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PRODUCTION SUBSIDY AND FOOD
SELF-SUFFICIENCY IN AFRICA

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I. INTRODUCTION

The establishment of a self-sustaining process of economic growth and development is the internal affair of Africa. The continent's on-going economic crisis is rooted in major problems of mass poverty, food shortage, low productive base and backward technology. The problems, in turn, arise from the nature of the structures of African production, consumption, technology employment and socio-political organizations whose manifestations in the continent include the predominance of subsistence and commercial activities in national economies; a narrow, disarticulated and production base ill-adapted to improved technologies; a neglected informal sector; lopsided development due to urban bias of public policies generally and development policies in particular; extremely fragmented economies; excessive openness and dependence of the economies on external factors; and weak institutional capabilities (ECA, 1989).

The attainment of self-sustaining growth and development in Africa can therefore only come from the transformation of the continent's economic and social structures. The problem is first and foremost one of the transformation of the structure of production with due regard to what is produced and how it is produced. In this regard, the on-going African economic crisis has firmly established the validity of Africa's stated objective of attaining food self-sufficiency and the need to focus on the production of all of the continent's critical needs and services (ECA, 1989).

It is interesting to note, however, that most of the reform programmes presently being imposed on African economies continue to emphasize an important role for international trade, mainly with the developed market economies, to meet the food needs of Africa. Even though the major international financial institutions have now openly acknowledged the unrealistic assumptions surrounding unlimited free trade between Africa and the developed market economies, they continue to hypothesize favourably on the desirability of continued African dependence on food imports to meet its food requirements.

The fact is that many food surplus developed economies fully appreciate the need for managing their own food economy. For example, the recently published long term perspective study of the economic crisis in sub-saharan Africa (World Bank 1989), clearly admits that subsidies in North American and Western Europe have

created abundant supplies and lowered the prices of cereals and livestock products which have been dumped into African markets thus creating considerable externalities for African agricultural producers. The past and present actions of these developed economies vis-à-vis Africa would suggest that they have traditionally been unwilling and will continue to be unwilling to concede to the need for a global management of the world food economy. This attitude, and the fact that the internal process of adjustments and resource reallocation necessary to capitalize on changing world food conditions are much more difficult for the narrowly based and less diversified African economies than for their rich counterparts in the Northern hemisphere, would suggest that African countries should not expect universal benefits from free trade under existing world trading relations.

Historically food shortages in Africa have been filled by imports from the developed Western World. The FAO has estimated that the aggregate cereal import requirements of sub-Saharan Africa in 1988/89 was 8.2 million tonnes, mostly wheat and rice. As incomes have increased, rice and, to an increasing extent, wheat for bread have reduced the interest of Africans in traditional grains such as sorghum, millet, and maize as well as their interest in non-grain substitutes such as yams, cassava, and plantains.

- Many African governments have found it necessary to encourage the importation of food as a quick and less painful way of meeting food gaps and defusing political pressures from the urban centers. Over 50 per cent of these imports come from commercial purchases. The FAO has also estimated that the cereals import bill of sub-Saharan Africa in 1989 was about US\$1,000 million. High and rising world cereal prices means that Africa's cereals import bill is likely to rise sharply during this new decade if current trends continue. What is worse, these escalating import costs will come at a time when many of the African countries are facing growing external debt burdens, higher interest rates, deteriorating foreign exchange reserves, and restriction on essential imports as part of government austerity and structural adjustment measures.

If present trends continue, by the year 2010 food imports into Africa would cost US\$28.5 thousand million at constant 1989 prices compared to agricultural export earnings of, at most, US\$12 thousand million (FAO, 1989). No plausible combination of commercial food imports and food aid could meet the deficits that such a magnitude of food imports would entail. In any case, the volume of food imports and food aid that would be required would exceed the existing and, probably, the foreseeable transport and distribution facilities of many African countries.

The fact is that most trade in food takes place between the developed countries and these developed countries have intrinsically subsidized production for exports during surplus periods and stepped ahead of African countries to purchase high priced food during periods of scarcity. There is now very little doubt that the world food system gains much of its stability from separate production decisions within nations rather than from collective storage or trade decisions among nations (Paarlberg, 1978).

The last two decades have also seen the increasing use of food as an important factor in international diplomacy and as a political weapon. This fact together with the current stereotype of sub-Saharan Africa as a continent of hungry and deprived people, would suggest that agricultural administrators and policy makers in Africa, should review their position with regard to the obviously conflicting goals of ensuring adequate food supplies at reasonable prices through food imports and developing food self-sufficiency capabilities. While this is not to categorically deny the potential benefits of free trade under the right environment and, particularly among African countries themselves, it does point to the need for a reorientation of African development strategy towards continental food self-sufficiency based on increased local production and more vigorous sub-regional and regional cooperation.

The achievement of the above goal will require the intervention of African governments at the level of production, marketing, consumption, and trade. Well designed and well targeted incentive schemes to stimulate and generate the needed increased agricultural production in Africa would be needed. Despite the numerous indictments currently levelled against it, production subsidies continue to be one of the most potentially useful tool for attaining the food self-sufficiency goal of Africa. The purpose of this report is to examine the role that agricultural production subsidies can play in the goal of attaining food self-sufficiency in Africa.

II. THE THEORY OF AGRICULTURAL PRODUCTION SUBSIDIES

In the world of perfectly competitive markets the theory is incontrovertible that under certain well defined conditions, general equilibrium prices which will result in maximum production and exchange efficiency in all sections of the economy, will be generated automatically. This is the so called state of pareto optimality, in which no-one can be made better off without someone else being made worse off, which is traditionally used to make a

case for allowing the market system to operate freely and without government intervention as well as for private entrepreneurship and competition in all areas of economic activity.

There are several reasons why governments in both the developed and developing countries have readily intervened in the markets of their economies despite their knowledge and apparent faith in the benefits derivable from free markets and private competition. First of all, it is now clear to any objective policy maker but particularly to those who must work in Africa that most markets do not exhibit the ideal characteristics of perfect competition and that the actual benefits of a world of free trade can only be demonstrated in the diagrams and models of economists.

Secondly, even from the theoretical angle, it can be shown that any given pareto-optimal equilibrium point depends on the ownership and distribution of factors of production which, in turn, determines the distribution of income and effective demand. In other words, there exists a large number of possible pareto-optimal equilibrium points representing different patterns of distribution of ownership of factors of production and income. Government policy decision in this regard becomes a subjective choice regarding which of the many possible distributions is to be preferred in the face of many conflicting interests, in order to maximize the social welfare of the society.

Thirdly, when "public goods" or "public bads" exist, state intervention in the operation of the markets is usually called for. Public goods are outputs whose production is available for consumption by everyone irrespective of their willingness to pay for them while public bads arise in situations where private economic activities results in costs which are not borne by the consumer or producer of the product.

The final choice of policy is therefore a political one depending on government development objectives. Because different policies will have important trade-offs between efficiency and equity and since there is no objective way of determining the socially optimal allocation of resources for the whole of society, the choice of policy with regards intervention by government in the market, is usually resolved through the political process of each country.

The rationale for this intervention is supported by the theory of the second best (Lipsey et.al 1956) which states that if for some reason market imperfection exists in one of the factor markets in the economy, it would be impossible to achieve the exchange, production, and output efficiencies necessary for a pareto-optimal market equilibrium or first-best solution. In such a case only a second-best solution can be attained. In fact Lipsey and Lancaster

(1956) do show that where competition is distorted in one sector, the optimal second best policy is to introduce countervailing distortions in other sectors. In other words, the theory of second best can be used to argue for the use of government intervention to neutralize the effects of distortions in global markets in the face of changing market circumstances.

As emphasized in the introductory section of this report, the expansion of African trade has in the past been seriously constrained by protectionism from the continent's principal trading partners. Most of the products in which African countries have a comparative advantage and the markets for labour intensive light industries that provide the most promising avenue for African export development have traditionally been confronted with high protectionists barriers. Under these conditions, it is obvious that the first-best conditions for production and exchange discussed above cannot prevail in the trade relationships between Africa and the rest of the world. Under these circumstances, it can be shown that the most optimal policy to follow by African countries is not to open up national markets and liberalize trade but to either impose certain tariffs or subsidies or to seek a customs union in which there is free trade with a restricted number of neighboring countries [Colman and Young (1989)]. In other words, under these conditions, a strong case can be made for direct government intervention. In both the developed and developing countries governments have traditionally intervened to subsidize production whenever they have felt justified to intervene in the production and exchange of output in their national economies.

The Rational for Agricultural Subsidies

In general, subsidies involve consumers of products and inputs paying less than their sellers receive. This often involves a government intervention which results in the owner of a factor of production receiving a different sum from the price paid for the resource by the producers, or a consumer paying a different price for a product than that received by the producer. In the agricultural sector, such a policy intervention is intended to generate and stimulate rapid agricultural production.

Subsidy schemes to stimulate and generate increased agricultural production are not new in Africa. During the colonial period, free seeds and seedlings and generous credit were given to farmers to encourage them to produce export crops destined for the industries of the developed countries (Akinola, 1987). Since the attainment of independence, the development plans of most African countries have called for various forms of subsidies to stimulate development or consumption of some desired product, activity or service, to stimulate development of a particular area, to redress

deficiencies in income distribution, to reduce risks of speculative activities, or to encourage an activity that yields external economies.

The most traditional use of subsidies in Africa since independence have, however, been directly for or related to the agricultural sector. There are several reasons for offering subsidies in the agricultural sector including: to make the country self-sufficient in a particular food crop or agricultural product; to earn foreign exchange; and to generate income and employment. Furthermore, when African governments have undertaken projects involving irrigation and related infrastructure development, created government departments to or parastatals for supplying inputs or marketing outputs, expanded credit availability at low interest rates, and enlarged extension and agricultural research services, these activities have implicitly embodied elements of subsidy.

In most African countries the agricultural sector, which is the most important sector in terms of income and employment generation, is dominated by peasant subsistent farmers who produce the bulk of the agricultural products and constitute the majority of the population. Since these peasant farmers usually produce for their own consumption, the market mechanism is often not very relevant to their production decisions particularly since their risk bearing capabilities are limited by subsistence and family considerations. Subsidies provide a useful means for overcoming these problems by making production for the market more attractive to them and by reducing their perceived risk of the production system.

The price responsiveness of African farmers to input prices is now well accepted in the literature even though their own-price elasticities of demand for critical farm inputs such as fertilizers, pesticides, hired labour, and improved seeds are significantly negative (Akinola, 1987). This fact, together with the well recognized potential of subsidies as an instrument for rectifying distortion introduced by the existing marketing structure in Africa, provides a very strong argument for using subsidies to attain accelerated adoption of new farm inputs and attaining food self-sufficiency in the African context.

The most common purpose of subsidies in this context is to encourage farmers to use modern inputs such as fertilizer, improved seeds, and protection chemicals to expand food and agricultural production. Such subsidies will help push African farmers from a low rate of adoption of innovative agricultural prices to more aggressive adoption. Because the prices of these new inputs are usually higher vis-à-vis the prices of the commodities they are used to produce, input subsidies also ensure that the appropriate

level of input use is maintained even in the face of unfavorable product prices. Since the production of these inputs often exhibits economies of scale, subsidies for inputs will also expand the total domestic market for them and make the local manufacturing of inputs such as fertilizers and pesticides, and the establishment of viable national seed services and other agricultural distribution facilities more economical.

By using subsidies to attain food self-sufficiency a government is indeed saving foreign exchange since the amount of foreign exchange that would otherwise have been used to import food would be saved. However, the saving achieved here may be offset by the foreign exchange that would be needed to import the subsidized inputs.

A more direct way of using subsidies to earn foreign exchange is by using them to encourage the production of export crop production. Two types of export promoting subsidies are possible here. There will be those subsidies that directly promote export crops and those that assist the production of a particular industries but which also indirectly enhance the export position of the country when some of the output is exported. Both types of subsidies are relevant for the African context for several reasons.

First of all by embarking on the goal of food self-sufficiency, African governments would, in essence, be pursuing a policy that shield's their food production sectors from competition with imported food by restricting food imports. Such a policy will tend to appreciate the real exchange rate of African countries and thus make exporting less attractive as compared to producing food crops for local consumption. Export promoting subsidies will help to ensure the right balance between food crops and export crops production and improve the efficiency of resource allocation in the agricultural sector and in the economy at large.

Secondly, the continent's large external debt and the current difficulties faced by most African countries in servicing their debt, means that many of them may find it useful to subsidize export crop production. While the continent's debt servicing burden by itself may not provide sufficient reason for subsidizing export crop production as there exists other means for servicing the continents debt, an export promoting subsidy designed as part of a strategic trade policy certainly has considerable merit for Africa. Such a policy would enable a government to provide assistance to a group of export producers as a way of enabling them to, in turn, assist the government to achieve a strategic objective in international markets that is of national benefit. The essence here would be to contribute towards a survival strategy in an international market arena characterized by declining commodity prices and deteriorating terms-of-trade for African commodities and

propelled by a benign effort to disrupt African economies in the name of international solidarity. The general aim of such a policy would be to try to persuade the continent's major trading partners to desist from trading practices that are well known to be harmful to African economies thus enabling Africa to foster and sustain its production and exchange.

Types of Agricultural Production Subsidies

There are several ways of classifying agricultural subsidies, many of which are quite ambiguous. One useful way is to classify them according to the level in the production and distribution system at which they are applied. The level of application in this case could be either directly at the farm level or at the national border. Subsidies applied at the farm level permit the amount and type of economic activity in domestic farming to be adjusted relative to the levels which would be dictated by competitive pressures from national and international markets. Those applied at the boundary level alter the relationship between the domestic and international markets by shifting the relationship between domestic and international prices and the volume and direction of trade flows from their free trade levels. Colman and Young (1989) provide the following definitions of the different types of production subsidies under these two classification:

1. Farm level

- (a) Production subsidy - a fixed or proportionate subsidy paid per unit of output;
- (b) Input subsidy - subsidies per unit of a variable input used.

2. Border level

- (a) Export subsidies - fixed proportional, or variable subsidies used to promote exports.

Another method of classifying subsidies is by considering whether they are applied directly or indirectly. Direct subsidies would be applied directly on an output or input to attain a desired objective such as the equalization of prices among regions or among outputs and inputs. These subsidies often involve government payment to some group in the production or marketing chain. Quite often there are restrictions to the application of direct subsidies with regards the type of farm or crop enterprise to be subsidized. For example, direct subsidies may be limited to small farmers or to producers of specific crops.

Indirect subsidies, on the other hand, are applied to a related activity in the economy whose promotion contributes towards increased production of a targeted output. For example, fertilizer transport subsidies could be implemented as a way of reducing costs of production in the remote areas of a country. Another type of indirect subsidy takes the form of concessional credit terms for the purchase of targeted inputs.

Implications of subsidies

The most common type of subsidies in African countries involve agricultural inputs and are designed to encourage farmers to use targeted inputs as a means of increasing agricultural production. The analysis below which is intended to theoretically bring out the implications of subsidies on African agricultural production is therefore restricted to input subsidies.

Following Colman and Young (1989), Figure 1(a) shows the agricultural supply curve without subsidies as, the domestic demand curve as DD, and the world supply curve as aS the horizontal line P_w . At the domestic equilibrium price P_e where domestic supply equals demand, the trade volume would be zero. This point is projected as m in Figure 1 (b) which indicates zero imports at price P_e . Domestic supply (without subsidy) q_s is equal to domestic demand q_d at world price P_w . At this price imports would be $q_d - q_s = i$, which is plotted in figure 1(b) as point n.

The introduction of an input subsidy reduces the marginal costs of production to farmers resulting in a shift of the supply curve towards to the right to aS. The assumption here is that higher output requires more use of the subsidized inputs. It is also assumed that the introduction of the subsidy causes no change in the market price of the product and so demand remains unchanged at q_d , but domestic supply increases to q'_s . The cost of the subsidy, which represents the amount of the producer costs which is borne by the government is the value equivalent to the shaded areas A + B + C in figure 1(a).

As a result of the subsidy, producer surplus increases by A + B. This is the difference between the prices the producers actually receive for the commodity and the price that just equals the marginal cost of a quantity supplied. C then is the element of resource cost required to expand output from q_s to q'_s .

Looked at in another way, the subsidy results in additional resources amounting to the value of the shaded areas B + C + D being put into production. Output then expands and inputs decline by the same amount and there is a foreign exchange saving of B + D (F + E in figure 1(b)).

From both alternative analyses of the implications of input subsidies above, the critical decision variables are the size of C and other additional longer-term benefits of relevance which may not be captured in the producer surplus gain. In the above analyses, the value of C would become insignificant if the input subsidy induces African farmers to adopt targeted inputs to increase production to targeted levels so that even if the subsidy is later reduced or even withdrawn, the use of the inputs involved and production are shifted to higher levels than would otherwise be the case.

Input subsidy versus price support programmes

In the proceeding analyses, government intervention to increase agricultural production through the use of subsidies at both the farm and frontier levels were discussed. The government can also intervene at the domestic market level through a variety of price-support programmes to achieve its objective of increased agricultural production. The instruments open to governments here include the operations of state marketing boards aimed at raising or lowering the prices received by farmers, the implementation of food subsidies to raise the consumption levels of targeted food items, intervention buying by government parastatal to help establish a floor price, etc. The principal objective of these policy instruments is to try to establish a price that will induce farmers to increase agricultural production to targeted levels.

Both input subsidies and price support programmes have the same objective, that is to increase agricultural production to desired levels. The former achieves this objective by reducing the cost of inputs thereby shifting the supply curve to the right while the latter aims at achieving the same objective by increasing the producer price thus increasing the supply by movement along the supply curve (Figure 2).

In Figure 2, the main features of a subsidy and a price support programme are described. The intersection of the demand curve DD and the original supply curve S_0S_0 , determines the equilibrium price, OPE , and quantity supplied, OQ_E , in the case without government intervention. At a price OP_D , the consumers demand OQ_D amount of the commodity. The government considers this quantity to be the target quantity of its agricultural price policy. It can provide this amount by purchases abroad of the amount Q_1Q_D at the world price P_W , however the government would like the country to be self-sufficient in this commodity, hence it decides to use either an input price subsidy programme or a price support programme. The input price subsidy programme shifts the supply curve to S_1S_1 . The farmers receive the price P_D , which is less than the equilibrium price P_E , but any loss in farmer revenue is compensated by a reduction in input costs. The price support

programme increases the producer price to P_s while the consumers pay only P_d . In the first programme, the government cost is the cost of the subsidy. In the second programme, the government cost is the area P_dABP_s or the cost of the programme which exceed the revenue received from the consumers.

The choice between the two types of programmes is not clear, and it is possible that the best policy is a combination of the two types of programmes. The major arguments in favor of either of these programmes are outlined below:

- (1) The subsidy of purchased inputs encourage the use of these inputs by the farmers. Such a subsidy may facilitate the introduction of new agricultural technology, while the support price does not discriminate among the inputs;
- (2) The small-scale farmers may not be familiar with purchased inputs such as fertilizer. Hence, they are not very sensitive to changes in input prices, *i.e.*, the level of purchased input price plays a minor role in their production decision. As they become more familiar with the input, their responsiveness to input price changes may increase. If the increased input price is covered by increased product price, the farmers are likely to be less responsive to input price changes;
- (3) An input price subsidy cannot discriminate among products while a price support programme can alter the intercrop mix. Thus, if the government hopes to increase the production of a particular commodity, the input subsidy may encourage the production of alternative commodities, whereas the price support encourages the production of the particular commodity;
- (4) If the input subsidy does not increase output as quickly as the support price, the long run cost of the input subsidy programme may be greater than the short run cost of the programme. This increase in cost may occur because, although the input subsidy avoids an immediate increase in input price, it may not avoid a long run increase in input price;
- (5) The farmers production decision is likely to be more affected by falls in the product price than increases in input price, particularly if the input only compose a small part of the total cost of production. Thus, the support price will provide a better protection of the farmers' income, resulting in a larger output response;

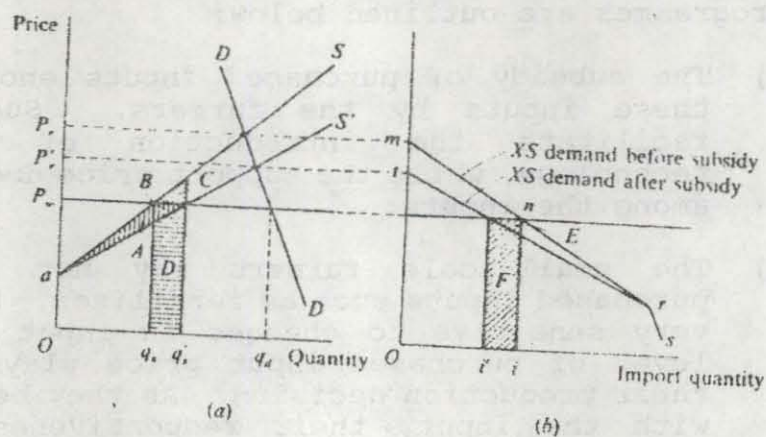


Figure 1 The Implications of Input Subsidy

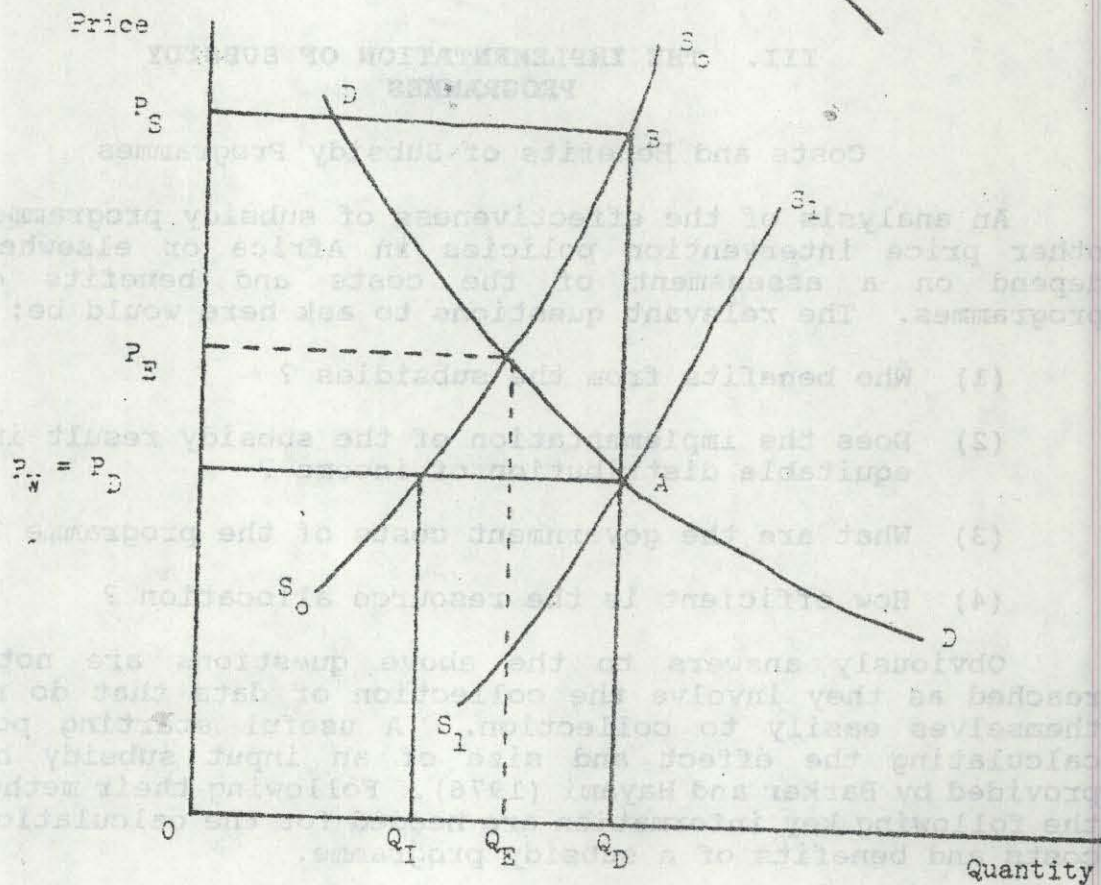


Figure 2 Input Subsidy Versus Price Support Programme

- (6) The input price subsidy only protects the purchased inputs, while the support price encourage a better use of both traditional and new inputs;
- (7) It is difficult to subsidize land and farm labor which account for the major part of the input costs. A rise in the support price may subsidize these inputs better than an input subsidy programme.

III. THE IMPLEMENTATION OF SUBSIDY PROGRAMMES

Costs and Benefits of Subsidy Programmes

An analysis of the effectiveness of subsidy programmes as of other price intervention policies in Africa or elsewhere will depend on a assessment of the costs and benefits of such programmes. The relevant questions to ask here would be:

- (1) Who benefits from the subsidies ?
- (2) Does the implementation of the subsidy result in a more equitable distribution of income ?
- (3) What are the government costs of the programme ?
- (4) How efficient is the resource allocation ?

Obviously answers to the above questions are not easily reached as they involve the collection of data that do not lend themselves easily to collection. A useful starting point for calculating the effect and size of an input subsidy has been provided by Barker and Hayami (1976). Following their methodology, the following key information are needed for the calculation of the costs and benefits of a subsidy programme.

- (1) The amount of input needed to produce a desired amount of product;
- (2) The input price needed to induce farmers to purchase a desired amount of input;
- (3) The cost of input subsidy to the government;
- (4) Reduced revenue from Government imports;
- (5) Producers' benefits gained as a result of input subsidy;
- (6) Net savings of foreign exchange.

The formulae for calculating the different parameters are as follows:

Level of Needed Input

The amount of input needed to produce a desired amount of product is:

$$X_s = X_{Ns} \left(1 + \frac{Q_s - Q_{Ns}}{Q_{Ns}} \right) \frac{1}{e_p}$$

Where

- X_s = Amount of input needed to produce a desired amount of product
- X_{Ns} = Amount of input purchased without subsidy
- Q_{Ns} = Amount of product produced without subsidy
- Q_s = Amount of product produced with subsidy
- e_p = Production elasticity

The Desired Input price level

The subsidized input price necessary to induce farmers to purchase X_s , the amount of input needed to achieve a targeted production level is as follows:

$$P_s = P_{Ns} \left(\frac{X_s}{X_{Ns}} \right)^{\frac{1}{e_d}}$$

where,

- P_s = The input price needed to induce farmers to purchase a desired amount of input
- P_{Ns} = Price of the input without subsidy
- X_s = Amount of input purchased with subsidy
- X_{Ns} = Amount of input purchased without subsidy
- e_d = Price elasticity of input demand with respect to the product

Cost of the Input Subsidy Programme

The cost of the input subsidy programme to the government is the difference between what the government pays for the input (input costs) and what it sells to the farmer (input revenue). This cost is calculated as follows:

$$GC = X_s [P_s - P_{Ns}]$$

where,

GC = Actual cost of the subsidy programme to the government

X_s = Amount of input purchased with subsidy

P_s = Price of input with subsidies

P_{Ns} = Price of input without subsidy

Reduction in Government Revenue

This is a measure of what the government would have to pay if it had to import the product in order to achieve some kind of security with respect to the product. It is calculated as follows:

$$GR = (P_D - P_w) (Q_s - Q_{Ns})$$

where,

GR = Reduction (or possibly increase) in government revenue resulting in a decrease in the import of the product

P_D = Domestic consumer price for the product

P_w = Import price for the product

Q_s = Amount of product produced with subsidies

Q_{Ns} = Amount of product produced without subsidies

Producers' benefits

Producers' benefits which represent the extra income that the farmers obtain as a result of the input subsidy is calculated as follows:

$$P_B = (P_{Ns} - P_s) X_{Ns} + (1 - M_p) (Q_{Ns} - Q_s) P_D - P_s (X_s - X_{Ns})$$

Where,

P_B = Producers' benefits

P_{Ns} = Price of input without subsidy

P_s = Price of input with subsidy

X_{Ns} = Amount of input purchased without subsidy

X_s = Amount of input purchased with subsidy

M_p = Ratio of unit processing and marketing cost to consumer price of product

Q_{Ns} = Amount of product produced without subsidy

Q_s = Amount of product produced with subsidy

P_D = Domestic consumer price for the product

Net Savings in Foreign Exchange

The net savings in foreign exchange indicates the saving achieved as a result of not importing the product. It is calculated as follows:

$$S = P_w (Q_s - Q_{Ns} - P_{Ns}) (1 - M_f) (X_s - X_{Ns})$$

Where,

S = Net savings of foreign exchange

P_w = Import price of the product

Q_{Ns} = Amount of the product produced without the subsidy

Q_s = Amount of the product produced with subsidy

P_{Ns} = Price of the input without subsidy

X_{Ns} = Amount of the input purchased without subsidy

X_s = Amount of the input purchased with subsidy

M_f = Ratio of unit marketing cost to the retail price of the input

The above estimates represent straight forward calculations of the costs and benefits that can be attributed to the application of any subsidy programme. The usual procedure is to either compare two groups, one with subsidy and the other without or to do a comparison of the same group before and after the application of the subsidy programme. Since the items for which subsidies could be offered in Africa range from recurrent items such as seeds and fertilizers to capital goods such as irrigation equipment, and from tangible things such as increases in input use to untagible ones such as increased levels of employment, it is clear that the above formulae for calculating the benefits and costs of subsidies will fail to gauge the impact of a subsidy programme in a precise manner.

Ideally, the way to correctly carry out an assessment of the effects of a subsidy programme would be to first determine what the targeted group was able to accomplish as a result of the application of the programme vis-à-vis what the group would have been prevented from doing in the absence of the programme and measure these against the stated objectives of the programme for which the subsidies were offered. This kind of an assessment would be very difficult to accomplish given the data situation in most African countries. However, since the primary concern of any effort to assess the impact of a subsidy programme is to link the effects of the subsidy to its original rationale, the formulae presented above report a first and useful step in accomplishing this task.

Experiences with the Application of subsidies in Africa

Very little empirical work exists that sheds meaningful light on the experiences of African governments with subsidies. The fact is that since colonial times, agricultural subsidies have been used in Africa as a measure to induce farmers to try using new inputs and thus to become convinced of their value. Following the sharp rise in the prices of fertilizers and pesticides that took place after the dramatic increases in crude oil prices in 1973/74, agricultural subsidies gained renewed importance as an instrument for offsetting the sharp rises in the market prices of these inputs. Interest rates on institutional agricultural credit and the supply of water for irrigation have also been accorded subsidies in the development plans of many African countries.

The evidence however shows that African agriculture generally has not enjoyed significant effective protection against foreign competition through tariffs or other measures. This is because a considerable number of African agricultural products are exported and many foodstuffs are grown for local consumption and not available in substantial quantities in the world market. (de Wild, 1980). This compares to the situation in the African manufacturing sector where industries enjoy a fairly high rate of effective protection as a result of tariffs, import controls, and tax concessions. Given the usual practice of heavy taxation of agriculture through marketing board profits and export levels, the end result is bound to be a progressive worsening of the terms of trade of African farmers as a result of the depression of the prices of products they sell in the face of increases in the prices of manufactured goods which they buy.

This is obviously a cause of concern. Coupled with this is the insistence of most orthodox structural adjustment programmes on the drastic reduction if not the total elimination of subsidies by African governments. Many African countries are therefore caught in a dilemma: they have come to accept subsidies and the theory and practice of government intervention elsewhere would tend to support their contention that, subsidies provide one of the most effective means to stimulate and generate increased agricultural production in Africa, whereas the structural, adjustment programmes being imposed on them by the international financial community are vehemently opposed to the use of subsidies.

The question is whether, as part of its overall strategy for development in Africa, subsidies have been effective, both from a cost and efficiency point of view. While in many cases, the answer to both questions may indeed be negative, the critical issue is not so much the acceptability of the potential role of subsidies in the overall development of African economies, but rather the poor manner in which subsidies have been managed in Africa in the past.

The problems associated with the management of subsidy programmes in Africa include; difficulties in reaching the intended beneficiaries; difficulties in establishing the appropriate subsidy level to offer; long bureaucratic process of determining the subsidy budget allocation; and insufficient inputs procurement procedures and marketing channels.

Because subsidies usually represent a sizeable source of income, many people, including those who are not targeted for assistance, often find ways (both legal and illegal) of profiting from them. As a result, hoarding of the subsidized inputs even though the inputs are being sold through official channels.

Consequently, the group of farmers for whom the subsidized inputs are readily available, the more economically and politically influential farmers end up reaping the greatest benefits.

Another major management problem area in the implementation of subsidy programmes in Africa involves the establishment of the proper subsidy level. If it is set too low, it may not accomplish its intended purpose of encouraging farmers to adopt or maintain the use of the input. On the other hand, if it is set too high, it may lead to wasteful resource allocation.

Inefficient inputs procurement procedures and marketing channels in many African countries have also hampered the efficient operation of subsidy programmes. In a number of cases, it is quite common for subsidies to be announced several months after the start of the subsidy year, thus resulting in input scarcity, inflated input costs, and marketing and distribution abuses (Akinola, 1987).

These problems, often culminate in a situation where, despite the accepted assumptions that subsidies are a temporary measure and that they would eventually be removed, they tend to remain much longer than anticipated. In many cases, political pressures have forced the continuation of subsidies well beyond its peak period of usefulness. Furthermore, in several uses the burden imposed by subsidy programmes have become quite enormous with the recent increases in input prices thus making the introduction of subsidy programmes very difficult for many African countries and adding significantly to the cost of production of the adopting farmers.

IV. SUMMARY AND CONCLUSION

This report examines the critical role that production subsidies can play in enabling the African continent to attain self-sustaining growth and development which can only come from the transformation of the continent's economic and social structures. The continent's production problem is first and foremost one of the transformation of the structure of production with due regard to what is produced and how it is produced. In this regard, the ongoing African economic crisis is a clear validation of Africa's stated strategy of attaining food self-sufficiency and the need to focus on the production of all of the continent's critical needs and services.

It is interesting to note, however, that most of the reform measures currently being imposed on African economies continue to call for an important role for international trade, mainly with the developed market economies to meet the food needs of Africa.

The fact that many food surplus developed economies of the world fully appreciate the need for managing their own food economies and have in the past used subsidies to create abundant supplies and lowered the prices of food items which are then dumped into African markets thus creating considerable externalities for African agricultural producers, clearly suggests that Agricultural administrators and policy makers alike in Africa should review their position with regard the conflicting goals of ensuring adequate food supplies for their population at reasonable costs, mainly through developing food self-sufficiency capabilities and supplemented with imports.

The achievement of the above goal will require the intervention of African governments at the level of production marketing, consumption, and trade. Well designed and well targeted incentive schemes to stimulate and generate the needed increased agricultural production in Africa will need to be put in place.

Despite the numerous criticisms currently levelled against it, production subsidies continue to provide one of the most effective tools for attaining the food self-sufficiency goal in Africa. The purpose of this report, therefore, was to examine the role that agricultural production subsidies can play in the goal of attaining food self-sufficiency in Africa.

The report examines the purpose of different types of agricultural production subsidies and outlines the contemporary theory of production subsidies. The major traditional purpose of production subsidies in Africa has involved agricultural inputs. The report therefore attempts to provide selected case studies involving the application of input subsidies in Africa and examines the issue of subsidies in the context of the Economic Commission for Africa's African Alternative Framework to Structural Adjustment Programmes (AAF-SAP).

The report concludes that, while there exists several policy tools which a government can use to increase the availability of designated products, such as tariffs or quantitative restrictions on imports, domestic content requirements as a condition of domestic production, and even trade liberalization, if food self-sufficiency attainment by increased production of designated food products is the objective of government, a subsidy on the production of these commodities will represent the most economically efficient manner to achieve the objective.

However, the critical issue with subsidy in Africa is not so much the acceptability of its potential role in the overall development of African economies, but rather the ineffective manner in which subsidy programmes have been organized and managed in Africa. AAF-SAP therefore has a very important role to play in

providing a framework in which subsidies can be effectively organized and managed in the continent.

The achievement of the above goal will require the intervention of African governments at the level of production, marketing, consumption, and trade. Well designed and well targeted incentive schemes to stimulate and nurture the needed increased production in Africa will need to be put in place.

Despite the numerous criticisms currently leveled against it, production subsidies continue to provide one of the most effective tools for attaining the food self-sufficiency goal in Africa. The purpose of this report, therefore, was to examine the role that (various) production subsidies can play in the goal of attaining food self-sufficiency in Africa.

The report examines the purpose of different types of agricultural production subsidies and outlines the contemporary theory of production subsidies. The major traditional purpose of production subsidies in Africa has involved agricultural inputs. The report therefore attempts to provide selected case studies involving the application of input subsidies in Africa and examines the issues of efficiency in the context of the Economic Commission for Africa's African Alternative Framework to Structural Adjustment Programme (AAF-SAP).

The report concludes that, while there exist several policy options which a government can use to increase the availability of essential inputs, such as fertilizers, pesticides, and seeds, the most effective policy is to provide a subsidy on the inputs. However, the report also notes that the availability of inputs is not the only factor that determines the level of production. The report also notes that the availability of inputs is not the only factor that determines the level of production. The report also notes that the availability of inputs is not the only factor that determines the level of production.

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REFERENCES

- Akinola, A.A.
1987 An alternative procedure for granting farm subsidies in Africa. Food Policy 12 (1)
- Barker, R. and Hayami, Y.
1976 Price support versus input subsidy for self-sufficiency in developing countries.
58: pp 617-658
- de Wilde, J.C.
1980 Agricultural development in Africa. New York, Praeger publishers.
- FAO,
1989 Food supply situation and crop prospects in sub-saharan Africa: special report. Rome, FAO.
- Lipsey, R.G. and K. Lancaster
1956 The general theory of the second best. Review of Economic Studies, 24 (1).
- United Nations Economic Commission for Africa
1989 African Alternative Framework to Structural Adjustment and Economic Recovery and Transformation. Addis Ababa, UNECA.
- The World Bank
1989 Sub-Saharan Africa: from crisis to sustainable growth. Washington D.C. The World Bank.