MADIA

STRUCTURAL ADJUSTMENT, AGRICULTURAL DEVELOPMENT AND THE POOR: SOME LESSONS FROM THE MALAWIAN EXPERIENCE

BY

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STRUCTURAL ADJUSTMENT, AGRICULTURAL DEVELOPMENT AND THE POOR: SOME LESSONS FROM THE MALAWIAN EXPERIENCE [1]

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1/ This paper reflects research undertaken as part of a wider World Bank research study on "Managing Agricultural Development in Africa" (MADIA). The MADIA study has involved detailed analysis of six African countries (Kenya, Malawi, and Tanzania in East Africa, and Cameroon, Nigeria, and Senegal in West Africa) over the past 20-25 years. Seven other donors (USAID, UKODA, DANIDA, SIDA, the French and German Governments, and the EEC) are participating in the study which has three main areas of focus: (i) the relationship of domestic macroeconomic and agricultural policy to agricultural performance; (ii) donors' role in the development of agriculture; and (iii) the politics of agricultural policy. Currently the results of research are being distilled into a series of book-length country-specific volumes, cross-country papers, and synthesis volumes.

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CONTENTS

1. INTRODUCTION

There has been much debate about the relative importance of external shocks and internal policies in explaining the poor performance of African countries. There is a similarly active debate about the extent to which macropolicy distortions, as distinct from sectoral policy failures, explain the domestic policy environment for growth and distribution. Few country specific studies exist that attempt to assess the relative importance of these factors on a systematic basis and explore their policy implications.

This paper addresses these issues by examining the complex problems faced by an economically well-managed but small, poor, and landlocked country -- Malawi -- in trying to achieve equitable growth while coping with formidable external shocks. It argues that agricultural and rural sectoral policies will be crucial in determining Malawi's future growth, and explains the reasons why. Relative to its neighbors, Malawi adjusted well to adverse external shocks in the 1970s. [1/] Since the second oil shock in 1979, however, it has faced numerous other external problems -- including a drought, a major decline in external terms of trade, higher interest rates on externally borrowed capital, a sharp increase in external transport costs, and a substantial influx of refugees (the latter two resulting from political strife in neighboring Mozambique). These factors beyond Malawi's control have in turn contributed to structural imbalances that have led the government to seek to restore macroeconomic balance through one of the most ambitious programs of structural adjustment in Africa. However, Malawi's adjustment process has been complicated by the dualism of its agricultural sector. [2/] One of the main weaknesses of the initial structural adjustment programs in the 1980s was that they inadvertently did not adequately take into account the complex

interactions between Malawi's structural problems and the process of macroeconomic adjustment (especially the effects of adjustment measures on the poor and their ability to participate in the long-term growth process). More recent adjustment efforts have begun to show far greater sensitivity to this issue; nevertheless, complex problems remain to be addressed before equitable and sustainable growth can be achieved. Indeed, Malawi's example lends strong support to the contention that SALs are necessary but not sufficient instruments for resuscitating growth. Meanwhile, its rural development experience of the 1970s lends support to evidence from elsewhere, that well-intentioned patterns of investment targeted towards smallholders cannot adequately compensate for the lack of a wide range of complementary sectoral and other rural development policies -- directed toward institutional, organizational, technological, pricing, and land related issues -- which need to be implemented on a coherent basis if equitable growth is to be achieved. This paper attempts to capture the nature of that strong and necessary complementarity between macroeconomic and sectoral policy by examining various aspects of a rural sectoral strategy and its implications for external assistance.

(a) Agriculture, poverty, and development

In a two-sector model of economic development, Lele and Mellor (1981) have demonstrated that the way in which the benefits of agricultural development are distributed towards low income producers has a profound effect on the overall structure of demand, and, through the latter's effect on growth linkages, on the development of the rest of the economy. If growth in earnings in the agricultural sector benefits low income households, they spend a larger proportion of this additional income on basic food and nonfood goods

and services, which are likely to be produced by labor-intensive methods within the country -- in contrast to the demand patterns of their better-off counterparts, who tend to buy relatively more luxury and imported goods. 3/ As the increased demand generated by broad-based income growth conforms to changes in relatively labor-intensive patterns of production and services, domestic employment and income generation in the nonfoodcrop sector of the economy begin to outpace growth in the foodcrop sector. This model is of particular relevance in the dualistic Malawian economy where the rapidly growing estate sector accounts for 95 percent of exports. 4/ Agriculture, however, also provides employment for 85 percent of the smallholder population. The extreme poverty in which the smallholder population lives is underscored by the fact that nearly 60 percent of the smallholder households cultivate less than 1 hectare of land; Malawi also has one of the highest rates of infant mortality in Africa, and very low levels of life expectancy, primary education, and nutrition. These variables partly reflect the unfavorable initial conditions that Malawi inherited at independence relative to its neighbors; 5/ they also reflect the policy choices made in the 1970s and highlight the crux of the challenge facing the government and its donor supporters -- how to improve economic conditions among the bulk of Malawi's very poor rural households, while also resuming the high overall economic growth rates achieved in the 1970s. In this connection, the fact that Malawi exported maize in the 1970s (while Kenya imported it) partly reflects Malawi's more skewed income distribution, improvements in which might not only make maize export growth less likely, but might even lead to increased food imports. Whereas this paper focuses on the agricultural aspects of rural growth and income, similar concerns need to be applied to a variety of other

social sectors, given the multisectoral nature of poverty. The treatment of these is, however, beyond the scope of this paper.

Achieving a rapid, broad-based, aggregate agricultural supply response to meet growing effective internal demand for food is, however, complicated in Malawi by the fact that the smallholder sector is itself characterized by a dualistic structure. Whereas over 55 percent of the smallholder households do not have enough land and rely substantially on wage employment for income and on the market for food, the remaining rural households are either actually or potentially self-sufficient or surplus producers for the market. This dualism has had major consequences for the process of adjustment. To understand the interaction between Malawi's economic structure and the recent external shocks, the substance of domestic policies and growth patterns, along with their implications for the content of structural adjustment programs, future donor assistance strategies, and the likely cost and pace of the economic response, these factors will be examined in greater detail.

(b) External shocks and weaknesses in domestic policies

The second oil price increase in 1979 was followed by a fall in the price of tobacco (Malawi's major source of export earnings) and a drought (which required food imports), resulting in an increase in the current account deficit and the debt service ratio (see Table 1). The war in Mozambique raised Malawi's external transportation costs by $50 million -- close to 20 percent of the value of exports and 3 percent of GDP by 1984 -- and produced an influx of refugees that by mid-1988 was estimated to be 450,000 to 500,000 or approximately 6 percent of the population. 6/ More generally, the

Table 1: Macroeconomic Indicators: Real GDP Growth, Deficits, and Debt Management, 1978-1988
(In Million Kwacha)

Item	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988 5/
GDP Current Prices	853.4	873.1	937.5	1103.8	1242.4	1434.9	1708.9	2021.7	2301.5	2871.1	3484.3
GDP 1978 Market Prices	853.4	850.1	836.7	792.3	813.0	843.9	890.1	930.0	940.6	935.9	954.2
Real Growth in GDP (% Annual Increase)	na	-0.4%	-1.7%	-5.2%	2.6%	3.8%	5.5%	4.5%	1.1%	-0.5%	2.0%
Budgetary Deficit 1/	73.4	84.2	116.1	129.6	114.3	112.3	109.4	122.2	252.7	213.9	158.1
As a % of GDP	8.6%	9.6%	12.4%	11.7%	9.2%	7.8%	6.4%	6.0%	11.0%	7.5%	4.5%
Current Account Deficit	105.7	167.6	142.3	139.1	113.9	178.5	191.7	167.9	139.4	149.2	200.7
As a % of GDP	12.4%	19.2%	15.2%	12.6%	9.2%	12.4%	11.2%	8.3%	6.1%	5.2%	5.8%
Total External Debt 2/	195.1	274.0	366.7	426.9	830.0	798.7	915.3	na	na	na	na
As a % of GDP	22.9%	31.4%	39.1%	38.7%	60.7%	55.7%	53.6%				
Debt Payments 3/	18.5	32.9	47.1	88.0	39.8	87.6	118.0	155.6	214.6	213.6	na
As a % of GDP	2.2%	3.8%	5.0%	8.0%	3.2%	6.1%	6.9%	7.7%	9.3%	7.4%	
Debt Service Ratio	9.9%	16.1%	17.0%	22.0%	16.0%	15.0%	18.0%	24.0%	43.0%	32.0%	na
Exchange Rate 4/ (Kwacha per Dollar)	0.84	0.82	0.81	0.89	1.06	1.17	1.41	1.72	1.88	2.21	2.53
Use of IMF Credit 6/	5.53	26.94	47.89	75.28	73.58	97.52	114.92	121.94	101.35	77.74	74.96
(Net Flow, million SDR)	-3.83	21.41	20.95	27.39	-1.7	23.94	17.4	7.02	-20.59	-23.61	-2.78

Source: Government of Malawi, Economic Reports, except where indicated in notes.

Notes: 1/ Includes revenue, grants, recurrent and development expenditure, and extra-budgetary items.
2/ From IMF (1987).
3/ Includes payment on principal and interest for all internal and external debt.
Includes debt relief measures, e.g. in 1982, from K59.8 million to K39.8 million.
4/ Market Rate (period average) from IMF (1987).
5/ Most recent estimate. For IMF data, Febuary 1988; for Government of Malawi data from 1988 edition.
6/ Net inflow of IMF funds (negative sign indicates outflow) from IMF (1987).

decline in Malawi's dollar adjusted international terms of trade from a base of 100 in 1980 to a mere 28 in 1987 has required it to produce ever larger volumes of exports to maintain its real income.

Whereas the rapidly expanding estate sector had been the source of Malawi's impressive macroeconomic performance in the 1970s, the collapse of world prices of flue-cured tobacco in 1980 led to growing bankruptcies of tobacco estates.

(c) The nature of the adjustment effort

To address these macroeconomic problems the World Bank, together with other donors, [7] has financed three structural adjustment loans (SALs) totaling $224 million since 1981. [8] The conditions attached to the loans were designed to improve the balance of payments, cut the budget deficit, and give market mechanisms greater influence in determining prices, wages, resource allocation, and the structure of production. [9] In particular, they involved raising producer prices for smallholders, eliminating consumer price subsidies, an ill-fated effort to eliminate the fertilizer subsidy, exchange and interest rate adjustments, higher fees for public utilities and services, cuts in public expenditures (together with intersectoral shifts in public investment away from transport and government buildings, and towards agriculture, health, education, and housing), and, within agriculture, a shift away from the National Rural Development Program (NRDP), which has been at the center stage of Malawi's smallholder agricultural strategy since 1978, towards agricultural research and extension. Programs for restructuring and improving the management (and in some cases redefining the objectives) of parastatals included liberalization of the grain market and divestiture of public holding companies owned and operated by Malawi's elite.

The process of structural adjustment correctly forced reconsideration of some costly policies pursued by the government to achieve growth in the 1970s. It also, however, involved some hasty decisions, taken on short-term macroeconomic grounds, to dismantle policies and cut back on investments that, while needing corrections, have made sense from a long-term developmental viewpoint: examples include grain market intervention, fertilizer price subsidies, and the National Rural Development Program.

(d) The results of initial adjustment efforts and subsequent shocks

As a result of the policies adopted by the government and the loans provided by donors, Malawi's current account deficit as a percentage of GDP fell steadily in the early 1980s from its 1979 peak (though rising again in 1983 and 1984); the budget deficit as a percentage of GDP declined from 1981 to 1985 (see Table 1). However, external terms of trade, which had recovered somewhat in 1983 and 1984, worsened again in 1985 and 1986 owing to the decline in tobacco prices. In addition, the influx of refugees from Mozambique greatly inflated domestic demand for government expenditures on food and health services for the refugees, and increased the security related expenditures government has had to undertake to protect its vital trade routes. The World Bank has estimated the additional government spending directly related to the external shocks in 1985/86 and 1986/87 alone to be more than 2 percent of GDP. [10/] Nevertheless, most macroeconomic indicators (e.g., the shares of budget and current account deficits in GDP and the debt/service ratio) had improved by 1987. [11/]

The most important response of the economy, however, lies in the performance of output and exports. By 1987, estate production had not regained its 1983 peak (see Figure 1); smallholder production showed a similar

lack of aggregate production response (see Figure 2). Changes in relative producer prices induced by SALs simply resulted in a shift among crops and real per capita GDP took a sharp plunge from 1985 to 1988. In response to sluggish growth and new external shocks, donors (the World Bank, EEC, ADB, USAID, and Japan) financed an industrial and trade policy adjustment loan in 1988, and are planning an agricultural sector policy loan in 1989; the experience of the last two decades should provide some useful lessons for these operations. Central to this experience is the dualistic structure of Malawi's agriculture, reviewed next.

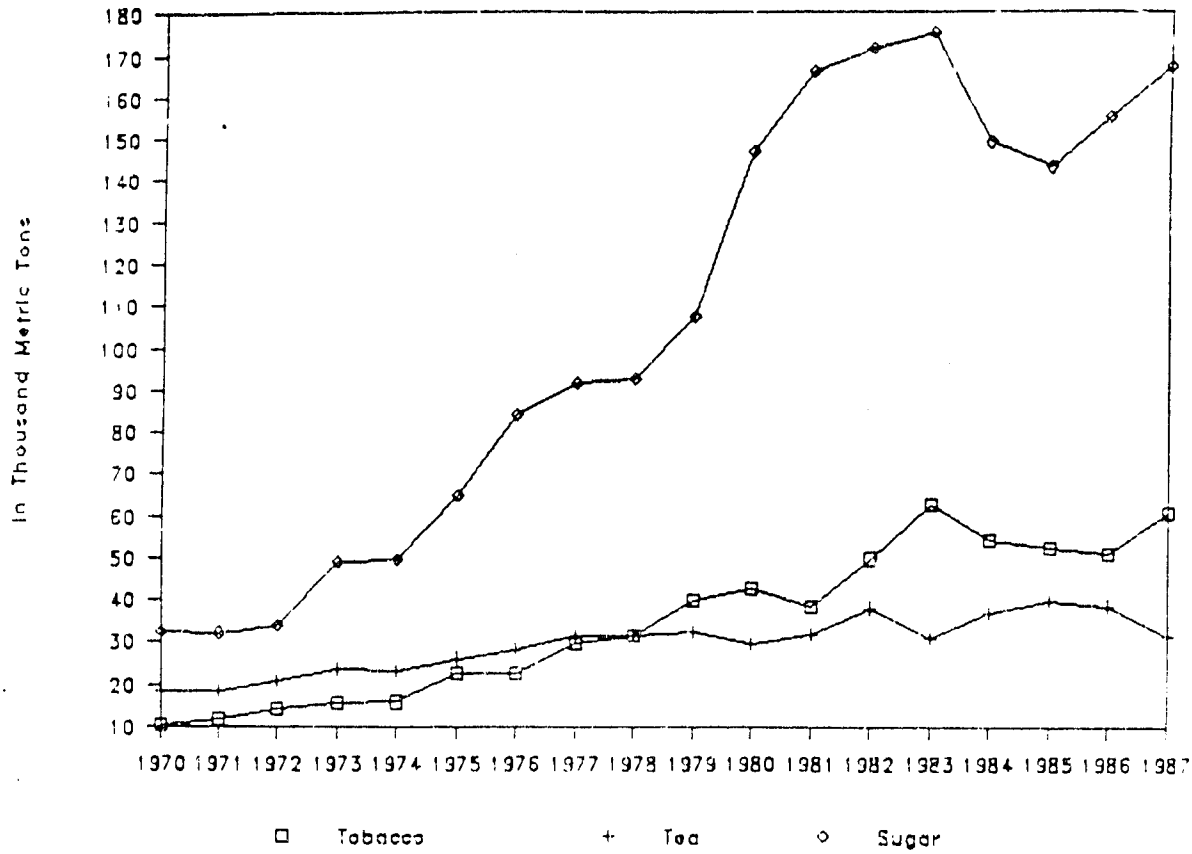
(e) The evolution of dualism and steps needed to curb it

The government's pursuit of an estate strategy to achieve rapid growth in the 1970s can be explained by Malawi's extremely low income levels, and the need to achieve fiscal self-reliance and export growth relatively quickly. The consequences of this policy, and the relevance of those same considerations for meeting the contemporary dilemmas of growth and equity, will be examined in order to learn lessons for policy.

Malawi's estate-based agricultural sector evolved from a combination of factors. These included the need to reduce the economy's dependence on British grants in aid, [12/] Rhodesia's Unilateral Declaration of Independence (UDI) in the mid-1960s (which created a major opportunity for increasing Malawi's tobacco exports), the government's objective of creating a landed middle class, and finally its skepticism about the ability of the smallholder sector to respond quickly and reliably to economic opportunities. [13/]

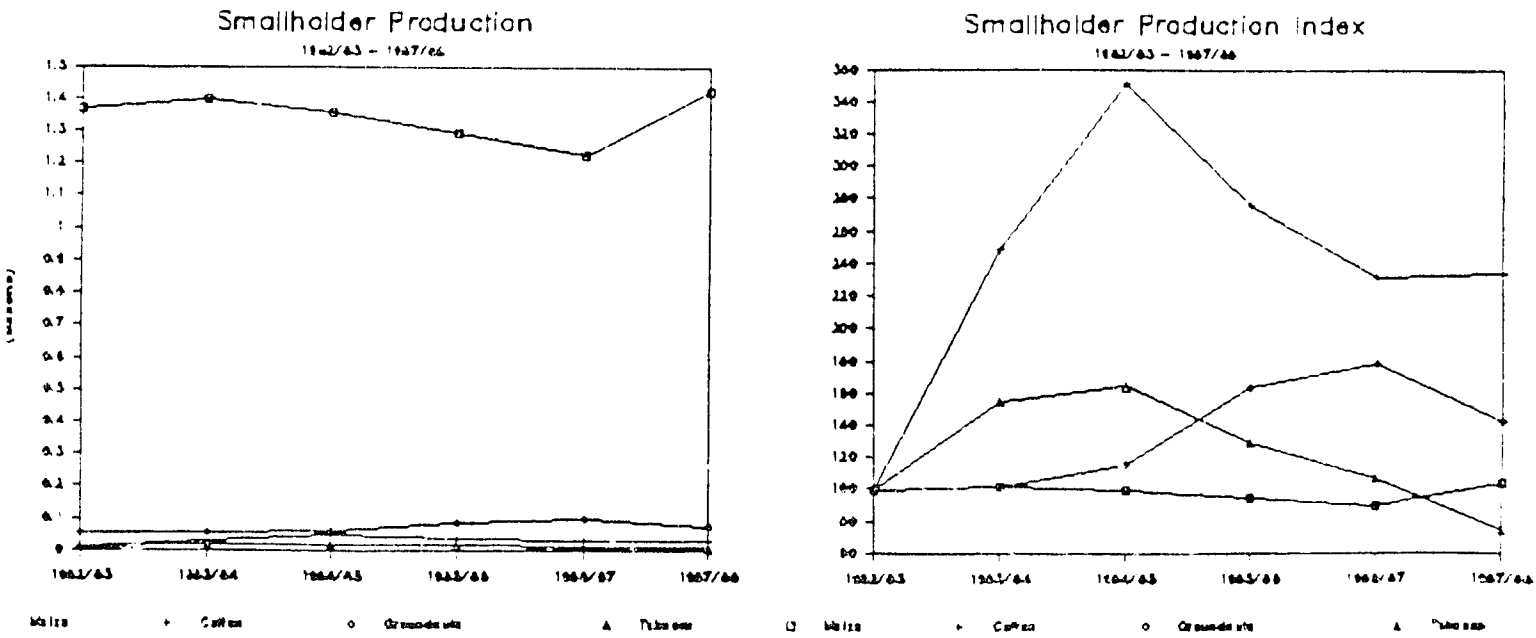
To establish estates private individuals have been issued leases and then granted licenses to grow burley and flue-cured tobacco and to sell their products in domestic auctions (and internationally) at market prices offered

Figure 1: Estate Production of Major Crops, 1970-1987
(In Thousand Metric Tons)



Source: Estate production from Government of Malawi, Economic Reports.

Figure 2: Smallholder Production, 1982/83 - 1987/88
(In Million Metric Tons and Indexed) 1/



Source: Smallholder production from Government of Malawi, Ministry of Agriculture
Note: 1/ The graph of smallholder production in metric tons illustrates the dominance of maize and the graph of crop production indices shows the variations

by private buyers. [14] Smallholders, on the other hand, have not been allowed to grow either burley or flue-cured tobacco, and must sell the varieties they grow (dark-fired, sun-cured, and air-cured) to ADMARC, at fixed prices. Unlike most other African countries, Malawi has not taxed its agriculture through an overvalued exchange rate; on the other hand, smallholders have tended to receive a relatively small proportion of the revenues obtained by ADMARC from the final sales of their output, resulting in a tax on smallholders of upwards of 50 percent, whereas the estate sector has remained largely untaxed.

The differential rights to grow and sell export crops have had a powerful adverse impact on smallholder agricultural growth. Despite substantial investments in the smallholder sector by donors and the government, and despite Malawi's relatively superior record in the implementation of rural development projects, marketed output of most smallholder crops, with the exception of maize, has stagnated or fallen. [15] As aggregate subsistence requirements have risen with population growth, and with increased land pressure, the area under smallholder maize has expanded. The growth in maize output, however, has been well below the growth in population; thus per capita maize production has in all likelihood declined. [16]

The greater return accruing to estate operators has also led to increased demand for establishing tobacco (especially burley) estates, and a higher incidence of tenancy. The average size of estates has declined over time, yet their numbers and share of total arable land have increased, while customary land area for smallholder cultivation has declined. [17] A substantial portion of the estate land remains underutilized -- only 6 to 8 percent is reported to be cultivated, [18] and population growth in customary areas has resulted in a rapid decline in the average size of holdings and area

cultivated. [19] By the year 2000, per capita land availability is expected to fall to 0.26 hectare nationally, and in the southern region, where over 50 percent of Malawi's population lives, to a minuscule 0.18 hectare. [20] These various factors explain the increased dependence of smallholder households on the market for wage employment and food purchases, the declining soil fertility, and the drop in the real wages of unskilled labor.

High food prices, such as those following liberalization of the grain market, must be considered in the context of poverty and the adverse income effect on poor households, as a larger proportion of their income is devoted to food expenditures, while their better-off counterparts are generally self-sufficient. [21] Similarly, high fertilizer prices, such as those resulting from devaluations and reductions in subsidies, must also be considered in light of the inelastic supply of land and its declining productivity, along with the need to increase production and income among low income, food deficit, small-scale cultivators. Finally, the recent shift in estate growth to the less populated North must also be considered in equity and efficiency terms.

One effective way in which Malawi can achieve broad-based growth relatively quickly in its production in the agricultural sector, as well as create rapid and sustained off-farm employment by fostering linkages of smallholder agricultural growth with the rest of the economy, is by granting licenses to smallholders to grow crops which they already produce and export, paying them near international prices, and introducing a more equitable and progressive, albeit mild, taxation of the export crop earnings of both small and large producers. Such policies over the last three decades have resulted in a rapid and broad-based growth in smallholder agriculture in Kenya which also inherited a strongly dualistic agricultural sector. [22]

The strategy of rapidly increasing production of existing crops for export in the short to medium run (3 to 10 years) should be distinguished from diversification of production into completely new crops, which donors have been recommending. Based on a review of the experience in Africa covering a period of well over two decades, the MADIA study has concluded that countries who tried to diversify too quickly in the 1970s, and pursued at best a policy of benign neglect towards their existing agricultural activities, have done poorly in relation to those who actively developed their existing sectors, while methodically pursuing a long-run diversification strategy. Thus, whereas Africa as a whole has lost shares in world markets, some individual countries have gained them. Malawi is one of the few African countries that has concentrated development strategies on existing products, and it should maintain that record with renewed effort. To be successful with this strategy, however, Malawi will need to more actively explore export markets within Africa (e.g., for sugar, cotton, maize) and elsewhere (e.g., for tobacco), and work to increase competition among its buyers, including in internal auctions, for instance for tobacco. Donors who have largely ignored the important practical implications of increasing exports through development of existing agricultural activities and have instead advised African countries to diversify out of traditional agricultural exports, could better assist Malawi by endorsing an active export promotion strategy for its traditional exports.

Other land policy options requiring urgent consideration are (1) prohibition against further alienation of customary land, (2) land taxation, (3) ceilings on the size of lease holdings, (4) a more effective form of securing land rights in customary areas, (5) land use planning for both the estate and the smallholder sectors, and (6) regulation of tenancy rights.

While the SAL process has opened up discussion of these important policy areas, which previous project lending had overlooked, real policy reform will be achieved only when there is a clear political consensus within Malawi on the need for such reform to ensure robust long-term growth. Recognition on the part of donors that implementation of reforms along these lines can occur only in a relatively medium-term (five to ten year) context, rather than on the yearly time horizon of SALs, is also urgently called for. This is not to suggest that there is no urgency regarding the land policy issue in the formulation of policy, but simply to recognize the complexity of designing a policy which is implementable and has a strong internal political consensus. This development will take time and its progress can be monitored actively by donors. Relatedly, the pace of the shift from production to consumption taxes that is being introduced in the context of rationalizing Malawi's tax system needs to be coordinated with progress on improving the distribution of land and income, through expansion of rights to grow export crops and to earn international prices, if the potentially regressive effects of such shifts are to be avoided. It follows then that the slower Malawi progresses on reducing income and asset disparities, the more necessary it will be to have counteractive subsidies to maintain the consumption and production levels of the poor.

(f) Relative efficiency of the smallholder and the estate sectors

Widely accepted studies, mainly based on experience in South Asia, show that, ceteris paribus, small farms are at least as productive (in terms of yields per hectare) as large ones. [23/] A different picture emerges in Malawi, where tobacco yields are as much as four times higher on estates than on smallholdings; but estates are also able to use considerably more imported

inputs (made possible by their easier access to credit, as reflected in increased commercial loans to agriculture). [24] In an analysis of the relative efficiency of the smallholder and estate sectors, Lele and Agarwal (forthcoming b) find that domestic resource costs (DRCs) [25] for flue-cured and burley tobacco grown on estates are substantially higher than those for smallholders. On the other hand (and quite surprisingly), DRCs for smallholder sun dried and dark-fired tobacco are significantly higher than those for burley and flue-cured tobaccos grown by smallholders. While all calculations of DRCs must be treated with caution, these estimates suggest that the current official distinction between estate and smallholder crops is not only inequitable but may also be inefficient, and that opening up burley and flue-cured tobacco production to smallholders may well be a more efficient strategy than confining smallholders to growing tobaccos with higher resource costs.

Increasing smallholder land productivity nevertheless poses complex problems and will take time to achieve results. Donors will need to recognize the greater demands on recurrent budgetary resources and trained personnel of a broad-based development strategy. Increasing shortages of government revenues, on the other hand, put a premium on development strategies that minimize recurrent government expenditures. Such strategies tend to emphasize trade-offs between growth and equity in the short run, although there is a strong congruence between these two objectives in the long run. The level and type of government policies and donor support needed to achieve sustained growth in the smallholder sector, and the time required to achieve this, is discussed next.

2. RELATING MACROSTRUCTURAL ADJUSTMENT TO MICROSTRUCTURAL CONSTRAINTS: THE TIMING AND CONTENT OF STRUCTURAL REFORM

Because poverty and subsistence (or near-subsistence) agriculture is accompanied by high risk aversion, stability of policy and institutions is critical to maintain a conducive production environment until a variety of microstructural problems are solved. By the term "microstructural" we mean reforms needed to achieve household level improvements in, e.g., land use or tenancy arrangements affecting farmers' production decisions, or the introduction of new high yielding technologies to increase productivity. Restoring conventional macroeconomic balance, on the other hand, has required reductions in fiscal deficits and correction of external trade and payments imbalances, or what we call "macrostructural" reforms. For example, while past fertilizer subsidies did not reach food deficit farmers directly, increasing the use of fertilizer among small farmers will, in all likelihood, require subsidies to encourage small farmers to adopt new technology. To avoid a macroeconomic problem, compensatory expenditure reducing or resource mobilization policies will need to be pursued elsewhere in the economy. Similarly, the food price stability enjoyed by the poorest households as consumers (through ADMARC's sales of maize at fixed official prices), protecting them from the fluctuations of open market operations, will involve budgetary costs. Before a more detailed discussion of the impact of SAL-induced reductions in consumer and fertilizer subsidies on rural households, the role of prices in agricultural modernization and consumption will be considered. In addition, nonprice factors, including the availability of agricultural technology, supply of credit, storage, transport, and the changing role of ADMARC, need to be used actively in future policy to compensate for the adverse effects of price reforms on low income households,

and to bolster the limited effect that price adjustment plays in increasing aggregate production.

(a) Subsistence production, food security, and prospects for agricultural diversification

The fundamental importance of improved technology in Malawi's agricultural modernization and the scope that exists for it is appreciated when it is recognized that less than 5 percent of Malawian farmers cultivate hybrid or improved maize. In contrast, over 60 percent of small farmers do so in Kenya.

The producer pricing policy experience in Malawi confirms the results from other African countries which the MADIA study is accumulating, namely that aggregate supply response to producer price adjustments tends to be low. Relative prices, however, play an important role in influencing the composition of production. Consumption concerns drive government pricing actions, whereas production concerns drive the donors. Both tend to lead to overadjustments in relative producer prices, especially in the context of uncertain short-run trading possibilities, to compensate for over or under supply. This pricing policy experience emphasizes the fundamental importance of nonprice factors in achieving modernization.

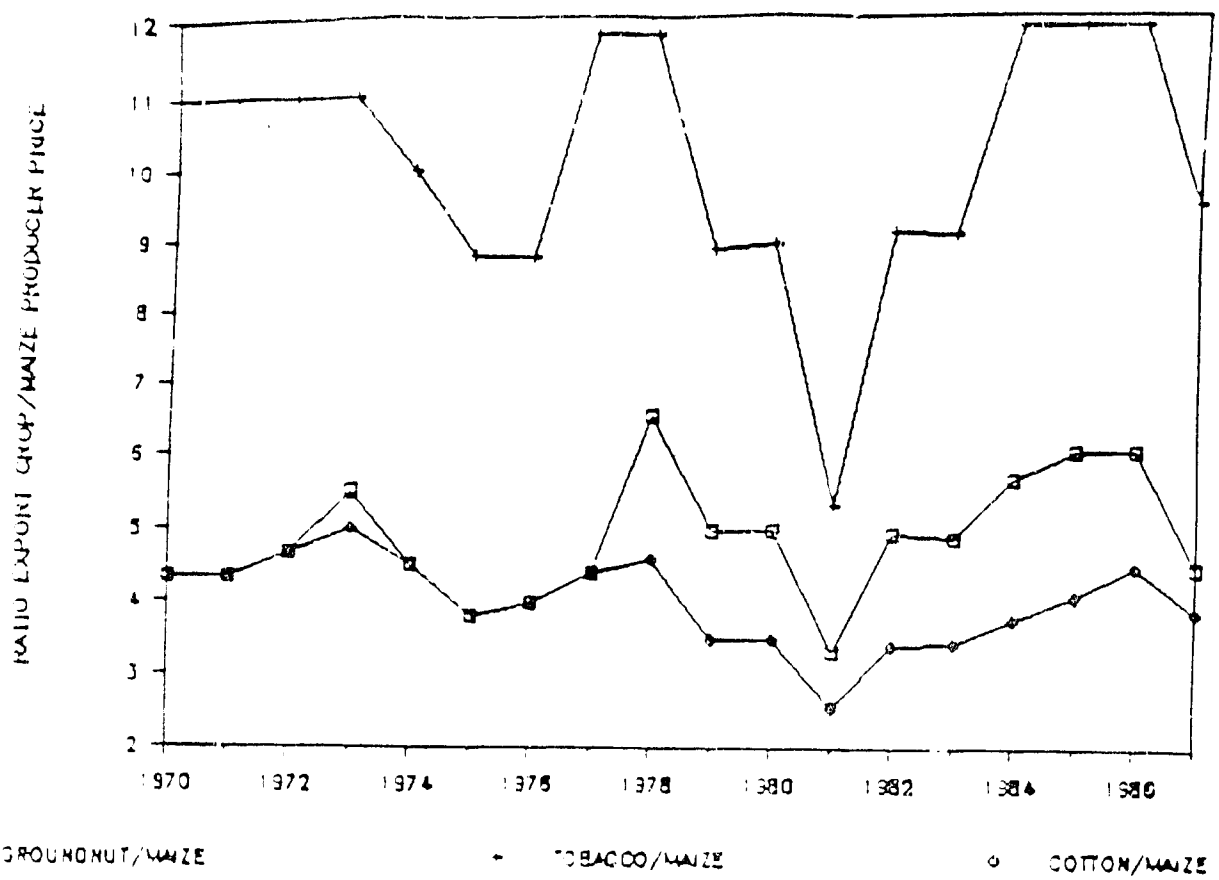
Malawi's maize producer prices moved largely with world market prices for most of the 1970s, though well below world levels. A national concern for food self-sufficiency arose for the first time in the late 1970s when, despite the doubling of the official consumer price between 1974 and 1979, ADMARC's maize sales grew consistently throughout those years, reaching a peak of 150,000 tons in 1979/80 after a maize production drop of 19 percent. Delays in obtaining urgently needed imports of maize to shore up

dwindling domestic stocks hardened the government's determination to become self-sufficient in maize production, relying primarily on the maize producer price to operate a buffer stock. The government's official maize producer price increase of 68 percent in 1981/82 was clearly excessive, resulting in both a growing maize surplus, and maize exports undertaken at a loss. On the other hand, the donors' realignment of smallholder producer prices away from maize towards groundnuts, tobacco, and cotton during the SAL period between 1981 and 1986 (see Figure 3) was just as excessive. By 1986, the Malawian maize producer price had dropped substantially in real terms and was only 50 percent of Kenya's producer price and 60 percent of Tanzania's (all measured in purchasing power parity exchange rates). [26] Not surprisingly, estimates of aggregate supply response with respect to price changes are extremely low (0.16) in Malawi. [27] The maize producer price policy experience clearly suggests the need to avoid making abrupt changes in the prices offered to producers in either direction, to pursue a stable maize producer price while maintaining parity with the long-term international price trends, and to place a strong emphasis on productivity increasing (nonprice) measures in the future, in the context of which the role of fertilizers is crucial.

(b) Fertilizer pricing and subsidy policies

The need for flexibility, and awareness of the complex micro dimensions of agricultural development in considering alternative policy options is evident from the experience with the Fertilizer Subsidy Removal Program (FSRP) -- and from the number of unanswered questions that still remain about how precisely an efficient and equitable fertilizer policy should be implemented. Malawi has had a more effective fertilizer policy and a

Figure 3: Export Crop Price / Maize Price Ratios of Smallholder Producer Prices, 1970-1987



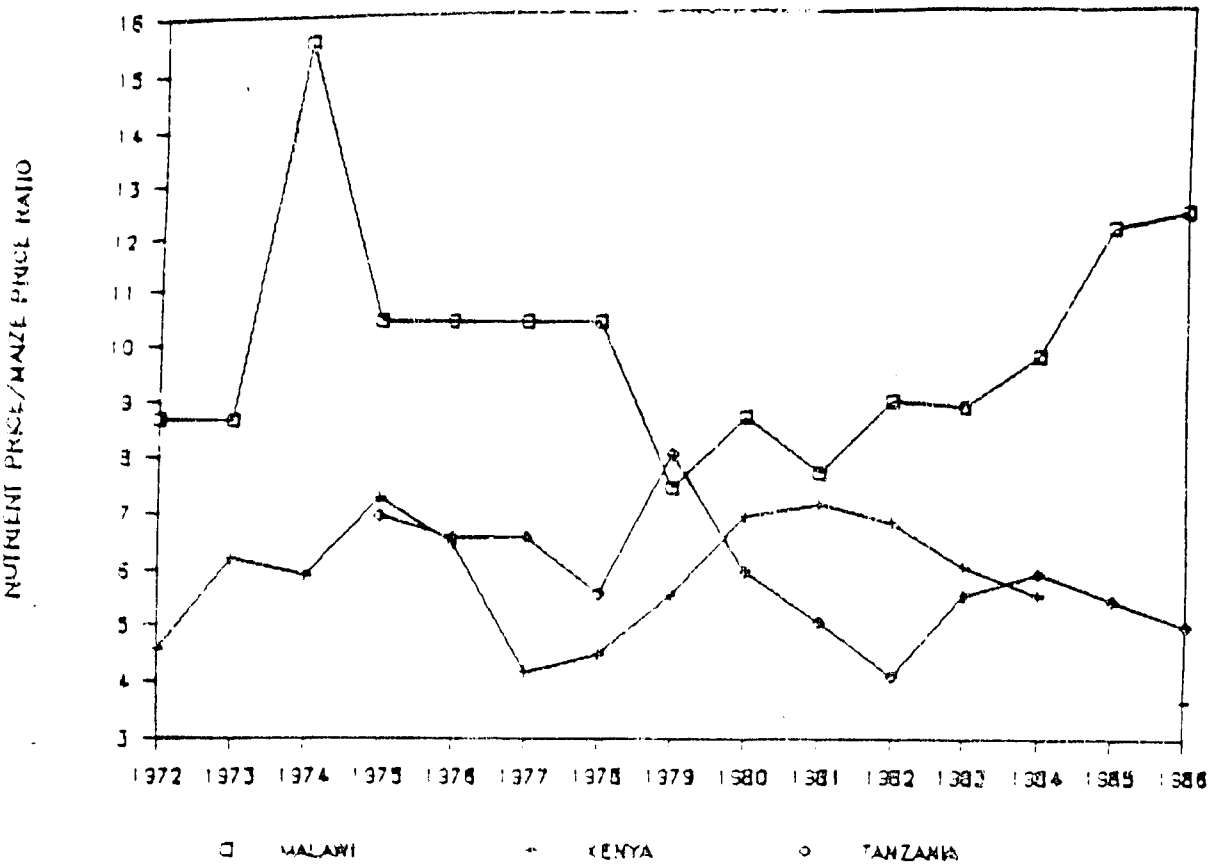
Sources: Smallholder producer prices from Ministry of Agriculture, Malawi and updated for 1987-1988 from Government of Malawi, Economic Reports.

Note: Producer prices are for growing season (i.e., 1970 = 1970/71).

better record of growth of nutrient consumption than elsewhere in Africa. 28/ Since 1983, thanks to an excellent Fertilizer Revolving Fund supported jointly by IFAD and IDA, the program of fertilizer distribution has received an additional boost in a variety of ways discussed below, and this support by donors must continue, to ensure sustained growth in nutrient consumption. Due to high transportation costs, however, Malawi's nutrient prices relative to maize prices have generally been quite high -- up to two or three times as high as in Kenya (even though Malawi has had a mild subsidy on fertilizers while Kenya has none), the only exception being 1981/82, the period in which the Malawian government raised its maize price sharply (see Figure 4). By 1987, the Malawian fertilizer price/official maize price ratio had again become nearly three times that in Kenya. In the 1988/89 growing season, the government raised the producer price of maize by 44 percent and the price of fertilizer by only 11 percent. The resulting decrease in the nutrient price/crop price ratio will make fertilizer use more attractive to producers. At the same time an increase of this magnitude in the price of maize will hurt food deficit households, unless consumer prices are subsidized, which in all likelihood would cost more than a fertilizer subsidy.

Although the FSRP was a central element of the World Bank's and USAID's second SAL in Malawi, donors reluctantly agreed to an extension of the subsidy removal period when currency devaluations and higher external transport costs in the 1984/85 crop year resulted in large increases in fertilizer import costs. 29/ 30/ Continued concern about the budget deficit meant, however, that the FSRP again became a central part of the third Structural Adjustment Loan on grounds that (1) larger smallholders were the main beneficiaries of the program, (2) there were major leakages of subsidized

Figure 4: Comparative Nutrient Price / Maize Price Ratios For Malawi, Kenya, and Tanzania, 1972-1986



Sources: For Malawi, maize prices from Ministry of Agriculture, Malawi, nutrient prices from R. R. Nathan (1987b); for Kenya, maize prices from Government of Kenya and nutrient prices from World Bank, 'Agricultural Inputs Review'; and for Tanzania, maize prices from F.A.O./World Bank Cooperative Programme Investment Centre (1986), nutrient prices from Mwella (1985).

fertilizer to the estate sector, 31/ (3) withdrawal of the fertilizer subsidy contributed little to sharp fertilizer price increases, and finally, (4) farmers were unlikely to be responsive to the fertilizer price increase, especially as the SAL implementation schedule called for subsidy removal to be accompanied by the introduction of high analysis fertilizers (HAF), to reduce the impact of adverse price effects on fertilizer consumption. 32/

Prices determine only part of fertilizer profitability, however, the other elements being a variety of nonprice factors, including in particular fertilizer responsiveness and access. For the reasons discussed below, Malawian farmers apply fertilizer predominantly on traditional maize varieties, in contrast to Kenya where a great deal of smallholder usage is on higher yielding hybrid maizes. Malawian fertilizer response coefficients for traditional maize are similar to those for hybrid maize on medium potential areas in Kenya, but their high responses do not compensate adequately for the more unfavorable nutrient price/maize price ratios in Malawi. Kenyan small farmers also use nearly 45 percent of fertilizer on higher value tea and coffee, for which they receive international prices, yielding them higher incomes relative to smallholders in Malawi. Because Malawian smallholders produce predominantly maize, they are less able to withstand high input prices without a subsidy and/or credit.

Contrary to donor expectations, increases in the nutrient price/-maize price ratio caused the area under hybrid maize to drop from an already low level of 5 percent of the total in 1985/86 to 3.1 percent in 1986/87, and the area under composite maize from 2.2 percent to 1.2 percent. 33/ Nutrient consumption fell in 1984/85 before recovering again in 1985/86, the decline contributing to market price increases. Estimates of fertilizer demand elasticity based on time series data suggest levels of between 0.26 and 0.35,

with respect to nutrient price/maize price ratios, depending on the model's specification. Interestingly the elasticity of demand with respect to nonprice factors turns out to be higher (0.58 or 0.67). [34] This is fully consistent with the experience elsewhere in the developing world. [35] Indeed Malawi's own rural development experience over the past two decades also indicates that because it takes time to alleviate nonprice constraints to adoption, the abolition of fertilizer subsidies, without the time to address these constraints, will penalize the potential users of fertilizer. In this vein, it has become generally accepted in the last twelve months among donor circles that availability of credit for Malawi's potential producers of additional maize for self-consumption is crucial for future diffusion of fertilizer use. [36] Further, gradual replacement of low analysis fertilizer with high analysis fertilizer (HAF) is an effective means of reducing the cost of fertilizer, although donor expectations for the speed of replacement turned out to be overly optimistic. Despite the errors of overoptimism, however, a strong positive element of the SAL process has been that it has led to consideration of a number of additional ways to broaden access of small producers to services. For instance, a program for packaging and distributing fertilizers in small bags has made much progress in the past two years, and is increasing the physical availability of fertilizer among small farmers. In time, reliable and timely supplies of fertilizers, together with measures to shift maize production from traditional to high yielding varieties are likely to become more significant in determining fertilizer use than the nutrient price/maize price ratio. In the meantime, the merits of a fertilizer subsidy targeted explicitly to the lowest income farmers -- including the possibility of its free distribution -- are also being entertained by donors. Initial estimates show, however, that the budgetary cost of this option is greater

than that of a generalized smallholder subsidy which the Malawian government has favored. How to avoid leakages of fertilizers is an issue if free targeted distribution is undertaken. Recall that during the course of SAL III it was donors who favored abolishing the subsidy on grounds of leakages; this possibility still exists, although leakages from a program targeted towards very low income producers may well be more toward better-off small farmers than estates. A great deal will depend on whether a targeted subsidy is politically feasible and administratively implementable.

More generally, the policy approach to fertilizer subsidy expenditures will depend critically on whether the macroeconomic and long-term sectoral contexts are considered in a complementary way, and whether different policy instruments and objectives are weighed at a given point in time, and over time. For instance, the government's ability to mobilize additional resources more equitably within the economy (e.g., from estates as well as smallholders) and to reduce expenditures in other areas, will clearly improve its ability to finance either a targeted or a more general subsidy. Similarly, donors might consider financing the international cost of transportation of fertilizer as one way of promoting its internal use. Thus, within broad guidelines that include several options, donors need to adopt a flexible and clearly monitorable approach to fertilizer policy that places a strong emphasis on learning by doing, and is subject to periodic review and revision without taking a deterministic position on the desirability of a single approach.

Fortunately donors have begun to replace the idea of removing all subsidies with that of retaining those subsidies that support long-term growth among the poor. They have also started to appreciate, through experience with

the SALs, the paucity of knowledge about the best ways to intervene in smallholder agriculture and the need to learn by doing.

Valid concerns about poverty alleviation need to be combined with due consideration of the needs of the more dynamic commercially-oriented smallholders, so that correcting the imbalance of initial SAL efforts by focusing on the poor does not make the pendulum swing once more excessively away from growth in favor of poverty alleviation. The medium sized smallholder producers who benefited the most from NRDP will in all likelihood continue to be the backbone of growth in marketed production, whereas assisting the poor will not require efforts to increase their production but rather active policies to protect their consumption. The discussion of consumption issues follows.

(c) Grain marketing liberalization and the role of ADMARC

Experience shows that ensuring food security in Malawi requires emphasis on increasing maize production, not only at the level of the food deficit households on which we have focused so far, but also on maintaining a buffer stock to achieve intra- and interyear price and supply stabilization. This will in all likelihood be a loss making operation requiring a subsidy, and therefore maximizing the efficiency of buffer stock operations is obviously crucial for its viability.

The importance of the need for a buffer stock was demonstrated in 1986/87, when grain market liberalization coincided with a large influx of refugees. As a result, ADMARC ran out of maize stocks and market prices of maize increased sharply, reaching three to four times the official price (which in turn adversely affected ADMARC's ability to purchase grain in the market for resale, reducing real incomes and welfare of a large number of food

deficit households). Moreover, Malawi's transport situation dictates greater autarchy to achieve food security than has been typically advocated by donors. 37/

ADMARC's domestic maize sales reached an all-time high of 286,000 tons in 1986/87, although informal market maize prices in Blantyre in the southern region in 1987/88 (after liberalization) were as high as 45 to 60 t/kg compared to ADMARC's purchase price of 20 t/kg. Subsequent field surveys show that 90 percent of households in the southern region had run out of their own maize stocks and had little cash with which to buy food. 38/ Traditional intra- and interhousehold support systems broke down, as indeed they have in other developing countries in periods of food shortages, and the only option for many poor households was to accept employment on more prosperous farms to pay for maize purchases. But this short-term solution hindered farmers' timely land preparation on their own plots, thus adversely affecting their next year's food supply (an important issue to keep in mind in the timing of employment when planning any scheme for providing food or fertilizer in exchange for work). 39/ Official maize prices had to be raised once again in 1988/89 to improve the balance between food and export crops.

Food imports (including food aid) to achieve food security are a more limited option in Malawi than general policy papers on the subject from donor agencies tend to imply. Not only are imports risky because of border security problems (even if donors paid for the high transportation costs), but due to Malawi's very limited transportation capacity, food imports have tended to come directly at the cost of the timely arrival of other critical imports such as fertilizers -- in turn jeopardizing the following year's food production, food security, and possibilities for agricultural diversification.

Donor assistance in the transportation sector might improve this

situation. But in the short and medium run, ADMARC must maintain large enough buffer stocks and cover a sufficiently wide geographical area in order to sell maize in adequate quantities to maintain prices. It must also be in the position of buyer of last resort to ensure a market and promote modernization and intensification of smallholder production. The two clear phases of official policy toward ADMARC between 1973 and 1986 are of considerable significance in the current context of (1) maize purchase and sales operations and (1) buffer stock policies. The experience is reviewed here briefly.

(i) Phase I: The genesis of the government's increased role in grain marketing.

It must be recalled that donors involved in rural development projects in the early 1970s thought that an increase in the number of ADMARC depots for buying and selling maize and distributing input packages to smallholders was necessary to stabilize producer price and promote maize production. They urged ADMARC to expand activities, including in the northern region, where ADMARC had been reluctant to trade on grounds of high transport costs. They considered the indigenous trading sector -- which then included Asians -- too weak to handle the increased production emerging from rural development projects. 40/ Later during the mid-1970s, the Malawian government's policies to protect Malawian traders by curtailing the activities of Asians in maize and restricting the latter's residence to four urban areas had the generally acknowledged result of a sharp decline in trading activity in the rural sector, especially as the policy was not accompanied by an overt attempt to develop Malawian trade. Kenya and Tanzania, with their quite different ideological backgrounds, also restricted their Asian trading communities in order to develop African enterprise, although the restrictions

took different forms. While sociopolitical, rather than ideological considerations prompted the policy of indigenization, the government (as in other African countries) ended up having to play a more active role in the maize trade -- in Malawi's case through expanding ADMARC's operations. As ADMARC's purchasing centers and maize purchases increased (reaching 120,000 tons in 1978/79), so did the unit cost of official maize operations, at least in the initial period. These increased costs had to be subsidized and were financed through profits made by taxing the 6 percent of smallholders producing tobacco. The redistribution of income within the smallholder sector from commercial smallholder producers to those living in food deficit areas -- including below-subsistence maize producers, needs to be considered in terms of future policy options.

The SAL process has since required that the financing of each ADMARC crop account be made more transparent, and that the Treasury, rather than ADMARC, be expected to provide the funds needed for grain price and supply stabilization. This makes the costs of stabilization overt and is thus a desirable policy in principle. On the other hand, efforts to follow such a financing approach elsewhere in Africa have run into difficulties, as marketing boards could not obtain funds from their treasuries on a timely basis. This lack of adequate working capital explains in large part the financial difficulties experienced by parastatals in those countries. 41/ Financing interyear stabilization is not only critical for maintaining consumption and increasing production through the use of modern technology, but it is also a particularly difficult task, as the demand for and supply of maize through official marketing channels fluctuates widely from year to year in Malawi, as elsewhere in Africa, and has been difficult to predict. 42/ Most developing country governments consider their ability to meet volatile

food demand to be essential both for maintaining political stability and for ensuring social welfare. Widening price bands and taking greater account of the regional and seasonal costs of handling grain will of course reduce the costs of stabilization, and this is one aim of the reform programs. Nevertheless, it may be difficult to avoid the inherently loss making nature of year to year price and supply stabilization operations altogether. The likely costs and benefits of alternative stabilization levels now need to be worked out by taking into account the experiences of other developing countries. Malawi's own experience with buffer stocks provides useful lessons about the impact of external shocks on the policy itself and its effectiveness.

(ii) Phase II: The genesis of the government's buffer stocking policy.

Unlike the experience of many other countries that have established buffer stocks through the use of external assistance, ADMARC attempted to finance the construction of silos and stocks by borrowing at a time when interest rates had increased sharply in 1983/84. Owing to macroeconomic difficulties and budget constraints, the government was unable to reimburse ADMARC for either the silos or the working capital needed for stockbuilding, thereby contributing substantially to ADMARC's growing financial difficulties. ADMARC's profits fell by 50 percent in the single crop year 1983/84. After an apparent recovery in 1984/85, its finances deteriorated very sharply into substantial losses in 1985/86 and 1986/87. A combination of rising operating costs, falling tobacco profits (due to declining world market prices), and SAL-based credit ceilings meant that ADMARC's ability to purchase maize through its widely diffused marketing network serving remote areas had been substantially undermined.

In view of Malawi's sharply deteriorating macroeconomic resource position, donors concluded that the correct response to the increased cost of ADMARC's operations was to liberalize the grain market. Prior to the 1987/88 marketing season, 113 markets were closed (with the southern region, which has the greatest market dependence on ADMARC maize sales, losing 109 markets), although the number of markets in the less populated North increased by 14 seasonal markets. The timing of liberalization, however, turned out to be unfortunate, not only because of the growing influx of refugees, but also because it had not been preceded by a policy of building indigenous private sector grain handling capacity. It must be recognized, however, that even if the private sector had been more competitive, a large majority of households who did not command adequate purchasing power to buy food at market prices would have suffered, as the market would have been efficient in transferring grain surpluses to those who command greater purchasing power. 43/

The experience of the post-liberalization period suggests that the goals of a long-term pricing and marketing policy in Malawi need to include: (1) a rise in ADMARC's efficiency, (2) the provision of intra- and interyear price and supply stability to protect vulnerable producers and consumers, (3) an active policy to develop Malawian private trading capacity, (4) a deliberate approach to changes in maize pricing and marketing arrangements, and (5) an equally deliberate policy towards changes in relative prices. The increased groundnut production that resulted from changes in relative prices turned out to be premature, as ADMARC made losses on the groundnut account from 1984/85 to 1986/87 (owing to lack of an export strategy, which could not be developed quickly in a period when the world market for Malawi's confectionary nuts was receding). 44/

The special need for active promotion of indigenous Malawian trade and transport cannot be overemphasized, as Malawian traders currently have little access to finance, market information, or transportation. 45/ Improving access to transport is particularly important given the low and apparently declining mobility of the majority of Malawi's rural dwellers and the fact that transportation costs have risen more rapidly than the general cost of living. In this context it is important to note that compared to elsewhere in Africa, Malawi's transportation constraints are due less to an inadequate feeder road network and its poor maintenance than to the lack of purchasing power among the poor to command means of transportation. Malawi has an excellent record on road construction and maintenance compared to other African countries, but Malawi's liberal import policies in the face of its skewed income distribution appear to have resulted in a greater decline in imports of bicycles than of larger commercial vehicles, reducing mobility of low income households to a great extent. This is illustrated by the fact that nearly 85 percent of the traffic on DRIMP roads consists of pedestrians. 46/

Unless private traders' investment in transportation and grain purchases increases, the closure of ADMARC's marketing networks may mean that agricultural supply responses from the smallholder sector will not occur. ADMARC's outlets may well have to be maintained and their unit costs of operations reduced by increasing the volume of fertilizer and other inputs handled.

(iii) The vicious circle of subsistence and poverty orientation.

We now turn to the factors constraining adoption of improved varieties of maize at the farm level. In this context it is important to note that the knowledge base in Malawi is superior to that in other African

countries, because of its exceptional record on maintenance of agricultural statistics. Nevertheless, the precise roles of (1) consumer preferences, (2) fertilizer responsiveness, (3) storability of maize, and (4) small farmers access (or lack of it) to knowledge, credit, and inputs in limiting the adoption of improved technologies are still not as well understood in the Malawian context as they need to be. This is due in part to a lack of program evaluation based on routine field-level data collection and analysis to fine-tune interventions, but particularly due to the shortage of trained and experienced Malawian nationals to undertake this task. As a result, development programs are still excessively influenced by external actors visiting for a short duration rather than by those Malawians directly involved with rural development. Both donors and government have emphasized brick and mortar in the past, and need to place a very strong emphasis on the development of human capital in Malawi to improve the quality of planning and implementation.

The most frequently used explanation for the slow adoption of improved maize in Malawi [47] was offered by Ellis as early as 1959, namely that Malawian households strongly prefer the traditional flint maizes for home consumption, because of the type of maize flour (ufa) and the residue (nsece) produced from flints, through removal of the germ and the pericarp by soaking the grain before it is pounded into a fine flour. To quote Ellis directly: "The Africans of Nyasaland definitely prefer flint to dent, partly because . . . the former stores better, but mainly because of the belief that it is superior for the preparation of maize flour by their traditional method." [48] The preference for flints is reportedly so intense that the small percentage of smallholders growing dent hybrids mainly grow it for sale to ADMARC. While Ellis argued that the traditional method of maize

preparation may indeed be nutritionally preferable, others argue, first, that it offers less nutritional value than commercially milled whole maize sold by ADMARC, and second, that consumer preferences are more dynamic in a rapidly modernizing agricultural sector where incomes are increasing, than is the case in Malawi. 49/ Clearly more scientific knowledge about price and income elasticities of demand and their impact on adoption and consumption is necessary to develop an effective policy.

Lack of knowledge of the relative responses of flint and dent maizes to chemical fertilizer use on farmers' fields similarly hinders the formulation of a maize production policy. Greater attention also needs to be focused on household storage, to the extent that it is a constraint to adoption of the new maize varieties more susceptible to disease, and on ways to reduce constraints on timely land preparation (a critical element in the adoption of hybrid maize). 50/ Simple improvements of the implements farmers use in handhoe technology and in animal traction on farms that are large enough to benefit from such improvements would help ensure timely planting of crops. Currently only 30 percent of smallholders who can use such animal traction repeatedly do so. As elsewhere in Africa, sufficient technology for small farmers was thought to have been available in the 1970s. Therefore, expenditures on rural development through NRDP involved little support for agricultural research until recently. Research issues are actively being considered under the research and extension project, but many outstanding questions remain; a flexible, open-minded policy on research and extension is now crucial. The discussion above has focused on maize due to its primacy in production and consumption. However, increasing the productivity of groundnuts and other crops is also critical to improving sources of income and

diversifying the diet, given that Malawi's reliance on maize as a source of calories is the highest among MADIA countries. 51/

The problems of increasing access to credit are complex, even though Malawi has been relatively successful in smallholder seasonal credit schemes based on group responsibility. 52/ Its repayment rates (exceeding 90 percent) are impressive by developing country standards. Nevertheless, the poorest farmers' lack of access to credit is still a problem and it is unclear whether this is caused by their inability to undertake risk and to form groups voluntarily, or by the rigidity of the credit administration that has been rewarded for reaching the more progressive farmers, albeit inadvertently. Only about 20 percent of Malawi's relatively better-off smallholder households benefit from credit. Experience in Asia shows that redressing the institutional and policy biases favoring relatively better-off households is not an easy task. 53/ Further efforts to increase access to credit will require considerable political commitment, will be administratively costly to achieve, and will take time and individual leadership.

Even with an effective extension program addressing production and technology, the ability of low income households to respond is constrained by the competing demands on their time of alternative nonfarm income earning opportunities and the relatively more labor-intensive nature of new production technologies. Thus, whereas free distribution of fertilizer or fertilizer for work programs, which are now being considered to increase smallholder productivity and food self-sufficiency, are important, other more direct nonfarm income-generating activities, including food for work programs such as those undertaken in Asia, may also have to be considered. 54/ Given Malawi's high population density and good administrative record, these programs are more likely to be feasible in Malawi than elsewhere in Africa. To minimize

the cost of administration relative to the employment created, these programs require recurrent resources and the capacity to plan and implement them. There are many useful lessons that Malawi can learn from Asia in this regard.

The point to be stressed here is that solutions to the poverty problem of low income households cannot be confined to increasing agricultural productivity alone, but must include an array of options suited to particular target groups, including in particular the many female headed households that predominate among the poor. Indeed, a case can be made for starting a range of innovative programs on a small scale, monitoring their success, and expanding those most appropriate for particular circumstances.

Given the number of constraints, and the lack of precise knowledge as to what will work in increasing productivity and incomes, government and donors need to support a long-term consistent strategy in which strong emphasis is placed on learning by doing.

(d) The role of NRDP

It is evident from the preceding discussion that resources are needed for a new and improved multidisciplinary agricultural and rural development program based on the lessons learnt in the 1970s. Though not alone sufficient, agricultural research and extension should play a role. Donors, however, have been disenchanted with the National Rural Development Program. Its earlier emphasis on physical capital, e.g., buildings, roads, and soil conservation measures has had limited impact on reaching small farmers with new technology, and attempts to reduce unit costs by expanding services has been only partially successful. Donor support tended to be fragmented among essentially different area projects; donors have reduced support for agricultural development and shifted resources to a variety of

important but unconnected activities such as research and extension, credit, growth centers, fertilizer imports, food and fertilizer storage, and fisheries. Whereas each of these activities is critical, their impact is likely to be diluted without a well-conceived long-term agricultural strategy under which donor support for agricultural and rural development is provided. In this context, it must be recalled that the strong emphasis on physical infrastructure of the earlier projects involved considerable donor participation in planning and implementation, and was in part a result of donors' reluctance to finance recurrent expenditures. Indeed, as has been stressed in this paper, Malawi has had a relatively good record in planning and implementing its rural development efforts. 55/ Government's current emphasis on low income producers and efforts to bring about stronger linkages between recurrent and capital budgets should help further improve its ability to plan and fund recurrent expenditures of high priority.

Increasing resource mobilization, while making the burden of taxes more equitable and encouraging production and consumption by the lowest income groups, will determine the fiscal viability of NRDP. Imposing taxes on underutilized land and/or on production of the estate sector and broadening the tax base of agriculture by liberalizing production quotas are important options. Donors have recommended a land tax as a better way to mobilize resources than export taxes. While the principle of shifting taxes from production to consumption, recommended by donors on grounds of being more conducive to growth, is being implemented by the government, the land tax has not advanced. The absence of progress on the taxation of estate land, combined with an increase in taxes on consumer goods, clearly has an adverse effect on consumption levels of low income households, and on the economy in general by stunting growth linkages.

In addition to the government's own efforts to mobilize resources, donors also need to consider more liberal support for recurrent developmental financing as part of a well-coordinated program. In this context, the "food and/or fertilizer for work" programs and/or the free distribution of fertilizer to the poor would require considerable recurrent resources if they are to make an impact on a sizable population. If experience in Asia provides any guide to generating productive assets, government will require far greater trained Malawian personnel, knowledgeable about local circumstances, and available at relatively low salaries. It will need to encourage greater participation of the rural people themselves in the design and implementation of programs which to date have been relatively top-down, and conceived largely in donor headquarters. Such efforts would not only reduce costs of development programs but would also make them more appropriate to Malawi's needs. Donors will be required to invest a great deal more in the expansion of trained personnel. Finally, donors will need to be willing to provide financing on an assured basis over the medium-term, as opposed to the year to year import support commitments for food and fertilizers that they have tended to make to date. 56/

3. CONCLUSION

This paper has stressed the fundamental importance of the participation of the poor for the long-term dynamism of the overall growth process, through the linkage effects of their increased incomes and expenditures. It has shown that relative to other African countries, Malawi's economic crisis is largely a result of external shocks rather than poor macroeconomic policies, and that domestic adjustment has to center largely on the structural weaknesses of its agricultural sector. Increased access of

small farmers to land, the rights to grow export crops, and to earn international prices are of key importance in the short and-medium run to achieve broad participation in the growth process. Alleviation of complex technological factors also requires improved access of small farmers to a variety of services. Nevertheless, solutions to the poverty problem will have to reach beyond agriculture. The extent to which government's resource mobilization and expenditures are progressive will critically determine the extent to which the government's keen interest in protecting the poor is fostered.

When planning macrostructural adjustment initiatives and projecting expected outcomes, it is essential that reform programs take the most common forms of external shocks (e.g., crop failures, terms of trade effects, and border wars) explicitly into account on a routine basis to ensure greater flexibility in the timing and speed of SAL planning and implementation as new information becomes available.

Finally, Malawi cannot develop its agriculture if expenditures within the smallholder sector are simply shifted from NRDP to agricultural research and extension; increasing smallholder productivity will require a well-coordinated approach on a variety of fronts and this will require renewed commitment by donors to old-fashioned project lending, albeit in the context of a conducive macroeconomic and sectoral policy environment. The SAL process, while harsh at times, has been an important means of consensus building on development strategy, and on emphasizing the complementarity of macroeconomic, sectoral, and project assistance. This process needs to continue and to be supported by the implementation of a flexible, regularly monitorable strategy that absorbs and actively adjusts to the lessons of experience.

NOTES

1. See Lele (1988a and 1989).
2. Refer to Christiansen and Kydd (1987).
3. See Mellor and Lele (1973)
4. See Lele (1989).
5. Ibid.
6. By comparison, the 1972 addition of 10 million refugees from the former East Pakistan (now Bangladesh) to India's population of 750 million (a population increase of only 1.5 percent) caused major economic problems for India, see Lele and Agarwal (forthcoming a). The Malawian refugee figures are equivalent to India receiving between 50 and 75 million refugees, an inconceivable figure.
7. The Japanese, the Germans (KFW), and the Americans (USAID) contributed $22.6 million, $0.4 million, and $15 million respectively to SAL III. SAL I (financed by IBRD) was for $45 million and SAL II (financed by IDA) was for $55 million.
8. For a preliminary analysis of SAL outcomes, see Kydd and Hewitt (1986).
9. Twenty-three categories of prices were decontrolled in 1983 and 1984, followed by sixteen more in 1985, leaving only five politically sensitive goods still subject to controls by 1986, including fertilizer, fuel, low-grade meat, sugar, and vehicle spare parts. Even some of these prices, (i.e., those of meat, fuel, and spare parts) are being adjusted more frequently. Decontrolled categories included such staple items as food, clothing, meats, and soap. Together with the agricultural producer price reforms and the utility tariff increases, these measures represent a substantial economy-wide attempt to reduce consumer subsidies formerly provided by price controls.

10. A recent public expenditure review by the World Bank.

11. Lele (1988a).

12. See Howell (1988), Kydd and Spooner (1987), and Kydd and Hewitt (1986).

13. Christiansen and Kydd (1987).

14. Thus Malawi, where differential rights define the distinction between the smallholder and estate sectors, differs from Kenya, where farm size (in terms of area under cultivation) is the criterion, with farms of less than 8 hectares defined as smallholdings. In fact, however, as in Malawi, most Kenyan smallholders cultivate areas of 1.5 hectares or less -- and access to certain types of institutional credit in Kenya is influenced by whether a farmer is defined as a smallholder or a large farmer. See Lele and Meyers (1987).

15. Between 1968 and 1978, $62.5 million in World Bank/IDA financing (together with $8.3 million of government funds) supported a series of eight integrated area development projects (IADP), directed at smallholders, followed in 1978 by a series of three National Rural Development Programs (NRDP) involving credits of $66 million financed by IDA, CDA, CDF, the U.K., and KFW. Groundnut production fell by 13.2 percent (and exports by 7.2 percent), cotton production achieved a meager 1.1 percent production increase (while exports fell by 12.5 percent), and smallholder tobacco registered a miniscule 0.3 percent production increase (compared to estate-grown output increases of 15 percent for burley and 10.4 percent for flue-cured tobacco, 4.8 percent for tea, and 12.4 percent for sugar).

16. Data on maize production need to be treated with caution. An FAO series available for the 1961-1987 period shows an annual growth rate in maize production of 1.94 percent - a plausible rate that still falls short of the growth of population. However, a regression fitted to three-year

moving averages to adjust for climatic variability offers a growth rate of 2 percent during 1961-1987. The series for 1970 to 1987 shows a growth rate of 1.07 percent and a three year moving average offers the growth rate used above. However, the official estimates for 1970-1972 and 1977-1979 are thought to be higher than actual production. If so, this might raise the overall growth rate somewhat. The point remains that there appears to be no dispute among those familiar with Malawi about the growth rate of maize production being well below that of population.

17. Smallholder cultivated area from Government of Malawi (1968/69 and 1980/81) and estate area from Department of Lands and Valuation, Malawi. For further information see World Bank (1987b).

18. Christiansen and Kydd (1983).

19. Data for different years are not available for strictly comparable size categories of holdings, but National Sample Survey estimates show that the number of households with a cultivated area of 0.8 hectare or less comprised only 25.7 percent of the total in 1968/69, while holdings under 0.99 hectare accounted for 55 percent of the total in 1980/81. Available data further suggest that reductions in bushfallow and in crop rotations dictated by increased population pressure have resulted in falling maize yields (e.g., in Lilongwe average yields of unfertilized local maize had declined by a third of their 1959-1962 levels by 1985/86 and 1986/87, to 1,100 kilograms per hectare). See Government of Malawi (1968/69 and 1980/81) and Twyford (1988).

20. The figures cited for per capita arable land are based on a conservative estimate of the proportion of arable land to total land in Malawi, i.e., 37 percent. A more generous classification used by the government of 52 percent of total land as arable gives slightly larger per capita arable

land projections, i.e., .69 hectare per person in 1985 and .37 hectare in the year 2005.

21. Lele and Meyers (1987). The poorest households spend between 44 and 48 percent of household cash income on food, compared to 25 percent for the population as a whole.

22. See Lele (1988a) and Lele and Meyers (1987).

23. See for example Singh (1977); also see Berry and Cline (1979), especially p. 202 for a description of the "markedly inverse relation between size [of holding] and value-added per acre" in Malawi.

24. In 1984 ADMARC provided K 3 million (1.92 million dollars) in unsecured loans to estate agriculture. Lele and Meyers (1987).

25. The DRC is the ratio of the social value of resources used in the production of an activity to the net outputs resulting from that activity. A better name for it might be the activity cost benefit ratio. See E. Tower (1984).

26. Tanzanian prices were significantly higher at official exchange rates. See Lele, Fisnstein, and Westlake (forthcoming) for details.

27. The estimated <u>total</u> (all farmers) area elasticity with respect to agricultural prices was less than 0.1 (.0862), perhaps due to Malawi's land constraint. Estimates using a value index of smallholder production yielded a very weak relationship between agricultural prices and smallholder production, suggesting that aggregate elasticities are even lower in the case of smallholders, and that subsistence farming is very prevalent.

28. See Lele (1988a).

29. While devaluation has caused Malawi's fertilizer prices to increase, Kenya has also devalued, leading to internal price increases for Kenyan farmers. See Lele, Christiansen, and Kadiresan (1988).

30. Fertilizer transportation costs, which were K 1.55 million in 1983/84, increased by more than six times to K 12.9 million in 1984/85, and were K 12.4 million in 1985/86. R. R. Nathan (1987b). The net increases in Malawi's fertilizer prices were less than the additional transport costs resulting from the closure of the Beira and Nkala routes, because the local price of fertilizers in South Africa (Malawi's source of supply) fell as transport costs escalated. In the absence of this favorable development, the adverse change in the fertilizer/maize price ratio would have been greater. See Lele, Christiansen, and Kadiresan (1988).

31. There is a dispute about the extent of these leakages, with estimates ranging from 17-19 percent (by the Ministry of Agriculture) to 25 percent (according to a Kirchner and Kandole study). See R. R. Nathan (1987a).

32. The donors were correct in arguing that subsidy removal contributed little to fertilizer price changes, and in supporting the promotion of high analysis fertilizer. Nevertheless, when prices rise sharply there may be a case for the use of a countervailing subsidy to avoid an equally abrupt drop in demand for fertilizer, provided that the cost of subsidizing fertilizer (in terms of increased food production and welfare effects on low income producers) is smaller than the cost of withdrawing the subsidy, including the need for food imports.

33. Given that 85 percent of the hybrid maize area and 57 percent of the composite maize area is fertilized, some correlation can be inferred between fertilizer consumption and hybrid crop area.

34. The influence of the trend term (representing nonprice factors) exceeded that of both output and input prices. While the lagged price of maize was estimated to have a weak positive effect on fertilizer demand, possibly due to a combination of farmers' expectations and timing of official price announcements, the official fertilizer price had no effect at all. The

latter may be explained by the low (subsidized) price of fertilizer, in addition to a variety of nonprice factors. Fertilizer use has increased steadily throughout the 1970s and 1980s, while there has been no similar consistent trend in the real price of either fertilizer or maize. Calculation of year to year implied elasticities also showed little consistent pattern in response to changes in the maize/fertilizer price ratio: in over one-half the cases, the response was opposite the expected (i.e., when relative maize prices increased, fertilizer sales decreased), and there were large year to year swings in the magnitude of response.

35. See Lele and Mellor (1988).

36. It should be noted, however, that even substantial improvements in credit availability would still leave many subsistence farmers unable to use fertilizers. Some experts have recommended a policy of targeting free distribution of fertilizers to the poorest group.

37. See Reutlinger (1986).

38. Oxfam (1988).

39. For further discussion of the income effect of price changes, see Mellor (1978).

40. It is argued that uniform prices across space and time reduced private incentive but there were also more basic constraints such as lack of information and access to credit.

41. Indeed, donors had frequently complimented ADMARC's efficiency without fully knowing its underlying source, and contrasted it with boards in other neighboring countries in the 1970s when ADMARC was not facing the kinds of financing problems Tanzania's National Milling Corporation did.

42. See Lele and Candler (1978).

43. See Sen (1981).

44. DRC calculations done for groundnuts also suggest that at current production costs and prices the profitability of groundnut exports is questionable. An increase in groundnut productivity will of course change this picture. Lele and Agarwal (forthcoming b).

45. The transportation component of the retail price index rose by 215 percent between 1980 and 1988, compared to an overall increase in the index of 148 percent.

46. According to a recent ILO study of transportation in rural Malawi, since Malawi's economic difficulties began, the number of goods vehicles registered annually declined from 15.2 thousand to 14.1 thousand between 1982 and 1985, although the number of cars registered during the same period remained almost steady and the number of motorcycles continued to increase. In contrast, the number of bicycles imported into Malawi declined sharply and stood at a mere 5.9 percent of the level imported in 1970. Needless to say, bicycle prices have increased sharply due to a combination of devaluations, a shortage of spare parts, and increased import duties. The cost of an oxcart produced in Malawi is nearly $1,000 -- completely beyond the reach of a large majority of villagers -- and oxcart haulage rates (of K 0.70 to 2.00 per ton/km) are high and comparable to trucking rates. See Dixon-Fyle and Relt (1988).

47. Officials of the Ministry of Agriculture estimate Malawi's area under improved maize at 10 percent, which is still substantially below Kenya's.

48. Roughly 85 percent of households in Malawi grow maize for their own consumption. Malawians typically prefer flint to dent maize varieties because handpounding of dent varieties (the typical method used in Malawi to remove the outer fibrous layer of the seed) yields flour with less fiber and greater waste products than the flint flour to which they are accustomed. Ellis (1959).

49. See Quinn, Chiligo, and Gittinger (1988). Feeding practices of small children have changed over time as the need for low income women to work in the field has increased, and this might contribute to the malnutrition among infants.

50. Maize researchers have traditionally argued that flints are lower yielding than dents at the (relatively high) dosages of fertilizers recommended by research stations, and that farmers need to apply high dosages in Malawi given its growing land pressure and declining soil fertility. In this view, increased production and commercialization of dent maizes through ADMARC is the way to solve Malawi's food security problems -- especially since it would also release more land for growing other crops that are urgently needed to diversify Malawians' production and consumer diet (which is far more dominated by maize than elsewhere in Africa). Further, if it is true, as is suggested by some, that consumption of flints in traditional forms of cooking results in a greater loss of nutritional value, this should be of concern in a country with low nutritional status, high child mortality rates, growing land pressure, and declining productivity. See Lele, Fishstein, and Westlake (forthcoming).

51. See Lele, Fishstein, and Westlake (forthcoming).

52. See Lele (1974) and Hossain (1988).

53. For further discussion of the issue of large farm vs. smallholder productivity, and especially the distorting effect of public policy intervention on the smallholder sector, see Lele and Agarwal (forthcoming b). Also see Lipton (1978).

54. In Maharastra State in India the cost of creating employment to 1.6 million people in 1987/88 for 180 million person days was $1.10/person day or a total cost of $205 million annually. About 60 percent of the total cost of the program is in the form of direct wages to the poor. The

remaining 40 percent of expenditures included the cost of skilled labor, material costs, land acquisition, maintenance, and costs of planning and implementing the various schemes. If a similar program was launched in Malawi's southern region, creating a job for about 300,000 farmers with less than 1 hectare -- a conservative estimate -- for three months, i.e., 66 man days/person would cost $18 million. For an assumed income elasticity of demand of 0.75 percent, an estimated $6 million of the incremental wages from such schemes would be spent by poor households on purchasing nearly 57,000 tons of foodgrains (maize). See Lele (1988b).

55. See Lele and Meyers (1987).

56. The IFAD/IDA supported Smallholder Fertilizer Revolving Fund project has, however, provided a great deal of needed stability to the fertilizer import policy -- and several donors have contributed to the efforts. See Lele, Christiansen, and Kadiresan (1988).

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