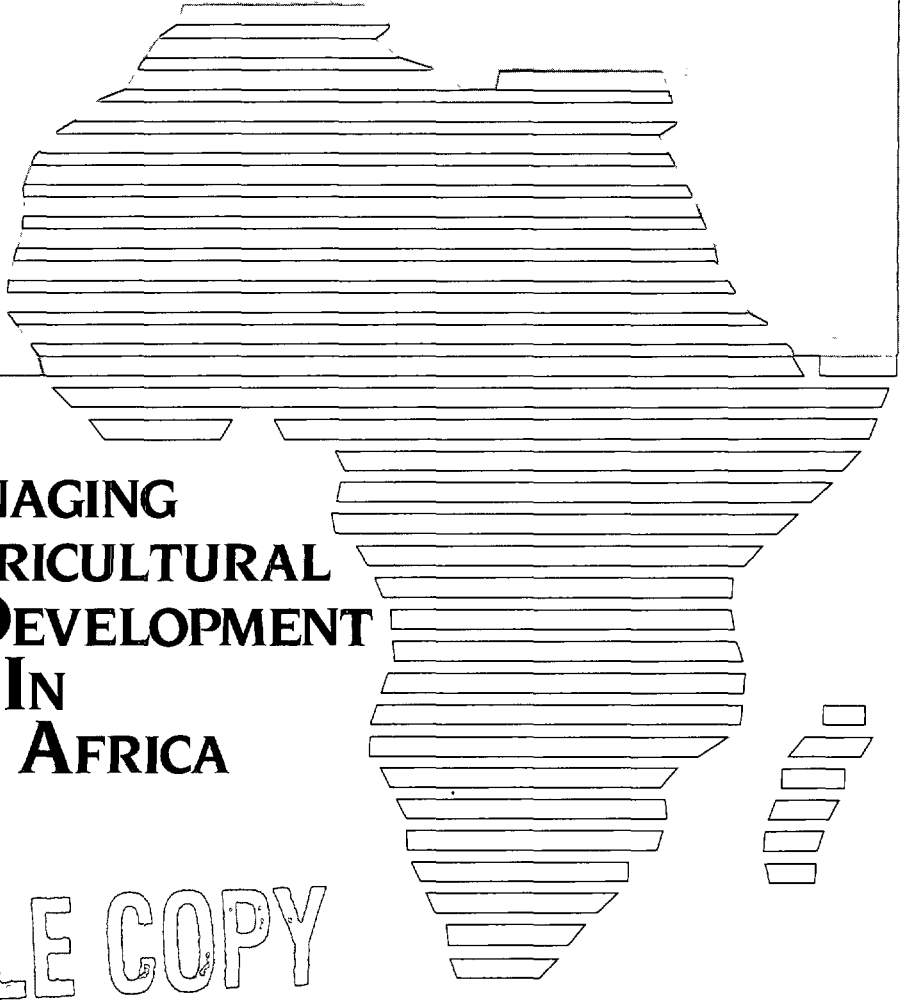
MADIA DISCUSSION PAPER 9

TRUCTURAL ADJUSTMENT, GRICULTURAL DEVELOPMENT ND THE POOR

ESSONS FROM THE MALAWIAN EXPERIENCE

MA LELE



MANAGING AGRICULTURAL DEVELOPMENT IN AFRICA

FOREWORD

The MADIA study and the papers comprising this MADIA Discussion Paper Series are important both for their content and the process of diagnosis and analysis that was used in the conduct of the study. The MADIA research project has been consultative, nonideological, and based on the collection and analysis of a substantial amount of concrete information on specific topics to draw policy lessons; it represents a unique blend of country-oriented analysis with a cross-country perspective. The conclusions of the studies emphasize the fundamental importance of a sound macroeconomic environment for ensuring the broad-based development of agriculture, and at the same time stress the need for achieving several difficult balances: among macroeconomic, sectoral, and location-specific factors that determine the growth of agricultural output; between the development of food and export crops; and between the immediate impact and long-run development of human and institutional capital. The papers also highlight the complementarity of and the need to maintain a balance between the private and public sectors; and further the need to recognize that both price and nonprice incentives are critical to achieving sustainable growth in output.

The findings of the MADIA study presented in the papers were discussed at a symposium of senior African and donor policymakers and analysts funded by USAID in June 1989 at Annapolis, Maryland. The participants recommended that donors and African governments should move expeditiously to implement many of the study's valuable lessons. The symposium also concluded that the process used in carrying out the MADIA study must continue if a stronger, more effective consensus among donors and governments is to be achieved on the ways to proceed in resuming broad-based growth in African agriculture. The World Bank is committed to assisting African countries in developing long-term strategies of agricultural development and in translating the MADIA findings into the Bank's operational programs.

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Library of Congress Cataloging-in-Publication Data

Lele, Uma
Structural adjustment, agricultural development, and the poor: lessons from the Malawian experience / Uma Lele.

(MADIA discussion paper ; 9)
Includes bibliographical references.
1. Agriculture—Economic aspects—Malawi. 2. Malawi—Economic policy. 3. Poor—Malawi I. Title. II. Series.
HD2133.5.L44 1989 338.1'096897 89-22760
ISBN 0-8213-1325-8

Contents

Acknowledgments

The author is grateful for the helpful comments of a large number of colleagues inside and outside the World Bank and of officials in the Malawian government. In particular she wishes to thank Messrs. Stephen O'Brien, Bela Balassa, Stephen Carr, Robert Christiansen, Richard Clough, Michael Collinson, Peter Hall, Fred King, Michael Lipton, J. S. Magombo, M. L. Muwila and Roy Southworth for their valuable comments on previous drafts. Thanks also go to Peter Bocock and Suzanne Wood for editing the present draft and Steven Stone and Ann Mitchell for excellent research work. The views expressed in this paper do not necessarily represent those of the World Bank or any other agencies collaborating in the MADIA study.

Introduction

This article examines 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 have in turn contributed to structural imbalances, leading the government to seek to restore macroeconomic balance through one of the most ambitious programs of structural adjustment in Africa. The adjustment process, however, has been complicated by the dualism of Malawi's agricultural sector.[2]

Partly because of conditions inherited at independence,[3] and partly because of policy choices made in the 1970s, Malawi's agricultural sector divides into a rapidly growing estate sector accounting for 95 percent of the country's exports,[4] and a smallholder sector living for the most part in extreme poverty, experiencing sharply increasing land pressure, and overwhelmingly dependent on agriculture for employment.[5] The smallholder sector itself divides into two parts: whereas (1) nearly 45 percent of smallholder households have enough land—1 hectare or more—for either actual or potential self-sufficiency or surplus production for the market, (2) over 55 percent do not have enough land—cultivate less than 1 hectare—and therefore rely substantially on wage employment for income and on the market for food.

This dualism-within-dualism has had major consequences for the process of structural adjustment, which initially did not take it adequately into account, especially the ability of the smallholder sector with its widespread poverty to respond to or withstand the effects of macroeconomic adjustment. As the following discussion will show, structural adjustment has addressed restoration of macroeconomic balance, but it has not been able to improve aggregate supply response; furthermore, because of higher food and fertilizer prices, it has had an adverse impact upon the poor.

This article will argue that the lack of supply response is rooted in the historically precarious economic situation of the majority of Malawi's smallholders, and that the adverse impact of higher food and fertilizer prices serves to exacerbate this precariousness and further inhibit economic growth. On this view, in a country like Malawi where a large proportion of the population lives in poverty, it is not possible to generate sustained, overall growth by pursuing short-term opportunities that penalize the poor or exclude them because of their inability to participate. On the contrary, in a two-sector model of economic development, Lele and Mellor (1981) have demonstrated that the way in which the benefits of agricultural growth are distributed toward 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. Translated into terms of growth and equity, this model supports the view that these goals do not stand in mutual conflict. Rather, they are congruent

in the long run: a strategy for long-term, sustained growth must necessarily also be a strategy for broad-based, equitable growth.

Devising such a strategy is the key to meeting the challenge facing Malawi's government and its donor supporters: how to improve economic conditions among the bulk of the very poor rural households, while also resuming the high overall growth rates achieved before the onslaught of external shocks that began in 1979. Structural adjustment, however, appears to militate against the goals of growth and equity in the case of Malawi, insofar as it has been neither sufficient for resuscitating growth nor, in its pure form, able to avoid adversely affecting the poor. On the other hand, it is necessary for macroeconomic health. This article will therefore propose that, unless the goal of long-term, equitable growth is to be abandoned, or unless macroeconomic soundness is to be jeopardized, additional measures must be joined to the structural adjustment process to promote overall growth in production and, what is inseparably connected to it, protect and promote consumption and production levels among the poor. To this end, a wide range of what can be called "complementary" agricultural and rural sector policies need to be implemented on a coherent basis. Some of these policies affect donor assistance strategies and the speed with which structural adjustment reforms can be accomplished; others involve internal, domestic reforms directly aimed at mitigating the sharply (and doubly) dualistic structure of Malawi's agricultural sector. Together, and in phased conjunction with the ongoing structural adjustment process, these policies constitute a strategy for long-term, broad-based growth. Pursuit of such a strategy, however, must also include the recognition that agricultural production cannot grow fast enough to provide employment and satisfactory income growth for all of Malawi's rapidly growing smallholder population.[6] Whereas this article focuses on the agricultural aspects of rural growth and income, development of nonfarm income-generating activities through growth in other sectors of the economy will be of paramount importance in relieving poverty among Malawi's smallholders.

The detailed discussion of the encounter between structural adjustment and Malawi's agricultural sector and the need for complementary policies explains and describes the dualism within the agricultural sector. The next section recounts the external shocks that impinged upon Malawi's economy beginning in 1979, and the structural adjustments instituted to restore macroeconomic balance in their wake. Then the paper examines the effect on the smallholder sector of structural adjustment measures most immediately relevant to agricultural and rural development: producer pricing adjustments, fertilizer policies, grain marketing liberalization, and withdrawal of donor support from the National Rural Development Program. The need for complementary policies to offset the adverse impact of structural adjustment and foster equitable growth throughout the smallholder sector, with an emphasis on programs requiring recurrent expenditures is addressed. Next is a discussion of policies directly addressing Malawi's dualism, including licensing, pricing, land, and taxation policies, which the government would need to adopt in support of equitable growth. Finally, the paper summarizes the encounter between structural adjustment and Malawi's dualism and the argument that complementary policies are needed for promoting equitable growth.

Evolving Dualism

Estates and Smallholders

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. This policy has had consequences for the contemporary dilemmas of growth and equity.

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,[7] Rhodesia's Unilateral Declaration of Independence 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.[8]

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 by private buyers.[9] Smallholders, on the other hand, have not been allowed to grow either burley or flue-cured tobacco (except as tenants of estates), and must sell the varieties they grow (dark-fired, sun-cured, and air-cured) to Malawi's marketing board, ADMARC, at fixed prices. (For perspective, it must be understood that only about 20 percent of the smallholder sector produces a marketable surplus of crops.) 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.[10] 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.[11]

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. Although the average size of estates has declined over time, their numbers and share of total arable land have increased while customary land area for smallholder cultivation has declined.[12] A substantial portion of the estate land remains underutilized—only 6 to 8 percent is reported to be cultivated[13]—and population growth in customary areas has resulted in a rapid decline in the average size of holdings and area cultivated.[14] 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.[15] 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; they also point to the pressing need not only for agricultural intensification, but also for creating nonfarm sources of income for a smallholder population outrunning the ability of agriculture to support it even with intensification.

Structure of the Smallholder Sector

Malawi has about 1.3 million smallholder households, comprising about 90 percent of the total population. Roughly 85 percent of these households grow maize for their own consumption, although the majority are not self-sufficient. As discussed earlier, somewhat over half of the smallholders cultivate less than 1 hectare. Only a third of the income of these farmers comes from cropping, with the remainder earned by selling their own labor. This group of smallholders is thus nearly landless and depends on the market for food. As food-deficit, low-income households, they spend between 44 and 48 percent of their household cash income on food, compared to 25 percent for the population as a whole. The better-off smallholders with larger land holdings are generally self-sufficient.[16]

Of the smallholder sector taken as a whole, only about 20 percent—those with the largest holdings—have access to credit and produce a marketable surplus. Only an estimated 25-30 percent—again, for the most part those with the largest holdings—have access to and use any fertilizer.[17] In view of Malawi's growing internal demand for food and need for agricultural intensification, this fact assumes critical importance, especially when it is understood that although the smallholders cultivating less than 1 hectare have almost no access to fertilizer, their collective holdings account for 25 percent of the total land area under cultivation.[18] These factors place severe restrictions on the smallholder group as a whole in responding to economic incentives to increase production, and effectively exclude the food-deficit, low-income majority from responding.

The estate strategy of the 1970s thus fostered a sharply divided agricultural sector, with a prospering estate sector given preference in the production and sale of major export crops, and a stagnating smallholder sector producing mostly subsistence maize. The strategy succeeded, however, in spurring a rapid increase in exports and strengthening Malawi's macroeconomic performance. But in 1979, a series of overwhelming external shocks began, starting with the second oil price increase; within two years, an era of structural adjustment had also begun.

External Shocks and Structural Adjustment

External Shocks

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.[19] More generally, the 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. Finally, 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.

Nature of the Structural Adjustment Effort

To address Malawi's macroeconomic problems the World Bank, together with other donors,[20] financed three structural adjustment loans (SALs) totaling $224 million since 1981.[21] 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.[22] 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 toward agriculture, health, education, and housing), and, within agriculture, a shift away from the National Rural Development Program (NRDP), toward 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.

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[e]
GDP Current Prices	853.4	873.1	937.5	1103.8	1242.4	1434.9	1706.9	2021.7	2301.5	2871.1	3484.3
GDP 1978 Market Prices	853.4	850.1	835.7	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[a]	73.4	84.2	116.1	129.6	114.3	112.3	109.4	122.2	252.7	213.9	158.1
(% 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
(% 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[b]	195.1	274.0	366.7	426.9	630.0	798.7	915.3	na	na	na	na
(% of GDP)	22.9%	31.4%	39.1%	38.7%	50.7%	55.7%	53.6%				
Debt Payments[c]	18.5	32.9	47.1	88.0	39.8	87.6	118.0	155.6	214.6	213.6	na
(% 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%	15.1%	17.0%	22.0%	16.0%	15.0%	18.0%	24.0%	43.0%	32.0%	na
Exchange Rate[d] (Kwacha per Dollar)	0.84	0.82	0.81	0.89	1.06	1.17	1.41	1.72	1.86	2.21	2.53
Use of IMF Credit[f] (Net Flow, million SDR)	5.53	26.94	47.89	75.28	73.58	97.52	114.92	121.94	101.35	77.74	74.96
	-3.63	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: [a] Includes revenue, grants, recurrent and development expenditure, and extra-budgetary items.
[b] From IMF (1987).
[c] 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.
[d] Market Rate (period average) from IMF (1987).
[e] Most recent estimate. For IMF data, Febuary 1988; for Government of Malawi data from 1988 edition.
[f] Net inflow of IMF funds (negative sign indicates outflow) from IMF (1987).

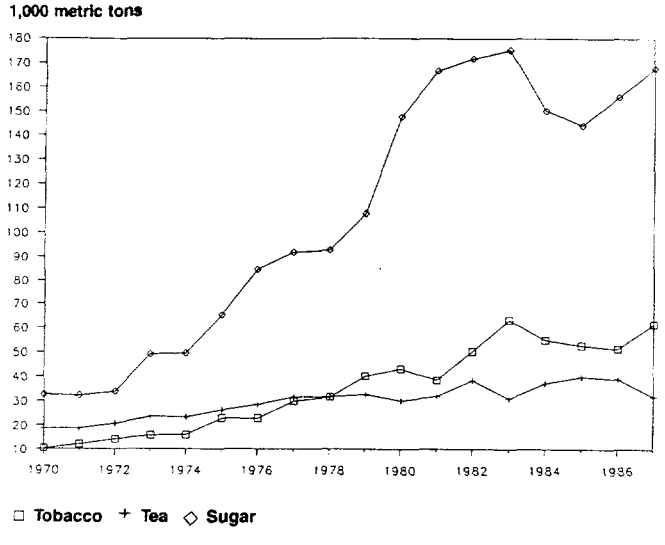
Macroeconomic Impact of Initial Adjustment Efforts and Subsequent Shocks

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 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.[23] 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.[24]

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.

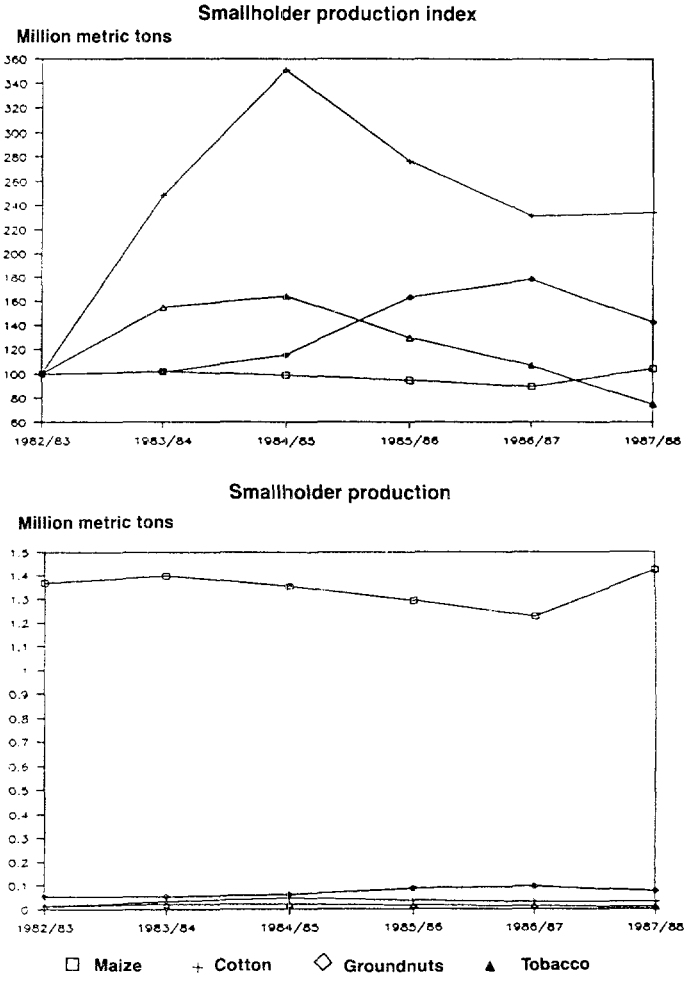
The lack of aggregate production response is of central importance to the thesis of the present article that structural adjustments while essential cannot alone resuscitate growth in Malawi's economy and require complementary agricultural and rural sectoral policies to achieve this end. This thesis is pursued by demonstrating the virtually complete inability of the poorer half of the smallholder sector, as it is now structured, to respond in any way to the price incentives to growth held out by the structural adjustment programs, and the very limited ability of the better-off half of smallholders to respond, as evidenced by the mere shift in the composition of production in reaction to price adjustments. The discussion also shows that, on the contrary, since the majority of smallholders experience changes in the market as consumers, not producers, higher food and fertilizer prices resulting from structural adjustment measures further restrict their already limited ability to participate in or contribute to economic growth. In view of the fact that these adverse effects fall upon a majority of the smallholder population, the impact on consumption and demand levels represents a severe stunting of growth linkages with the economy in general, as well as harm to the smallholder's own welfare. This adverse impact of structural adjustment programs in Malawi's case is therefore also of central importance in arguing for complementary policies: they are required not only to bolster the limited aggregate supply response to structural adjustment, but also to compensate for its deleterious effects on the poor.

Figure 1
Estate production of major crops, 1970-87



Source: Government of Malawi (1970-88).

Figure 2
Smallholder production of major crops, 1982/83—1987/88



Source: Ministry of Agriculture, Malawi.
Note: The graph of smallholder production in metric tons illustrates the dominance of maize and the graph of crop production indices shows the variations in production of each crop.

Impact of Structural Adjustment on the Smallholder Sector

Subsistence Production, Food Security, and Risk Aversion

Food security is a national concern in Malawi, where as much as 70 percent of total land under cultivation goes to subsistence maize. With declining soil fertility, there is even more pressure to put land under maize, thereby shrinking the opportunities for cash crop production.[25] But just as intensifying maize production is essential for national food security, so is increasing cash crop production essential for economic growth in the agricultural sector. The risk aversion accompanying poverty and subsistence agriculture, however, stands as an obstacle to accomplishing either through reliance on market mechanisms.

Since over half of Malawi's smallholders are substantially dependent on the market for wages and food because they lack enough land for self-employment and self-sufficiency, higher food prices resulting from producer price incentives decrease their real incomes.[26] Their production concerns are therefore limited to growing what food they can to minimize their dependence on the market. In the current absence of assistance with credit and/or inputs, their ability to increase their own productivity by risking investment in improved technologies is virtually nil. (The disadvantages to which Malawi's food-deficit households are exposed are discussed below.)

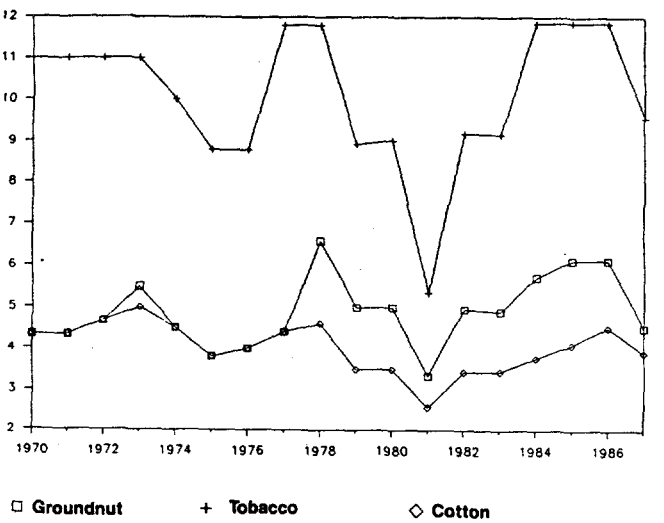
With respect to farmers who have enough land to produce a marketable surplus, either actually or potentially, the decision to move out of subsistence food production into higher value cash crops is affected by uncertainty about food prices and markets. Too-high food prices cause farmers to tend toward staple food production, whereby subsistence can be better ensured. The possibility of too-low food prices, on the other hand, makes small farmers reluctant to invest in higher-cost, higher-productivity methods, with only the larger farmers able to bear the risk of their adoption.[27] To the extent that producer price incentives succeed in causing farmers to shift their resources into cash crops, the lack of access to new technology for increasing overall production means the shift to cash crops simply changes crop composition rather than increases aggregate supply response. Sustained food price and supply stability within a reasonable range is thus critical for diversification of smallholder agriculture into non-food-crops. This result is illustrated by the experience with producer pricing adjustments made during the SAL period in Malawi.

Producer Pricing Adjustments

For most of the 1970s, Malawi's maize producer prices moved largely with world market prices, though well below world levels. A national concern for food self-sufficiency arose in the late 1970s when, despite the doubling of the official consumer price between 1974 and 1979, consistently growing maize sales by ADMARC, Malawi's marketing board, reached a peak of 150,000 tons (1979/80) after a production drop of 15 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 accordingly raised the official maize producer price by 68 percent in 1981/82, an increase that was clearly excessive, resulting in both a growing maize surplus and maize exports undertaken at a loss.

On the other hand, under structural adjustment between 1981 and 1986, donors realigned smallholder producer prices *away* from maize toward groundnuts, tobacco, and cotton (see Figure 3), an adjustment that proved to be 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).[28] (At the same time, the increased groundnut production that resulted from the price changes turned out to be premature, as ADMARC made losses on the groundnut account from 1984/85 to 1986/87 because of 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.[29])

Figure 3
Export crop/maize smallholder producer price ratios, 1970-87



Source: Ministry of Agriculture, Malawi.
Note: Producer prices are for growing season (1970 = 1970/71).

In view of the narrow or virtually nonexistent margin for risk among smallholders, and the adverse effect of higher food prices on food-deficit households, it is not surprising that estimates of aggregate supply response with respect to price changes are extremely low (0.16) in Malawi.[30] This outcome of the producer pricing experience of 1981-86 leads to two important conclusions: (1) Bringing the smallholder sector to the point of responding to market incentives with increased overall production will first require directly increasing productivity through improvements in smallholder access to and use of such nonprice factors as technical knowledge, credit, storage and transport, and, most notably, fertilizer. (2) Making advances on these fronts will require a period of price and supply stabilization and assured markets to safeguard national food security, reduce risk aversion among producers, and maintain welfare among food-deficit households. Accordingly, this paper discusses the implications of Malawi's recent grain marketing liberalization for price and supply stabilization and the impact of structural adjustment on fertilizer policy, including the role of subsidies, and assesses the prospects for increasing productivity and output through promotion of fertilizer use and related nonprice factors.

Grain Marketing Liberalization and Role of ADMARC in Buffer Stocks

Malawi's experience with grain marketing, including the wide price fluctuations of 1981-86 and culminating in liberalization of the market in 1987 as part of the structural adjustment process, shows that ensuring food security in Malawi requires not only increasing maize production at the farm or household level, but also maintaining a buffer stock to achieve intra- and interyear price and supply stabilization at the national level.

In 1983/84, in order to finance the construction of silos and stocks, ADMARC borrowed at a time when interest rates had increased sharply. 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. ADMARC's profits fell by 50 percent in 1983/84 and, after an apparent recovery in 1985/86, its finances deteriorated very sharply into substantial losses in 1985/86 and 1986/87, exacerbated by rising operating costs, falling tobacco profits, and SAL-based credit ceilings. The Malawi government's tendency—like that of other African governments—to not allow any variation in the price of the officially supplied grain between seasons or panterritorially contributed to the problems.

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, 123 markets were closed; the Southern region, which has the greatest dependence on ADMARC maize sales, lost 109 markets, although the less populated North gained 14 seasonal markets. The timing of liberalization, however, turned out to be unfortunate, for two reasons:

First, although in the early 1970s, when the government sharply curtailed the presence of Asian traders in rural areas, donors encouraged ADMARC to expand its operations because they considered the indigenous trading sector too weak, there had been no effort in development programs to expand the grain-handling capacity of the indigenous private sector. Having little access to finance, market information, or transportation,[31] Malawian traders were unprepared for liberalization, a situation that will improve over time with the continued active promotion of Malawian trade and transport which is now under way.

Second, 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 or four times the official price. This in turn adversely affected ADMARC's ability to purchase grain in the market for resale, reducing real incomes and welfare of the large number of food-deficit households highly dependent on the open market. According to subsequent field surveys, 90 percent of households in the Southern region ran out of their own maize stocks and had little cash for buying food.[32] Traditional support systems between households broke down, and the only option for many poor smallholders was to accept employment on more prosperous farms to pay for maize purchases. This short-term solution, however, tended to interfere with the preparation of their own plots, thus jeopardizing their food supply for the next year.

This early experience with grain market liberalization has cautioned donors that the vulnerability of Malawi's food-deficit households to excessive market fluctuations is of grave proportions, and that these smallholders must be protected through ADMARC's sales of maize by maintaining prices and public sector control of food supplies within a reasonable range. Food imports (including food aid) as an alternative to stocks for achieving food security is an important option, but a limited one because Malawi's external transport capacity is low and further restricted by the political situation in southern Africa. Therefore, until there is progress on a range of nonprice factors affecting consumption and production, and until the private trading sector becomes more viable, ADMARC must maintain large enough stocks and cover a sufficiently wide geographical area in order to sell maize in adequate quantities to stabilize prices. ADMARC must also be in the position of buyer of last resort to ensure a market and promote the intensification and diversification of smallholder production, on which progress toward greater liberalization of the market ultimately depends.

The earlier discussion of producer pricing adjustments showed that where subsistence farming is prevalent and food security concerns are pressing, excessively fluctuating prices have an inhibiting effect on overall production owing to risk aversion. The present discussion has emphasized the vulnerability of food-deficit households, as consumers, to market fluctuations. Taken together, the producer pricing adjustments of 1981-86 and the grain marketing liberalization experience suggest 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, and (4) a deliberate approach to changes in agricultural pricing and marketing arrangements.

Maintaining a maize buffer stock to achieve price and supply stabilization will in all likelihood be a loss-making operation requiring a subsidy. How long this subsidy will be necessary, and at what level, depends not only on the range within which prices and supplies are stabilized, but on concurrently improving production technology and making credit and inputs more available to smallholders, and on addressing internal policies concerning land,

licensing, and taxation which make protection of the poor less necessary. The latter will be discussed below; improving production technology and farmer access to credit and inputs is addressed in the discussion of fertilizer policies immediately following.

Fertilizer Policies

Given Malawi's severe land pressure, increasing productivity through fertilizer use among smallholders is of the first importance, and Malawi has in fact had a more effective fertilizer policy and better record of growth of nutrient consumption than many countries in Africa.[33] Since 1983, an excellent Smallholder Fertilizer Revolving Fund jointly supported by IFAD and IDA gave an additional boost to the program of fertilizer distribution. Despite the accomplishments of the revolving fund, however, budgetary concerns have put the continued provision of a fertilizer subsidy into question. Also the revolving fund came to an end in 1988. Reasons why it needs to be resuscitated are discussed below.

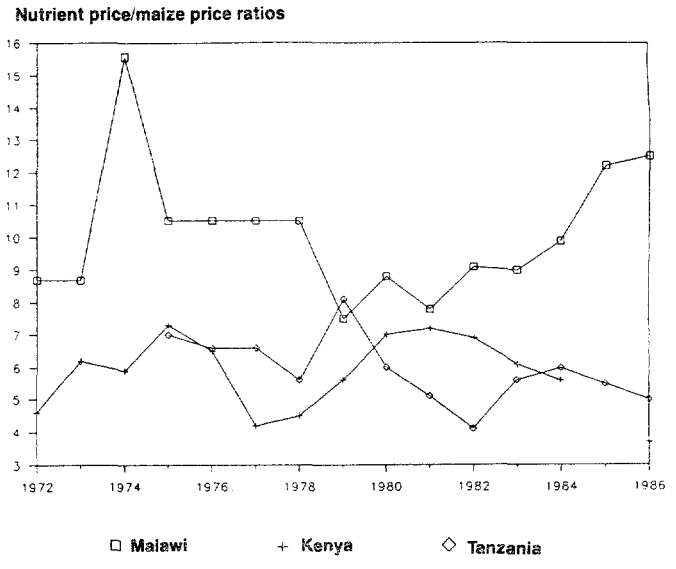
Subsidy Removal under Structural Adjustment

Malawi's smallholder fertilizer program has involved a subsidy aimed at mitigating the effects of high transportation costs, which together with frequent exchange rate adjustments have consistently caused Malawi's nutrient prices relative to maize prices to be quite high—up to two or three times as high as in Kenya (which has no subsidy), the only exception being 1981/82, when the Malawian government raised its maize price sharply (see Figure 4). Removal of this subsidy was a central element of the World Bank's and USAID's second SAL in Malawi (1984). But when currency devaluations and still higher external transport costs in the 1984/85 crop year resulted in large increases in fertilizer import costs, donors reluctantly agreed to an extension of the subsidy removal period.[34] In 1985, however, continued concern about the budget deficit caused subsidy removal to be undertaken as a central part of the third SAL; the grounds were that (1) larger smallholders were the main beneficiaries of the program, (2) there were major leakages of subsidized fertilizer to the estate sector,[35] (3) withdrawal of the subsidy would contribute little to sharp fertilizer price increases, and (4) farmers were unlikely to respond to fertilizer price increases, especially as subsidy removal was to be accompanied by the introduction of high analysis fertilizers to reduce the impact of adverse price effects on fertilizer consumption.[36]

By 1987, however, after two years of phased subsidy removal, the Malawian fertilizer price/official maize price ratio had again become nearly three times that in Kenya. Amid growing and urgent concerns about national food security owing to reduced government food stocks and a massive influx of refugees from Mozambique, the government withdrew from the subsidy removal agreement and resumed subsidizing smallholder fertilizer prices by about 25 percent. To provide further incentive for fertilizer use, 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, thereby decreasing the nutrient price/maize price ratio.

As was the case with producer price adjustments, these developments concerning fertilizer use and subsidy removal reflect the difficulty of penetrating Malawi's doubly bifurcated agricultural sector with programs designed to give market mechanisms greater influence, as the following discussion will show.

Figure 4
Comparative nutrient price/maize price ratios for Malawi, Kenya, and Tanzania, 1972-86



Sources: Malawi: Ministry of Agriculture, R.R. Nathan (1987); Kenya: Government of Kenya, World Bank (1986); Tanzania: FAO/World Bank Cooperative Programme Investment Centre (1986), Mhella (1985).

Consequences of Dualism for Fertilizer Use

As much as 83 percent of the fertilizer used by smallholders in Malawi is applied to maize.[37] In 1988, 61 percent of total fertilizer was used by smallholders and the rest by estates. Most of this use is for traditional varieties (for reasons discussed below), 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 are discouraged from growing higher-value export crops and produce predominantly maize, they have been less able to withstand high input prices without a subsidy and/or credit.

The case was expected to be different for hybrid maize, whose response coefficients are thought to be sufficiently high to make fertilizer use attractive to farmers without a subsidy.[38] But between 1985/86 and 1986/87, contrary to the expectation of donors that increases in the nutrient price/maize price ratios would cause producers to increase their cultivation of higher-yielding hybrid maize, the area under hybrid maize dropped from an already low level of 5 percent of the total to 3.1 percent, while the area under composite maize dropped from 2.2 percent to 1.2 percent.[39] (The complexities of increasing hybrid production are discussed below.)

Therefore, whether from the standpoint of traditional maize or improved varieties, under current circumstances it is likely that fertilizer use would drop significantly among Malawi's smallholders in the absence of a subsidy, despite price adjustments to make fertilizer use more attractive. This likelihood reflects the fact that the *presence* of a subsidy, while undoubtedly responsible for the gains in fertilizer use among smallholders, has heretofore directly benefited only those smallholders with access to credit—for the most part, smallholders with enough land to produce a surplus. The remainder of the smallholder population has been unable to bear the associated risks and obtain the necessary credit for fertilizer, by forming groups, or gain physical access to fertilizer through cash purchases. This includes, of course, the food-deficit households, a fact made vivid by comparing the 1986/87 cost of fertilizer recommended by the extension service for one hectare of hybrid maize—K100, or $50—to the per capita income of most small farmers—less than $100. Furthermore, insofar as the food deficit households have not been in a position to use fertilizer and thereby increase their own output, they have been even more exposed as consumers to the brunt of maize price increases.

The dualism within the smallholder sector and the lack of financial and physical access to fertilizer have thus excluded some 70-75 percent of smallholders from obtaining fertilizer, regardless of price adjustments. With respect to the minority of smallholders who have been able to obtain fertilizer, the current predominance of traditional maize production and the limited opportunities to produce higher value crops—consequences of the estate strategy—have made subsidy removal and reliance on price adjustments to promote fertilizer use unworkable, pending policy changes and improvements in farmer access to inputs and credits.

With the introduction of structural adjustment measures, government and donors thus faced these choices: abolition of fertilizer subsidies would relieve pressure on the government's budget, but also threaten to abort the program of steadily increasing fertilizer use which is vital for meeting Malawi's land pressure, productivity, and food security problems. Not only current users, but potential users, of fertilizer would be penalized. On the other hand, some of these potential users were to be penalized anyway—by the maize price increases instituted to increase the profitability of fertilizer use among smallholders already having access to it. The next two subsections discuss solutions to these dilemmas.

Price and Nonprice Factors

Prospects for increasing the use of fertilizer throughout the smallholder sector improve with the increasing recognition that prices determine only part of fertilizer profitability, the other elements being a variety of nonprice factors, including in particular cultivation of varieties which are fertilizer responsive; farmer access to technical knowledge, credit, and inputs; and assurance of a market for the sale of output at a reasonable price. Whereas 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, the elasticity of demand with respect to nonprice factors turns out to be higher (0.58 to 0.67).[40] This is fully consistent with the experience elsewhere in the developing world,[41] and indicates that in time such nonprice factors as reliable and timely supplies of fertilizer, 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.

One very positive result of the structural adjustment process has been the greater focus of donors and government on nonprice constraints. The realization that there are no quick solutions is the next step. Replacement of low analysis fertilizer with high analysis fertilizer, which was introduced under the third SAL, is an effective means of reducing costs, although donors' initial expectations for the speed of replacement proved to be overly optimistic. Efforts in this direction, however, have led to consideration of additional ways of broadening access of small producers to inputs. For instance, a program for packaging and distributing fertilizer in small bags has made much progress in the past two years, and is increasing the physical availability of fertilizer among small farmers.

Increasing access of small farmers to seasonal credit is also actively being considered, although once again the problems involved are complex. With only about 20 percent of Malawi's relatively better-off smallholders currently benefiting from credit, it is unclear whether the poorer farmers' lack of access to credit is caused by their inability to undertake risk and form credit groups voluntarily, or by the rigidity of the credit administration, which has been inadvertently rewarded for reaching the more progressive farmers. Where institutional and policy biases favoring better-off households exist, making credit more available to poorer households takes time and considerable political and administrative commitment. Nevertheless, it has become generally accepted among donor circles recently that availability of credit for Malawi's potential producers of additional maize for self-consumption is crucial for future diffusion of fertilizer use.

The question of progress toward shifting maize production from traditional to high-yielding varieties is also a complex one, and merits discussion of the farm-level factors constraining adoption of the improved varieties. Maize researchers have for some time argued that flint (traditional) maizes are lower yielding than dent (hybrid) maizes at the relatively high dosages of fertilizer recommended by research stations; and that since farmers need to apply high dosages in Malawi in any case, increased production and commercialization of dent maizes through ADMARC is the way to solve Malawi's food security problem—especially since it would release more land for growing other crops that are urgently needed to diversify Malawians' output and also their consumer diet. The time and effort such conversion from traditional to improved varieties of maize will require is indicated by the fact that while roughly 85 percent of smallholder households grow maize for their own consumption, less than 5 percent cultivate hybrid or composite maize, mainly for selling to ADMARC.

The most frequently used explanation for the slow adoption of improved maize in Malawi, offered by Ellis as early as 1959, is that Malawians typically prefer flint to dent maize varieties because hand pounding 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.[42] Other constraining factors include insufficiently conclusive evidence (despite researchers' argu-

ments) about the relative responses of flint and dent maizes to chemical fertilizer use on farmers' fields to warrant adopting a production policy. Household storage is another problem, since the new maize varieties are more susceptible to disease. Other constraints are consequences of the dualistic structure of Malawi's smallholder sector: whereas timely land preparation is a critical element in the adoption of hybrid maize, the requirement of low-income smallholders to work elsewhere than their farms under conditions of handhoe technology conflicts with the relatively more labor-intensive nature of new production technologies. In addition, access to technical knowledge, inputs, and credit is essential to adopting new technology but, as this article has made clear, only about 20 percent of Malawi's smallholders now enjoy this access.

Increasing the production of improved varieties of maize is manifestly a formidable and long-term challenge; it will require trained and experienced Malawians knowledgeable in their own rural development to determine the precise roles of the several constraints just described, and to plan and implement a program taking them into account. For the purposes of the present context, however, the salient feature of this challenge is that bringing about widespread cultivation of improved maize, and thus widespread use of presumptively unsubsidized fertilizer, is a long-term goal. Malawi's need for fertilizer, however, is immediate.

Subsidy Options

As the foregoing discussion showed, there are no universal solutions to nonprice factors. They will take time to alleviate, and until then, subsidies are needed. In view of the current inability of most Malawian smallholders to obtain fertilizer, donors are entertaining the merits of a subsidy targeted explicitly to the lowest-income farmers. One option being considered is a fertilizer-for-work program; another is the possibility of its free distribution. Initial estimates show, however, that the budgetary cost of the latter option would be greater than that of a generalized smallholder subsidy, which the Malawian government has favored in the past and some in the government continue to support on grounds of ease of implementation. In any case, leakages will be an issue (as they were at the time of the third SAL); leakages from a program targeted on very low income producers, through provision of micro pockets, however, might well be more toward better-off small farmers than estates. A further reservation concerns the time constraint discussed earlier in connection with increasing the cultivation of improved maize: off-farm employment may conflict with use of more labor-intensive on-farm methods.[43]

As in the case of improving availability of credit, a great deal will depend on whether a targeted subsidy is politically feasible and administratively implementable. A great deal will also depend on taking a coordinated, coherent approach to improving the variety of nonprice factors that determine fertilizer use, with the objective of reducing and eventually phasing out subsidies as profitable use of fertilizer becomes more widespread and supplies more timely and reliable. This coordinated approach will require a multidisciplinary agricultural and rural development program for delivering technical knowledge, credit, and inputs to small farmers. An obvious vehicle for this effort is the National Rural Development Program, whose role is discussed next.

Role of National Rural Development Program

Structural adjustment has resulted in a shift away from the National Rural Development Program (NRDP), which had been at center stage in Malawi's smallholder agriculture strategy since 1978, toward a variety of important but uncoordinated activities such as agricultural research and extension, credit, growth centers, fertilizer imports, food and fertilizer storage, and fisheries. The shift is an expression of donor disenchantment with NRDP for failing to reach subsistence and below-subsistence farmers, a failure which has its roots in NRDP's earlier projects.

The earlier projects of NRDP emphasized physical capital, e.g., buildings, roads, and soil conservation measures, whose planning and implementation involved considerable donor participation. This emphasis on physical infrastructure was partly because of donor reluctance to finance recurrent expenditures, and also a result of preference by a country with little or no such capital. Its impact in reaching 20 percent of the small farmers with new technology has seemed unimpressive and attempts to reduce unit costs by expanding services have been seen by donors to be slow in achieving results. When NRDP was designed, however, the dualism within the smallholder sector had not yet been recognized, and the program did not include interventions explicitly devised to meet the needs of subsistence and below-subsistence farmers. Disenchantment with NRDP is therefore based in part on its failure to meet objectives it was not designed to serve.

While each of the activities to which donors have shifted resources is critical, their impact is likely to be diluted without a well-conceived, long-term strategy under which donor support for agricultural and rural development is provided. The present article has shown, and indeed the NRDP experience has borne out, the recalcitrance of Malawi's dualism-within-dualism to ameliorating measures, whether of the project assistance or structural adjustment variety. This recalcitrance argues all the more for a conduit for coordinated, fine-tuned policies and instruments for reaching the poorer smallholders, planned and implemented by trained Malawian personnel knowledgeable about local circumstances and in a position to encourage the participation of the rural people themselves in the design of programs which to date have been relatively top-down, and conceived largely in donor headquarters. The National Rural Development Program would provide such a conduit, and in fact has had a better economic rate of return than similar programs in Kenya and Tanzania.[44] Nevertheless, NRDP's fiscal viability will depend on increasing resource mobilization, which is discussed below. In preparation for that discussion, the paper first elaborates the argument that within the context of a strategy for long-term, broad-based growth in Malawi, recurrent expenditures for price and supply stabilization and fertilizer subsidies, as well as NRDP, do not over time conflict with the aims of structural adjustment but rather are integral to policies complementary to it.

Complementary Policies and Recurrent Expenditures

With over half of Malawi's smallholders approaching landlessness, and only 20 percent of smallholders having access to credit and fertilizer and producing a marketable surplus, it is safe to say that nearly three-quarters of Malawi's entire population finds itself in a worsening predicament grounded in Malawi's differential rights to land, crops, and prices. This predicament is hardly favorable for development of the robust market economy envisioned among the goals of structural adjustment, as has been borne out by Malawi's experience with producer pricing adjustments, grain marketing liberalization, and the proposed removal of fertilizer subsidies. The implications for government and donor policy are therefore clear:

First, granting smallholders increased access to land and conferring rights to grow export crops and receive prices similar to those received by estates is fundamental to achieving broad-based, sustainable growth and generating strong growth linkages with the rest of the economy. This paper later suggests the need for both the government and donors to consider a graduated export crops tax and to open up production of export crops to all those who wish to grow them.

Second, there is a need for donors and government to recognize that increasing the use of modern technology and fertilizer among small farmers will also be pivotal for increasing their productivity and incomes and releasing land and labor for other income-generating uses.

Increasing smallholder land productivity is complex, however, as discussions in this article concerning adoption of hybrid maize, credit availability, and targeted subsidies have shown. It is evident that reaching small farmers through research and extension and providing marketing facilities and credit for purchase of inputs is immensely more recurrent-cost intensive than in the case of large farmers, especially if there is no change in the distribution of rights that would enhance the ability of small farmers to take risks.

Clearly the government cannot afford the current expenditures required for extension, fertilizer subsidies, price and supply stabilization, and other efforts to increase smallholder production and protect consumption without donors being more generous with recurrent cost financing than they have been in the past. In addition, donors will need to place greater emphasis on expansion of trained Malawian personnel for planning and implementing a rural development program, in connection with which the NDRP umbrella will be indispensable for coordinating the fine-tuning of interventions appropriate to the complex dimensions of smallholder development. 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 commitments for food and fertilizer import support they have tended to make to date.[45]

How long and at what levels external assistance will be needed depends on reform of the costly policies pursued by the government to achieve growth during the 1970s, which engendered the marked income and asset disparities characterizing Malawi's agricultural sector. Section 6 therefore examines domestic policy options for mitigating the inequitability and hinderances to growth which the estate strategy of the 1970s imposed on the smallholder sector.

Domestic Policies

Strategies for Increasing Production

Burley tobacco, since the 1970s a preserve of the estate sector, offers the greatest opportunity for a relatively rapid increase in smallholder commercial production. Such increased production could be effected by granting licenses to smallholders to grow burley (which some already produce as tenants of estates), 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. This would at once improve resource mobilization while ensuring equitable growth and fostering growth linkages with the rest of the economy, a dynamism that has been lacking in Malawian agriculture. 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.[46]

Objections to allowing smallholders to grow burley are based in part on the relative productivity of smallholders and estates in Malawi, where tobacco yields are as much as four times higher on estates than on smallholdings. In a recent analysis, however, Lele and Agarwal (1989) found that domestic resource costs (DRCs)[47] for flue-cured and burley tobacco grown on estates are all about equal to those for smallholder tenants of estates. On the other hand (and quite surprisingly), DRCs for smallholder sun dried and dark-fired tobacco (crops smallholders are allowed to grow) 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 production to smallholders may well be a more efficient strategy than confining smallholders to growing tobaccos with higher resource costs.

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. A review of two decades of experience in Africa[48] 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. As one of the few African countries that have concentrated development strategies on existing products, Malawi should maintain that record with renewed effort. To be successful with this strategy, however, Malawi will need a more active promotion strategy for its traditional exports within Africa (e.g., for sugar, cotton, maize) and elsewhere (e.g., for tobacco). It will also need to promote increased competition among its buyers, including in internal auctions.

Land and Taxation Policies

The structural adjustment process has opened up discussion of several important land policy options which previous project lending had overlooked: (1) a 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 smallholder sectors, and (6) regulation of tenancy rights. Implementation of reforms along these lines will require a clear political consensus within Malawi that they are needed to ensure robust, long-term growth. This paper discussed the similar political commitment that will be required to widen the accessibility of credit among smallholders beyond the 20 percent to whom it is customarily available, and to attempt a targeted fertilizer subsidy. In the case of land reforms, implementation is likely to take 5 to 10 years, a time frame quite different from the yearly time horizon of SALs.

The complexities of implementing these reforms, most notably the land tax, have consequences for the government's ability to mobilize resources for funding the agricultural and rural programs discussed earlier without creating a macroeconomic problem. This ability will depend on increasing the burden of taxes on estates and thereby making the overall tax burden more equitable. Imposing taxes on underutilized estate land or on estate production (exports) and broadening the tax base of agriculture by liberalizing production quotas are important options. For example, if burley is opened up to smallholders, a progressive, mild tax on export crop earnings of both small and estate producers can be introduced. Donors have recommended the land tax, however, as a more neutral way to mobilize resources than export taxes which cause distortions. Similarly, they have recommended shifting taxes away from production to consumption, as being more conducive to growth. But the adverse efficiency effects of mild export taxes are not proven when the comparative advantage in the production of a crop is strong, i.e., returns in its production are high relative to the next best option.[49] Also while the shift to consumption taxes is being implemented by government, the land tax has not advanced nor, as the discussion above indicated, does it appear likely to in the near term.

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 therefore on the economy in general by stunting growth linkages; the net effect is to defeat a strategy for equitable growth and prolong the need for subsidies for the poor. If the potentially regressive effects of taxes on consumption are to be avoided, rights to grow burley and earn international prices need to be extended to smallholders. The slower Malawi progresses on such measures for reducing income and asset disparities, the more necessary counteractive subsidies for the poor will become.

Summary and Conclusion

Malawi is a well-managed economy which has suffered from tremendous external shocks to which it has adjusted well. Its problems of adjustment, however, have been made difficult by dualism-within-dualism—a structure whereby Malawi's agriculture sector is sharply divided by legal restrictions into estates and smallholders, and smallholders are de facto divided on the basis of holding size into a small minority producing a marketable surplus and capable of taking risks and a preponderant majority experiencing stagnation or near economic paralysis. This dualism-within-dualism which is only now beginning to be fully understood has stymied market incentives, creating an impasse in the structural adjustment process and illustrating that where shortages of government revenues put a premium on strategies that minimize recurrent government expenditures, such strategies tend to attempt self-defeating trade-offs between growth and equity in the short run. In Malawi's case, structural adjustment involved some hasty decisions, taken on short-term macroeconomic grounds, to dismantle policies and cut back on investments concerning grain marketing interventions, fertilizer subsidies, and the National Rural Development Program which have made sense from a long-term development viewpoint, although they certainly needed improvement.

The present article has argued that this long-term viewpoint is an essential component of a strategy for sustainable, broad-based growth in Malawi. Such a strategy requires inclusion of the poor and involves sectoral and other rural policies aimed at (1) overcoming stagnation and paralysis within the smallholder sector through the widespread introduction of new, high-yielding technologies for increasing production for both food and export crops, and (2) overcoming the dualism rooted in the estate strategy and its attendant income and asset disparities. Over the long run, implementing these policies will accomplish what structural adjustment demands but cannot provide: an agricultural sector capable of responding to market incentives with overall growth in production. This explains why, as the beginning of this article asserted, agricultural and rural sector policies will be crucial in determining Malawi's future growth, and why these policies complement, rather than conflict with, structural adjustment.

Notes

1. See Lele (1988a and 1989).

2. Refer to Christiansen and Kydd (1987).

3. See Lele (1989).

4. See Lele (1989).

5. Agriculture provides employment for 85 percent of the smallholder population.

6. Christiansen and Southworth (1988), p. 17.

7. See Howell (1988); Kydd and Spooner (1987); and Kydd and Hewitt (1986).

8. Christiansen and Kydd (1987).

9. 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).

10. 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. Between 1970 and 1985 on average annual groundnut production fell by 7.2 percent (and exports by 13.2 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 15.4 percent for burley and 10.4 percent for flue-cured tobacco, 4.5 percent for tea, and 14.7 percent for sugar).

11. Data on maize production need to be treated with caution. An FAO series available for the 1961-87 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 1961-87. 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 1970-72 and 1977-79 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.

12. 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).

13. Christiansen and Kydd (1983).

14. 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 28.7 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 1959-62 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).

15. 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.

16. Lele and Meyers (1987).

17. Carr (1988), p. 9.

18. Christiansen and Southworth, p. 17, citing Government of Malawi.

19. 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.

20. The Japanese, the Germans (KfW), and the Americans (USAID) contributed $22.6 million, $6.4 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.

21. For a preliminary analysis of SAL outcomes, see Kydd and Hewitt (1986).

22. 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 1988, including fertilizer, fuel, low-grade meat, sugar, and vehicle spare parts. Even some of these prices (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.

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

24. Lele (1988a).

25. Christiansen and Southworth (1988), p. 16.

26. Cf. Lele and Christiansen (1988), p. 17.

27. Cf. Lele and Christiansen (1988), pp. 14-16.

28. Tanzanian prices were significantly higher at official exchange rates. See Lele, Christiansen, Fishstein, Obetibotu (1989) for details.

29. Domestic resource cost 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 (1989).

30. The estimated *total* (all farmers) area elasticity with respect to agricultural prices was less than 0.1 (.0862) because of 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.

31. 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.

32. Oxfam (1988).

33. See Lele (1988a).

34. While devaluation has caused Malawi's fertilizer prices to increase, Kenya has also devalued, leading to internal price increases for Kenyan farmers. Fertilizer transportation costs in Malawi, 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 (1989).

35. 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 Kandoole study). See R. R. Nathan (1987a).

36. The donors were correct in arguing that subsidy removal would contribute 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 use of a countervailing subsidy to avoid an equally abrupt drop in the demand for fertilizer, provided that the cost of subsidizing fertilizer (in terms of increased food production and welfare effects of low income producers) is smaller than the cost of withdrawing the subsidy, including the need for transport, and food imports.

37. Carr (1988), p. 9.

38. Cf. Christiansen and Southworth (1988), p. 31.

39. Given that 85 percent of the hybrid maize area and 57 percent of the composite maize area is fertilized, while only 24 percent of local maize is fertilized some correlation can be inferred between fertilizer consumption and hybrid crop area. See Lele, Christiansen, Kadiresan (1989).

40. 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 because of 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.

41. See Lele and Mellor (1988). Also see Binswanger (1988).

42. Ellis (1959).

43. Thus, whereas the free distribution of fertilizer or fertilizer-for-work programs now being considered to increase smallholder productivity and food self-sufficiency are of great importance, nonfarm income generating activities, including food-for-work programs such as those undertaken in Asia, may also have to be considered. In Maharastra State in India the cost of creating employment for 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 were launched in Malawi's Southern region, creating jobs 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 67,000 tons of foodgrains (maize). See Lele (1988c).

44. See Lele and Meyers (1987).

45. The IFAD/IDA supported Smallholder Fertilizer Revolving Fund 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 (1989).

46. See Lele (1988a); Lele and Meyers (1987).

47. 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).

48. Lele (1988a).

49. See Lele (1988b).

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THE MADIA STUDY

Although many generalizations have been made about the agricultural crisis in Africa, relatively few detailed country and cross-country studies of African agriculture based on systematic data analysis have been conducted. Similarly, although foreign aid has constituted a large part of total government expenditures in Africa for close to fifteen years, there has been little analysis of the role of external assistance in African countries that goes beyond political criticism of official assistance or the alleged self-serving objectives of donors. The impetus for the study "Managing Agricultural Development in Africa" (MADIA) was to begin the process of filling this gap and to explain the nature and sources of the agricultural crisis, particularly the extent to which it originated in resource endowments, historical and contemporary events, external and internal policies, and the economic and political environment.

The MADIA study involved detailed analysis of six African countries—Kenya, Malawi, Tanzania, Cameroon, Nigeria, and Senegal. In addition to the World Bank, seven donors, USAID, UKODA, DANIDA, SIDA, the French and German governments, and the EEC participated in the study. The analysis of country policies and performance during the last 20-25 years was carried out with the benefit of substantial input from the governments and nationals of each of the countries represented. The study had three main areas of focus: (1) the relationship between domestic macroeconomic and agricultural policy and agricultural performance, (2) donors' role in the development of agriculture, and (3) the politics of agricultural policy.

The MADIA study was the result of encouragement and support from many people. Anne Krueger, former Vice President for Economic Research Staff in the World Bank, encouraged the establishment of these studies on aid and development in 1984. Gregory Ingram, former Director of the Development Research Department, provided unstinting support for the study. During the reorganization of the World Bank in 1986, the strong support from Benjamin King, then acting Vice President for Economic Research Staff, proved invaluable. Barber Conable, President of the World Bank, and Mr. Edward V. K. Jaycox, Vice President for the Africa Region, have played a key role by ensuring support for the study's completion, as did Stanley Fischer, the Vice President for Development Economics. Yves Rovani, Director General of the Operations Evaluation Department, was particularly helpful as the MADIA study drew heavily on the works of OED.

A special debt of gratitude is owed to the World Bank's Research Committee, which provided the initial funding for the study, and to the MADIA Steering Committee. In particular the strong support of the chair of the Steering Committee, Stephen O'Brien, has been of critical importance.

Finally, without the active and continued encouragement of many African policymakers and donor officials, including numerous colleagues in the World Bank, this study would not have provided new perspectives. This support has taken the form of numerous reactions to written and oral presentations, and refinement of the analysis to identify the areas of consensus and continuing controversy.

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