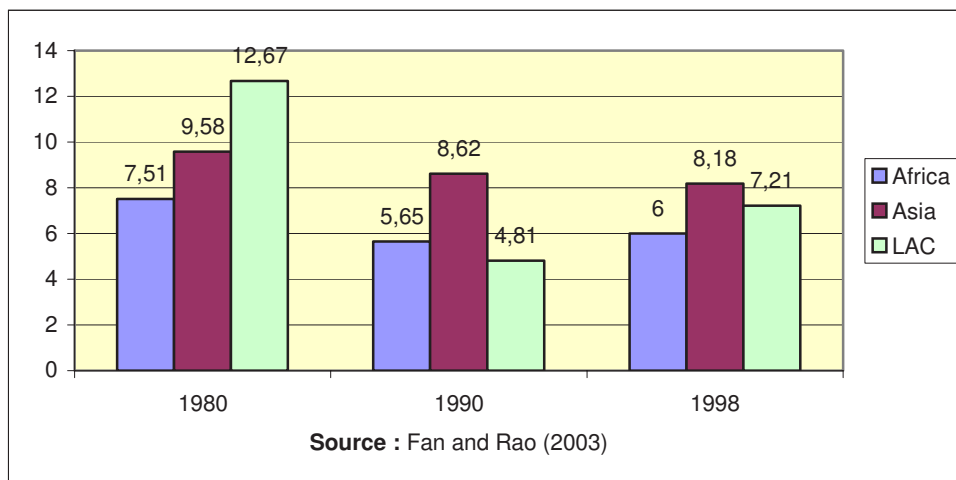
## **4.2 The budget bias against agriculture**

After two decades of state withdrawal resulting from structural adjustment programmes, a consensus has emerged on the important role of the state in creating the conditions to make markets work and, even more, to make them work for the poor. As most economists, donors and policy advisers agree, one prerequisite is to provide such basic public goods as rural infrastructure, research and extension, education and health, without which efficiency gains cannot be reaped and income opportunities vanish. They are now at the core of World Bank PRSPs. Data show that Africa is still lagging behind Asia, and Latin America and the Caribbean (LAC) in terms of agricultural public expenditure (Table 4.1 and Figure 4.1).

This situation is all the more dramatic because there is an obvious correlation – if not causation – between investments in public goods provision, factors productivity and growth. Returns on public investments in the key components described in Table 4.1 below have been evaluated over the period 1990-98. According to the World Bank, the evidence suggests that total factor productivity (TFP) in developing countries has grown at 1-2 percent per year (only slightly less than in industrialized countries), and that research accounts for one-third to one-half of that growth. Studies have found a high rate of return on investments in research in developing countries (see Echeverría, 1990, and Evenson and Rosegrant, 1993, for a review of over 100 such studies). An overview of 289 studies on economic returns on agricultural research and extension everywhere in the world found median rates of return of 58 percent on extension investments, 49 percent on research investments, and 36 percent on investments in research and extension combined (Alston *et al.*, 2000). Similarly, investment in education (Duflo, 2001) and infrastructure (Fan and Hazell, 2001) exhibit significant returns and have a positive impact on poverty. IFPRI studies in India and China suggest that investments in rural infrastructure, agricultural research and development (R&D) and human capital are at least as productive in low-yield, rainfed areas as in high-yield irrigated areas, and that they have a much larger impact on poverty (Fan, Hazell and Thorat, 2000; Fan, Hazell and Haque, 2000). Should agricultural policies be restricted to – and even be substituted by – infrastructure and R&D policies, or is there still room for agricultural policies in their traditional, broader sense? Specific market failures, other than the inability of private firms to provide public goods in rural areas, should not make us forget

that making the market work for the poor and insecure requires more than roads and research. It takes something much harder to provide: trust and a secure environment.

**Figure 4.1: Agricultural public expenditures, share of agricultural GDP (%)**



**Table 4.1: Composition of total public expenditure (%)**

|                 | Africa |      | Asia |      | LAC  |      |
|-----------------|--------|------|------|------|------|------|
|                 | 1990   | 1998 | 1990 | 1998 | 1990 | 1998 |
| Agriculture     | 6      | 5    | 15   | 10   | 8    | 3    |
| Education       | 12     | 16   | 14   | 20   | 16   | 19   |
| Health          | 3      | 5    | 5    | 4    | 4    | 7    |
| T&C             | 6      | 4    | 12   | 5    | 11   | 6    |
| Social security | 5      | 3    | 4    | 3    | 19   | 26   |
| Defense         | 12     | 10   | 18   | 11   | 7    | 7    |
| Other           | 55     | 57   | 33   | 47   | 35   | 32   |

Source: Fan and Rao (2003)

#### Box 4.2: Rural public goods provision contributes to growth

Public goods are essential elements of the economic environment. Because of their characteristics of low **excludability**<sup>32</sup> and low **rivalry**<sup>33</sup>, public goods suffer from market failure. Typical examples of public goods of relevance to agriculture are the law, the rules and regulations established by public agencies, services provided the police, the judiciary system and agricultural inspection agencies. These are typically provided by the government and paid for out of taxation because they potentially benefit all members of the community, and "free riding" makes it difficult to charge users directly for these services. However, for many agricultural services the degree of excludability or rivalry is often determined by the precise nature of the service and the conditions under which it is delivered. Thus similar services, such as extension advice, may be delivered by the private sector in some situations but can only be provided efficiently by the public sector in others<sup>34</sup>.

The importance of public goods for agriculture has already been underlined. The absence of such facilities leads to situations such as:

1. Difficult access to markets because of lack of roads, market information and quality standards (or their poor enforcement).
2. Limited adoption of improved technologies because of the lack of effective technology production and outreach facilities (research and extension networks).
3. Low productivity of labour because of insufficient access to education and health services.

The other economic advantage of the provision of public goods in rural areas is that it will increase job opportunities, thereby contributing to income generation.

In Africa, public resources allocated to the production of public goods for agriculture have seen their share in total government budget shrink. It is also lower than in other developing regions.

### 4.3 The market bias against agriculture

Macroeconomic reforms under structural adjustment programmes (SAPs) and the withdrawal of the state from most productive and marketing activities tended to leave markets to determine what a country should import or not. In this new context, reliance on food imports is not a problem *per se*, as long as exports can finance imports and economic growth is adequate to generate sufficient income for people to purchase their food. If exports do not generate enough to pay the food import bill and the balance of payments deteriorates, the exchange rate adjusts downward (leading to an increase in the price of food in local currency) so as to equalize imports and exports values, while interest rates rise to equalize investments and savings. Therefore, the macroeconomic implications will depend on the ability of the country to develop its exports to pay its import bill. This is where SSA countries may be different or even unique in comparison to other countries. SSA exports have been so poorly and inefficiently developed and diversified in the past that many countries rely today on a small number of non-diversified products, among which mineral and agricultural products are prominent. The downward slope and volatility of the terms of trade often create situations where fluctuating food import bills have to be paid by fluctuating export receipts, with recurrent imbalances between the two (see Collier and Gunning, 1999).

<sup>32</sup> Low excludability means that it may be difficult to exclude people from "free riding" and enjoying the benefits of goods and services even if they have not paid towards their provision. Producers would find it difficult to recoup the full costs of their provision and, from an economic efficiency viewpoint, would thus tend to under-produce such goods.

<sup>33</sup> Low rivalry means that one person's consumption of the goods does not reduce its availability to others. As the cost to society of additional consumers enjoying the benefits of pure public goods is zero, economic efficiency requires their price to be set at zero. As a result it would not be profitable for the private sector to attempt to sell these goods.

<sup>34</sup> This paragraph and its footnotes are extracted from Smith, 2001.

Decreasing and unstable terms of trade for countries specializing in agricultural production and exports epitomizes the risk associated with agricultural activity, whether at the national (macro) level or at the household (micro) level.

The dominant economic thinking today argues in favour of the superiority of markets in efficiently allocating scarce resources, and recommends reduction and refocusing of government interventions. Numerous SSA countries have adopted this approach since the mid-1980s, with the state disengaging from direct involvement in economic activities. Yet experience shows that for reform of the role of government to translate into economic benefits, two major conditions must be met:

- Essential public goods should be effectively provided; and
- markets should exist or be developed (for each product or service), especially insurance markets covering price and yield risks.

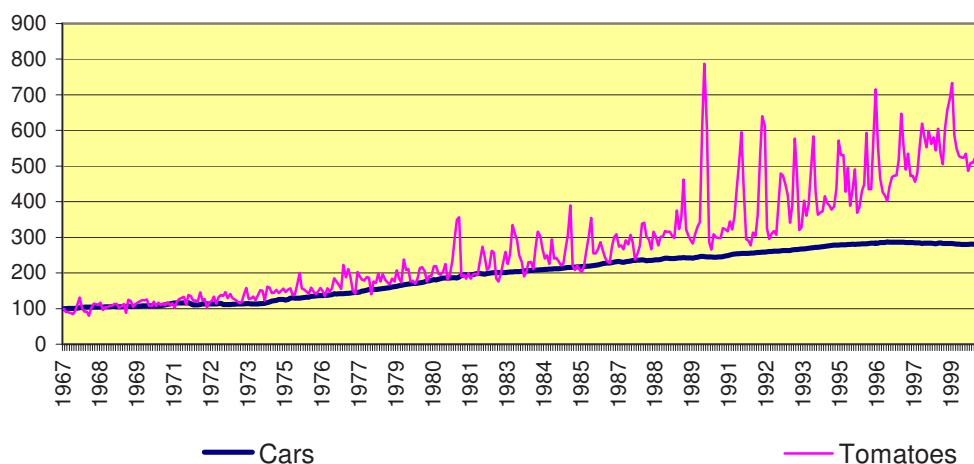
As mentioned in the previous section, public goods provision is a key input for development. In numerous SSA countries, however, public goods delivery has been far from adequate, particularly in rural areas where households are scattered over a large territory (Paarlberg, 2002). But this is only one part of the picture. For a number of key goods and services, the market is missing (credit, insurance and fertilizer in some places). High price instability combined with the absence of futures markets is generally the rule in SSA. It is usually attributed to imperfect market information (see for example Boussard, 1992, and Stiglitz, 2002). Hence the conditions for market efficiency are not met in most SSA countries because of agricultural peculiarities in terms of special dispersion (which increases the cost of infrastructure provision, among other public goods) and market instability. As a consequence, investment and growth are low, and poverty and food insecurity widespread.

Perhaps the market instability issue is worth emphasizing, now that the lack of public goods provision in rural areas has been well documented, and the “missing markets” phenomenon is debated less. Agriculture is characterized by two great sources of uncertainty, which undermine optimal allocation of resources:

1. Yield uncertainty is generated by climatic or other hazards such as pests and diseases. This risk is normally “insurable”, because it can be calculated. Most of the time, the poor are not insured, because they cannot afford to pay for insurance and have to tackle risk through other means (adapted technology, irrigation, storage, animal health monitoring, disease and pest prevention etc.). Existing crop-insurance schemes have generally not worked very well because of the “moral hazard” associated with false accident reports and other falsifications. To be sustainable, these schemes require a very powerful state capable of enforcing contracts.
2. Price uncertainty, which is generated by the occurrence of local or international market shocks. Price fluctuations may sometimes be associated with exceptionally good physical conditions resulting in higher than expected production. This risk can also be calculated. Unfortunately, price fluctuation is usually a consequence of complex “chaotic” mechanisms, which are tied to the market itself (Boussard, 1996). Therefore, the market-forces risk cannot be removed through the mechanism of insurance because any attempt to do so would lead to insurer bankruptcy. It can be alleviated by futures markets and other financial products, but at significant cost (and in any case, it is difficult for a poor farmer to get access to futures). This kind of risk is specific to agriculture, and due to the fact that consumers are not very sensitive to price changes in the case of food. Figure 4.2 illustrates this fact: the price of tomatoes in the United States is very volatile, while the price of cars is fairly

constant. What is true for tomatoes in the United States is true also of any food commodity on the African market.

**Figure 4.2: Tomato retail price index in large American cities, compared to new car retail price index**



Source: Economagic.com

The important thing to realize about such instability is that it prevents investment, and thus the substitution of capital with labour.

Yield and price variability cause large changes in income<sup>35</sup>. Volatility of incomes is extremely detrimental to growth, because it induces coping strategies that impede investment and entrepreneurship. Risk also exacerbates problems of income distribution because, when it remains uninsured, it hurts the poor while favouring the rich, who can afford to invest in risky businesses and may obtain high returns. Credit becomes almost impossible in the presence of high income variability, because it is in the common interest of banks and debtors to avoid reimbursement failures. Thus, risk and uncertainty management is a critical part of farmers' decision-making, which in turn affects their land use and farming decisions. As a consequence, it is also a major determinant of global food supply. A study by Boussard and Gérard of 2 800 agricultural commodities shows a difference of about 2 points in growth rates between the "stable" and "unstable" series<sup>36</sup>.

#### 4.4 In conclusion

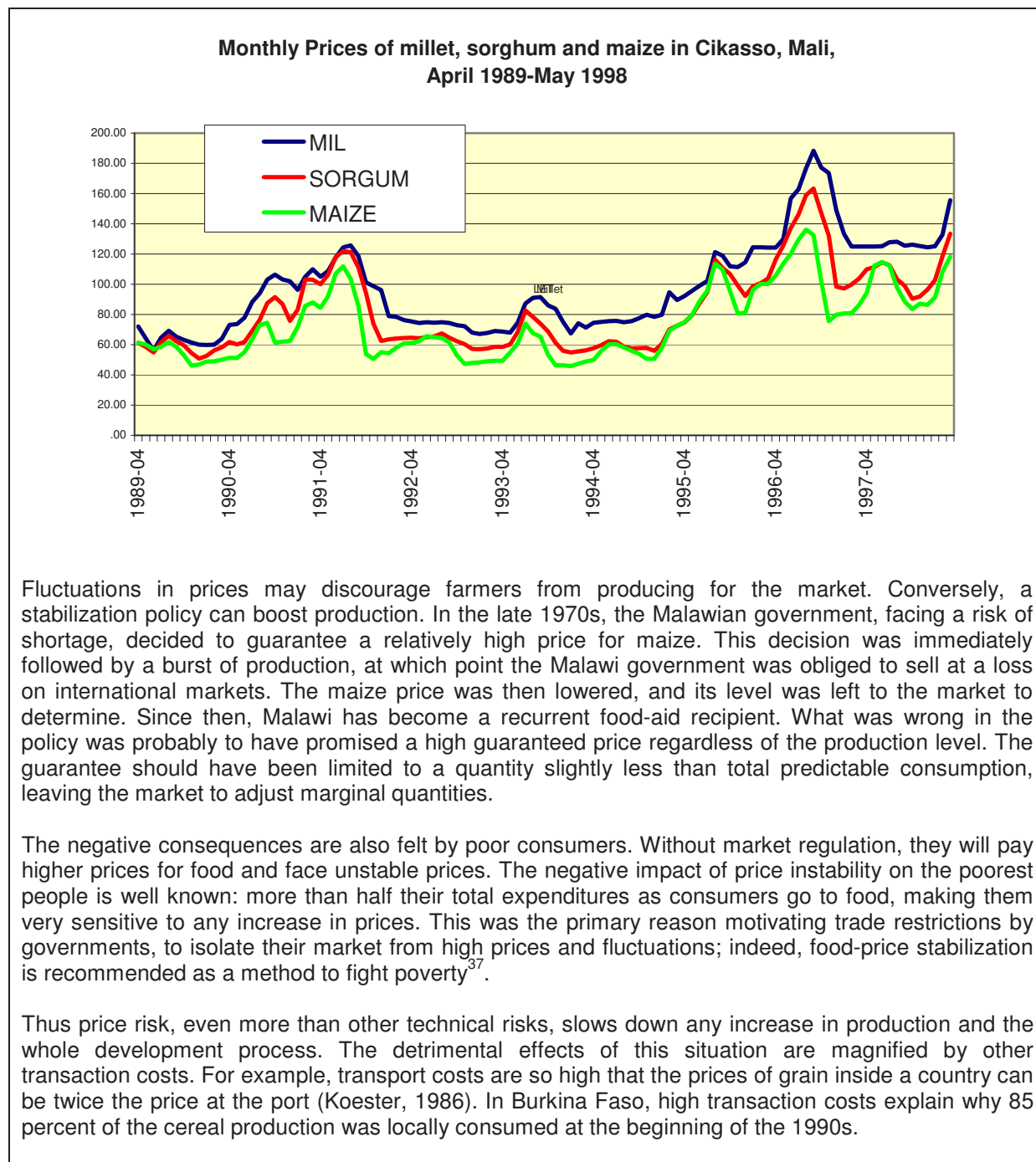
All three of these biases tend to discriminate against agriculture. Politicians are used to taxing the sector heavily; public spending focuses instead on education and defense; and deregulated markets do not perform because of intrinsic markets failures such as missing markets in insurance and credit. But should we conclude that agriculture is doomed to be the "black sheep" of development policies? History proves that markets and public intervention can be mutually supportive for growth-led food security enhancement led by agricultural growth. Instruments designed to secure farmers in their investment decisions are prominent

<sup>35</sup> Newberry and Stiglitz (1981) note that prices and yields instability could cancel each other out, because of their opposite effect on farmers' income. This is true if low prices are actually caused by high supply from the farmers under consideration. But low prices can be (and are, most of the time) caused by many other events.

<sup>36</sup> Specifically, the average of growth of the most "unstable" series is about 4 percent a year, while it is 6 percent a year for the most stable. This difference is significant in terms of variance analysis, the main difficulty in the study being the definition of stability. See Boussard and Gérard (1995).

among the policy measures employed by all successful agricultural development endeavours, as we shall see in chapter 5.

#### Box 4.3: Agricultural market instability in sub-Saharan Africa



<sup>37</sup> Timmer, 2000.



## **Chapter 5: Selected success stories from around the world**

Until now, despite a few illustrative examples, food security and development problems have been dealt with here from an almost purely theoretical point of view. To complement this theoretical perspective, this chapter reviews a few actual cases.

The first case presented is the Marshall Plan – the recovery programme for Europe after the end of World War II, which was highly successful. The second example is the Latin American experience. It has not been a complete success, for many Latin American countries continue to suffer from economic crises and are still considered developing countries. We will examine the shortcomings of Latin American growth and the pitfalls into which these countries fell. The third and last case is the “Asian miracle”: Asia is famous for its very high growth rates. Japan, almost ruined after World War II, managed to turn itself rapidly into a major economic power. Korea followed almost the same path, and other Asian countries, although perhaps not at the same level, still performed well, and are close to entering the “club” of developed countries. The underlying question is whether, and how, Africa could follow a similar growth pattern.

### **5.1 Europe and the “Marshall Plan” (1947-1951)**

#### ***5.1.1 Europe after World War II***

At the end of World War II, most of Europe’s infrastructure was destroyed or out of service. Agriculture was also in bad shape after a period of neglect during which peasants had been enlisted or conscripted as soldiers. In March 1946, according to an important American official, Europe was in need of “wheat in April, or coffins in June”<sup>38</sup>. U.S. emergency aid came in abundance at that time, facilitated by the logistics that had been set up for the war. Boats and harbours hastily established for the transportation of military equipment were made available for transport of food aid and equipment. Aid was distributed through a gigantic food-rationing organization, which, in fact, had been set up in all belligerent countries at the very beginning of the war<sup>39</sup>.

Yet, for the same reasons discussed earlier (see chapter 2), aid was not considered to be a sustainable solution for feeding Europe, let alone eliminating poverty. Besides, an economic appraisal of the situation revealed that the deep roots of the crisis were not entirely war-related. Since the start of the twentieth century, labour productivity in Europe had been lagging behind that of America. The main reason was slow capital accumulation. To increase the capital-to-worker ratio, the only solution was to save and invest. But even with a high savings rate, the efficiency of capital goods manufacturing was questionable due to the low productivity of workers. Capital goods had to be imported to increase productivity. Because gold and currency reserves had been largely squandered during the war, it was not possible to pay for these imports. The similarity with some characteristics of the situation in Africa today is striking.

The Americans themselves urged European countries to take care of their problems, if possible on a regional basis, because, first of all, it was necessary to present a unified front against Communism, and, second, economies of scale were expected from a larger market under concerted organizational rules. The Marshall Plan (from the name of Secretary of

<sup>38</sup> Fiorello La Guardia, former mayor of New York, quoted in Bossuat, 1997.

<sup>39</sup> “Tickets” were issued and distributed to households according to their composition, giving each of them an entitlement to acquire a certain quantity of food. Food merchants were not allowed to sell without tickets. The total amount of tickets distributed corresponded more or less to the national food availability. Although, obviously, the system nurtured “black market” and illegal parallel food trade, and at the same time was a heavy burden for administrative bodies, it was relatively efficient in guaranteeing the poorest a minimum access to food.

State General George Marshall, who solemnly made the offer on June 5, 1947, in a famous speech delivered at Harvard University) was the answer to these problems.

### **5.1.2 The Marshall plan**

The plan had two sides: a financial side, whereby a considerable amount of financial resources was put at the disposal of governments; and an organizational side, because these sums were made available only if European governments were ready to follow the advice of the international organization – the OEEC, now the OECD – in charge of administering the plan. Among the requirements, the most important was that European governments set up coherent economic policies with well-targeted priorities, and a careful allocation of the resources provided to purchase capital goods from the United States. As can be seen from this brief description, the spirit of the plan was far from pure liberalism, and reflected the uncontested belief that public policy could yield successful economic results. The main idea was to reap the benefits of harmonious synergy between state interventions and private enterprise initiatives.

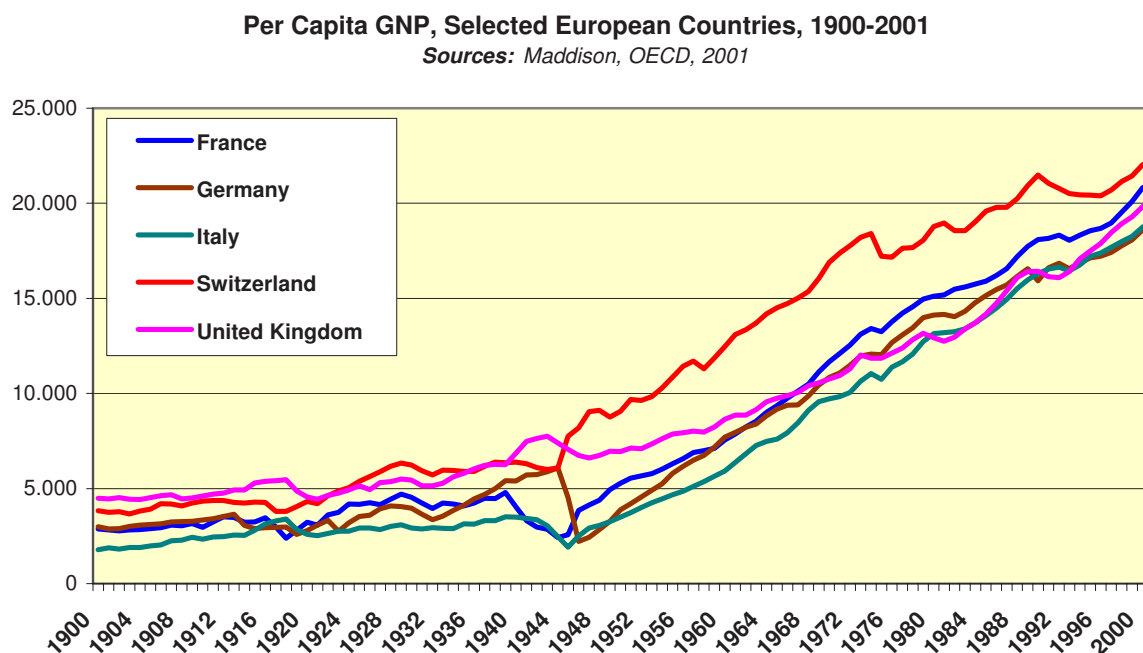
At the same time, in most European countries, “economic plans” were elaborated independent of, but complementary to, the Marshall Plan. They were designed to promote a state-supported economic recovery, but were only indicative plans. Ultimately, they left the market to determine prices and quantities, as well as the success or failure of businesses. Planning boards were established where private-sector leaders, government officials and trade union executives could exchange ideas and projects, check the validity of their expectations and solve conflicts. In these boards, the state was the ultimate arbiter, because it controlled foreign trade through the ministry of finance. In this context, the Marshall Plan was a strategic instrument in the hands of the ministries of finance, for it allowed much greater purchases than what would have been possible otherwise<sup>40</sup>.

It is difficult to know where exactly the key to success lay. It has been argued that the amount of the transfers – about 1 percent of American GNP, or 3 percent of European GNP – was too small to have exerted any significant influence<sup>41</sup>. Other authors, by contrast, celebrate the Marshall Plan as a unique historical achievement. Beyond the policies and institutions, the general mobilization of the population and stimulation of the will to succeed were also certainly important factors for which the plan may have been a catalyst. What is certain is that European economies quickly and surprisingly recovered from the war. Production reached the prewar level as early as in 1949 although per capita income in Europe matched that of American in the early 1970s, long after the end of the Marshall Plan. Figure 5.1 below shows clearly the boost of growth that followed the disaster of 1944-45. It shows that Switzerland, unaffected by the war, also benefited from the boost. The worst performer was Britain, for reasons still to be elucidated; although British income per capita was the highest in 1945, it was the lowest in 1990.

<sup>40</sup> Yet the discrepancy between the export capacity and the financial needs of European reconstruction must not be exaggerated: in France, for instance, in 1948, for 1954 the plan estimated an export capacity of \$10 billion, while the need for imports was \$12 billion. The Marshall aid provided almost exactly the required \$2 billion shortfall, which gave the required boost, in the absence of which the whole system would probably have collapsed.

<sup>41</sup> See Bradford De Long and Eichengreen, 1991.

Figure 5.1: One century of European growth



### 5.1.3 The case of Japan

The Marshall Plan was restricted to Europe because the U.S. Congress objected to extending it to Asia. Yet the situation in Japan was quite similar to Europe. The Truman administration found solutions to overcome the reluctance of the Congress. In fact, the Marshall Plan recipes were also applied to Japan and for a longer period, because the Korean War, after 1952, encouraged the American government to do everything possible to keep Japan free of Communism. The economic results were quite similar to those in Europe, if not better.

In Japan, government supervision of the economy was even stronger than in Europe. The famous MITI (the Ministry of Economy) not only set priorities and allocated foreign money to firms, but also provided “advice” regarding market shares of various companies. In so doing, it made some conspicuous errors – for instance, attempts to prevent Honda from building cars, on the ground that this firm had to stick to its traditional product, motorbikes. Errors of this size and nature are unavoidable for this kind of agency. On the whole, however, MITI was extremely successful, allowing Japanese firms to meet quality standards that resulted in their achieving the strong positions they still occupy today on the world market.

It is now almost unanimously admitted by economic historians that this achievement would not have been possible without the association of the MITI operations with American aid. Thus, in Japan as well as in Europe, intelligently spent foreign aid was extremely productive, leading to economic development despite adverse conditions. Another striking element is the public intervention/private sector combination. Why shouldn't a similar “virtuous circle” not begin in Africa, through the NEPAD process?

It is difficult to answer such a question in a few words. According to some observers, an essential ingredient present in Europe and in Japan in 1945 was human capital. And it may be that insufficient human capital is one of the key constraints facing Africa. This would suggest giving highest priority to the development of knowledge and skills in the continent.

## 5.2 The Southeast Asian experience

The rapid and sustained economic growth exhibited by the Asian “Tiger” states – Hong Kong, Singapore, South Korea, Taiwan – since the 1960s, followed a decade later by some ASEAN countries – Indonesia, Malaysia, Thailand and Vietnam – is an outstanding example of success not only with respect to economic development but also to poverty alleviation and food security improvement. In the late 1960s, these countries were importing increasing quantities of food. Experts were very pessimistic about their ability to feed their growing populations in the near future. However, over 25 years later, most of them exhibit great progress in food security and poverty alleviation. Moreover, most of these countries have become self-sufficient in staple foods. Despite the diversity of these countries, common factors explaining these impressive performances can be identified.

### 5.2.1 *Development strategy, trade policy and the role of the state*

In most of these countries, governments played a key role in the development process: defining objectives to be attained and strategies to be applied through development plans, providing infrastructure, handling selected economic activities and encouraging private investment. In addition, whenever land distribution was too inequitable, land reforms were undertaken. Although government intervention was a common feature, policies were not all the same. They were in general carefully adapted to each specific case. It is possible, however, to identify a few general patterns.

At the beginning of the development process, emphasis was put on an import-substitution strategy. This was due to the necessity of meeting the basic needs of an increasing population in a situation where foreign exchange was lacking. Public expenditure was concentrated on investment in rural infrastructure such as roads, markets and irrigation; on the funding of extension services; and implementing mechanisms to stabilize agricultural prices to boost agricultural production to meet domestic food demand. During this phase, farmers were generally highly taxed in order to finance a high level of public expenditure while maintaining a balanced budget. In Taiwan, for example, this taxation was implemented through compulsory delivery to the government at prices about 20 percent lower than market prices. Land tax was also levied, with the double advantage of creating government revenue and an incentive for farmers to cultivate the best land. Simultaneously, the government stabilized the price of rice through public storage and rice procurements. By providing price stability and physical rural infrastructure, the policy compensated the agricultural sector for the bias generated by the taxes imposed and the overvaluation of the exchange rate. With fixed nominal exchange rates, the overvaluation of the exchange rate – typically imposed for lowering the cost of imports that constituted a large share of investment – indirectly taxed the agricultural sector<sup>42</sup>.

During this period, development was mainly based on the industrial boom, concentrating on labour-intensive industries in line with the comparative-advantage theory. In order to benefit from foreign technology while protecting the new industries from foreign competition, free port areas open to foreign investment and free from the domestic-market protection were established. Availability of an educated labour force, macroeconomic stability and sufficient provision of public goods created an attractive context for foreign investment. Because of productivity gains in agriculture, the formerly agricultural labour force was more and more able to engage in industrial production. National economies shifted from an agriculturally oriented economy to an industrially oriented one.

<sup>42</sup> See Ahmed and Delgado (1993), or Collier and Gunning (199\*).

In its second phase, as more and more rice needed to be imported to satisfy domestic demand<sup>43</sup>, taxes imposed on the agricultural sector were reduced in order to encourage production. By then, the growing industrial exports were sufficient to finance public expenditures without taxing agriculture. In South Korea, for example, the government concentrated on rural electrification, raising the proportion of electrified rural households from 40 percent in 1972 to 90 percent in 1977, and maintained domestic rice prices above the international price. This policy was successful in raising production to a level sufficient to supply enough food and industrial goods to satisfy domestic demand. However, as production grew, the size of the market quickly became too small, and then trade policies were modified and the development model shifted to to an export-oriented one.

Despite the diversity of the countries in the region, the common factors appear to be:

- A mix of market mechanisms and of government support to agriculture.
- The evolution from an initial high taxation of the agricultural sector to progressive subsidization.
- The emphasis on price stability and the development rural infrastructure.

### ***5.2.2 The key role of agricultural policies: public goods provision and market regulation***

The development strategy adopted in most of these successful countries focussed on:

- Improving the functioning of agricultural markets, through the stabilization of agricultural prices.
- Providing the necessary infrastructure, economic incentives and extension services to facilitate an increase in agricultural labour productivity.

One important characteristic of government intervention in these countries is that it was limited to avoiding market failures and trying to complement private economic activities, rather than substituting public activities for private ones. The idea was to achieve relative stability in agricultural prices and to improve the access of farmers to the market in order to increase economic opportunities generated by trade, while at the same time protecting the poor.

Stabilization of food prices in Asia has been based on public storage aimed at achieving a guaranteed floor price for producers and preventing sharp increases in food prices for consumers. Such was the case for rice in Taiwan and Thailand. In Thailand, the price of rice was never completely isolated from the world market, however. Until the 1990s, imports and exports were subject to licensing. If the domestic price was low, export licences were auctioned to international traders, resulting in a price increase. If it was high, import licences were auctioned to bring down the price. In this way, the domestic price was neither completely stable, nor too far from the international price; but it was also much more stable than the world price for rice. This mechanism helped to make sound investments in mills and irrigation. The current Thai competitiveness in paddy production can largely be ascribed to this policy.

In other countries of the region, such as South Korea and Indonesia, import bans and direct subsidies were implemented in order to protect the domestic market in agricultural products and to maintain domestic prices above the world price. But this does not mean that the commodity chain was in the hands of public companies; private operators were collecting

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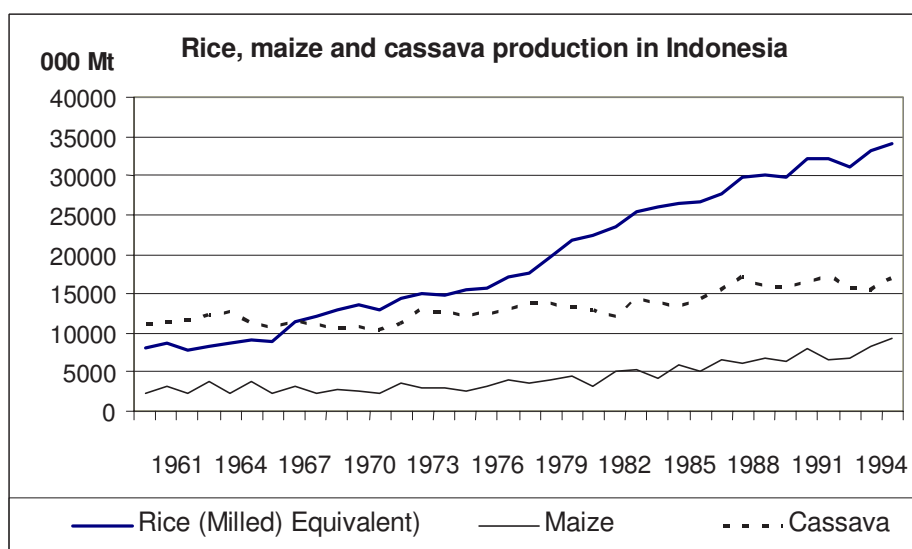
<sup>43</sup> For example, in South Korea rice imports represented 2 percent of domestic demand in 1962 and 18 percent in 1969 (Chaponnière, 1983).

and storing grain. They were given the guarantee of a government rescue in the event that they could not operate on a commercial basis. As a result, public intervention in agricultural markets generally affected only a small volume of the production marketed and it complemented private activities, thus avoiding too large a fluctuation in domestic market prices.

Finally, public investment, not only in infrastructure such as roads and irrigation facilities, but also in human capital through extension services, played an important role in the success of the “Green Revolution” in Asia. Price incentives also stimulated growth in rural areas. As rural income increased, it created demand for goods and services in rural areas, acting as a source of growth and increased employment. Because rural wages and employment increased, the impact on poverty alleviation was strong.

Figure 5.2 illustrates the success of Indonesia. In the second half of the 1970s, the country had regularly been the world’s largest rice importer. During the world food crisis of 1973-1974, Indonesia found itself unable to buy enough rice on the world market. Government intervention was subsequently intensified and Indonesia promoted the adoption of high-yielding rice varieties, coupled with an increased use of fertilizers at subsidized prices, an expansion of the area under irrigation and the provision of a stable market environment through the stabilization of the rice price and promotion of extension services. With these measures, Indonesia followed the classic Green Revolution pattern.

**Figure 5.2: Major agricultural production in Indonesia**



Source: based on FAOSTAT

The agricultural policy followed in most Southeast Asian countries was based on public investment in infrastructure and human capital associated with price stabilization and price incentives. It contributed to raising rural household productivity and income and also increased the national food supply. Far from discouraging private trade activities in agriculture, the market-regulation policy succeeded in increasing trade. In following such a strategy, Southeast Asian countries managed, within one generation, to escape from hunger and poverty and to achieve national food security (Timmer, 2000).

### **5.2.3 Development lessons from the East Asian miracle**

The East Asian miracle was based on a combination of factors: a high savings rate interacting with high levels of human capital in a stable market environment (See Stiglitz, 1996). Well-designed government intervention, which complemented markets rather than replacing them, played a key role.

The high saving rates in the region could be explained by cultural factors (Stiglitz, 1996). But the key determinant of success was that savings were efficiently used and the technological gap was quickly reduced. These countries, in line with the example of most developed countries, followed a mixed strategy in which government played an important role, correcting market failures and creating the conditions for an optimal operation of markets. Government investment in education, as well as in physical and institutional infrastructures, contributed to the increase in the return on private investment, thereby stimulating investment and promoting growth. This made the country attractive for foreign investors and facilitated rapid technology transfer.

At this point, the problem of funding government expenditure needs to be raised. In Asian countries, infrastructure inherited from the colonial era,<sup>44</sup> as well as massive foreign aid, played an important role. For example, Taiwan and South Korea had relatively good agricultural infrastructure (roads, irrigation infrastructure and market facilities) and industrial equipment (textile and agribusiness plants) before World War II. These countries were indeed already considered as remarkable production areas for food and tropical commodities, as well as for industrial products. As in the case of the Marshall Plan in Europe, the context of the Cold War in the 1950s was also a key factor in massive American aid. This aid was very efficiently used, initially for postwar reconstruction and later, as pre-war production levels were again reached, to promote further economic development. From the early 1950s to 1965, U.S. economic aid greatly contributed to postwar rehabilitation in Taiwan, helped offset budget deficits and financed around 30 percent of total imports. South Korea was also one of the major recipients of U.S. aid after the partition of the country. Similarly, Japan provided massive aid during postwar reconstruction and overtook the U.S. as the region's largest commercial partner in the late 1960s (Mao and Schive, 1995).

Finally, if the subsidy-seeking theory implies that government intervention systematically contributes to inefficient resource allocation, the East Asian experience shows that this is not always the case. On the contrary, well-designed and flexible government intervention can be highly adaptive to a changing context and can contribute to quick economic growth. In these countries, the government role was confined to:

- Designing and implementing policies to ensure macroeconomic stability, which is an essential condition for economic development because it reduces risk associated with economic activities.
- Making markets work more efficiently or creating markets where they did not exist. Capital markets were particularly weak in Asia and so government created institutions to promote savings and encourage investment in specific sectors.
- Ensuring political stability and creating an atmosphere conducive to private domestic and foreign investment. Availability of public goods played a major role in industrial development. High returns on capital and a well-educated workforce made these countries attractive to foreign investment, which increased the pace of development.

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<sup>44</sup> Taiwan was part of China until 1949 while Korea was colonized by Japan between 1910 and 1945.

- Export-oriented industry was supported by an industrial policy that sometimes protected industries during their infancy.

### 5.3 The Latin American experience

Trade regimes in the region had a strong import-substitution and an anti-export bias from the 1960s to the 1980s, which aimed at changing the development strategy from a primary product-based growth to growth based on the development of the manufacturing sector. This policy was supported by considerable investment in infrastructure. There was a sharp contrast between import-competing activities and export-oriented sectors – and this contrast remains today. Imported goods were protected: for example, even during the decade spanning 1985 to 1995, the average Nominal Protection Rate (NPR) was still 18.7 percent. By contrast, exported goods were taxed across the board: during the same period, the average NPR was -7.7 percent. For some countries, there were significant policy-induced transfers of income out of the farming sector (even if some controversies remain over their net value). For the period 1985-1990, prior to the structural-adjustment reforms, transfers out of agriculture amounted to between 12 and 23 percent of agricultural GDP in Argentina, the Dominican Republic, Ecuador and Uruguay. Brazil and Paraguay extracted only small amounts from agriculture. This reflected, in part, the new political scene, in which power was progressively taken from the traditional landowners by industry-related groups. Those input subsidies and non-price transfers that existed in favour of agriculture did not really compensate for the negative transfers imposed on the sector. During the same years, Chile (which had reformed much earlier, in the mid-1970s) and Colombia were subsidizing their agriculture, from 5 percent to 8 percent of agricultural GDP. Among the support instruments utilized, marketing boards (public monopoly) for staples, import quotas and variable levies (price band) were widespread (Spoor, 2000). This approach was initially successful in developing an industrial base in the region.

In the aftermath of the second oil crisis of the late 1970s, however, the Latin American debt crisis erupted. Interest rates rose sharply following a decade of vast borrowing of cheap capital, while an international recession brought a drastic fall in prices of exports. The primary objective of trade liberalization programmes in the 1980s was to reorient the economy of Latin American countries towards those sectors where their traditional comparative advantage resided. It was not merely a question of eliminating explicit export taxes, but also of reducing the implicit taxation resulting from distorted relative prices that favoured imported goods and, indirectly, non-tradables.

Throughout most of the 1980s, price policies in many Latin American and Caribbean economies, including Argentina, Brazil, Colombia and, to a lesser degree, Mexico, remained unchanged. With the elimination of most of the direct market-intervention instruments, intervention in agricultural markets was minimal by the late 1980s and early 1990s. In some cases, price controls were replaced by the more indirect price bands (e.g., Brazil, Chile, Colombia and El Salvador), which focused on dampening the effects of extreme world market price fluctuations on the domestic market through the use of variable import tariffs (both negative and positive). Other countries retained the minimum price policies, but state agencies lost their capacity to buy market surpluses, so that minimum prices had only a token significance. Finally, the liberalization of input and output markets, deregulation and openness toward external markets were accompanied by a transition from traditional redistributive land reform policy to the establishment of land markets.

#### 5.3.1 Agricultural performance before and after reform

While Latin America's GDP grew at high and sustained average rates of 5.9 percent in 1970-1975 and 5.5 percent in 1975-1980, the agricultural sector did reasonably well with growth rates of 3.4 percent and 3.6 percent, respectively. Table 5.3 shows annual average rates of



growth of agricultural value-added at constant prices in Central America<sup>45</sup>. For all five countries, the most rapid rate of growth was during the years of most intense implementation of the import substitution strategy, 1970-74, or in the previous decade when such policies were being put into place.

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<sup>45</sup> Source : Weeks (1998).

Table 5.1: Summary of policy regimes in Central American countries, circa 1994<sup>46</sup>

| Policy Area  | Costa Rica  | El Salvador   | Guatemala  | Honduras   | Nicaragua   |
|--|---|---|--|--|---|
| Exchange rate pre-liberalization                   | Fixed to US dollar  | Fixed to US dollar, market segmented by type of transaction                                     | Fixed to US dollar   | Multiple exchange rates  | Fixed to US dollar, (multiple rates), large black market premium                  |
| Exchange rate post-liberalization                  | Free, with some Central Bank (CB) intervention  | Free, with some CB intervention   | Flexible, administered   | Free, with some CB intervention  | Flexible, administered (crawling peg)   |
| Tariffs pre-liberalization                         | Rates to 100%, import surcharges, tariff exemptions   | Tariff range 5-35%, with 50% for certain products   | Tariff range 0-40%, surcharge on imports   | Tariff range 0-120%, surcharge on imports  | Tariff range 4-253%   |
| Tariffs post-liberalization                        | Large tariff reductions, harmonization to CA Tariff System (0- 20%); special tariff rice          | Large tariff reductions, harmonization to CA Tariff System (0-20%)                              | Harmonization to CA Tariff System (0-20%)  | Tariff range 0-40%, harmonization to CA Tariff System (0-20%)  | Harmonization to CA Tariff System (0-20%)   |
| Import restrictions pre-liberalization             | Deposits for imports, licences for basic grain  | Permits for basic grain   | Licences for basic grain, wheat, sugar, seeds, milk, fruits, agricultural inputs     | Licences from central bank for all imports   | Licences for all imports  |
| Import restrictions post-liberalization            | Licences required for poultry and dairy products  | Licences for sugar and molasses   | Restrictions for cattle and processed meat   | Licences for sugar and poultry   | Restrictions on sugar imports   |
| Export restrictions/incentives pre-liberalization  | Permits to export grain, seeds, sorghum; export taxes   | Permits to export grain, export taxes   | Permits for most agricultural exports (not coffee)                                   | Permits for all exports, export taxes, "temporary" export surcharge  | Restrictions on foreign exchange retention by exporters, permits for most exports |
| Export restrictions/incentives post-liberalization | Restriction on wood exports; export taxes on coffee based on world price (not charged in 1993-94) | Restrictions on exports to CA of cotton, sugar, coffee and wheat flour; export taxes eliminated | Elimination of export licences; export taxes of coffee & bananas (1 & 1.5% of value) | Licences required for sugar, edible oils and poultry; export taxes on coffee (non-processed, if world price above US\$70), bananas (US\$50 per box), sugar (if world price above US\$15) | No licences, no export taxes  |

"Pre-liberalization" refers to the situation just prior to the following dates: Costa Rica 1985, El Salvador 1990, Guatemala 1985, Honduras 1990, and Nicaragua 1990. CA: Central America; CB: Central Bank.

<sup>46</sup> **Source:** Weeks, 1998. Aspects of the previously dominant package included minimum price programmes, "buyer of last resort" policies, consumer subsidies and even large-scale procurement programmes. Radical reforms were only implemented in the 1990s. In Brazil, for example, the combination of various supportive policies for agriculture (e.g., minimum prices, subsidized credit and state procurement) remained in force until 1987, when the first reform programmes were implemented. In Colombia, such practices continued through the early 1990s. In Chile, *Comercializadora de Trigo S.A.* (COTRISA) continues to purchase grain.

**Table 5.1 : Summary of policy regimes in Central American countries, circa 1994 (con't)**

| Policy Area                        | Costa Rica  | El Salvador  | Guatemala   | Honduras   | Nicaragua  |
|------------------------------------|---|--|---|--|--|
| Post-liberalization                | Profit margin regulations for: rice, beans, white maize, molasses; price setting for sugar, coffee, bread flour, poultry      | No price controls or guaranteed prices;  | No price controls or guaranteed prices;   | No price controls or guaranteed prices except for sugar & coffee (low quality);  | No price controls or guaranteed prices;  |
| State marketing pre-liberalization | National Production Council (CNP) intervened in grains market (except rice) through domestic and external sales and purchases | Food Regulator Institute (IRA) intervened in grains market through domestic and external sales and purchases                   | Agricultural Marketing Institute (INDECA) intervened in grains market through domestic and external sales and purchases | Agricultural Marketing Institute (IHMA) intervened in grains market through domestic and external sales and purchases; State monopoly on grain imports | National Basic Food agency (ENABUS) active on grains market through domestic external sales and purchases, owned 80% of storage facilities; state controlled 55% of all imports & 98% of all exports |
| post-liberalization                | In beans and white corn (minor)   | Marketing agency closed, state monopoly on trade in coffee and sugar eliminated, price band for yellow maize, rice and sorghum | No state participation in basic products trade, national price band for yellow maize, rice and sorghum                  | State supplier of basic products imports small amounts of rice, sugar, chicken, maize; price band for yellow maize, rice and sorghum                   | State role reduced to a minimum, price band for yellow maize, rice and sorghum   |

Note: "Pre-liberalization" refers to the situation just prior to the following dates: Costa Rica 1985, El Salvador 1990, Guatemala 1985, Honduras 1990, and Nicaragua 1990.

**Table 5.2: Characterization of policy regimes by period, 1960-1995**

| Periods<br>Country | 1960-1969                          | 1970-1979  | 1980-1984  | 1985-1989   | 1990-1995                              |
|--------------------|------------------------------------|--|--|---|--|
| Costa Rica         | Shift towards import substitution  | Import substitution interventions  | Moderate liberalization & deregulation                 | Liberalized (from 1983)   | Liberalized                            |
| El Salvador        | Shift towards import substitution  | Import-substitution interventions  | Strong intervention                                    | Moderate liberalization and deregulation  | Liberalized                            |
| Guatemala          | Shift towards import substitution  | Import-substitution interventions  | Moderate liberalization & deregulation                 | Continued liberalization and deregulation   | Liberalized                            |
| Honduras           | Minor import substitution policies | Mild Interventions (not part of regional import substitution)                                  | No change  | Little change   | Major liberalization and deregulation  |
| Nicaragua          | Shift towards import substitution  | Import-substitution interventions  | Strong intervention                                    | Moderate liberalization and deregulation  | Major liberalization and deregulation  |
| Comments           | CACM officially begun in 1963      | CACM at its peak in first half of decade (without Honduras); insurrection in Nicaragua 1977-79 | Collapse of the CACM; war in El Salvador and Nicaragua | War continues in El Salvador and Nicaragua, ceases in both countries by end of decade | Government changes in Nicaragua (1990) |

**Source:** Weeks, 1998. CACM stands for Central America Common Market.

The rural population of Latin America and the Caribbean was still nearly 43 percent of total population in the first half of the 1970s and around 35 percent a decade later. However, individual countries followed divergent economic evolutions. Spoor (2000) classified them according to their patterns of crisis and recovery: early, late or prolonged crisis during the 1980s, followed (though not always directly) by adjustment, with swift or slow recovery. Bolivia, Chile, Colombia, and Costa Rica experienced an early crisis with a swift recovery that was already evident in the 1985-1990 period. Brazil and Mexico show a pattern of decline that culminated in a late crisis with slow recovery. In the case of Brazil, the GDP growth rate dropped to 0.9 percent in the first half of the 1980s, but this was moderated by a surprisingly good performance in agriculture with a 3.8 percent annual sectoral GDP growth. Finally, for various reasons (including political turmoil), Argentina and Peru underwent a prolonged crisis in the 1980s.

Striking examples of both positive and negative impacts of market and trade liberalization can be seen in the case of Brazil. The so-called “conservative modernization process” of Brazilian agriculture in the 1990s led to a large increase in production, but has also resulted in social exclusion and high environmental costs. The creation of the Ministry of Agrarian Development (MDA) in 1993 can be seen as a recognition of “family agriculture”, but the best way to support its development is still the subject of debate. Modernization and competitiveness are two topics at the heart of this debate. An analysis of the distribution by the Brazilian national program to support family farms (PRONAF) of agricultural credits for family farmers from 1996 through 2001 (Tonneau, de Aquino and Teixeira, 2005) concludes that the internal logic of the programme and its implementation already contain the criteria

that lead to the exclusion of the poorest family farmers (Table 5.2.). The practical result is a “new inequitable modernization process” in Brazil’s rural areas, which contributes to even greater social exclusion and regional differences.

**Box 5.1: The Brazilian national programme to support family farms (PRONAF)**

The Brazilian national programme to support family farms (PRONAF) was implemented in 1994 to promote the productive capacity of the rural poor by providing credit to this population, which had no previous access to formal bank credit. This policy was aimed at reducing inequity and poverty in Brazilian society. It was a huge innovation, because agriculture had traditionally been based on large landholdings. The first beneficiaries were small family farmers whose activity was based mainly on family labour, with a maximum annual income of 27 500 *real*, at least 80 percent of which came from the property. The state commercial banks were responsible for the financial intermediation. Basically, the programme relied on interest rate subsidies, which were necessary in the Brazilian macroeconomic context (Real Plan). Although the number of beneficiaries was significant, until 1998 the program favoured smallholders of southern Brazil, who had higher incomes and better market integration, because banks’ risk-aversion still kept them from lending to the poorest farmers. Demands and protests by several groups led to the programme’s extension to populations with lower annual incomes through larger interest-rate subsidies. Despite the increasing number of contracts, the programme has several drawbacks. Among them is its hugely increased cost, particularly through bank fees, including high administrative and bank spread cost (both paid by the government). Another is that for the poorest family farmers, the policy is in the end the equivalent of a direct subsidy and has not succeeded in guaranteeing a long-term link with formal banks.

**Source:** Abramovay and Piketty (2005).

**Box 5.2: The development of a capital-intensive production model in Mato Grosso (Brazil)**

The state of Mato Grosso has recently become the leading soybean producer in Brazil. The growth of related activities (crushing, trade in machinery and input products, transportation and storage etc.) has also been spectacular. Among the factors explaining this boom, agricultural credit has played an original and very important role. At the same time as the state is transforming its intervention modes, the private sector is taking over functions no longer performed by the state. The agricultural financing system consists of a mix of public money (principally for long-term investments) and private funds (productive expenses, such as seeds and other inputs), together with the producers’ own funds. The risks linked to the development of this capital-intensive production model make this system weak and unstable. The expansion of large-scale soybean farming in this frontier region may thus make producers dependent on multinational firms and have a significant social and environmental impact. The Brazilian government has lost much of its ability to affect the Mato Grosso soybean industry, except as regards infrastructural investments.

**Source:** Bertrand, Cadier and Gasquès (2005).

**5.3.2 Summary findings from experience in Latin and Central America**

Four main points emerge from the agricultural development experience in Latin America:

- First, the import-substitution industrialization (ISI) model, which was implemented throughout much of the region during the postwar period until the early 1980s, discriminated against agriculture through exchange-rate overvaluation, export taxes, protection of the industrial sector and direct market interventions, but was very successful for a period in terms of overall growth. The overvaluation of the exchange rates brought a spurt in imports

during the 1970s but poor export performance. The agricultural sector did reasonably well in the 1970s and the first half of the 1980s despite price discrimination, and benefited from a general infrastructural development and a support package that included public investment, subsidized credit and agricultural services.

- Second, liberalization reforms had a negative impact on sectoral performance as a consequence of the elimination of subsidies, credit and technological support services. Sectoral data suggest that at least in some instances, earlier public interventions in market-led modernization processes paid off (e.g., Chile and Costa Rica). In other cases, in which long-term public support was followed by a process of market liberalization and deregulation, recovery came only with the use of careful measures of "re-regulation" and risk-mitigating measures during periods of contraction (e.g., Bolivia, Brazil and Colombia, but also Chile).
- Third, the new development model for Latin America and the Caribbean, which was introduced with the structural adjustment of the 1980s and early 1990s, is quite exclusionary<sup>47</sup>, leaving the poor behind. The dynamics of economic growth are largely to be found among commercial farmers who have been able to establish linkages with foreign (mostly transnational) companies, thereby integrating themselves in domestic and international agribusiness complexes. The early optimism about the options for small-scale farmers and peasants to modernize through contract farming for agribusiness did not really translate into reality.
- Finally, there are indications that the gap (in levels of technology, productivity and income) between commercial and entrepreneurial farmers and the peasant sector, considered by some as "non-viable", has grown larger than ever. Policies directed toward modernizing the peasant sector and mitigating the human costs of economic adjustment are generally absent.

The historical examples given here help indicate the objectives that need to be targeted by agricultural policies in order to sustain food security and income growth. Public goods provision, market stability, appropriate technical programme development, agricultural services provision, activities to mobilize economies of scale, provision of off-farm job opportunities and regional or international market integration are the key objectives implicit in the success stories reviewed.

Country experiences demonstrate that contrary to the conventional wisdom reported in the previous chapter, agriculture *can* be a powerful engine of food security and growth. Provided that agricultural policies are targeted toward explicit market failures, such as those listed in the first column of table 5.5, then agriculture can become an efficient engine for growth. This conclusion is similar to many other findings and in line with the 2003 Pretoria Conference on past successes in African agriculture, in which policies based on correcting market failures have delivered outstanding outcomes.

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<sup>47</sup> M. Spoor (2000). *Two Decades of Adjustment and Agricultural Development in Latin America and the Caribbean*. Serie Reformas Economicas 56. Document prepared for the project "Growth, Employment and Equity: Latin America in the 1990s", financed by the Government of the Netherlands (HOL/97/6034), on which this section is based.

**Table 5.3: Food security channels, countries' experiences**

| Objective                                  | Channelled effects   | Impact   | Country or region   |
|--|--|--|---|
| Rural public good provision                | Risk reduction<br>Improved access to solvent demand            | Growth in labour productivity and solvent demand | SE Asia (1970s, 80s)<br>Europe, Japan (1950s)                           |
| Market stability                           | Specialisation, credit cost reduction, adoption of innovations | Growth in labour productivity                    | SE Asia (1970s, 80s)<br>Europe (1960-90s)<br>Latin America (1960s, 70s) |
| Technical itineraries development          | adoption of innovations, intensification                       | Growth in labour productivity                    | SE Asia (1970s, 80s)<br>Europe (1960-90s)<br>Latin America (1960s, 70s) |
| Agricultural services provision            | adoption of innovations, intensification                       | Growth in labour productivity                    | SE Asia (1970s, 80s)<br>Europe (1960-90s)<br>Latin America (1960s, 70s) |
| Scale effect                               | Unit cost reduction, diversification                           | Growth in labour productivity                    | SE Asia (1970s, 80s)<br>Europe (1960-90s)<br>Latin America (1960s, 70s) |
| Off farm job opportunities                 | Real income increase   | Growth in solvent demand                         | SE Asia (1980s, 90s)<br>Europe (1950-70s)<br>Latin America (1980s, 90s) |
| Regional/international markets integration | Market extent growth   | Growth in solvent demand                         | Europe (1960-90s)<br>Latin America (1980s-)                             |

**Box 5.3: Successes in African Agriculture**

The 2003 Pretoria Conference on “**Successes in African Agriculture**” demonstrated that African prospects are not necessarily bleak. The review of the case studies of African successes prepared for the conference isolated some “seeds of hope” on which African stakeholders could rely and that, whenever possible, could be replicated to shape the future. The summaries of these case studies are striking. The 12 success stories investigated differ widely in terms of instigators of change, points and levels of intervention, levels of subsidy involved, nature of commodities (food or cash, export or domestic market), regional diversity, duration and scale. The targeted market may vary (domestic or export); incentives varied from being granted on inputs to outputs, and from upstream to downstream activities. No explicit form of farm support emerges from the cases analysed. Even the question of subsidies is unclear: in some cases large public subsidies appear to be part of the conditions for success (in the cases of maize, cotton and dairy), in others not (cassava, horticulture and natural resource management). Overall prerequisites for success identified include: good governance; sustained funding for agricultural research and extension; soil and water conservation; replication of proven commodity-specific breeding and processing successes; marketing and information systems; vertical supply chains; and regional cooperation in trade and agricultural technology<sup>48</sup>. These results largely conform to the arguments developed in this report.

<sup>48</sup> IFPRI 2020 Focus, 2004.

**Table 5.4: Overcoming market and government failure for agricultural productivity growth**

| <b>Market failure</b> | <b>Overcoming market failure</b>   | <b>Overcoming government failure</b> |
|-----------------------|--|--------------------------------------|
| Public goods          | Sustained funding for agricultural research and extension<br>Transport, communication, storage ("market") infrastructure provision | Good governance<br>State development |
| Externality           | Soil and water conservation  | Good governance<br>State development |
| Imperfect information | Marketing and information systems<br>Vertical supply chains<br>Regional cooperation in trade and agricultural technology           | Good governance<br>State development |
| Market power          | Restoring competition and investment-incentive climate   | Good governance<br>State development |
| Incomplete market     | Risk reduction   | Good governance<br>State development |

Public intervention to correct market failures can sometimes make the situation worse, for example in cases of government failure or poor governance. Good governance is a cross-cutting issue that has implications for all other policies and activities, and it means having legitimate conciliation and negotiation structures, upon which renewed partnerships can be built, with transparency and accountability during implementation. In all cases, efficient and legitimate states are absolutely necessary for long-term and sustainable growth and development.

Direct transposition to Africa of past food policies from other countries is of course dubious and doomed to fail. What seems more promising is the better understanding of the channels through which food security can be achieved that such examples can provide. Successful experiences isolate two impact factors common to situations that are otherwise so diverse, namely, labour productivity and solvent demand growth. Their relevance in the African context will be examined, before some possible policy implications are discussed.



## **Chapter 6: Channelling food security through labour productivity and solvent demand growth**

Among food insecure households, incomes are generated by directly selling goods produced at home or by selling labour. Poverty exists when income derived from either by selling goods or labour, or both, is insufficient to meet the basic needs of the population. Selling goods may be insufficient because the products are not competitive; the causes of inadequate income are then directly related to low labour productivity. But the level of sales may also be insufficient due to the lack of national solvent demand, which is directly related to low income. The lack of solvent demand explains in turn the lack of economic growth and of job opportunities. Solvent demand growth is a key variable often neglected in food security analysis, partly because boosting national demand is no longer in the scope of public intervention in post-Keynesian economies. We have nonetheless provided some analysis of the relevance of too low solvent demand in explaining food insecurity, and its applicability to designing feasible public interventions for food insecure African countries today.

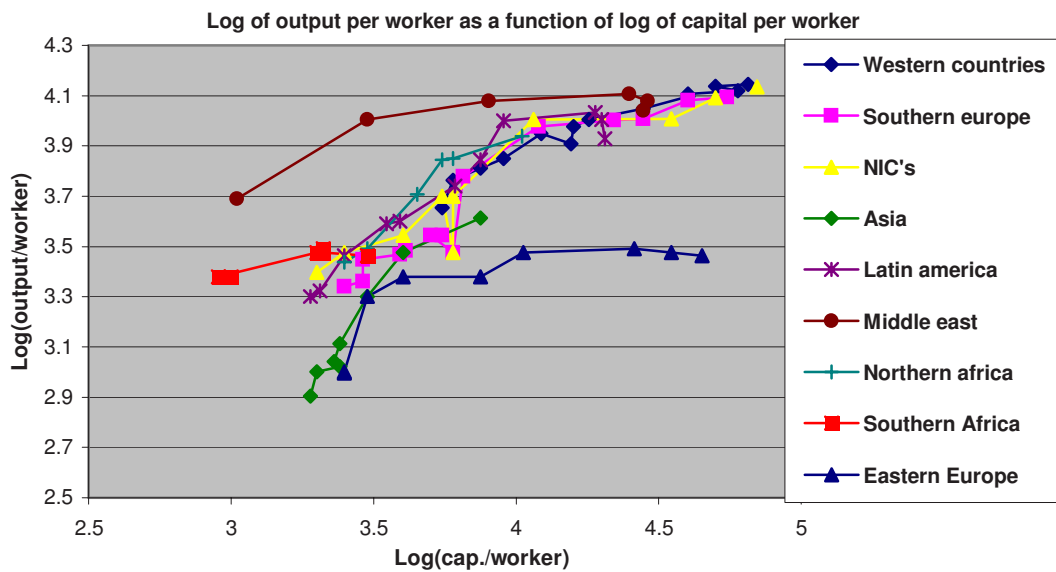
### **6.1 The central role of capital per worker**

#### ***6.1.1 Capital per worker in economic growth***

It has been shown above that if, in order to obtain a reasonable level of food security, any permanent recourse to international charity is ruled out, then the only option is to make the agricultural sector competitive. But how does one make the agricultural sector competitive? Although it is not specific to agriculture, the first and essential point in this respect is the role of capital per worker, as shown in figure 6.1.

Figure 6.1 has been drawn using records of total (agricultural and non-agricultural) output per worker (in constant U.S. dollars) during various decennia between 1870 and 2000 (some series begin only in 1920 or in 1950, so that the number of points per series is not always the same). A clear tendency is perceptible, with an almost linear relation between the quantity of capital and the output per worker in logarithmic scale. There are a few exceptions: "Eastern Europe", with a far below-average performance, (which, to some extent, may be ascribed to the strange definition of capital in the national accounts of the USSR and some other countries); the "Near East", probably as a consequence of the petrol subsidy that makes the case not very significant; and "Asia", which started in a very bad situation, but recovered rapidly, through the famous "miracle".

For other country aggregates, there is no miracle: the relation between capital and growth is uniform, and valid for Southern Africa as well as for Western Europe. Southern Africa is notable in that it stands at the bottom, with the smallest capital quantity per worker and the smallest output. Only Asia was in a significantly worse situation at the beginning of the twentieth century, and (against all odds) recovered quickly, while Africa is still in the "normal" but lower part of the distribution.

**Figure 6.1: Historical relation between output per worker and capital per worker<sup>49</sup>**

**Source:** based on Baier, Dwyer and Tamura (2004)

Caution must be exercised regarding this notion of capital per worker, in order not to misinterpret the above statements. Capital is not a homogenous commodity, the quantity of which can be compared between Europe and SSA in a straightforward manner. It is a collection of various pieces of material that are useful (and deserve the name of capital) only insofar they are adapted to a given situation, time and location. A computer given to a Stone Age hunter would not really increase his capital stock. For that reason, the authors of the study referenced above (Baier *et al.* 2002) rightly point out that the examination of the capital stock per worker is not sufficient to explain the observed wealth increase in developed countries over the last two centuries. What they call "human capital" and technical progress are just as important.

"Human capital" includes the ability to choose which proper specific capital item to build (or acquire) in a given situation and location. For instance, one can avoid using a tractor when a pair of oxen is more appropriate to the situation; conversely, replacing the pair of oxen with a tractor may be more appropriate in a different setting. Development is not simply a matter of gathering large quantities of capital and applying them indeterminately. On the contrary, the major difficulty lies in fine-tuning ways to make the best possible use of a scarce and protean resource. In the past, many African "projects" (especially agricultural projects) have neglected this important aspect of capital management, by using capital-intensive techniques that were fully justified in wealthy countries facing land scarcity, but were perfectly nonsensical in a poor and relatively land-abundant countries such as those in Africa. The consequences of this observation will now be examined in the context of agriculture.

<sup>49</sup> Here, "Western countries" include the United States, Canada, and northern Europe (United Kingdom, Sweden, France, etc.); "Southern Europe" is Cyprus, Greece, Italy, Spain, etc.; "Eastern Europe" corresponds to former socialist countries (Russia, Yugoslavia, etc.); "NIC's" are Japan, Korea, Singapore, etc.; "Asia" is India, Pakistan, Sri Lanka, Indonesia, etc.; "Near East" is Iran, Iraq, Saudi Arabia, etc.; "Southern Africa" is quite similar to SSA; "Latin America" includes Argentina, Brazil, Honduras, Nicaragua, etc.; "Northern Africa" goes from Egypt to Morocco. See Baier *et al.* (2002) for details.

### **6.1.2 The case for agriculture: what is agricultural capital?**

The quantities (be it output per worker, or capital per worker) shown in figure 6.1 are computed from a mix of agriculture and other sectors. The only specificity of agriculture here is that, whereas industrial sectors generally are not technically flexible (producing a computer requires about the same mix of capital and manpower, whatever the production location and circumstances), agriculture is by contrast extraordinarily malleable. One can produce rice with almost no capital (sowing rainfed rice and letting it grow requires only a small quantity of seeds, albeit with very poor labour productivity - less than 0.2 ton/worker/year), or with almost no labour (the Texan rice grower can produce 500 tonnes per worker/year, using enormous combine harvesters, large quantities of fertilizer and pesticides etc.).

This is one of the reasons why poor countries are agriculturally oriented: agriculture is the only activity compatible with a very low quantity of capital per worker. The other reason is to be found on the demand side: agriculture produces food, and food is the only significant consumption of the poor. At the same time, it is not possible to continue operating such capital extensive techniques in agriculture if one wants to escape low labour productivity and poverty. As shown above, development requires an increase of capital use both in agriculture and in other sectors. But it is not just any capital that is needed at any stage of agricultural (or economic) development.

*The capital can be privately or publicly owned, depending on circumstances*

First, it must be stressed that the capital in question here is not only the private farm-level capital, but also public and private capital that determines the environment within which farms operate.

Because agricultural activities need land, producers are distributed throughout the countryside. For example, for agricultural producers to be able to supply food and other commodities to urban dwellers and buy inputs and equipment required for production as well as the goods they consume, markets, roads and other facilities are needed, and these require capital. A great part of this off-farm capital is of a public nature. They also need knowledge and a variety of services to be able to capture fully the potential of growth offered by agriculture.

Similarly, the lack of fertilizer is often held responsible for the low productivity of African farmers. Indeed, subsidizing fertilizers has often been a policy recommendation, despite the drawback of input subsidies, as noted above. But another way of obtaining the same effect as a fertilizer subsidy is to provide a set of public facilities to the fertilizer commodity chain. Indeed, Jayne *et al.* (2003) show that typically, 50 percent of the farm-gate fertilizer cost in countries like Kenya, Ethiopia and Zambia is ascribable to domestic marketing costs, while only 10 percent accrues to retailers, importers and others. This means that the same effect as a fertilizer subsidy could be obtained by reducing domestic marketing costs through reducing port fees; coordinating the timing of fertilizer clearance from the port with up-country transport; reducing transport costs through port, rail and road improvements; reducing high fuel taxes; and reducing the uncertainty associated with government input-distribution programmes that impose additional marketing costs on traders. According to Jaynes *et al.*, estimated reductions in the farm-gate price of fertilizer from implementing the full range of options identified in each country range from 11 to 18 percent. Price reductions of this magnitude, if passed along to farmers, would increase farmers' effective demand for fertilizer. Investments in selected publicly provided goods, often considered outside the scope of fertilizer marketing policy *per se*, strongly affect the costs of fertilizer and farmers' willingness to pay for it, and hence the performance of markets.

*Capital must be released in small quantities in accordance with absorption capacities*

The quantity of capital at the disposal of agriculture must be released prudently. Among the many management defects pointed out by analysts regarding agriculture in sub-Saharan Africa, inefficient, low-profitability projects are prominent. It is true that many agricultural development projects have been poorly managed, resulting in bad performance and, sometimes, sheer disaster. The main conclusion generally derived from these experiences is that Africans are not capable of managing a complex economy. But as Jeffrey Sachs<sup>50</sup> remarked, "the idea that African failure is due to poor governance is one of the great myths of our time. They can't get out of the hole on their own", meaning that not only management recipes, but also real investments are inescapable.

It must be stressed that the probability of failure for any investment is much larger for an isolated big project than for a cluster of small ones. As noted above, in the presence of an abundant labour force and scarce capital, the marginal productivity of investment is very large: rates of return of 100 percent or more are not uncommon for such small pieces of investment as ox carts or improved seeds. At the same time, as capital per capita increases, this marginal productivity decreases rapidly. When the levels of per capita capital stock reach levels of the same order of magnitude that they are in developed countries, there are no reasons for the rate of return to be larger than in a developed-country context. Actually, there are reasons for it to go lower, in the absence of infrastructure, market organizations and other facilities.

Given this dynamic, one can understand why scarce capital is better employed in many small projects designed to help poor, capital-deprived peasants than in a few large, highly capital-intensive projects. If African leaders (and their expatriate advisors) can be reproached, it is for channelling scarce foreign aid into gigantic projects. Who can resist the wide smile of a president coming to inaugurate a new dam, surrounded by press photographers? Yet a dam doubling yields over 10 000 hectares can be much less efficient than a credit project increasing yields by only 15 percent over 100 000 hectares.

The only exception would be economies of scale in large projects – but in fact, there are practically no economies of scale in agriculture. Visibly, if a technique is profitable over one hectare, it can be reproduced without change over millions of hectares; thus, agriculture is a "constant return to scale" activity, which can be undertaken indifferently in large or small farms without a significant change in productivity. Actually, there are reasons that small family farms are a little more productive, because in such a setting, the actors monitor themselves, choose the most efficient solutions and constantly improve their methods. By contrast, large projects usually are very beneficial to a few, and not necessarily competent<sup>51</sup>, managers, leaving grassroots actors with no incentive to work (for which they are labelled "lazy").

On the contrary, as soon as the provision of credit, transportation, output collecting or input delivering activities are involved, the existence of economies of scale is much more likely<sup>52</sup>. This is a source of market failures, and a justification for state intervention. Indeed, state intervention here is required to provide a stable and friendly environment to farmers, allowing

<sup>50</sup> See Eviatar, 2004.

<sup>51</sup> For instance, René Dumont (*L'Afrique noire est mal partie*, le Seuil, Paris 1962), a famous agronomist, tells the story of a project supposed to develop groundnut production in Casamance (southern Senegal), the leader of which was a former French marine officer. He was perfectly ignorant of the elementary bases of agronomy, but sure of the necessity of big tractors, and very proud of using the recovered anchor chain of a famous liner to slash the trees of the tropical forest. By doing so, he destroyed the soil he was supposed to improve.

<sup>52</sup> Even for these activities, however, one must be prudent in concluding economies of scale do exist: see Fafchamps, Gabre-Madhin and Minten, 2003.

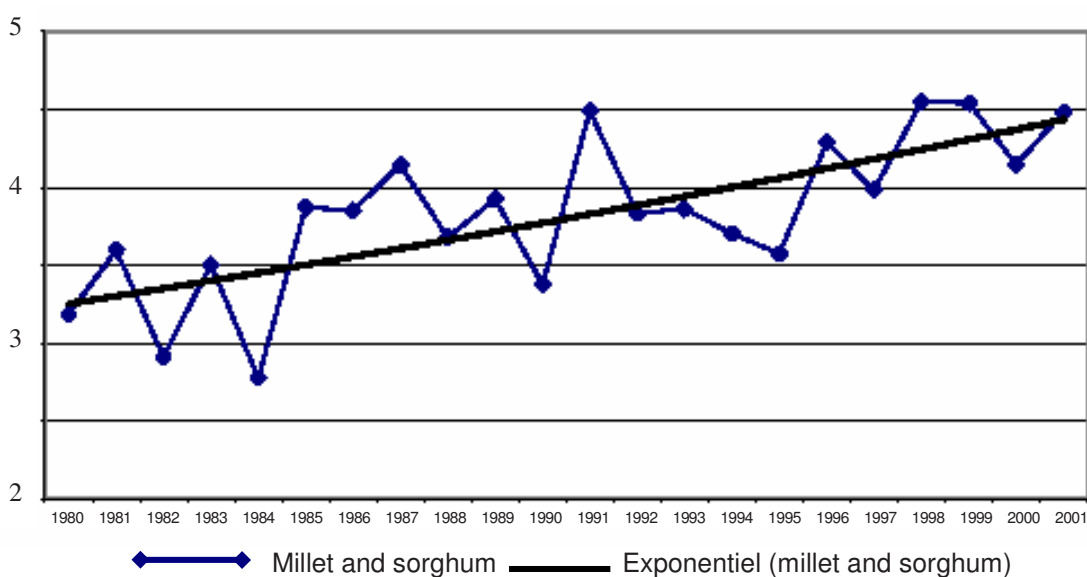
them the freedom to organize themselves in a way that best suits them, and making their own profitability computation in a familiar context. Even so, state intervention must not replace traditional moneylenders and bush traders. On the contrary, for most of their activities, again, they are their own best monitoring officers. But they must be placed in the position of benefiting from the economies of scale brought about by collective action. Thus, they must discuss with authorities to determine the best public investments, such as roads or market structures. At the same time, they must be prevented from benefiting from unjustified subsidies in such a way as to be rewarded only in proportion to their contribution to the collective effort.

## **6.2 Labour productivity growth is not enough: the case for increasing the extent of the market**

Root causes of insufficient solvent demand differ according to location. When considering local household demand, the lack of income among a large share of the population is responsible for the lack of solvent demand. As explained above, it is directly related to low labour productivity and to the lack of job opportunities. For the richest consumers, imported goods are often preferred for consumption. Moreover, exports subsidies, as well as food aid, have a negative impact on agricultural output prices and divert part of the local demand to foreign supply. Negative financial transfers due to the burden of the debt repayment also affect the national income and thus solvent demand. As has already been underlined, the drastic cut in public expenditures since the mid-1980s has led to a sharp drop in public demand. The lack of foreign demand is explained by high transaction costs that isolating local markets from the rest of the world, low competitiveness of local goods due to low productivity and foreign market protection through tariffs and non-tariffs barriers.

Mali is a striking illustration of the necessity for boosting agricultural labour productivity (without being restricted solely to this area). In Mali, about 76 percent of the population is rural and poverty is more prevalent in rural areas; 81 percent of the poor and 98 percent of the poorest live in rural areas. Keeping this in mind, pro-poor growth seems necessarily to mean labour-intensive growth in the agricultural sector (Marouani and Raffinot, 2001). Mali experienced growth during 1994-2000, with a rather modest poverty reduction. GDP increased by 33.3 percent between 1994 and 1999 (about 5.5 percent per year). During the same period, the productivity of labour for food crops improved steadily (Figure 6.2) while the incidence of poverty fell by 4.6 points, or only 6.7 percent. Why then did not farmers' income follow the movement of labour productivity?

The first hypothesis made by researchers Marouani and Raffinot is that the increase in productivity has been followed by a fall in agricultural prices. Indeed, it is well known that good harvests in the Sahel region cause a dramatic fall in prices (and poor harvests increase prices). Thus, increases in productivity could be offset by the reduction of food prices. It is difficult to assess the net effect on the income of the poor because it depends on whether they are net sellers or buyers of food. For net sellers, a good harvest may result in decreasing monetary income. Using rice equivalent to compute the poverty line, Marouani and Raffinot find in this case an increase of the poverty head count.

**Figure 6.2: Productivity of cereals in Mali (1980-2001)**

**Source:** Marouani and Raffinot, 2001 (based on FAOSTAT)

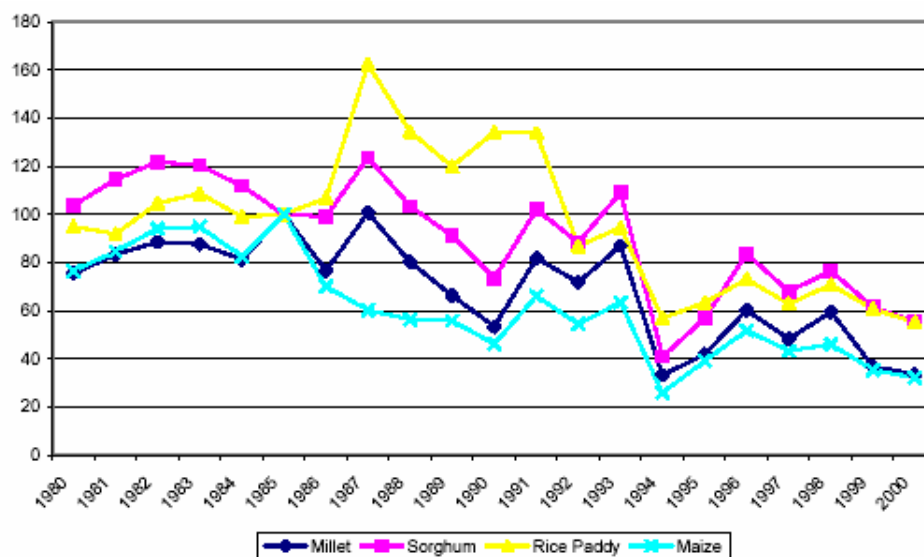
In a more theoretical study, De Janvry and Sadoulet (2002) attempt to tackle this problem within the framework of a general equilibrium model. They use an “African archetype” to compute the impact of an increase of agricultural productivity. In their model, a 10 percent increase in total factor productivity (such as improved seeds in all crops) results in an increase of 7.6 percent in the income of rural poor households (with a large positive growth in non-agricultural employment, which in turn causes an increase in the demand for food). In the model, poor rural households are supposed to produce all the food they consume, so they do not benefit from the decrease in food prices. The impact of a 10 percent increase of productivity in food crops is less important, resulting in an increase of 3.9 percent in the real income of small- and medium-scale farmers. This is because they do not benefit from the decrease in food prices (-12 percent) and because in the model, the cereal sector represents only 13 percent of the GDP (twice more in Mali). Eswaran and Kotwal (1992) presented a theoretical model in which increases in agricultural productivity and reduction in food prices allow people to buy other products, leading to the emergence of an internal market for manufactured goods.

A second hypothesis focuses on the deterioration of the terms of trade between agriculture and industry. Such deterioration could partially explain why the improvement of the productivity of food crops did not result in a sharp reduction of rural poverty. Figure 6.3 suggests that there has been an important decrease in food crops’ terms of trade in the recent years (since the 1994 devaluation). Productivity and income may indeed follow different paths. Both the de Janvry and Sadoulet theoretical model and actual real-price data convey the idea that agricultural prices are either blurred by self-consumption patterns or too low to generate sufficient income. Having the gross income equal to the output sold, times the selling price, we conclude that the volume of output sold is not sufficient to compensate for declining real prices reflecting productivity gains. Hence the poor stay poor as long as a growing volume of demand for their agricultural output is matched.

Low productivity and low demand are linked through a circular relationship. Early development theorists already wondered why income growth in economically backward areas was trapped. Starting with the demand size of the problem, the most documented determinants are transport facilities, which Adam Smith singled out for special emphasis. Reductions in transport costs do enlarge the market in the economic as well as the

geographical sense. But reductions in any cost of production tend to have that effect as well. So the size of the market is determined by the general level of productivity and the level of domestic factors use. Capacity to buy means capacity to produce. In turn, the level of productivity depends largely on the use of capital in production. But the use of capital is inhibited, to start with, by the small size of the market. What is the way out this circle?

**Figure 6.3: Price of cereals deflated by the import price index (1985=100)**



### 6.3 The policy way out of the circle linking low productivity and the small size of the market

The root causes of chronic food insecurity can be turned into priority objectives. Priority objectives for policy-makers whose countries have been facing chronic food insecurity should be, first, to improve productivity, and second, to boost demand for products and labour from food-insecure households. The first objective is widely accepted among policy advisers and academics, with the exception of the external (foreign) demand for labour. The second goal is far more neglected, if not ignored. When applied to the rural sector, it goes beyond agricultural policy *per se* and involves clearcut choices in terms of growth and development policies. **Refocusing on demand growth, both local and external, is a top priority development policy that enhances food security.**

The review of policy measures actually implemented in African countries highlights the vanishing of agricultural policies in their Organization for Economic Cooperation and Development (OECD) or post independence acceptance. With the exception of some subsidies on inputs (a few Southern African countries, cotton in some West African countries), remaining minimum price guarantee schemes (maize in some African countries), VAT exemptions, limited import tariffs (although far below the banded rate) and scattered public investment in rural areas, the scope of public intervention is narrow. This narrowness, when confronted with the breadth and depth of the causes of chronic food insecurity in Africa, points to the scandalously limited policy response brought today by African countries to African populations. **A start in budget reallocation toward rural populations is urgent to overcome the unaddressed causes of food insecurity.**

It is worth recalling first that available policy measures are much more numerous than the ones still in use in Africa. Policy measures restricted to the rural sector include: border measures (fixed tariffs, variable tariffs, quotas, both on imports and exports); domestic support (minimum price, output subsidies, input subsidies, consumption subsidies, direct

transfers, stabilisation); indirect taxes (VAT exemptions); investment funding and incentives (subsidies); interest rate subsidies; provision of agricultural services in remote areas (credit, irrigation, storage facilities). Successful food security strategies in places such as Indonesia, Europe or Central America in previous decades demonstrate that there is no orthodox, one-size-fits-all policy package. The larger the choice of measures available, the higher the probability to apply Tinbergen's efficiency rule, according to which one policy measure must be targeted at only one objective – following the popular idea that “you cannot hit two birds with one stone”. We have seen that root causes of food insecurity provide a large scope of policy objectives. **Significant widening and flexibility in the choice of available policy measures is urgent to overcome the unaddressed causes of food insecurity.**

International or regional commitments of African countries do not bring convincing explanation of the narrowness of public intervention targeted at food insecurity in Africa today. The room for ambitious agricultural policies at WTO is wide, with total exemption of tariff and support reduction being granted to least developed countries (most of them are to be found in SSA) while developing countries enjoy a special and differential treatment rehabilitating some of the pre PAS instruments (like input subsidies as long as they are targeted at the poorest). Examination of bilateral agreements (like EPA following Cotonou Partnership Agreements between EU and ACP countries) and regional agreements (such as UEMOA), reveals no significant constraints on any kind of domestic support, since the primary constraint relates to external tariffs. The most stringent constraints seem to stem from the conditions imposed by donors and international financial institutions (IMF, WB) and other aid agencies adopting the same agenda. **Upgrading in a coherent framework the set of rights and obligations of the governments of food-insecure countries towards the international community – and specifically toward the Bretton Woods institutions and other aid agencies - is urgent to overcome the unaddressed causes of food insecurity.**

Economists dealing with political economy have tried to show the losses and more generally, the dysfunctions and failures associated with the use of some specific policy instruments. Regarding African countries, two major inputs in the political economy analysis of agricultural policy must be considered:

- A first “bunch” of researches has been focused on agricultural policy instrument giving access to a limited amount of specific free or subsidized goods or services (inputs, credit, extension...) or limited access to a particular market (a foreign market, for example). This limitation in quantity gives rise to subsidies and people will compete to get these subsidies and devote resources to such competition. Depending on the allocation method used, the kind of resource provided will differ. When allocation of trade licenses is decided by government officials, different kind of expenses will be realized to influence the decision: trip to the capital, office rent in the same capital, lobbyist services and of course directly money, i.e. bribe. Therefore, waste of resources is a primary problem. Increasing inequality can be a second one. Corruption the last one.
- The second “bunch” of political economic analyses aims at explaining the apparent preference of African government for input or credit subsidies and projects instead of higher price for agricultural commodities. According to such analyses the role of pressure groups actuation can be important but the search of power by the state elite is the main issue. The first objective of governments is to secure political control over their rural population. By using project instead of higher prices, government can exercise discretionary power, they can choose regions, groups or even individual to be the beneficiary, they can also choose in staffing the project. By choosing some specific groups they get their support and weaken any opposition by dividing the rural world.



These two “bunches” have provided sound contributions for the writing of obituary notices of 60's and 70's agricultural policies. Yet, before leaving them out completely, one should be reminded that low farm gate prices were at the same time stable and predictable – eg stabilised. Ample evidence shows that agricultural supply responds to price stability just as much as to mean price level. As a consequence, providing stable prices to farmers is just as important for production as high prices. A trade-off was expected to occur between low and stable agricultural prices, allowing for productivity gains in agriculture through riskless investment in capital goods, along with productivity gains in labour intensive activities in all sectors thanks to moderate wages increases allowed for by moderate food prices. This subtle trade-off did work in some places like Europe or Indonesia. It completely collapsed in most of African countries because too narrow a place was given to market forces between farm gate and consumer plate.

The policies maintained during the 60's and 70's are rightly criticized, especially in view of their poor outcomes. Yet this does not mean they were without any merit or justification. One should consider the rationale behind them. Relatively low farm gate price while international prices are high means profits for marketing boards and similar agencies. Economists who developed the concept, intended such profits to be spent on increased investments and long-term development devices that the market usually fails to secure, and **which by necessity must be funded by the State**. One may question the choice to have them funded by poor farmers rather than by richer people. But the central question is **why were these profits not spent on development by the States** responsible for it?

A second part of explanation derives from the lessons learnt from economic literature. Although controversy continues, academics tend now to promote budget-funded, targeted policy instruments to consumer-funded, price instruments, the latter suffering from poor targeting and distortive (inefficiency) effects. On efficiency grounds, the “modern” food policy relies heavily - theoretically at least - on freeing market prices, which means close-to-zero tariffs, decoupled support (compensation and insurance transfers), along with investment policy in public goods provision such as research, infrastructure, education, health and the enforcement of the rule of law so as to make market institutions properly work and even “work for the poor”. **When no such a budget is made available, the case for agricultural policy vanishes.**

How best to use a agricultural budget in an accountable manner cannot be defined in terms of policy measures at this stage. This can only be dealt with on a country-by-country basis, with extensive participation of local stakeholders throughout the policy-making process. A framework for action has been set here, whereby a step-by-step definition of agricultural policies could make them both legitimate inside and outside the country, at all levels of negotiations, within and among ministries. The initial step is to identify the characteristics of food insecurity on a country-by-country basis, followed by the identification of its root causes. This in turn will provide economic grounds for policy action, as long as such causes relate either to market failures or government failures as described above. Checking for country commitment and possible perverse effects of such policy, because of subsidy-seeking or any counterproductive effect current knowledge helps prevent, leaves room for the final design of sound agricultural policies embedded in demand-led growth which secures food.

## CONCLUSION

The food insecurity problem is especially acute in Africa. Although it can be temporarily alleviated by food aid, it can be solved only by development. Therefore, this document, using food insecurity as a starting point, stresses the importance of governance for development.

If it is true that food security, to some extent, can be maintained by food aid for a certain period, and if it is out of question not to have recourse to food aid in cases of emergency and when every other method fails, it is nonetheless also true that *food aid is not a sustainable solution for removing hunger and poverty* in the long run. On a long-term basis, in any country, food must be produced domestically, or imported commercially in exchange for competitive, domestically produced non-food goods. Because food shortages affect the poor first, whatever the choice between domestically produced or commercially imported food, the poor must be involved in production, whether it is the direct production of food, or the production of those commodities that are to be exported in exchange for food imports.

The main obstacle to such a solution (i.e. involving the poor in production) is the poor's lack of capital – not financial capital, but real capital goods, machines, infrastructure and so on. The second obstacle is the limited extent of the market. Because there is not enough capital in Africa, labour productivity is low, and this *low productivity of labour is the main reason for poverty and starvation*. Because available capital is not adapted, some factors are underutilized, incomes shrink and the extent of the market is too narrow.

There are no reasons for this situation to continue, given that international organizations are ready to help, and not only in cases of emergency food shortage. NEPAD, in particular, is an attempt to reproduce one of the most outstanding success of the twentieth century in terms of economic development, the Marshall Plan. Could the recipes of the Marshall Plan be applied to Africa, and does the Marshall Plan possess anything that could rightly be called a recipe? Could African agricultural successes be replicated and scaled up? What could be learnt from experience on other continents?

The answers to these questions could be summarized as follows:

- i) No development can occur spontaneously, solely through market forces. Any example of a successful development story demonstrates that the involvement of the state in the process is essential. In particular, when external aid is available, the government has to set up priorities for the sound management of investment goods purchased on foreign markets. This is the main lesson drawn from the history of the Marshall Plan, the success of which the NEPAD would like to reproduce.
- ii) To be successful, state interventions must be done in sympathy, not in opposition, to the market. The market is an essential device in day-to-day decisions, and short-term approaches. But *the market is myopic*. For the long run, collective management by state and public agencies is necessary to avoid false expectations and misunderstandings, as well as to fix standards, control quality and set future priorities. In addition, providing infrastructure, a reasonably stable economic environment, and budgetary calculations are obviously the responsibility of any government – be it at local or national level, although the national government must compensate for the weakness of local communities in rural zones.
- iii) Because the poor, as a rule, are rural dwellers, and are not capable of practicing activities other than agriculture, while land is in general abundant, *there is a comparative advantage in Africa to producing food domestically*, rather than (from scratch) developing

an industrial export capacity capable of paying for food imports. For that reason, investments designed to increase the quantity of real capital at the disposal of poor farmers make much sense. It must be clear that the real capital in question can be owned privately (such as draught animals, farm machines and so on) or collectively (such as roads, bridges etc.). At the same time, it must be stressed that such a development of farming and rural capital implies also the development of a domestic industry capable of absorbing the excess quantity of manpower that will be made available by the substitution of capital for labour in agriculture. Such an industry will find its market first domestically, from the increase of farm wealth and farm demand, and then internationally, from its capacity to export high-quality products, if correctly managed.

- iv) In developing agriculture, *particular attention has to be paid to price stability*. In agriculture, because demand is rigid, prices are unstable: a small change in the supplied quantity results in large differences in price. Now, such price movements create an extremely stubborn uncertainty, discouraging investment and preventing banks from providing loans to farmers. Such price regulation policies are difficult to establish; they require a delicate collaboration between private crop collectors and the public organizations in charge of enforcing regulations, and they might be in contradiction with the condition of the International Financial Institutions (IFI) and the rules of World Trade Organization (WTO). They also imply building costly infrastructure, such as stockpiling facilities. Yet, as has been shown above, they are by and large the most efficient means to develop the production of any agricultural commodity.
- v) *Massive urbanization is a major characteristic of the modern age*, implying the existence of intermediate industries between farm and consumers. This is not without consequences for food supply, food security and the feasibility of agricultural policies. Food industries are much less numerous than farmers, and can be used as efficient intermediate bodies between farmers and governments. The situation, in this respect, is even better if – as was the case in most European and North American countries – these industries, taking the form of cooperatives, also represent farmers. In any case, *intermediate bodies are necessary* to set up a sound economic policy, in a “committee planning” framework.
- vi) The previous five points are strong reasons for ministries of finance in sub-Saharan Africa to provide support to the agricultural and food sector. Yet it is clear that not just *any* intervention is required. On the contrary, interventions should be carefully targeted not only in order to avoid squandering money and other resources, but also to allow the private sector to assume as much responsibility as possible.
- vii) *Providing a safe environment* and stable prices to agriculture and food-processing industries is essential. It seems that the easiest way to achieve this goal is by fixing minimum prices at a reasonable level, and guaranteeing that government will purchase any quantity supplied at this price. Another possibility is to buy or sell import or export licenses when necessary. Stockpiling facilities must be contemplated, on condition that they are privately operated (following the golden rule that “the state must never touch commodities”), even if prices are more or less administered. In any case, it implies that the domestic price of staple food must be different from the world price, although the difference must be small enough not to make smuggling too attractive. But failures in many African staple-food stabilization schemes demonstrate that with a weak or budding state, price policies are doomed to fail. In such a case, an alternative should be provided by new arrangements and partnerships with the stakeholders involved, among which the state should play a crucial role by ensuring that the concerns of the poorest stakeholders are taken into account, that bargaining power is equally shared between committed parties and that the arrangement enforced.

- viii) *Credit is the normal vehicle of privately operated capital accumulation.* But credit in Africa is hampered by uncertainty regarding the future, and by the lack of collateral. Any measure taken to secure decision-makers and bankers – including the state's guaranteeing of certain operations, but also rendering assistance to rural and savings banks – is likely to have a very large beneficial effect, without costing the government too much. Land rights clarification, requiring the creation of smoothly operating cadastre agencies and of improving civil court organizations, are also among the public goods likely to trigger agricultural development. In addition, property rights can be used as a basis for taxation, as a counterpart to the security provided by the state.
- ix) In low population-density regions, *roads and communication networks*, as well as harbours and other similar facilities, are absolutely necessary so that markets can play their roles. This implies that the state must consider the feasibility of heavy investments in such areas, which, by nature, are public goods not amenable to private operation (even if day-to-day maintenance is leased to private companies against reasonable rates levied on users).
- x) Other infrastructure of benefit to agriculture and food industries includes *irrigation schemes, agricultural extension, education and research*. Since managing such institutions is a matter of administrative skill, and such institutions must be dealt with under specific conditions, it is difficult to state anything general in this respect, except to say these institutions are the responsibility of the state and a major determinant of competitiveness. They are also necessary to make the transfer from farming to other activities, which should accompany development possible for the population.
- xi) Such a programme is costly. As was the case with the Marshall Plan in Europe, at least a part of it will be possible to fund from the central initiative, which in the African context means from NEPAD or other aid programmes. But not all the necessary expenses can be funded that way. Thus, *a fiscal policy must accompany the development efforts*. How to implement such a taxation scheme is beyond the scope of this document. But it must be stressed that the capability of the state to levy taxes is one of the components of its legitimacy. In addition, taxes levied on the rich for the benefit of all are a key tool in fighting against poverty.

This document departs from the mainstream literature in the emphasis put on the role of the state, which has been somewhat forgotten since the inception of structural adjustment. This is not to say that structural adjustment was an error, but that it might have been more efficient if it had been more careful in considering the due role of the state in development. The consequences of state involvement, of course, are deep. First of all, it implies a departure from pure liberalism, which has been just as excessive in its claims for the market economy as Marxism was in its negation of any value for markets. In any case, the points above provide some strong arguments in favour of state intervention, and in particular, state intervention in the agricultural and food sector.

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## Appendix

### The policy instruments of agricultural development support

If it is admitted that the key solution for fighting food insecurity is development, and that, in Africa, development cannot ignore the agricultural sector; and if it is also admitted that there exist specificities of the agricultural sector justifying specific policies, the question arises of the instruments available for this purpose.

Beyond the commitments made by African countries and some of their key partners to increase financial support to agriculture and rural development, there is a need for effective policies to be formulated and implemented. Whereas increased budgetary support would be necessary in most cases, it is not the only option available to promoting agriculture and, in any case, it would not be effective without complementary policy measures.

Therefore, it seems useful at this stage to recall briefly what policy instruments are available for agricultural development. We shall also describe their rationale, requirements, efficiency in addressing the risk and market failure issues mentioned above, their possible distributional effects (especially among the poorest) and last, their cost.

The choice of possible modes of intervention is broad. The policy options are constrained by a number of factors including: i) limited public resources; ii) the dilemma of fostering remunerative prices for producers and prices that a large number of poor households can afford to pay; and iii) constraints on foreign exchange availability, which can lead to overemphasis on the production of export crops.

The following rough classification will be used in presenting the main instruments of agricultural policies:

- 1) border measures
- 2) taxes and subsidies
- 3) price stabilization and guarantees
- 4) public goods (rules, regulations, infrastructure and services)
- 5) reform of the institutional framework

#### **Border measures**

#### **Exchange-rate policies**

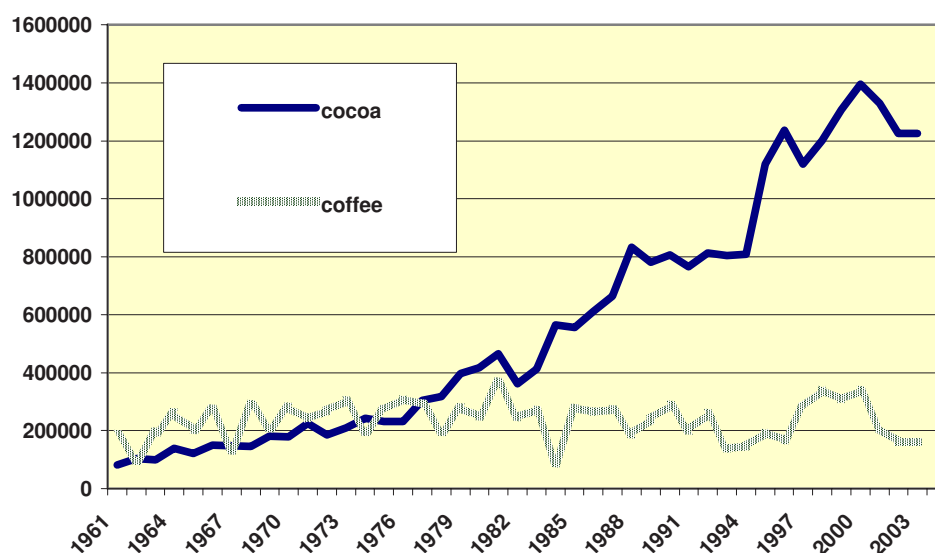
A classic measure to modify the farmers' (and all other producers') production environment is to modify the exchange rate. Devaluation has been extensively used to improve competitiveness because it reduces the cost of locally produced goods as expressed in foreign currency. But this is not always true. For instance, if the domestic commodity in question needs inputs from abroad – say, fertilizer – then the cost of production of the commodity will increase, as the cost in local currency of fertilizer will rise with devaluation. The higher the share of imported goods in the cost of production, the less the devaluation will help increase competitiveness. Devaluation, therefore, encourages exports and discourages imports, and provides generalized incremental protection to all domestic exporters and import competitors. Since devaluation pushes up the domestic price of exportable and importable commodities, it tends to have an inflationary impact. The fear that devaluation will feed the inflationary process often deters monetary authorities from devaluing in the face of creeping domestic inflation, notwithstanding the potential positive effect of devaluation on the balance of trade (FAO, 2000).

## Import and export tariffs

The basic philosophy of import and export tariffs and quotas is exactly the same as for the manipulation of the exchange rate, except that, instead of modifying all foreign prices at the same time, a tariff can be used to protect particular domestic sectors from international competition by artificially increasing the domestic price of the imported commodity. In addition, whereas changing the exchange rate can be done only on rare occasions, changing tariffs rates and computation rules is relatively easy (although WTO regulations have restricted considerably the possibility for member governments to use this instrument, while quotas have been banned). Tariffs have also constituted historically one of the main sources of revenue for the state.

### Historical evolution in Côte d'Ivoire since independence

#### Coffee and cocoa production in Cote d'Ivoire



#### a) Permanent tariffs in a static framework

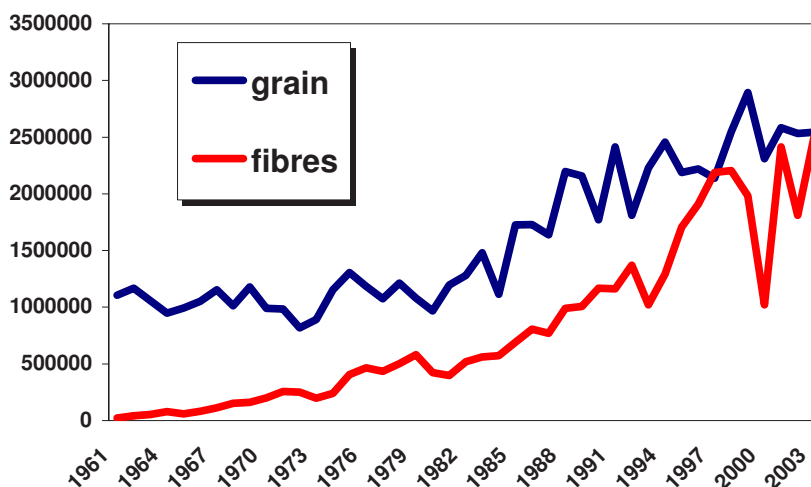
In static terms, domestic prices set above world prices through import tariffs will benefit net producers, while domestic prices below world prices (because of export limitation) will benefit net consumers. This is why protection of agricultural commodities is often thought to favour rural households and hurt urban ones. The net aggregate effect on consumers and producers is generally considered negative: consumer losses are estimated to be greater than producer gains.

Yet, if one takes a dynamic point of view, the judgement on protectionism might be revised. Indeed, protectionism could turn out to be positive in the long run if designed to reduce market fluctuations and price uncertainty, and hence foster investment and productivity gains<sup>53</sup>. Variable tariffs were designed to that end.

<sup>53</sup> In particular, see Boussard, Gérard, Piketty, Christensen and Voituriez (2004). Based on the results of a general equilibrium model, this paper, like many others, develops the idea that, at a global level and under perfect market conditions, removing all obstacles to trade would generate significant benefits by fully exploiting comparative advantages. However, this model, unlike others, can also be run under the assumption of "imperfect markets". In this case, the situation with liberalization is much worse than the situation without. The authors claim that, unfortunately, reality is much closer to the worse situation, with liberalization and imperfect markets.

## Historical development in Mali, 1961-2003

### Grain and fibre production in Mali



### b) Variable tariffs in a dynamic setting

Variable tariffs consist essentially in maintaining domestic prices at an (almost) constant level by levying a tax defined as the difference between the world and domestic price. Thus, importers have to sell at the domestic price, whatever their costs. Of course, such an arrangement can be compatible with average import prices that are close to world market average prices. In this case, assuming average international prices moving slowly, distortion effects on domestic markets are reduced to a minimum. Price-band policies in Central America and Asia (especially in Indonesia) were implemented in that spirit. This instrument, however, is not compatible with WTO regulations.

The situation for export products is similar to that of imported goods. Exports (particularly traditional tropical exports, such as cocoa and coffee) have often been taxed in the past to collect revenue for the state, but this is usually at the expense of net producers (farmers).

### c) Import or export quota

Quotas are limits imposed by governments on the physical quantity of either imports or exports. Like tariffs, import quotas tend to raise the domestic price of the commodity and to increase the income of domestic producers who compete with imports, at the expense of consumers. The main contrast with tariffs is in the distribution of the revenue deriving from the difference in the selling price of the imported commodity; whereas in the case of tariffs this revenue is collected by the government, in the case of quotas it may go in part (or totally) to license holders, who are allowed to buy imported goods and resell them at a higher price in the home market. The gains thus made are known as **quota subsidies** and may to some extent be collected by government if the licenses are sold or auctioned. WTO regulations imply a ban on quotas, which should be replaced by an equivalent tariff.

### **Impact of the CFA franc devaluation in Western and Central Africa**

The CFA franc is the currency of most former French colonies in SSA. It is exchanged at a fixed rate to the euro. The main advantage of this link between an African and a European currency was its effectiveness in guaranteeing price stability. The drawback was the fact that increasing competitiveness through devaluation is not possible. Since the CFA-zone countries export performances were deteriorating, in 1993 the World Bank and the IMF recommended a devaluation (change of parity between the CFA franc and the French franc, to which it was then pegged). This devaluation occurred early in 1994. The devaluation was enormous: the rate of exchange was doubled.

A few months after this historic devaluation, most officials and international bank executives were rejoicing, claiming the operation had been a success and predicting a boom of exports. But after ten years, it must be acknowledged that nothing really significant occurred. One can see that the impact of devaluation on the production of export commodities is not significant after 1994: no serious statistical test will detect a break in the series around 1994 (probably there is only a slight increase in volatility in 1993-1995).

There are many explanations for this. In particular, in the absence of capital and of infrastructure, most producers were not in a position to seize this opportunity to profit by increasing production. Worse, deprived of imports (which of course had doubled in price), they were obliged to reduce production that required imported inputs. Moll and Heering (1998) convincingly show this effect with regard to meat production in west Central Africa. Meat imports from the European Community were considerably reduced, but were not replaced by domestic production. More generally, it turns out that through inflation and price changes, firms and households try to establish again the situation they enjoyed before the monetary adjustment. If they succeed, they progressively adjust the prices of fixed factors, and come back to the *status quo ante* (except that the cost of the fight has to be born by somebody, and usually the weakest). Hence the CFA franc devaluation, far from being the promised outstanding success, was simply one small failure after many others.

### **Taxes and subsidies**

#### *Input subsidies*

Many countries subsidize agricultural inputs – that is, each time an input is sold to a farmer, a certain share of the cost is born by the government and directly paid to the seller. Thus the farmer is provided the commodity at a price below its cost.

The rationale underlying input subsidies is usually to encourage farmers to make use of improved and more productive technologies – the cost and cash requirements of which is assumed to be a disincentive. Since farmers are often poor, have limited productivity, lack cash, are risk averse (and therefore averse to innovation) and poorly informed on the technology available, it is thought that a financial incentive on inputs (including equipment) can help to convince them to use the improved technology by lowering the risk involved.

Another reason for subsidizing inputs has been that if it leads to increased use of inputs, it will also contribute to greater production. This result will help reduce the amount of resources used for imports and, eventually, for purchasing food in order to distribute it to food-deficit households. Overall, the replacement of imports and food distribution expenditures by spending on input subsidies is expected to result in savings<sup>54</sup>.

<sup>54</sup> In more technical economic terms, because the agricultural production function is homogenous and of degree one, the output price alone cannot change the input composition of the output. Only changing the price of inputs can create incentives to change input requirements. Now, if markets are not perfect, it might be in the common interest to choose a particular technique (for instance, a capital-intensive technique) while the present price of labour would preclude it to be made use of spontaneously. In this case, by correcting the input price, the government corrects a market failure.

However, the cost of input subsidies is not always easy to determine. The “real cost” of input should account for the opportunity cost of the usage of the corresponding resource in excess of what it would be without the subsidy. For instance, in India, substantial subsidies are provided for the electricity used for pumping irrigation water. As a consequence, many farmers are obviously overusing irrigation water and wasting electricity. Also, in some places – but this is far from the case in most SSA countries – subsidies on fertilizer and pesticide have led to excessive use, resulting in pollution of groundwater. And when an input-subsidizing country has a porous border with a non-subsidizing country, there is a risk of subsidized inputs crossing the border and a proportion of subsidies benefiting farmers in the neighbouring country instead.

Input subsidies have also been criticized as being socially regressive and of benefit mainly to better-off farmers. Benefiting from the subsidy implies purchasing the input, and the benefit accrued is in proportion to the amount bought; therefore, the greater the quantity purchased, the greater the benefit. Larger and more advanced farmers (from the technological point of view) are more likely to benefit than traditional smallholders.

In addition, the use of input subsidies can create problems with trade partners, who may feel themselves to be the victims of unfair competition. WTO regulations call for a progressive reduction of input subsidies unless they are directed to resource-poor farmers in developing countries (Special and Differential Treatment).

### **Output subsidies**

Farm output or, more frequently, agroprocessed products, can be subsidized as well. The subsidy is established as an equity device to allow wealthier taxpayers to help the poor have access to food. A variety of approaches have been adopted, including targeted subsidies on staple foods (at the processing stage or by creation of parastatals), food distribution (public canteens, school feeding) or food stamps.

These subsidies can also occur as a consequence of overly successful price support policies. Price support policies are in principle designed to increase local production to the level required to feed the country. However, it has often happened in the past that the support price is fixed at a level that generates a surplus. To absorb the surplus, sales are made at below market price to benefit of the poor. In some cases, subsidized exports are also resorted to in order to soak up the surplus (particularly when world prices fall).

WTO regulations warrant the progressive removal of export subsidies, on the grounds that they amount to selling below cost and contribute to lowering international prices, thus preventing the emergence of competitive productive activities. The exact price impact of export (and other) subsidies on world prices of agricultural commodities is a subject of controversy and a source of contradictory estimates.

Food subsidies have tended to be rather resistant to reform, because of the political dimension of the problem. Removal of subsidies on staple foods has in many places led to

riots, for example in Tunisia<sup>55</sup> and Zambia,<sup>56</sup> obliging governments to make U-turns in reform. However, because of financial constraints, the subsidies have tended to decline in most countries, although only progressively; in some cases, food aid has helped to fill the gap to some extent.

### **Investment and credit subsidies**

Among inputs, credit has a particular importance, because it is the key method by which to increase the quantity of capital used in production and therefore in labour productivity, which, as noticed above, is crucial. At the same time, credit markets are generally not working very well in rural zones. Because of the small size of loans requested, administrative costs are very high. In addition, lending to a poor peasant rather than to a rich entrepreneur seems more risky<sup>57</sup>.

In line with the foregoing reasoning, subsidizing credit would therefore be quite justified. The subsidy could be given either as a rebate on interest rates through some agricultural bank, as was done in France after World War II, or as a subsidy on the capital goods (tractors, oxen etc.) that the credit makes it possible to purchase.

Yet one may question the rationale for this kind of subsidy. The main obstacle for a poor farmer to borrowing is not in general the cost of the credit, because, as a rule, the expected profitability is far greater than the rate of interest. Indeed, the profitability of capital is as a rule enormous in such circumstances. The real obstacle is the risk associated with borrowing, which (together with the high cost of administration for small loans) explains the high rates of interest currently charged. One may wonder whether measures designed to lower the level of exposure of the poor to risk of any kind, including the risk of not selling output at the expected price, would not be more appropriate.

### **Direct subsidies and decoupling**

Direct payment of an income supplement to producers is another approach to subsidizing agriculture. In this case, farmers remain exposed to unaltered market signals. To avoid change in producers' behaviour and so as not to affect the market, farmers are paid a lump sum independent from production. In that way, they enjoy a minimum income, and it is expected that they will respond efficiently to market signals. The advantage of this system is that benefits can be equitably distributed among target beneficiaries, or alternatively, targeted at the poorest recipients.

Direct payments to farmers can also be justified on the ground that farmers produce externalities, i.e. goods that, by their very nature, cannot be sold on a market, because it is not possible to restrict its usage to a specified client who could pay for it. Such externalities include environmental services, landscapes, cultural heritage and food security, as shown by ROA (2002).

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<sup>55</sup> January 1984; see Louafi (2000).

<sup>56</sup> 1986, see Gutner (1999).

<sup>57</sup> This is not necessarily true: very (apparently) rich people can be crooks, while the poor often are anxious to reimburse their debts. A famous study of the Irish system of the "bank for the poor" during the 19<sup>th</sup> century shows that in that country, the risk was not so much the bankruptcy of the debtor as the dishonesty of the cashier, who, sometimes, disappeared with the cash.

Drawbacks include:

- A potentially high cost for the government, if payment is done across the board;
- the management of payments requires a good administrative service, because reliable information is needed as well as safeguards against corruption and embezzlement; and
- unfavourable equity considerations, insofar as the system will make farmers a separate category of citizen, with the right to be paid money from the government without making a compensatory contribution.

Even the most ardent proponents of decoupling admit that it should not be a permanent feature. In addition, it is mostly out of the reach of African governments due to cost. It must nevertheless be mentioned here for the sake of completeness, and because it is a hot issue in WTO discussions.

Direct payments have been put into the WTO “blue” or “green” boxes, depending on their exact nature and fully authorized as it is generally agreed that they do not strongly distort markets. However, it is clear that any payment will have some impact on the way producers behave, particularly with respect to risk-taking: lump sum payments can encourage farmers to engage in new and relatively risky ventures and increase their production capacity, thus generating additional production. In that sense, they are very far from being “decoupled”, and there is some sense in the claim by various African governments that, if one wants “free markets”, then direct payments should be removed, as are all other payments.

### **Taxes and tax exemptions**

Taxes are a powerful instrument for generating government revenue but also for orienting the price system in a direction deemed desirable by policy-makers. Apart from import and export taxes, there are a number of other indirect taxes that can affect agriculture, such as specific commodity excise taxes (including excise that is often used to fund commodity-based organizations and the services they provide), taxes on inputs (fuel) and road taxes. Direct taxes (tax on individual income or on benefits made by companies) are also important.

Governments have extensively used tax exemptions to help certain sectors or subsectors develop by raising their profitability and attractiveness (a sector exempted from taxes sees its terms of trade with the rest of the economy improve). Although exemptions can be useful to help new industries establish themselves (as is the case with import tariffs on products produced by industries in their infancy), their persistence can create distortions and a feeling of lack of equity.

The most frequently advocated tax is the value-added tax (VAT). The main advantage is that the tax is paid on the difference between the value of output and the value of inputs. In that way, the number and variety of transaction steps within the commodity chain does not change the level of the tax, ultimately paid by the final consumer. Yet it is possible to adjust the rate of the tax for various reasons. For instance, on the grounds that food must be cheap for the consumer, a low level of taxation for food is possible, while luxury goods can be taxed at a maximum rate. However, it is difficult to put such a system into practice with illiterate farmers and in cases where economic transactions are informal.

The land tax is an important instrument for agricultural development for two reasons. First, it can be a strong inducement to more intensive agriculture, because farmers have to generate income in order to pay the tax. However, it requires a system of land registration (which has the other advantage of making land usable as collateral for credit). Taxes on land and capital



have a definite advantage over taxes on products because they can be made progressive (the tax is higher for the rich than for the poor).

### **Price stabilization and guarantees**

It has been shown above that price uncertainty is a deterrent to investment. It is then quite natural to expect that some sort of price guarantee or stabilization procedure would help promote investment. But price uncertainty can be reduced in many ways, a topic discussed below.

#### **Price guarantees**

##### *a) Principles and institutional setup*

Guaranteed farm gate prices are very common in developed countries. Although modalities may vary, the essential approach is that governments (or government agencies) advertise that they will in all cases pay a minimum price for a certain commodity, whatever the quantity supplied. Probably the first historical example of such a policy is the U.S. Farm Act of 1935 (although similar rules were introduced in France some years before, for wine). After World War II, such price-guarantee schemes became commonplace.

Price guarantees may be granted under a variety of institutional settings. The simplest is probably when the government directly buys the commodity in question in public stores. However, this scheme is not the most convenient, because it implies that the government is playing the role of a trader and reselling the commodity to final users. This function is often delegated to auxiliary institutions, which may themselves cooperate with private traders. For instance, private firms may be in charge of operating trading and storage activities paying farmers the guaranteed price, and then be compensated for the losses they incur by a government agency.

Since consumer prices are linked to producer prices, the domestic price for the supported commodity at least equals the producer price (in practice it should be above that, in order to pay for transportation and processing costs). An automatic consequence is that border protection must be enacted in the event that the world price is temporarily or permanently below the guaranteed price. This explains the EC "variable duties". Similarly, export subsidies would be required should production exceed domestic demand, if stockpiling is ruled out. As long as the country is a net importer, the system is costless to the government; it even generates revenue paid by consumers. If the country has a surplus, it generates a cost to the government (that is, the taxpayer will have to pay).

##### *b) Advantages and drawbacks*

The main advantage of guaranteed prices is that farmers can use them in their calculations of projected income with less risk of error. (Although price-related uncertainty has been eliminated, risks related to disease, drought, flood etc. remain.) Bankers are also more certain that, if a borrower works properly, he or she will not be ruined by a sudden fall in prices. Since it is easier for a banker to check whether a farmer is competent than to predict prices for the next season, this allows for an efficient distribution of credit. As a consequence, as production and labour productivity in agriculture are highly dependent on capital endowment, eased access to credit should help to achieve a higher production. A large share of the increase in agricultural production in developed countries since World War II can be ascribed to such mechanisms. In many developing countries, local increases in some cash crops have also resulted from such pricing schemes<sup>58</sup>.

<sup>58</sup> Boussard and Gérard, 1992

The most direct economic effect of price guarantees is, however, the possibility that, depending on the level of the guaranteed price, it may encourage excessive allocation of resources in a particular subsector, thus creating some economic inefficiency. The mode of operation of the guarantee system can also offer opportunities for subsidy-seeking and corruption. Another drawback is that the guaranteed fixed price implies a politically unacceptable consumer price and that funding of the operation of the system puts a heavy burden on the government budget. Last, if the guaranteed price is fixed too high, a production increase generates a surplus that leads to either stockpiling (with related costs) or (usually subsidised) exports. A way to address this problem has been to control supply at the same time as prices. This is the "quota" policy that has been adopted in many developed countries (EU for milk and sugar beets, Canada for milk and some grains etc.). The question of surpluses (and eventual quota policy) is, however, not likely to be relevant to most SSA countries in the near future.

Guaranteed prices are not compatible with WTO rules because they have to rely on variable levies, which are not allowed. Also, if the guaranteed price is higher than the world price, the difference will be considered as a measure of support, which if it is above the commitments of the country (including *de minimis*), could be challenged by trade partners.

### **Price management**

A "soft" version of guaranteed prices is "price management". Here, farm gate prices are never given any fixed value. However, external trade is controlled – for instance, import and export licences are granted to businesses by the government. When the domestic price is deemed "too low", export licences are liberally granted so that excess supply is sold on international markets. When the domestic price is "high", import licences are granted to allow for the domestic market to be supplied through imports.

In this way, domestic prices remain flexible (and thus, to some extent, uncertain) but large deviations from the "normal" price are avoided. This is a way of providing security to farmers, while at the same time completely ignoring market signals. This policy carries basically the same risks as guaranteed prices, but yielded remarkable successes in countries such as Thailand during the 1960s and 1970s.

### **Public insurance schemes and stocks**

Farming is a risky business and risk and uncertainty in agriculture are a constraint on production. They are also factors that lead to transitory food insecurity. The normal remedy to risk is insurance, but insurance does not suppress the social cost of risk. The payment of an insurance premium by one person contributes to the financing of the disaster met by another. For the individual who experiences the disaster, insurance has reduced the cost, but overall, the disaster has still to be paid for. In that sense, insurance can be considered in the same light as any other input.

Similarly, stocks are another way by which society handles risk. Storage is only a process by which a commodity produced now is made available later. Over a period of years, or within a country with diverse climatic conditions, stocks can be considered as an in-kind insurance contract.

Insurance and storage schemes have for long been a subject of discussion when considering food and agricultural policies, essentially because the special nature of risk in agriculture makes the proper functioning of most insurance contracts problematic (hence the limited private sector involvement in such activities and the tendency to have public schemes deal with agricultural insurance and food stocks).

Insurance is an application of the “law of large numbers.” If the number of insured persons is sufficiently large (for example, a few thousand in the case of car insurance), then each individually insured disaster (e.g. car accident) has a small cost compared to the total cost of all disasters, and the probability of one disaster for a particular insured person is completely independent of the probability for the disaster to occur for another insured person. The case is completely different when climatic or price risks are at stake. While climatic risks are generally fairly small in global terms, in a given region, all farmers will be affected at the same time, thus creating a risk that cannot be considered “small” by a regional company. Also, damage assessment is difficult and costly. As a consequence, private insurance of most agricultural climatic risks is not feasible. Of course, the same argument broadly holds for storage. Price insurance is even more problematic.

As for other cases of “market failure”, there is a need for the state to intervene to fill the gap with safety nets, storage systems, subsidized insurance schemes etc., which are compatible with WTO regulations (“green” box measures).

### **Public goods (rules, regulations, infrastructure and services)**

Public goods are essential elements of the environment in which economic agents operate. Because of their characteristics of low **excludability**<sup>59</sup> and low **rivalry**<sup>60</sup>, public goods suffer from market failure. Typical examples of public goods of relevance to agriculture are the law, the rules and regulations established by public agencies, and the services provided the police, the judiciary system, and agricultural inspection agencies. These are typically provided by the government and paid for out of taxation as they potentially benefit all members of the community and ‘free riding’ makes it difficult to charge users directly for these services. However, for many agricultural services the degree of excludability or rivalry is often determined by the precise nature of the service and the conditions under which it is delivered. Thus similar services, such as extension advice, may be delivered by the private sector in some situations but can only be provided efficiently by the public sector in others<sup>61</sup>.

The importance of public goods for agriculture has already been underlined. The absence of such facilities lead to situations such as:

- difficult access to markets because of lack of roads, lack of market information and absence of quality standards (or their poor enforcement);
- limited adoption of improved technologies for lack of effective technology production and outreach facilities (research and extension networks);
- low productivity of labour for lack of access to education and health services.

Another economic advantage of the provision of public goods in rural areas is that it will increase job opportunities, thereby contributing to income generation. In Africa, public resources allocated to the production of public goods for agriculture has seen its share in total government budget shrink. It is also lower than in other developing regions as shown in the report.

<sup>59</sup> Low excludability means that it may be difficult to exclude people from ‘free riding’ and enjoying the benefits of goods and services even if they have not paid towards their provision. Producers would find it difficult to recoup the full costs of their provision and, from an economic efficiency viewpoint, would thus tend to under-produce such goods.

<sup>60</sup> Low rivalry means that one person’s consumption of the commodity does not reduces its availability to others. As the cost to society of additional consumers enjoying the benefits of pure public goods is zero, economic efficiency requires their price to be set at zero. As a result it would not be profitable for the private sector to attempt to sell these goods.

<sup>61</sup> This paragraph and its footnotes are extracted from: Smith 2001.

Public goods and services are generally budget-funded (central or local governments), even if some of their costs can be charged to the end-users. However, this option requires consistent commitment over time and is necessarily limited for many resource-poor African governments. Therefore, financing the development of public goods, including their maintenance or replacement over time, would require: (1) reliable external sources of funding that do not hamper excessively governments' budget; and (2) forms of private-sector involvement in selected areas where it can find some interest through public-private partnerships. The latter may, in some instances, take indirect forms, as already demonstrated in a number of cases in Africa, such as commodity-linked para-fiscal or levy mechanisms to finance research and extension services (e.g. tobacco in Malawi).

### Reform of the institutional framework

In the past, considerable importance has often been attributed to land regimes, on the grounds that "securing access to land" is the key factor in increasing food supply and developing agriculture<sup>62</sup>.

Today, the problem of securing access to land in Africa has two basic dimensions:

- allowing farmers to use their titled land as collateral for obtaining credit
- protecting the right of communities against encroachment by large foreign or national investment companies

It is obvious that a landless farmer cannot produce much. Therefore, a minimum quantity of land per worker is necessary. However, one should never forget that *the quantity a worker can manage depends essentially on the quantity of capital he or she has*. Only if sufficient capital is available can a farmer produce more than what is required for subsistence. Overlooking this important fact is the reason why so many land reforms have been failures. Provided with land but deprived of capital, beneficiaries of land reform could not make full productive use of the asset given to them, sometimes putting in jeopardy the overall economic conditions of the country because of a sharp drop in production. It is noteworthy that the mass of farmers benefiting from land reforms are generally unable to make use of the capital abandoned by the former land owners, as the machines in question are tailored for a large-scale, capital-intensive, labour-saving usage, whereas the new agrarian structure requires equipment designed for individual small- or medium-sized farmers.

The issue of economies of scale and the alleged advantage of large farms over medium and small farms has already been discussed. Successful land reforms in the past took this question seriously. For instance, in the French Revolution a number of landowners were killed or forced to run away. But at the same time, a sound monetary policy was set up, distributing an adequate amount of liquidity across the country to allow moderately rich people both to acquire the land sold by the state and, at the same time, increase the quantity of capital invested in farming. Very poor people did not benefit from the reform, but a development process was triggered. Above all, the system made possible the creation of a class of small landowners.

Whatever the context, the existence of a cadastre (an enormous public investment in Europe and the United States during the nineteenth century), and of a judicial system guaranteeing property rights was essential. These conditions are also *sine qua non* for the emergence a land market, which contributes to a more efficient allocation and use of land.

<sup>62</sup> A complete analysis of the problem is provided in Platteau (1992) and Platteau and André (1996).

### Synthesis of agricultural development policy options

| Policy Instrument                                   |                      | Market failure/<br>risk targeted | Efficiency/<br>return | Possible<br>targeting on<br>the poorest | Cost                             |
|---|----------------------|----------------------------------|-----------------------|---|----------------------------------|
| Category  | Options              |                                  |                       |   |                                  |
| <i>Import tariff</i>                                |                      |                                  |                       |   |                                  |
|   | Fixed tariffs        | Not explicit                     | Indeterminate         | Small (target-commodities)              | Consumers                        |
|   | Variable tariffs     | Price volatility                 | Positive              | Small (target-commodities)              | Budget (moderate)                |
| <i>Investments in the provision of public goods</i> |                      |                                  |                       |   |                                  |
|   | Infrastructure       | Public good                      | Positive              | Possible                                | Budget                           |
|   | Research & extension | Public good                      | Positive              | Possible                                | Budget                           |
|   | Education            | Public good                      | Positive              | Possible                                | Budget                           |
|   | Health               | Public good                      | Positive              | Possible                                | Budget                           |
| <i>Subsidies</i>                                    |                      |                                  |                       |   |                                  |
|   | Input subsidy        | Not explicit                     | Indeterminate         | Small (target-input)                    | Budget                           |
|   | Output subsidy       | Not explicit                     | Indeterminate         | Small (target-commodities)              | Budget                           |
|   | Direct payment       | Not explicit                     | Indeterminate         | Possible                                | Budget                           |
| <i>Tax exemption</i>                                |                      | Not explicit                     | Indeterminate         | Possible                                | Budget                           |
| <i>Price guarantee</i>                              |                      | Price volatility                 | Positive              | Small (target-commodities)              | Consumers and budget (surpluses) |
| <i>Subsidised insurance scheme</i>                  |                      | Price/yield volatility           | Positive              | Possible                                | budget                           |
| <i>Supply control</i>                               |                      | Non explicit                     | Positive              | Small (target-commodities)              | Consumers or budget              |

## POLICY ASSISTANCE WORKING PAPERS

|              |  |   |
|--------------|--|---|
| <b>0/1 E</b> | FAO Subregional Office for Southern and East Africa                | Food security and agricultural development in sub-Saharan Africa - Building a case for more public support<br>Background document                   |
| <b>0/1 F</b> | Bureau Sous-régional de la FAO pour l'Afrique de l'Est et Australe | Sécurité alimentaire et développement agricole en Afrique sub-Saharienne - Dossier pour l'accroissement des soutiens publics<br>Document de Cadrage |
| <b>0/2</b>   | FAO Subregional Office for Southern and East Africa                | Food security and agricultural development in sub-Saharan Africa - Building a case for more public support<br>The Case of Ethiopia                  |
| <b>0/3</b>   | FAO Subregional Office for Southern and East Africa                | Food security and agricultural development in sub-Saharan Africa - Building a case for more public support<br>The Case of Kenya                     |
| <b>0/4</b>   | FAO Subregional Office for Southern and East Africa                | Food security and agricultural development in sub-Saharan Africa - Building a case for more public support<br>The Case of Malawi                    |
| <b>0/5</b>   | FAO Subregional Office for Southern and East Africa                | Food security and agricultural development in sub-Saharan Africa - Building a case for more public support<br>The Case of Nigeria                   |
| <b>0/6</b>   | FAO Subregional Office for Southern and East Africa                | Food security and agricultural development in sub-Saharan Africa - Building a case for more public support<br>The Case of Tanzania                  |
| <b>0/7</b>   | FAO Subregional Office for Southern and East Africa                | Food security and agricultural development in sub-Saharan Africa - Building a case for more public support<br>The Case of Zambia                    |