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ECONOMICS, POLITICS AND ETHICS OF  
PRIMARY COMMODITY DEVELOPMENT: HOW  
CAN POOR COUNTRIES AND PEOPLES  
IN NEED BENEFIT MOST?

By

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# Economics, Politics and Ethics of Primary Commodity Development: How Can Poor Countries and Peoples in Need Benefit Most<sup>1</sup>

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1/ A paper presented at the Common Fund Seminar on Commodity Development Measures in the Context of International Commodity Strategies, 22-24 June 1993. Brussels, Belgium.

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The views expressed in this paper are those of the authors and do not necessarily represent the views of the International Monetary Fund.

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## **Economics, Politics and Ethics of Primary Commodity Development:**

### **How Can Poor Countries and Peoples in Need Benefit Most<sup>1</sup>**

Uma Lele, James Gockowski and Kofi Adu-Nyako<sup>2</sup>

#### 1. Introduction:

The poorest countries depend preponderantly on a limited number of agricultural commodities for exports, employment, income, government revenues, savings, and Investment (Table 1). In these economies a small percentage change in the output or prices of these major commodities has a large macroeconomic effect, in contrast to nontraditional commodities or services which typically play a small role in the economy. This means that commodities most important in production and exports must receive high priority in improving production or exports if economic transformation is to be achieved. This is a rather obvious fact, but one which is often overlooked in the consideration of economic diversification strategies of poor countries.

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Table 1. Percentage of Export Earnings from Major Agricultural Export Commodity among Least Developed Countries.

Country	Major Agricultural Export	Percent of	
		Total Export 1984-85	Earnings 1985-86
Benin	cotton	31.5	26.3
Burkina Faso	cotton	46.7	37.2
Burundi	coffee	84.0	86.7
Cen. African R.	coffee	35.4	30.1
Ethiopia	coffee	62.7	69.8
Gambia	oil seeds	24.8	21.6
Ghana	cocoa	66.1	60.7
Guinea-Bissau	oil seeds	64.3	54.4
Haiti	coffee	26.7	29.3
Kenya	coffee	27.3	34.5
Liberia	rubber	19.0	18.7
Madagascar	coffee	39.0	40.5
Malawi	tobacco	48.0	49.8
Mali	cotton	56.0	37.0
Niger	cattle	14.2	18.9
Pakistan	cotton	10.6	15.1
Rwanda	coffee	43.0	64.0
Somalia	cattle	79.4	79.3
Sierra Leone	coffee	12.7	18.9
Sri Lanka	tea	39.2	31.4
Sudan	cotton	47.7	44.3
Tanzania	coffee	39.1	50.2
Togo	cotton	11.3	15.5
Zaire	coffee	19.0	24.4

Source: UNCTAD, *Handbook of International Trade and Development Statistics*, 1988 and 1989.

Many of these primary commodity nations are in Africa. Their immense diversity in terms of soils, climate, institutions, political regimes, and international marketing systems **Inherited** from **the** colonial era mean that the set of development approaches and the subset of commodity strategies will also be heterogeneous and large. Notwithstanding their differences, agricultural commodity dependent countries share several common features. They **have** extremely limited human and institutional capital. They become marginalized in the share in world exports, with a few notable exceptions, yet have increased their

dependence on food imports. As a group, terms of trade changes have affected them more adversely than their higher income Asian or Latin American counterpart!. They are highly dependent on a fragmented donor community for concessional assistance, at levels which were already high by the end of the 1970s (up to 10 to 15 percent of GNP) (Lele, 1992b.), but which have now reached over 50 percent of GNP in some countries (.e.g., Mozambique). These increases have been in response to a higher demand for rehabilitation of infrastructure following wars and political disruptions, balance of payments difficulties, and frequent external shocks such as the recent decline in terms of trade, international interest rate fluctuations and droughts. Indebtedness has doubled as a share of exports for many countries in this group in a short period since the mid 1980s in spite of a combination of debt forgiveness, reschedulings and increased concessionality of the more recent economic assistance. In combination with political chaos these factors have generated donor fatigue and have resulted in reduced political support for reforms at home.

While increased aid flows have been necessary, they have also brought a broad range of donor conditionalities and other costs. External resources provided by the donor community demand a huge amount of the limited capacity of governments that should ideally be allocated to the macroeconomic management and long term development of their economies. Apart from the administrative demands, advice and assistance is often inconsistent and conflicting both among donors and even by the same donor over time although much progress has been made in recent years in coordinating and implementing donor advice with respect to the specifics of macroeconomic reforms. However, absence of institutional memory is a pervasive problem in donor agencies, as shown in this paper. Long term consistent strategies are important for achieving broadbased sustained growth in the production of commodities.

Reaching previous peaks in agricultural exports is relatively easy by implementation of macroeconomic reform programs via the depreciation of the exchange rate and reduction in budget deficits, as the experience of the last decade has shown. When significant policy distortions existed prior to reforms as in the case of Ghana or Tanzania large shifts in output from parallel markets to the official economy, the planting of new trees, and greater application of variable inputs by farmers have produced a significant export supply response. However, maintaining these rates of agricultural production and exports however often requires the removal of structural constraints once initial reforms have been implemented. In Kenya and Malawi, macroeconomic policies were not highly distortionary when external shocks began to affect them in the late 1970s, and their agricultural export performance has been respectable by general standards of developing countries (Lele and Meyer, 1989). However, their overwhelming problems have been of an institutional nature, e.g., discriminatory policies towards small farmers leading to unequal distribution of benefits, inefficient public enterprises, weak ministries of agriculture and the non-viability of financial institutions serving the agricultural sector (Lele and Nabi, 1991). Their reforms raise complex issues which have not yet been fully explored by donors from a long-term growth perspective. Sustained and broadbased agricultural growth in food and export crop production for these low income countries will depend on the extent to which governments of both industrial and African countries undertake reforms, both of a price and nonprice nature, and most importantly, the extent to which they rely on the historical experience of agricultural development in Africa and throughout the developed and developing world to learn and implement relevant policy lessons.

A comprehensive treatment of the issues affecting commodities **is** overdue. In the past, approaches to the issues have been piecemeal and subject **to** change. In the

1950s and 1960s questions were often raised concerning limited international market prospects. In the 1970s, integrated rural development projects aimed investments at achieving the goal of domestic food self-sufficiency among the poorest households in resource poor regions in Africa. That strategy when it ignored the importance of export agriculture or macroeconomic policies produced disastrous results. Macropolicy reforms geared to export incentives became the motto in the 1980s, with a winding down of agricultural investment portfolios by donors in Africa. Introduction of safety nets particularly to protect the urban poor came in vogue in the latter half of the 1980s, after criticism of donors mounted that their export-oriented adjustment programs lacked a human face. Concern for the environment has become the preoccupation in the 1990s. These piecemeal approaches and changing fashions have lacked an appreciation of the essential balance and complementarity between (a) price and non-price factors, including particularly the roles of human capital, development of the factor and product markets, public enterprises, infrastructure, technologies; and most importantly (b) the fundamental role of government *vis a vis* the private sector in the development of smallholder agriculture.

Governments are viewed as inefficient rent-seeking bureaucracies and in some cases with justification. But this view poses a fundamental dilemma. Without acknowledgement of the legitimate strategic role of governments *inter alia* in the development of markets, there is little hope of agricultural development in **Africa**. Yet without sharply increased investment in the training of nationals, retention of the qualified personnel in the public sector, and accountability of governments, they cannot play the essential active facilitative role.



## 2. The Inhospitable International Market Environment:

Poor countries depending on agricultural commodities face a host of constraints in the international market place including:

- inelastic world demand for their products *e.g.*, tea, coffee and cocoa,
- rapid technological change in competing countries,
- tariffs on processed agricultural commodities in OECD countries,
- growth of substitute products in importing countries *e.g.*, sweeteners and beet sugar,
- growing environmental concerns associated with their production,
- health concerns associated with their consumption *e.g.* tobacco, palm oil and sugar,
- increasingly oligopolistic market structures in OECD countries,
- restrictions placed upon their production by aid-giving countries to appease their own internal environmental lobbies while subsidized production of the same products continues at home *e.g.*, the U.S. stance towards the support of tobacco production in Africa,
- reduced import demand by Eastern European and Russian consumers due to severe income compression,
- and not the least important, the protectionist policies of OECD countries towards the production of all major and minor cereals, livestock and dairy products, sugar, edible oils, etc.

As a result of these conditions, growth in the demand for the raw and processed commodities of the poorest countries has been constrained and has greatly reduced production incentives for rural households. Witness for example the adverse effects of the exports of frozen meat carcasses by the EC and the dumping of surplus cotton by the U.S. and China over the last several years on African production and the financial health of its commodity-based institutions (Delgado, 1993; Lele, *et al.*, 1989a)

Agricultural policies of industrial countries are to protect the traditional small family farm "way of life" at home. Yet in reality a large

share of the benefits of support prices, government payments and export subsidies accrue to a handful of politically well organized large producers, processors and exporters. Various estimates of the likely increase in international prices from liberalization of OECD food policies exceed well over 25 percent, depending on the different assumptions of the models (Anderson and Tyler, 1990). Recent studies also show the high cost of budget deficits in OECD **countries on the** demand for primary commodities via the effect on the levels of real interest rates (Duncan, 1993). According to these studies an increase in the fiscal deficits of G-5 countries by 1 percent of their GDP causes a reduction **of 2** percent in the relative prices of commodities. Changes in OECD fiscal deficits explained 40 to 50 percent of the changes in the real commodity prices over the sample period. Monetary expansion has the opposite effect.

In many commodity markets, the consumer benefits from recent price declines in raw commodity markets have been minimal in comparison to those of marketing agents (multinationals and trading houses), perhaps due to the high degree of concentration. For example, over 70 percent of the world instant coffee market is controlled by 4 multinational corporations. The World Bank's latest commodity report observes that between 1988 and 1991 retail prices of coffee to consumers declined by only 5 to 7 percent in the U.S., France and Germany, although international arabica coffee prices declined by 40 percent in the same period (World Bank 1992). An important consequence of the price declines has been the large growth in coffee stocks in importing countries. Whereas the price elasticities of demand for consumption range from only 0.1 to 0.3, for stocks they range from 0.4 to 1.0 (World Bank, 1992). A consequence of oligopolistic marketing sectors and unnecessarily high margins is the substitution away from primary commodity consumption by consumers in developed countries.

One of the rationales for international commodity agreements is to countervail against the market power exerted by the industrial nations and their marketing sectors. However given the inherent instability of cartel schemes, they have usually failed to be effective and when they have been enforced have had the same deleterious effects on consumption demand as oligopolistic marketing sectors. One solution to this difficult dilemma is for primary commodity producing countries to attempt to integrate upstream into the marketing sector of industrial countries as for instance Brazil has managed in the coffee sector. However, because of the small size of many commodity producing countries, their ability to achieve the economies of scale necessary to compete in the food processing industry is limited. In these cases regional economic cooperation and the development of infrastructure such as roads and other communication processes linking these small economies becomes fundamental. But these are by no means easily implementable solutions. Regional economic cooperation has not worked in Africa before, even among a few countries (*e.g.*, the breakdown of the East African Community), and although major new efforts are underway (*e.g.*, SADCC), the country groupings are often too large to achieve the necessary political consensus.

The indirect dynamic effects of these international distortions on poor low income countries can be as significant as the direct and indirect taxation in developing countries whose removal has correctly been a cornerstone of adjustment programs. It is necessary, therefore, that the Bretton Woods institutions promote free trade and competitive markets not only in the distorted economies of developing countries, but in the distorted markets of OECD countries as well by: supporting GATT; opening the European Common Market to developing and former Eastern Block countries; encouraging more stable monetary and fiscal policies in the OECD countries; reforming OECD farm programs; and by assisting poor

developing countries in increasing value added. The potential global welfare gains from reform of policies of industrial countries, namely from a combination of liberalization in trade regimes, more stable monetary and fiscal policies and shift to direct income transfers to the needy small family farms are large. Such reforms will lower input use, budget outlays, and improve environmental quality in industrial countries. They will also mean higher and more stable prices to the low income producers in developing countries, an increase in global allocative efficiency, reductions in fiscal deficits and reduced aid dependence. These gains are larger than the roughly fifty billion dollars of concessional aid industrial countries provide to developing countries annually, much of which now goes to low income countries in Africa.

#### **Balance of Payments Performance:**

The impact of the growing food demand of low income countries on the microeconomic dynamics of the farm household and the balance of payments are important in the discussion of commodities, which tends narrowly to be focused on the problems of export commodities. Stagnant growth in productivity of African agriculture coupled with rapid population growth, high rates of urbanization and the different preferences of urban consumers have led to increased levels of cereal and livestock imports. For the first time developing country food imports exceeded developed country imports in 1990. The share of Asia in world cereal imports increased from 37% to 60% in 1992, and that of Africa doubled from 6% to 12%. Even with the doubling of food imports Africa's food aid requirements -- estimated to be 6 million tons in 1991-92 simply to maintain per capita consumption and 11.4 million tons to meet UN calorie requirements -- could not be delivered due to extremely inadequate distribution infrastructure, especially port capacity. It has been estimated that if current population growth and export earning rates continue, African food imports could

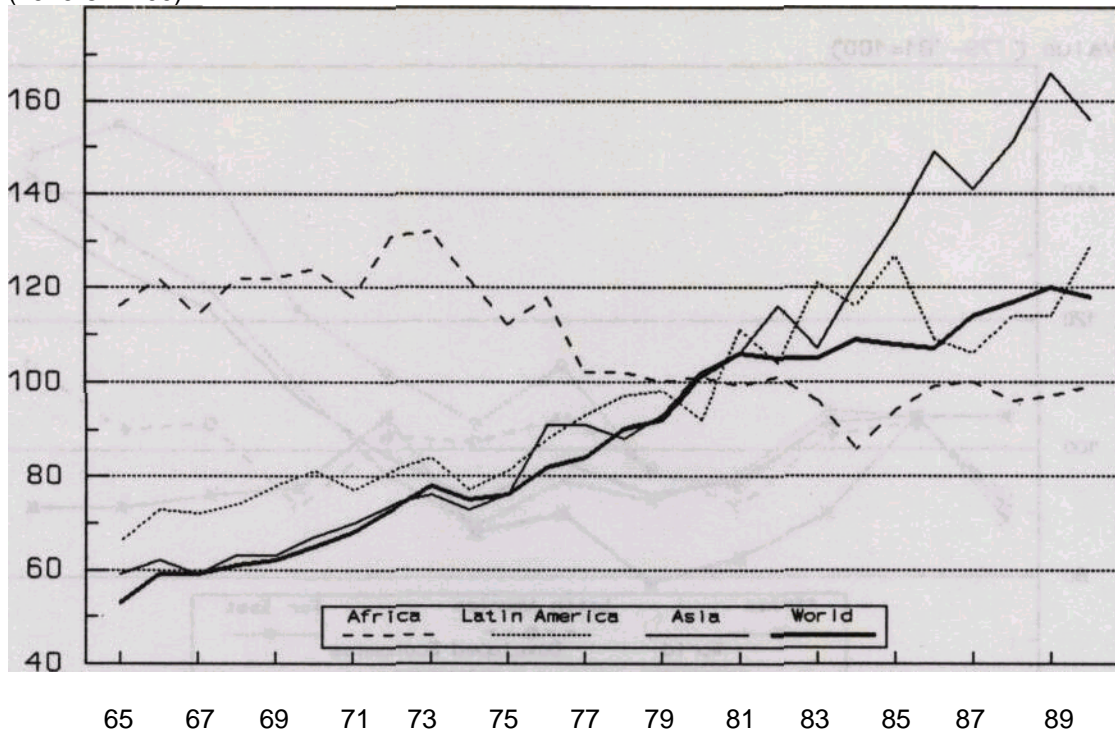
rise from their current 5 percent of export earnings to 20 percent by the year 2000 -- a level never before approached (Delgado and Pinstруп-Anderson, 1993). Unless efforts are made to increase food crop productivity, with the rapid increase in population and the consequent increased pressure on the land it is likely that there will be more pressure on Africa's export sector.

Under a similar set of conditions Asian countries were able to finance rapidly rising food imports because of their spectacular success in both food and export agriculture and the rapid overall economic growth associated with that impressive and broadbased growth of the agricultural sector. From 1965 to 1990 the world export volumes of agricultural commodities grew at an annual rate of 2.6 percent. During this period, Asia increased its volumes at an average growth rate of 3.9 percent, (Figure 1) and gained market shares dramatically in oil palm products, robusta coffee and cocoa, all traditional African exports. Asian shares of non-traditional agricultural and manufacturing sectors also increased. Per capita food production also accelerated in Asia following the widespread introduction of high yielding varieties in the mid 1970s. The food and export crop growth in Asia was accompanied by rapid and broadbased growth of income and employment in the rural sector and provided a stimulus to the growth of the nonagricultural sector through an elastic supply of labor, food and rural savings (Figure 2). This in turn has led to reductions in the numbers and proportions of people living in poverty. In contrast, Africa experienced an annual decline in export volumes of 1.3 percent and nominal agricultural export earnings showed practically no growth during the 1980s, as compared to nearly 4.6 percent average annual growth in Asia. Individual countries in Africa viz. Kenya, Cote d'Ivoire, Cameroon, and Mauritius experienced growth throughout this period. Others such

Export Volumes

## Agriculture Export Volume

(1979-81=100)



**Figure 1. Agricultural Export Volumes, 1979-90.**

Source: FAO *Yearbook of Agricultural Trade*, 1991.

as Ghana, Sudan and Zambia have showed growth in exports since the adjustment process began (Lele and Adu-Nyako, forthcoming).

### 3. Supply Response: Roles of Price and Nonprice Factors and the Record of Macroeconomic and Sectoral Adjustments During the Period of Adjustment:

It is clear that to compete in an inhospitable global market, Africa urgently needs to augment factor productivity which lagged behind that of Asia and Latin America in the 1970s and 1980s and was a significant factor in explaining its declining market shares and loss of competitiveness in primary commodity production. As seen in Figure 3, African labor productivity measured as wheat equivalent units per agricultural worker declined slightly from 1976 to 1989,

## Nominal Value of Agricultural Exports

Value C '79- '81=1003

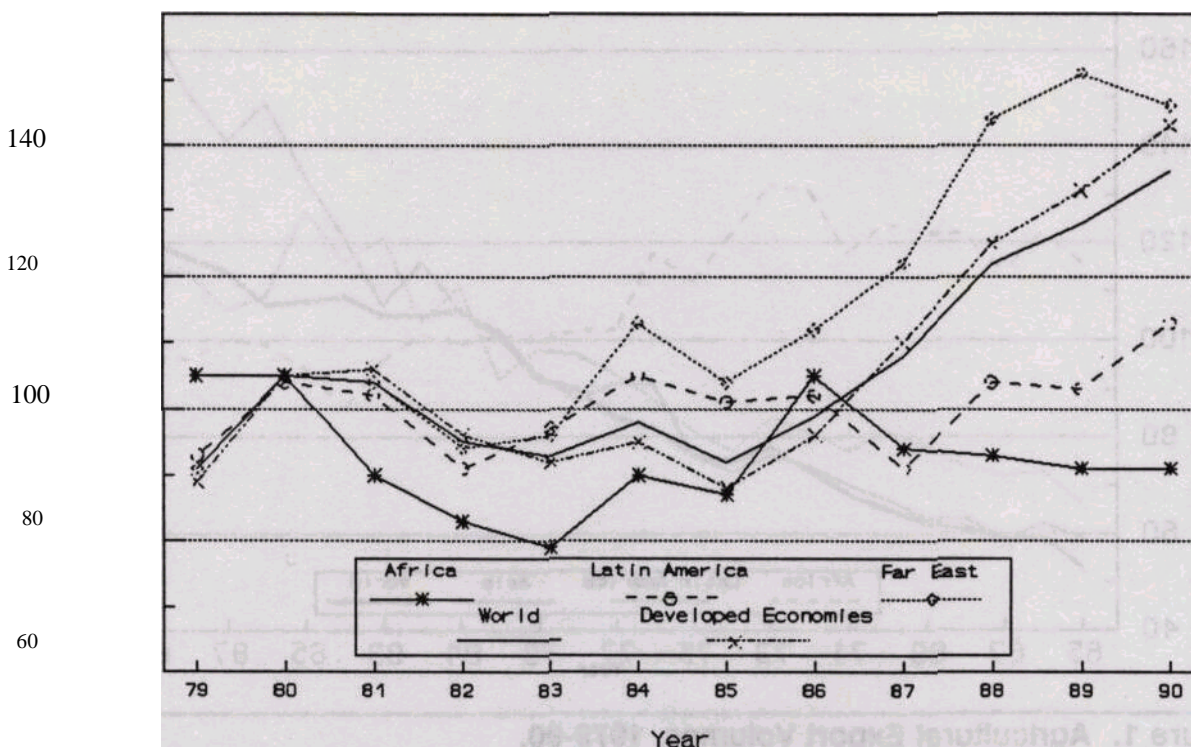
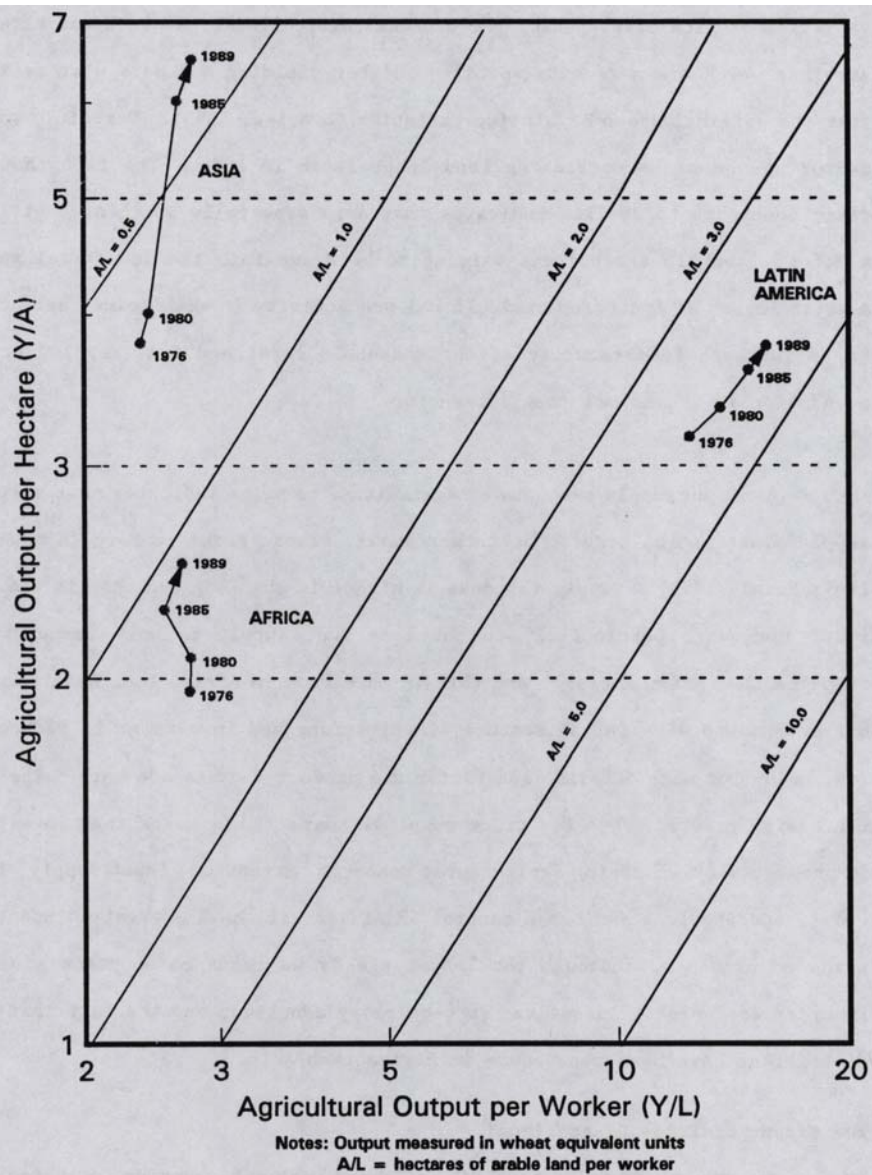


Figure 2. Agricultural Export Values, 1979-1990.

Source: FAO *Yearbook of Agricultural Trade*, 1991.

meanwhile labor productivity in Asia and Latin American registered significant increases. This was especially the case in Latin America, the only region where the land-labor ratio (A/L) has been increasing. The most striking observation drawn from Figure 3 is the large jump in land productivity in Asia between 1980 and 1985. This gain may be explained by several factors. One important occurrence over this period was the significant increase in productivity of Chinese agriculture as the result of gradual reforms begun in the late 1970s in the output and input markets. Secondly, there has been the diffusion and adoption of a second generation of high yielding varieties including hybrid



**Figure 3. Changing Productivities and Land-Labor Ratios in Asia, Africa and Latin America**



varieties of rice developed by the national agricultural research and extension services which are more site specific, higher yielding and more pest resistant than the original Green Revolution varieties (Byerlee, 1993). Certainly another factor has been the decreasing land labor ratio in Asia. The fact that this ratio continues to decline indicates that Asia especially South Asia still has a lot of labor in agriculture waiting to be drawn into the industrial sector. A major impact of increased agricultural productivity in smallholder agriculture is to increase food security at the household level and free rural labor for production in the export crop sub-sector.

Most evidence on supply response of agriculture to price indicates that aggregate supply elasticities tend to be rather small, almost close to zero (Binswanger, 1989; Faini, 1992). Supply response is higher **In the long run than In the short run**. Moreover, particularly in the long run, supply is more responsive to nonprice than price factors, and this is more true in Africa than Asia. Asia is better endowed with infrastructure, institutions and investment in technology, (see below for more details) and factor and product markets are more competitive there with greater scope for price responsiveness. This means that investments in productivity-enhancing agricultural research, extension, input supply, feeder roads, institutions and human capital in Africa will have a greater impact than price adjustments, although the latter are by no means unimportant given the importance of profit incentives in technology adoption, and the fact that price distortions have been more acute in Africa than Asia.

#### **The Extent of Price Distortions:**

In a cross-country study on the level of government intervention in agriculture, Krueger *et al.* (1991) found the level of producer taxation in the three sub-Saharan countries to be double the levels of the Asian and Latin American

countries included in the study at 51.6Z of border prices at the official exchange rate.<sup>3</sup> Differences in the levels of indirect intervention mainly from overvalued real exchange rates and industrial protection were roughly equivalent among regions -- averages ranging from 21.3X among the Latin American countries to 28.6% within African countries. The main difference between regions was ii the level of direct taxation, which was roughly eight and three times higher ii the African countries as compared to Asian and Latin American countries. This difference explains why both sectoral and macroeconomic policy reforms were needed in Africa leading to the adoption of structural adjustment programs. Krueger's, *et al.* findings have been corroborated by the MADIA studies<sup>4/</sup> of **six** African countries, as well as by others (Lele, 1989a; Lele, 1992b; Langham and Kamajou, 1992). To date the debate has focused on the removal of price distortions more than on the quality and quantity of public expenditures. Before proceeding to those important issues, we explore the recent record of African countries in the reform of prices since the adjustment process began.

#### **Record of Price Adjustments:**

In a study of 24 adjusting and nonadjusting countries, Lele and Adu-Nyako show that real exchange rates have depreciated in most countries except those with the CFA currency which has experienced a strong appreciation since 1985-86 *with* substantial cost to external competitiveness. But when price adjustments are reviewed more closely, progress on reforms is more disappointing. Nearly half

3/Countries included in this study were: Cote d'Ivoire, Ghana, Zambia, South Korea, Malaysia, Pakistan, Philippines, Sri Lanka, Thailand, Argentina, Brazil, **Chile**, Colombia, and the Dominican Republic.

4/See Uma Lele, ed., "Managing Agricultural Development in Africa," Discussion Papers 1 through 12, The World Bank, Washington, D.C.; see also [Aid to African Agricultural: Lessons from Two Decades of Donors' Experience](#), 1992, The World Bank, Washington, D.C.

the 20 adjusting countries undertaking exchange rate adjustments have not passed on the increased prices to producers. Gains appear to have either been absorbed by marketing boards, or to have resulted in higher costs of marketing associated with devaluations and the high import content of transport. Nominal producer prices deflated by CPI indices decreased in 10 out of 18 countries for which data are available (**e.g., Cameroon, Cote d'Ivoire** and Senegal), **although often** the share of producer price to border price increased due to a combination of worsening international terms of trade and appreciation (or inadequate depreciation) in **the** exchange rates. Real producer prices **in Ghana** and Madagascar improved despite a decline in producer to border price ratios, due **in** part to large devaluations.

#### **Movement of Input Prices:**

The effects of declining real producer prices were aggravated in several countries by increases in the real prices of fertilizers and pesticides due to a combination of devaluations and removal of subsidies. Notwithstanding the decline in the world market prices of fertilizers, prices often doubled. An important development in virtually every country has been the widening role of the private traders in the sale of improved seeds, pesticides and fertilizers. However, the high cost of internal transportation, the inadequate access of traders and producers to credit, and lack of lucrative opportunities in input trading *vis a vis* other alternatives means that private trade will not by itself be able to meet the large input needs of a modernizing agriculture. Later in the discussion of microeconomic issues we stress the risk aversion of small farmers **in** remote areas with few savings **or** access to credit and the fundamental importance of increased fertilizer use as a means of

increasing land and labor productivities, and particularly women's labor productivity.

#### **Availability of Credit:**

Low profitability in agriculture implies low rural savings rates and liquidity constraints for expenditures on agriculture. Limited credit availability to rural households has remained a common feature with only a mixed record of implementation of financial reforms. In 1989, the ratio of the value of agricultural production to domestic credit supplied was only 0.17 in Senegal, but as high as 1.48 in Ghana. However in these countries, the share of credit reported to have been allocated directly to the institutions handling needs of the agricultural sector did not exceed 12 percent of the total credit created on average (Lele and Adu-Nyako).

A strong positive development has been the increased access of private traders to credit, whereas the public sector dominated before. The increasing importance of commerce is beneficial to agriculture particularly as privatization of trade shifts handling of the marketed surplus from the public to the private sector. Yet the declining share of agricultural credit in total domestic credit is worrisome. The financial sector tends to prefer the urban and industrial trading sector characterized by less risk and higher returns as opposed to the agricultural production and trading sector influenced as it is by the vagaries of weather, **poor transportation** and inadequate **market** information

While there has been widespread questioning of directed provision of credit through specialized credit agencies in the drive to liberalize financial markets, in reality the past problems of nonrepayment of credit of these specialized agencies have often resulted from credit given to large and politically more

influential producers. For instance, despite four IDA credits to Kenya's Agricultural Finance Corporation (AFC) amounting to well over \$65 million in a decade between 1975 and 1985, the World Bank was unable to persuade the government of Kenya to make credit available to small farmers with less than five acres of cultivable land even though they constitute nearly 90 percent of farms in Kenya (Lele and Meyers, 1989). The bulk of overdues of AFC were associated with large commercial and politically powerful farmers.

Liquidity constraints are of course the greatest at the lower socioeconomic levels. Development strategies targeting the very poor must address this fundamental characteristic if they are to participate in the development process. A commodity-based development strategy can directly and indirectly improve the incomes of these households even though they are typically not commodity producers. Directly real wages of laborers in the commodity sector increase as the demand for their labor increases. Indirectly, incomes of the landless rural class can increase through growth effects on the demand for rural goods and services -- provided they are not denied access to entrepreneurship by financial, human capital or other constraints.<sup>5</sup> In most developing countries the financial needs of this group are not met by the formal financial sector because of the high costs of administering Western-style credit to numerous low asset borrowers in an environment of poor infrastructure, information etc. A chief obstacle for many poor households in accessing formal financial markets is the requirement of collateral. Its absence is the result of the past inability of households to accumulate assets, in turn a result of past liquidity constraints and the high costs of borrowing in informal markets. Credit schemes targeted to low income

<sup>5/</sup> For discussion of the these dynamic relationships see Mellor and Lele's article "Growth Linkages of the New Food Production Technologies." *Indian Journal of Agricultural Economics* 28 (January-March 1973): 33-55.

households can lead to broad participation of the rural population in a primary commodity development strategy.

Such liquidity constraints of the poorest rural households have been ameliorated in Bangladesh by the provision of collateral-free loans from the Grameen Bank enabling marginalized members of the Bangladesh society to benefit from the growth in the agricultural sector generated by high yielding grain varieties (Hossain, 1988).

Small Bank-financed investments, especially by women, in various commercial and cottage enterprises in the rural nonagricultural sector have led to significant increase in incomes, capital accumulation, and employment among households receiving loans. The average amount of working capital increased nearly 4 times per borrower household after a period of two years with the Bank and total capital accumulation among borrowers increased at an average rate of 52 percent over the first three years of membership in the Bank. This highlights the collateral dilemma facing the poor in obtaining formal sector loans. The Bank's excellent loan repayment performance<sup>6</sup> has been attributed to : (a) the small size of weekly repayments; (b) confining loans to the extremely needy<sup>7</sup>;

(c) provision only for activities that generate a regular income; (d) the use of peer group liability (as a substitute for collateral); (e) the small size of the initial loans with subsequently larger loans available contingent on past loan repayment performance; and importantly (f) a highly trained and dedicated staff. In Madagascar and Malawi, similarly high loan repayment rates based on peer monitoring have been documented (von Braun, *et al*, 1993; Lele, 1989b). On a percentage basis, the costs associated with targeted credit to the poor are

<sup>6</sup> Hossain (1988) found that only 0.5 percent of the loans to 975 **surveyed** borrowers were overdue.

<sup>7</sup> Those families with less than 0.5 hectares of land (comprising 46 percent of all rural households). (Hossain, p.15, 1988.)

necessarily higher than for credit administered to large borrowers, mainly because of the increased managerial demands of numerous small transactions. In Bangladesh borrowers pay interest rates equivalent to the commercial rate of 16 percent which only covered 49 percent of the total costs of the credit program in 1986. Thus the implicit subsidy rate is approximately 51 percent at the opportunity cost of funds (Hossain, 1988). By recognizing and removing supply constraints inhibiting the linkage between commodity-led growth and increased demand for rural goods and services, carefully targeted subsidized credit can enable resource-poor rural inhabitants to participate in the development process.

As the recent insolvency of private OECD financial institutions illustrates, weak and insolvent private banks seem no less susceptible to bad loans and undue influence of the politically powerful elite than government institutions. Stiglitz (IMF, 1993) and others (Floro and Yotopoulos, 1991) have begun to question the wisdom of rapid financial liberalization, making a strong case for an active role for governments in creating financial institutions in developing countries that can supply funds for long-term investments, and provide a strong regulatory presence to prevent the disruptive macroeconomic consequences of financial market failure. Stiglitz also questions the response of savings to high interest rates while stressing the adverse effects of high costs of loanable funds on investments.

A combination of volatile and declining international prices, inadequate and haphazard implementation of price and exchange rate reforms, growth and equity considerations and institutional uncertainty calls for development of specialized credit agencies in Africa which would make credit directly available to small farmers. Given the weak private sector and the large financial requirement of agriculture they will have to be government institutions.

### **Public Expenditures and Investment:**

The checkered record of adjustment is also evident from the performance of these countries with regard to balance of payments and fiscal deficits. While Ghana and Tanzania were able to reduce fiscal deficits which exceeded 6 percent of GDP, at the same time their current account balances deteriorated. In contrast the situation was reversed in Kenya and Zimbabwe. This is in part because terms of trade changes affected each of the countries differently depending on their export portfolio. For instance Ghana with a high agricultural export concentration in cocoa was more affected by the price decline than others. Aid inflows were large and increased during the period to compensate for the loss in international terms of trade. For a group of 24 sub-Saharan countries, net overseas development assistance (ODA) adjusted for terms of trade effect increased from an annual average of \$5.9 billion (in constant 1987 prices) in 1981-86 to \$8.5 billion in the 1987-91 period. Net transfers in real terms also increased on average by 42% annually over the same period.

Reductions in the fiscal deficits among countries undertaking reforms were mainly the result of decreased investments and public expenditures. Governments in Africa have tended to freeze the wage portion of the recurrent budget, thus reducing real wages of government employees while cutting support for maintenance and operations. As consequence of the declining real wage in government, many qualified professionals have fled from public service further reducing the effectiveness of the public sector, when indeed agriculture requires a strong, effective albeit small public sector, as the record of every country successful in agricultural development testifies time and again.

As the result of reductions in public investment spending on infrastructure and other public goods by government, restrictive credit policies, and declining



export earnings, gross domestic investment as a ratio of GDP declined in 11 of 12 countries classified as early intensive adjusters over the 1983 to 1990 period (Lele and Adu-Nyako, forthcoming). Faini (1992) also presents evidence that the level of investment in SSA has declined with the adoption of adjustment programs and restrictive credit programs. Empirical evidence of the relationship between **net** domestic investment (NDI) and export earnings (EE) was obtained using **World Bank** statistics by regressing the level of NDI for 25 African countries from 1980 to 1987 on EE and a constant term. The results (t-ratio in parentheses):

$$\text{NDI} = 1.58\text{E}+008 + 0.521 \text{EE} \quad \text{Adjusted } R^2 = 0.77 \\ (24.3)$$

indicate a significantly positive relationship between the two variables for the group of African countries. The negative effects of structural adjustment and declining rates of export earnings on rates of net investment in African countries is of great concern to the future growth prospects of these economies.

We now move on, first to discuss the issues of economic diversification at macroeconomic and microeconomic levels, before ending the paper with an exploration of their implications for future price and nonprice policies for vigorous and sustained growth of smallholder agricultural productivity.

#### **4. The Fallacy of Composition and Economic Diversification**

We have seen above that lower levels taxation of agriculture can result in significantly higher rates of exports. Nevertheless when devaluations and reductions in taxes are carried out simultaneously by a large number of "small" developing countries as has been the case in the decade of adjustment, the price effect of supply shifts given inelastic income and price elasticity of demand and oligopolistic import markets on the international terms of trade must inevitably be significant. This old notion of fallacy of composition, first articulated by

Singer (1950) and Prebisch (1950), has recently been supported by policy simulation models of the removal of export quotas and taxes for tree crops (tea, cocoa and coffee) in Africa (Panagariya and Schiff, 1992; Evans, et al., 1992). They show declines in the combined income of producers as a result of removal of taxes and quotas. As ameliorating strategies the authors suggest export diversification and supply control through a cartel taxation scheme. Duncan (1993) and others argue and we concur that such schemes have tended not to benefit small producing countries, which often lose market shares as the breakdown of the coffee agreement shows. Increasing efficiency is the more effective way of maintaining competitiveness in periods of declining commodity prices, a strategy effectively pursued by the leaders in commodity exports in Asia (Malaysia and Indonesia) and Latin America (Brazil and Colombia).

In another study when the effect of a 5 percent increase in the supply schedules of African countries for the 6 most important African commodities was simulated, only cocoa export revenues declined in the short-term (Koester, et al., 1988). In the long-run after other producing countries had adjusted to the new world prices by decreasing their production, the effect on export earnings was positive in all cases. This in turn leads one to explore which exporting countries are likely to reduce their production for the inadvertent benefit of African countries. Brazil, Colombia, Costa Rica and Malaysia are seen to be likely candidates for production cutbacks, due to higher returns in alternative activities and rising domestic wage costs (World Bank, 1992). Export diversification and trade expansion in these countries has been stimulated by increasing international capital flows following trade liberalization. The positive effects of a GATT-style trade liberalization via increased real wages in middle income countries and their resultant shifts out of traditional exports could be large for poor countries. But several of these countries have chosen

to remain as major producers by increasing efficiency through a strong emphasis on improvement of technology in production, harvesting and processing. They have also continually shown a willingness to adjust their macroeconomic parameters and promise to be tough competitors for low income Africa especially countries with the fixed CFA currency. Nor are Viet Nam, Indonesia, India, Sri Lanka or China - major primary commodity producers with large pools of underemployed labor in agriculture -- likely to shift out of primary commodities in the next decade or more.

#### **Diversification Within and Outside Agriculture: Lessons of Recent History:**

Over the past two decades donors have gone through several short cycles in advising poor countries on diversification strategies, without a long term view of the role of primary commodities in the overall economic transformation. The Singer/Prebisch export pessimistic consensus of the 1960s led the World Bank and the IMF to sound a cautionary note on primary export crop promotion and to promote export diversification.<sup>8</sup> On the advice of the FAO, in 1973 the World Bank adopted a policy to restrict investment lending in support of the expansion of coffee, tea and cocoa except in cases when countries lacked any alternatives in production (Lele, 1992a) . However World Bank assistance in the establishment of tea processing capacity in Kenya had the inadvertent beneficial effect of stimulating domestic production. Kenya ignoring the conventional wisdom consistently encouraged smallholder production and productivity growth of export crops and increased world market shares in tea and coffee. This export drive was mainly the result of internal political pressure which opened the access of small

<sup>8</sup>In a special report to the IMF executive directors in 1969 staff expressed support for "reducing those commodities which were in serious oversupply by domestic taxation (e.g. coffee). The report went on to observe, "However, there have been several countries in which it has not been feasible to use the tax system directly and where the Fund has approved exchange measures involving the imposition of substantial taxes through the exchange system." (IMF, 1969).

African farmers to the production of the crops, the rights to which had been denied to them in the colonial period, and provided the same International price at auctions as in the estate sector. In contrast the taxation of smallholder tobacco in Malawi was much greater than the estate tobacco sector and farmers' rights to grow some export crops were restricted (Lele and Meyers, 1989).

Three types of diversification strategies **are** pertinent:

- (a) diversification within the rural economy of activities already undertaken by farmers, *e.g.*, food crops to meet growing local demand. In Africa given growing food imports such diversification can be of major significance in improving balance of payment problems;
- (b) diversification within agriculture to new higher value activities for either domestic largely urban consumption *e.g.*, dairy, and poultry or for export, *e.g.* horticulture, nuts, fruits, and livestock; Diversification prompted by a strong demand pull as a result of a growing population pressure and urbanization is evident in much of Africa and could be boosted further by more reliable functioning of markets, *e.g.*, by stabilizing the supply of feedstock for poultry which tends to be a serious constraint its growth; and
- (c) diversification outside agriculture through import substituting industrialization, acute forms of which have been pursued by African countries with disastrous consequences for agriculture although in China development of rural enterprises has proven successful.

Past diversification attempts have been of all three kinds. Numerous small successes can be cited in diversification to non-traditional activities, such as the shift out of sorghum and millet to hybrid and improved open pollinated varieties of maize throughout Africa, or the growth of poultry and small scale irrigated rice in Nigeria to meet the growing urban demand, or of horticultural crops for exports as In Kenya. However, the macroeconomic effects of these efforts on the balance of payments, employment, income, and government revenues initially tend to be small and take a long time to achieve significant results, With a longer time horizon, colonialists exhibited more patient in this regard than donors in the development of African agriculture (see Lele and Meyers, 1989).

The major purpose of export diversification within agriculture is to achieve a cushioning effect on trade balance fluctuations through a diversified portfolio. However, this result is contingent on negative correlation of the net returns in the export portfolio. Temporal prices of agricultural commodities tend to be positively correlated, while within national borders yields are spatially and temporally positively correlated, thus reducing the scope for revenue cushioning within the agricultural sector.<sup>9</sup> Within a particular commodity sub-sector, diversification of marketing strategies through increased use of futures markets, forward contracts and commodity options can have some of the desired risk reducing effects probably at a much lower cost than production diversification. The opportunity costs of production diversification can be very high especially when national research capability is a constraint. These costs are mainly from a reduction in specialization, lower research expenditures on a per crop basis, and the resulting decrease in productivity growth.<sup>10</sup> An acute concern in developing countries is that it is easier to improve productivity of crops already in place than that of new crops where expertise is limited.

Kenya which pursued its comparative advantage in traditional export crops diversified its agriculture and economy more rapidly than Tanzania, which overlooked its comparative advantage, neglected smallholder agriculture and embarked on an active program of acute import substitution. Tanzania placed emphasis on the development of food production in marginal areas with few obvious

9/ In an examination of 26 agricultural commodity prices from 1958-1990 commonly produced in Africa, the typical commodity was negatively correlated at the 10 percent significance level with fewer than 4 of the 26 commodities. Specifically, arabica coffee, robusta coffee, cotton, cocoa, tea, and palm oil were negatively correlated with 0, 8, 0, 4, 5, and 8 commodities, respectively (Langham, 1992).

10/ The effect of diversification on total factor productivity growth in U.S. agriculture was negative and quantitatively large in a panel data study of the 50 states (Habasch, 1989).

technological possibilities, and embarked on regional diversification in the Southern Highlands remote from the major centers of consumption. Quite paradoxically, the neglect of Tanzania's traditional export sector and of food production in the established high potential areas increased the share of agriculture in a declining GNP and exports by the end of the 1970s. Emphasizing productivity gains among food and export crops with a demonstrated comparative advantage while carefully identifying the location-specific costs and benefits of alternative strategies is the most effective means of diversifying into new crops, undeveloped regions and industry. Efforts to increase productivity of traditional food crops *i.e.*, sorghum, millets and cassava and diversification out of agriculture through industrialization have had very limited success. Despite low international prices traditional export crops will have to be the important means of Africa's economic growth.

### **Lessons of Successful Agricultural Development Experience at the Micro Level:**

#### **Food Insecurity and the Labor Constraint:**

Increasing factor productivity of both traditional food and export agriculture are essential and complementary rather than dichotomous goals. Agriculture of early developing countries is characterized by a large number of geographically dispersed households with low factor productivity and incomes in which food security considerations dominate production decisions. These households face risky production conditions, and poorly developed or nonexistent markets for commodities and factors of production. Labor constitutes up to 80 percent of value added in low-income African agriculture, compared to 50 percent or less in low-income Asia. A combination of lower rural population densities and higher labor intensity means considerable shortages of labor at peak periods of land preparation, planting, weeding, and harvesting although densely populated rural

areas in Africa are increasing e.g., the Machakos district in Kenya, the Southern Region of Malawi, the Western Highlands of Cameroon and most of Rwanda and Burundi. Labor is a major bottleneck for the development of export agriculture by small farmers, which can be relieved by labor saving innovations in food crop technologies and other household activities such as food processing, fuel and firewood collection and water supply thereby releasing labor for export crop production. For example, small farmers in the Mwanza region of Tanzania increased cotton production in the 1960s because introduction of hybrid maize released labor from the previously arduous dependence on sorghum (Lele, 1975).

Ensuring the reliable supply of purchased foods at reasonable prices throughout the year is also essential for small farm households which often spend up to 50 percent of their income spent on food. The income and nutritional effect of high food prices and food shortages can seriously affect the allocation of productive resources to cash crop production by rural households.

### **Role of Infrastructure In Market Integration:**

Improvement of fragmented food markets is clearly one way to improve food security. Priority to the development of rural feeder roads is essential to the development of competitive food markets and the stimulation of production. Gaviria, *et al.*, (1989) documented that the density of rural roads in the latter half of the 1980s in Nigeria with a population density similar to India's in the 1950s was substantially lower than India's in the 1950s. Ahmed and Donovan (1992) make the same point more generally in Africa vis a vis Asia. For example, paved roads and rails per 1000 hectare of cultivable land averages 1.1 kilometer in Africa and 5.3 kilometer in Asia. Elasticity estimates of the impact of rural roads on aggregate agricultural output and fertilizer use were as high as 0.37 in the case of output and 0.44 for fertilizer (Antle, 1983; Binswanger, *et al.*,

1987; Binswanger, *et al.*, 1989). Inadequacy of rural infrastructure results in higher cost of services including transportation and marketing and retards adoption of new technologies and inputs.

A recent study of countries in the CFA currency zone found that the cost of transportation from farm to local markets was five times the cost from one regional capital to another (Bonnafous, 1993). Yet development of trunk routes has received more attention by governments and donors. Planning and implementation of rural feeder roads is a function most effectively conducted by local government even though private sector contractors, where they exist, may be employed to carry out the actual work. Kenya and Malawi have shown an effective capacity to develop and maintain rural feeder roads, in Kenya's case thanks to the superb work of the International Labor Organization in developing local planning and implementing capacity over more than a decade. Nigeria and Tanzania have had less success in part due to the erosion of their local government institutions (Gaviria, *et al.*, 1989). In Tanzania the decline of local institutions occurred even though the government's vastly more effective rhetoric of local participation attracted nearly twice the level of per capita foreign aid as in Kenya. The actual record on the functioning of the participatory institutions in Kenya such as the Harambee schools and health clinics and the farmer-based cooperative credit/marketing organizations has been consistently stronger than in Tanzania. Donors need to evaluate their expectations of democratic governments not simply in terms of the presence or the absence of a free press or a multiparty system, but the extent to which local rural institutions operate effectively. Kenya receives far higher marks on this score than recent reports in the Western press would lead one to believe.



### **The Role of Stable and Unstable Prices:**

When is there a role for governments to intervene in markets? Tree crops are characterized by higher *unit* value even at the current depressed international prices when exchange rates are close to market rates and producers receive a high share of the price relative to food crops. Tree crops entail long term investment in a stock of capital. Price variability results in a strong supply response in the upswing and decreased levels of variable inputs into production on the downswing. For example, during the coffee boom in 1977, when coffee plantings increased, the relative coffee price/maize price ratios in Kenya, which has had a history of low taxation, appropriate exchange rate adjustments and low internal food prices, were 45 to 1 compared to only 7 to 1 in Cameroon with an overvalued CFA, higher direct tax on coffee, and higher internal food prices (Lele 1992a). As a result Kenyan yields of smallholder coffee farms are three times those in Cameroon and the per hectare or per labor day returns to coffee have been much higher (Lele 1989a). Tree crop production does not therefore require price stabilization as a way of providing an incentive to producers. It is only when prices remain depressed over a long period and monopolies tax export agriculture particularly vis a vis other alternatives that farmers switch to other crops, as is the case with coffee in Tanzania in 1993.

This principle, however, does not apply to annual crops. Even when competitive markets exist, privatization of marketing still does not solve the problem of intertemporal price instability common to agricultural production especially in low rainfall areas. In the case of coarse grain staples in East and Southern Africa and the Sahel, production is highly variable. In Southern Africa surplus production prompted by favorable weather or high prices results in low maize prices causing farmers to switch out of maize after ensuring domestic food needs, the subsequent rise in market prices that results generates a cyclical 'cobweb'

pattern of price and supply variation. Such price and supply variability is, however, not dampened by private trading stocks across years in developing countries due to the high opportunity cost of capital. Major benefits of year-to-year price and supply stability include the inducement to producers to adopt uncertain technologies and macroeconomic stabilization from reduced variations in the balance of payments accounts from fluctuating food import bills. Stable prices and supply are also beneficial to annual cash crop sectors such as cotton, jute and sisal that require further processing and call for a stable supply of throughput to the processing units in order to achieve full capacity utilization and economies of scale.

Food security stocks and stable prices are also needed to ensure the level of consumption **of the rural poor** as already noted above. When food security is guaranteed by stable rural markets, producers are more willing to devote resources to cash crop production, as is witnessed in the Central Province of Kenya where coffee farmers' food needs **are** ensured by **the** government's **maize** stabilization program. Crisis distribution systems and food safety nets **are** as essential in low rainfall areas of rural Africa as in urban areas which have been the focus of donors and governments. This is perhaps because opposition to reforms tends to originate in urban concentrations, and interaction in food and export crop production at the farm level through the nexus of food insecurity and labor constraints is not widely understood.

Although Tinnier (1988 and 1993) argues that much of the success of Asian countries in agriculture is attributable to the existence of a stable food price environment, **others have** argued **on theoretical** grounds against domestic **price** stabilization through the holding of food stocks by government (Newberry and Stiglitz, 1981). Providing a stable price environment requires an integrated and

comprehensive approach with important roles for both the private and public sector. For countries with unsustainable costly parastatal marketing systems the example of China highlights the benefits of a gradual transition towards privatization rather than a "big bang" approach in Maintaining food security while new marketing institutions develop. In contrast, liberalization of Malawi's grain marketing in a market environment characterized by liquidity constraints, poor market information and high transport costs, coupled with an influx of 700,000 Mozambique refugees resulted in maize shortages and prices 3 to 4 times the previous official price (Lele, 1989b).

Spatial stability of prices and market supply are highly correlated with the level of infrastructure. When adequate feeder roads exist, credit markets function, and market information flows adequately price variability between regions will be substantially reduced as food flows respond to price signals. The role of government in the distribution system in such a situation is considerably reduced, but is of course crucial in ensuring the required infrastructure and information flows. The government must also ensure that collusive behavior by traders does not interfere with the flow of food. Intertemporal price variability may still threaten food security even in countries with high infrastructural development. Here again, speculative and collusive behavior by private traders can be highly destabilizing and add to climatic-induced variations compounding the risk of famine. To provide stable prices both spatially and intertemporally, Dreze and Sen (p. 95, 1989) argue for active government participation in food trade and storage, noting that ... "The existence of public stocks can go a long way towards reducing fears of future scarcity and defeating the manipulative practices of private traders." The issue of food security and the relative role of government and the private sector must be addressed on a country-by-country basis. Donor agencies often have not

distinguished between the differential causes of marketing parastatal losses which can range from external shocks, inappropriate government policies, transportation and other infrastructural bottlenecks, provision of noncommercial services such as the maintenance of rural feeder roads, incompetence, or corruption -- each of which requires a different intervention.

While serving many beneficial roles, price stabilization policies have fallen out of favor because of the high fiscal costs incurred by marketing parastatals.<sup>11</sup> Implementation of a stable price environment while likely requiring some degree of government subsidization has proven to be more costly than is necessary for several reasons. In Kenya the deficits of the National Cereals and Produce Board have been attributed to: (a) poor management; (b) a stringent economic environment; (c) a lack of equity capital leading to excessively high financing costs of operation; and (d) restrictions on inter-district movements of grains and monopsony control of purchasing (Lele and Christiansen, 1989) . Many African governments have attempted to maintain a single official price through costly buffer stocks rather than encouraging private trade through infrastructural development and allowing prices to move freely while acting as a buyer and seller of last resort to maintain a relatively wide price stabilization band. The costs of maintaining buffer stocks can be reduced by substituting financial stocks and trade for physical stocks especially as import displacement times are reduced by the crucial development of public infrastructure. Use of forward markets can prevent costs due to short-term market fluctuations (including exchange rate variations). Further savings can be generated by the interest earned on

11/ In Tanzania economic losses of the National Marketing Corporation in 1983 were around \$250 million; while total central government expenditures on agriculture were around \$49 million. In Kenya the accumulated losses of the National Cereals and Produce Board were about \$300 million in 1986 while government agricultural expenditures were only \$8 million (Lele, 1989a).

financial stocks invested in international credit markets until they are needed. Public investments in irrigated agriculture reduce the variability in food stocks and increases greatly the level of food security. It is also important to note that the costs of administering an effective price stabilization program increase in some proportion to the divergence between the internal and world price. Thus stabilization around long-term world prices will be lower in administrative costs than when there is a significant divergence.

The adjustment costs of privatizing parastatal marketing systems can be high especially when the change is sudden and entrepreneurial capacity is low. As primary commodity producers privatize, training their new traders in the use of increasingly sophisticated trade instruments and contracts will alleviate some of these adjustment costs. In certain cases privatization has resulted in a lowering of quality standards as in the case of Nigerian cocoa, where the government has had to again assume the role of regulating quality. In contrast to direct government quality regulation, in Kenya small-farm tea auctions assure this role by paying quality premia to smallholders often 15 percent above the price received by large estates.

To rely in a purist fashion on either the state or the market mechanism will not ensure food security. The challenge of establishing a stable least-cost price environment based on a combination of the public and private sector and the effects of such an environment on productivity growth should be one of the most interesting issues for professional economists.

#### **Research and Extension:**

Much of the evidence for sources of total factor productivity (TFP) growth comes from Asia (Azam, Bloom and Evenson, 1991; Rosegrant and Evenson, 1992; Evenson

and Rosegrant, 1993). These studies show that the main sources of growth in TFE are research and extension expenditures and imports of foreign innovations (measured as patented inventions of agricultural Implements). These three factors alone accounted for 87 percent of the growth in TFP in India which averaged 1 percent annually from 1956 to 1985 (Rosegrant and Evenson, 1992). In Africa preliminary estimates of TFP growth show stagnant rates from the early 1970s to the early 1980s with positive rates in more recent times of approximately 1.6 percent (Delgado and Pinstup-Anderson, 1993). The factors explaining the slow growth in TFP in Africa have not been analyzed statistically but certainly the ineffectiveness of research and extension systems would head a list of possible factors.

While donors and African governments have devoted substantial resources to agricultural research in Africa, many of these investments have suffered from excessive use of short term consultants, over-emphasis on construction of buildings, lack of a long-term commitment and especially the lack of effective incentive structures for national research scientists (Lele and Goldsmith, 1989). The building of effective sustainable research institutions requires a cadre of indigenous researchers working collaboratively with experienced and qualified international scientists with a long term outlook towards solving technological constraints. In addition it requires a sustaining environment where farmers are commercially oriented and willing to adopt and indeed demanding of innovations. A research policy drawn up by qualified, well trained and experienced nationals cognizant of farmers' needs and demands is required to address these complex problems of agriculture and rural development. Close collaboration with extension systems can increase the effectiveness of research. The recent experiences of the World Bank's Training and Visit Extension program and the Global 2000 program in Africa indicate the positive results that can be achieved.

Experience suggests the need for a unified and politically supported strategy of research and extension which draws on the best of various systems rather than a rigid adherence to a single approach.

#### **Input Intensification and Environmental Concerns:**

In most areas of the developing world, environmental degradation can be linked to the inability of agriculture to provide the surplus necessary for the structural transformation. In the face of slow productivity growth and rapid population growth the extensive agricultural margin is expanded into environmentally fragile lands. The best strategies to preventing the mining of marginal agricultural lands are: (a) to attempt to increase the productivity of existing lands; and (b) attempts to slow population pressures. African governments must insist on -- and donors must support their need for -- **increased** access to chemical fertilizers and pesticides. Africa's per hectare fertilizer consumption is the lowest in the world (Lele. et al., 1989b). While there are major country differences, the sharp rise in internal fertilizer prices together with haphazard adjustment of producer prices and the uncertainty in input and output markets have increased the risks in fertilizer application (Lele, et al, 1989b). Often a decline in the consumption of fertilizer means increased substitution of (largely female) labor into production and the expansion of the agricultural frontier. To prevent this expansion and the resultant degradation will require attention to expanding productivity growth through investments in research, extension and rural Infrastructure while concurrently improving input delivery systems and the access of farmers to these inputs.

#### **6. Summary and Conclusions:**

In conclusion it is clear that agricultural development through the commodity sector requires very careful consideration of a highly diverse set of issues

including *inter alia* technology, institution building, management, human capital development, resource allocation systems (pricing/marketing systems for allocations of private good\* vs. nonmarket allocation systems for public goods), financial systems, household constraints, natural resource management, and not the least important the location-specific determination of the sets of public and private goods. We have examined a broad range of policies addressing the role of commodities in agricultural development strategies that provide numerous important lessons. The successful smallholder commodity development in Africa to the extent that it has occurred stresses the importance of high quality location-specific research and extension, rural infrastructure, producer and processor access to finance, processing and marketing arrangements that take into account scale economies in processing, and appropriate price incentives. Most importantly, developing countries require competitive global markets which would allow the full expression of consumer demand and the possibility of vertically integrating commodity processing enterprises into these markets to the benefit of the citizens of developing countries as well as consumers in the industrial economies.

Information is critical for developing a thriving export sector. This calls for a pragmatic partnership of public and private institutions, rather than ideologically based preferences for the private or the public sector. It also requires a zealous commitment to the collection and dissemination of relevant information to all concerned actors\*. International flows of the necessary technical, organizational, financial, managerial, environmental and international market knowledge must be encouraged. And that knowledge used: (a) to develop and provide access to technology and (b) in the training of new forms of management, information systems and export strategies within the commodity sector. Governments need to be skilled at borrowing knowledge, in employing experienced



international personnel and distinguishing from the ill-equipped, inexperienced technical assistance with little institutional memory that has often accompanied foreign aid programs.

Developed country governments need to undertake a fundamental assessment of: (1) the effects of trade policies on their own consumers and the developing countries, and (2) their foreign aid policies; in order to determine what might place low income countries on a sustained growth path, while remaining politically feasible at home. Most importantly, the governments of the least developed African countries need to review the experience of other developed and developing countries and to change the fundamental way in which agriculture now operates.

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