MADIA

AGRICULTURAL GROWTH, DOMESTIC POLICIES THE EXTERNAL ENVIRONMENT AND ASSISTANCE TO AFRICA: LESSONS OF A QUARTER CENTURY

By

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Introduction

Africa's economic crisis is increasingly coming to be recognized as stemming from the critical state of agriculture in most African economies. Nonetheless, and in spite of agriculture's overwhelming importance as a source of food, exports, employment, savings, government revenues, and raw materials for industrialization (and as a market for goods and services produced in the non-agricultural sectors), little systematic data-based, country-specific and cross-country analysis has been undertaken of Africa's agricultural problems and of their implications for government policies and donor agencies.

Substantial proportions of African countries' GDP and government expenditures are supported by a diverse range of external donors. Aid coordination arrangements notwithstanding, this assistance is often based on a relatively short-term assessment of country performance, based on a one-year to (at most) a five-year timeframe. Understanding of an individual recipient's resource endowments, historical, political and institutional inheritances, and long-term developmental record is typically not brought to bear on the level or composition of external assistance, nor incorporated into the policy dialogue with governments. Rather, a particular donor's development philosophy and trade/diplomatic or financial interests tend to determine its long-term aid patterns. In the short run, meanwhile, competition between donors to finance currently fashionable types of assistance has played a part in the composition of aid flows -- a tendency that has been augmented by recipient governments' often weak national policy planning and implementing capabilities, and by their inclination to maximize financial flows of aid rather than to focus on the quality of the assistance that they receive.

1/ I am grateful for comments on earlier drafts of this paper by Stephen O'Brien, Francis Idachaba, Paul Isenman, Bruce Johnston and Mohan Agarwal. My numerous exchanges with Donald Pickering, Stephen Carr, Kevin Cleaver, James Adams, Peter Hall, Ronald Duncan, and many colleagues in other participating donor agencies throughout the course of the MADIA study have also been very beneficial. Finally, I should like to thank my colleagues on the MADIA team, Vishva Bindlish, Robert Christiansen, Sidi Jammeh and Nicolas van de Walle (who helped in the preparation of this paper especially on matters related to countries for which they have been responsible), Peter Bocock (who edited the paper), and Paul Fishstein, Eileen Hanlon, Neal MacDougal, Kundhavi Kadiresan, Natasha Mukherjee and Steven Stone, (who provided research assistance). David Murray, Thelma Rapacan and Kim Tran typed several drafts.

In response to these concerns, a long-term, cross-country comparative study called Managing Agricultural Development in Africa (MADIA) has been underway in the World Bank since 1984 with the active collaboration of seven other donors and six African governments. [2] Its purpose agricultural sectors of selected African countries since their independence in the mid-1960s and why, and to assess the extent to which domestic policies and the external economic environment (especially including changes in world market prospects, and the levels, form, and composition of aid) have contributed to the process of growth. This paper gives an overview of the study's methodology and key findings to date.

The Country Sample and Collaborating Donors. The countries selected for analysis (Kenya, Tanzania and Malawi in East Africa and Nigeria, Cameroon and Senegal in West Africa), together have 40 percent of the population of sub-Saharan Africa and 50 percent of its GNP. The six countries cover almost all the ecological zones in Africa, ranging from the Sahelian and the Guinea Savanna Zones in the north to the equatorial rain forest in the south, and the volcanic, humid and semi-humid highlands of East and West Africa. Taken together, the six grow almost all the major crops of Africa, including tea, coffee, cocoa, tobacco, cotton, groundnuts, cashews, sisal, sugar, maize, sorghum, millets, and rice. They include two oil-exporting and four oil-importing countries, two land-surplus and four land-short countries.

Despite their diverse physical characteristics, and although they have followed different policy paths and achieved different outcomes, the six countries have enough features in common to permit fruitful comparison

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2/ MADIA is a World Bank research project. The African countries covered by the study are Kenya, Malawi, and Tanzania in East Africa, and Cameroon, Nigeria and Senegal in West Africa. The collaborating donors are USAID, UKODA, DANIDA, SIDA, the EEC, and the French and German governments. After developing generic terms of reference, the scope of each donor study was tailored to the respective donors' activities. Nationals from donor countries with knowledge of Africa and aid processes were selected to carry out analyses of donor policies and programs. Bank staff and consultants, including African nationals, participated in the study of recipient country policies and performance. Political scientists prepared studies on the politics of agricultural policy. Donors and governments have participated actively in the study by giving access to valuable material and commenting extensively on the output. A major conference of senior policymakers from donor and recipient countries, designed to explore the implications of the study's findings for government and donor policies, is scheduled for December 1988. The final output of the study, comprising of a substantial number of country-oriented and cross-country books and monographs is currently being prepared, and will be reviewed at the conference.

of the interaction of national policies with resource endowments and other factors in explaining country-specific performance variations.[3] With the exception of Nigeria, all have enjoyed a high degree of political stability. Since political stability has by no means ensured stability of institutions, however, it is possible to examine both the factors influencing stability of institutions and the effects of instability on the processes of development.

The donor participants in the MADIA study (the World Bank, USAID, UKODA, DANIDA, SIDA, the EEC, France and West Germany), have together provided nearly 60 percent of aid flows to Africa. Different combinations of these eight donors have been particularly important in providing policy advice and financial flows to each of the six selected recipients.

A Conceptual Approach to the Study. Many analysts of long-term economic growth processes who have emphasized the role of agriculture in overall economic development have also pointed out why successful mobilization of smallholder agriculture (as distinct from narrowly-based growth of large-scale farming) is crucial for sustained overall advance (e.g., See Kuznets, Okhawa and Ishikawa, Johnston and Mellor, Mellor and Johnston, and Lele and Mellor). They have demonstrated the relationship of the structure of agricultural production to the structure of consumption, savings, and investment, the pattern of demand that such broadbased development generates, and thus the types of growth linkages that are generated internally between the agricultur l and the nonagricultural sectors, and internationally between domestic and external markets. These linkages critically affect both the pace and the robustness of growth.

While early approaches to growth theory stressed the relationship of capital accumulation to the economic growth process, economists have sub- sequently come to highlight the special contribution to the growth process of "non-conventional" inputs (technological progress and knowledge) relative to the influence of conventional factors of production (land, labor, and capital). Others (e.g., Harrod/Domar, W. Arthur Lewis, Theodore Shultz, Schumpeter, Harry Johnson) have elaborated the different kinds of capital needed for growth, pointing out the complementarity among human, organizational, institutional, and physical capital. (See, e.g., Bruce Johnston's elaboration of Harry Johnson's notion of capital.) Indeed, the literature on growth theory as a whole has shifted its emphasis away from the importance of traditional capital, and towards the role different forms of capital can play in determining knowledge acquisition and technical progress.

3/ For example, the three East African countries are all ex-British colonies or protectorates, which inherited a similar dualistic structure of relatively few large European farms and many small African farms; all three grow many of the same crops. Cameroon and Nigeria, which have similar ecological zones and grow many of the same crops, benefited from the oil bonanza in the 1970s, although the magnitude and timing of their gains differed (and had very different effects on their economies and agricultural sectors). Senegal's dependence on low and uncertain rainfall and its limited production possibilities provide an

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The development strategies of most African countries (but not all of them, as Nigeria demonstrates) have been critically influenced by levels of foreign aid. Moreover, aid has not only meant increased access to financial resources but also receipt of advice on development policy. Meanwhile, the literature on development financing, starting from the premise of the fungibility of financial capital, has concluded that the benefits of donor financial assistance stem less from the specific projects supported by this assistance than from the marginal investments that donor assistance has enabled governments to undertake. While this is true at the project level, the literature has generally not focused on the effects of the size of aid flows (in relation to the size of recipient economies) on the totality of recipient government expenditures, including in particular the balance between government developmental expenditures (and the effect donors have, or could have, on such expenditures) and nondevelopmental expenditures.

Finally it is our hypothesis that the limited capacity of recipients to formulate and implement development policy has meant that external perceptions of development programming priorities -- notably including the activities that donors consider desirable to finance and the policy issues that they have been willing to pursue -- have had an important influence on the deployment of different forms of capital, and especially on judgments about the appropriate balance between them for achieving key developmental objectives.

The MADIA study therefore focuses not only on the sources of growth in agriculture during the past two decades (based largely on conventional inputs of land and labor), but on the implications of each country's initial endowments and subsequently accumulated balances of the different forms of capital that represent sources of future growth. Our definition of capital not only includes human and institutional resources, but also political capital -- including the strength and stability of government commitment to development -- factors usually not incorporated by economists in even the broader definitions of capital referred to earlier.

No single formal methodology is available for undertaking the kind of wide-ranging analysis of long-term agricultural growth and distribution trends, and the factors underlying them, that the MADIA study exemplifies. We have therefore used a combination of rigorous quantitative analysis of those features of the overall enquiry that lend themselves to such a method, combined with a broader political economy and institutional approach to less easily quantified factors.

For each of the MADIA African countries, our analysis begins with an assessment of national resource endowments, including initial post-independence conditions as determined by colonial inheritances and political and economic structures. Agricultural performance is then analyzed over a period of more than two decades (from 1960 to 1988, depending on data availability). The growth of foodcrop production and agricultural imports and exports, the nature of large and small farmer

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opportunity for examining agricultural growth prospects in circumstances of poor resource endowments.

production, and regional patterns of growth within each country are examined, as are the availability of institutional and policy support for farmers and the workings of official crop marketing entities (including government monopolies) and unofficial agricultural markets.

To the extent that the data permit -- and data resources vary significantly between MADIA countries, reflecting differences in the quantity and quality of organizational and informational capital available for decision-making -- production growth is then decomposed according to whether it derives from area expansion, yield increases, or shifts in cropping patterns between high and low value crops,[4] and in terms of locational shifts of production between resource-rich and resource-poor regions within each country.

The causes of differences in countries' agricultural performance are then examined. The analytical framework used in the study divides the causal variables involved into three categories, which we have called (i) "luck" factors, (ii) macroeconomic factors, and (iii) sectoral factors, the latter two categories covering the policy responses of governments to the circumstances arising out of factors in the first category. The distinction between these sets of factors is an important one: we believe that there has been relatively little focus in prior analysis on the genesis of country policies, or on the interactions between the resource endowments (broadly defined) at the disposal of governments and the policy responses they have devised to adapt their endowments to developmental challenges and goals. Each set of causal factors is briefly discussed below.

By "luck" factors, we mean the initial conditions in each of our sample countries at independence, along with any subsequent changes in those conditions caused by major domestic or external developments outside the control of the countries. In the initial conditions that they inherited we include the quality and quantity of land (including population pressure on land),[5] human capital (including variables that affect the quality of human resources in terms of such social indicators as health, education, access to water, etc.), institutions (i.e., governmental systems, links with world markets, and domestic commercial and grassroots institutions that represent producer interests), together with transportation and communication infrastructure availability. By

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4/ Regional resource endowments determine income possibilities, with tea, coffee, and cocoa generally providing the highest income per hectare at international prices, followed by tobacco, cotton, sugar, and groundnuts. Rice has tended to generate high incomes for a few, while sorghum and millet areas tend to be the lowest income providers. Although government concerns about regional income distribution have influenced price and expenditure policies affecting agricultural growth, patterns have varied greatly between countries.

5/ Land pressure can be a positive factor to the extent that it facilitates intensification but a negative one insofar as it reduces the bush fallow system, increases deforestation, and affects soil fertility.

subsequent changes in the external or internal environment, we mean the nature, frequency, and magnitude of external shocks[6] and internal political dislocations.

The analysis of policies first focuses on evaluation of the general macroeconomic environment, in particular, the extent of implicit or explicit taxation of the agricultural sector through overvaluation of the exchange rate or through the net effects of officially determined prices and subsidies. Resources mobilized through net taxes on agriculture may also be returned to the sector through the provision of public goods in the form of productive and social services for farmers, e.g., agricultural research, extension, transportation, market information, and support for human resource development -- these may offset the disincentive effects of pricing policies. The MADIA study therefore examines public expenditure policies and patterns and their changes over time, and, where available, the inter- and intra-sectoral levels and shares of public expenditure going to agriculture and other sectors that support agricultural development, compared to support for other competing sectors of the economy.

Neither absolute nor relative expenditure levels can convey much information about the utility of public investment programs, however, in the absence of analysis of the quality of these expenditures. We have determined expenditure quality by evaluating the investment choices made in the agricultural and rural sector, the balance between recurrent and capital expenditures, the stability and predictability of expenditure levels and patterns, and the role of central, (or in the case of Nigeria, federal) regional, and local governments in planning and implementing expenditures. Based on quantitative and qualitative information on each country, we have formed a subjective comparative judgment of country performance with regard to expenditure quality.

Given the importance of trade in the GDP of the MADIA countries, (see Table 1) public expenditures are greatly influenced by international (barter and income) terms of trade, as well as by foreign aid levels. Agricultural terms of trade have fluctuated widely but around a generally declining trend, creating a need for foreign borrowing over and above concessional inflows of foreign aid (see Figure 1). The magnitude of the external shocks experienced by each of the MADIA country economies is therefore evaluated, in order to determine the circumstances which got them into these positions, along with official policy responses and their subsequent effects on agriculture and the rural sector as a whole.

In addition to examining these specific macro factors, the analysis also takes into account how the macroeconomic environment as a whole creates differential opportunities for employment and returns in the agricultural and nonagricultural sectors (leading to competition for labor use in the various sectors), how it influences the level of internal demand Table 1

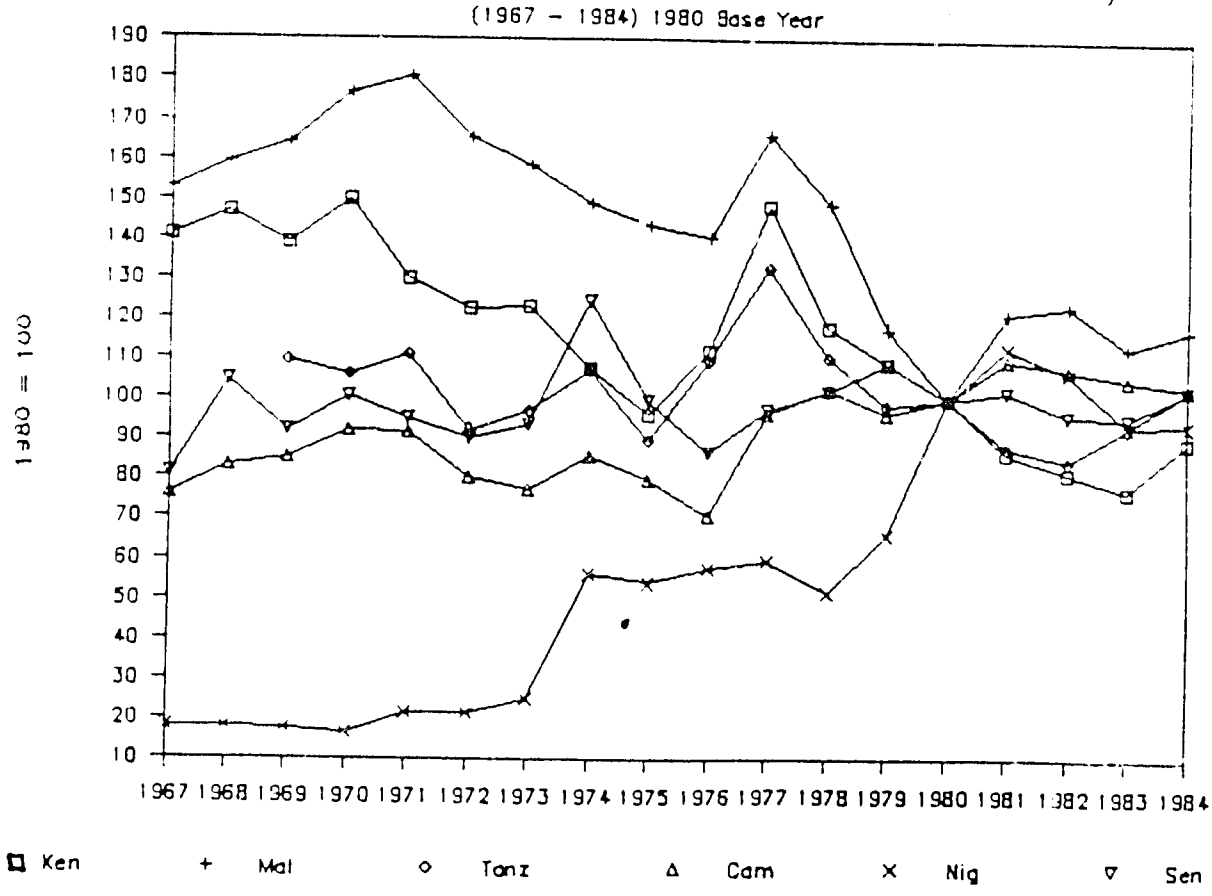
6/ See Yaw Ansu, "Macroeconomic Shocks, Policies and Performance: A Comparative Study of Kenya, Malawi and Tanzania, 1967-1984," MADIA Paper World Bank. Washington, DC. July 1986, and Pierre Seka, "Macroeconomic Shocks, Policies and Performances: The Case of Three West African Countries -- Cameroon, Nigeria and Senegal," MADIA Paper World Bank, Washington DC. Draft 1987.

Table 1: Trade Shares in GDP
(Percent of Current Value)

	KENYA	MALAWI	TANZANIA	CAMEROON	NIGERIA	SENEGAL
1967-73	58.5%	51.2%	53.8%	50.4%	34.0%	58.8%
1974-78	67.5%	56.9%	48.5%	53.5%	49.4%	84.[illegible]%
1979-81	62.4%	64.3%	41.1%	58.0%	53.0%	76.9%
1982-84	55.8%	47.5%	33.6%	55.0%	37.3%	71.1%
1967-84	61.2%	54.8%	48.6%	53.2%	42.3%	70.9%

Source: The World Bank (EPD)/P. Seka

Fig. 1: TERMS OF TRADE INDEX (MADIA COUNTRIES)



for goods produced in the agricultural sector, and how it affects the relative incentives for domestic and external production. Therefore the nature of demand for factors of production, and expected and actual external and domestic demand for agricultural output is examined. Because expectations about the nature of external demand have influenced macroeconomic and sector policies, the flows of labor and capital within agriculture, and the balance between food and export crops, or smallholder and large-scale agriculture, as well as the balance between agriculture and the rest of the economy are analyzed, as are the effects of international market prospects on the evolution of the agricultural development policies and objectives of governments and donors.

Finally, the effects of sector specific policies on output growth are considered. Special attention is paid to input and output pricing and subsidy policies, and to land policies (where the combination of land pressure, income distribution profiles, and the economic and political importance of achieving rapid agricultural growth have led to highly differential access to land, which can, in turn, differentiate the ability of small and large farmers to mobilize labor, capital, and technology, along with the possibilities for intensification). Policies toward agricultural research, extension, credit, and marketing are also examined, with special reference to differences between countries in terms of the relative roles of private, public (interministerial, central, and regional governmental), cooperative, and grassroot institutions.

Aid Flows to MADIA Recipients

The 1973-74 drought was a watershed in the levels and patterns of development assistance to Africa. The rise in world market prices of cereals, caused in part by the drought and the simultaneous depletion of world food stocks by U.S. wheat sales to the Soviet Union, heightened concern about the increasing vulnerability of the least developed countries to international fluctuations in food supplies, and intensified interest in expanding the continent's food production capacity. The drought also came on the heels of a growing awareness that, following the Green Revolution in Asia, "trickle-down" effects alone could not be expected to solve (or even speedily and substantially reduce) poverty in the developing world.

These concerns were reinforced by the earlier intellectual consensus about the poor prospects for developing countries' primary commodity export prospects, especially about their volatility and perceived declining secular trends.[7] African governments simultaneously noted the rapidly rising internal prices of foodcrops relative to export crops (see Tables 2a and 2b), and resolved to achieve domestic food self-sufficiency.[8] These various developments produced a series of diverse international articulations of the need to make a direct "Assault on Poverty."[9]

7/ On agricultural exports, economic diversification, and how it affected lending patterns, see Uma Lele and L. Richard Meyers, "Growth and Structural Change in East Africa: Domestic Policies, Agricultural Performance and World Bank Assistance, 1963-1986," in Aid to African Agriculture: Lessons From Two Decades of Donor Experience. ed. Uma Lele, forthcoming; Uma Lele and L. Richard Meyers, "Agricultural Development and Foreign Assistance: A Review of the World Bank's Experience in Kenya, 1963-1986," MADIA Paper (Washington, D.C.: World Bank, December 1986); U. Lele, A. T. Oyejide, B. Bumb, and V. Bindlish, "Nigeria's Economic Development, Agriculture's Role and World Bank Assistance, 1961-1986: Lessons for the Future," MADIA Paper (Washington, D. C.: World Bank, forthcoming); U. Lele and N. van de Walle, "Agricultural Development in Cameroon: A Review of the World Bank's Experience, 1967-1986," MADIA Paper (Washington, D. C.: World Bank, forthcoming), on the way export pessimism affected donors' policy advice to governments.

8/ For agricultural development strategies in each of the MADIA countries and the World Bank's role, see Lele et.al., "Nigeria's Economic Development"; Lele and Meyers, "Agricultural Development and Foreign Assistance"; Lele and van de Walle, "Agricultural Development in Cameroon," and J. Kydd and N. Spooner, "The World Bank's Analysis of Malawian Agriculture: Changing Perspectives, 1966 to 1985," MADIA Paper 5, Washington, D.C.: World Bank, February 1987.

9/ See The Assault on World Poverty: Problems of Rural Development, Education and Health. Johns Hopkins Press Washington, D.C. 1975, with a preface by Robert F. McNamara.

Table 2a: Trends in Ratios of Producer Prices of Export to Food Crops in Kenya, Tanzania, and Malawi

	Kenya		Malawi				Tanzania			
Year	Coffee/ Tea	Tea/ Maize	Tobacco/ Maize	Coffee/ Maize	Gr'ndnuts/ Maize	Cotton/ Maize	Cotton/ Maize	Tobacco/ Maize	Cshwnuts/ Maize	Coffee/ Maize
1967			6.09	9.79	3.30	2.73				
1968			4.30	10.07	3.07	3.23				
1969			6.83	14.69	3.31	3.38				
1970	27.2		7.84	11.66	3.31	3.28				
1971	19.1	19.5	7.71	8.03	3.03	3.37	4.23	22.31	3.46	
1972	20.0	15.5	7.32	9.90	3.61	2.87	4.58	24.17	3.75	18.75
1973	23.7	15.2	5.97	9.49	3.51	3.43	4.35	21.88	3.46	15.96
1974	21.7	15.5	4.86	10.73	3.59	4.34	3.42	18.31	2.73	13.33
1975	15.3	11.6	6.05	11.19	3.70	3.77	2.73	14.29	1.87	7.00
1976	32.9	13.8	5.40	8.75	3.11	2.25	2.59	9.66	1.29	10.00
1977	44.7	24.2	6.24	8.70	3.39	3.52	2.59	10.50	1.33	18.75
1978	31.7	17.8	7.80	11.28	3.70	3.94	2.71	10.87	1.31	12.81
1979	36.8	17.8	7.88	12.54	5.81	4.19	2.82	10.51	1.92	10.67
1980	27.6	16.7	6.31	0.40	4.60	3.25	3.00	8.95	1.73	11.42
1981	22.6	17.7	6.53	7.58	4.65	3.24	3.00	9.64	2.75	12.36
1982	25.8	18.0	4.03	4.50	2.87	2.45	2.47	7.41	3.09	9.93
1983	22.7	14.2	7.58	9.35	4.64	3.39	2.69	9.96	2.65	8.67
1984	22.0	29.6	6.61	8.03	4.89	3.31	2.73	7.61	2.95	10.40
1985	21.2	18.0	8.11	NA	5.57	3.56	2.10	6.30	2.42	6.75

Source: Kenya: Economic Surveys
Malawi: ADMARC
Tanzaniz: MDB; IBRD for coffee (1972-77)

Table 2b: Trends in Ratios of Producer Prices of Export Crops to Food Crops in Cameroon, Nigeria and Senegal

	Cameroon				Nigeria						Senegal			
Year	Coffee/ Arabica	Maize/ Robusta	Cocoa/ Maize	Cotton/ Maize	Cotton/ Maize	Palm Oil/ Maize	Rubber/ Maize	Cocoa/ Rice	Palm Oil/ Rice	Rubber/ Rice	Gr'ndnuts/ Maize	Cotton/ Maize	Gr'ndnuts/ Millet	Cotton/ Millet
1970	10.20	7.40	4.95	1.76							1.03	1.67	1.09	1.76
1971	9.40	7.10	4.80	1.71							1.28	1.67	1.36	1.76
1972	9.70	6.90	4.80	1.78							1.28	1.72	0.92	1.24
1973	10.00	6.50	4.78	1.60							1.56	1.79	0.96	1.03
1974	7.90	5.60	4.58	1.46							1.66	1.68	1.36	1.40
1975	6.70	4.10	3.53	1.00							1.19	1.34	1.19	1.34
1976	9.50	6.10	4.40	1.09	3.37	1.50	NA	2.19	0.99	NA	1.19	1.34	1.19	1.34
1977	7.20	5.60	3.33	0.80	3.98	1.37	1.40	3.07	1.06	1.09	1.12	1.32	1.04	1.22
1978	7.20	5.60	4.40	0.72	4.18	1.44	1.47	2.57	0.89	0.92	1.12	1.32	1.04	1.22
1979	5.80	5.20	4.42	0.61	4.12	1.54	1.44	2.49	0.93	0.87	1.12	1.49	1.14	1.37
1980	5.70	5.30	4.83	0.61	4.19	1.59	1.56	2.09	0.80	0.79	1.35	1.62	1.00	1.20
1981	5.70	5.10	4.15	0.60	2.63	1.00	1.22	1.37	0.53	0.63	1.49	1.44	1.40	1.36
1982	6.40	5.00	4.04	0.64	3.05	1.16	1.64	1.54	0.59	0.83	1.49	1.66	1.40	1.56
1983					2.02	0.93	1.30	1.83	0.64	0.92	1.49	1.66	1.27	1.42
1984					1.97	0.79	0.99	1.14	0.46	0.57	1.60	1.56	1.45	1.42
1985											1.50	1.67	1.64	1.67
1986											1.29	1.43	1.29	1.43

While Mr. McNamara's Nairobi speech in 1973 and subsequent World Bank publications provided the most respected expression of these concerns and their implications for donor policies, other manifestations of the same thinking were underway in other donor agencies through, e.g., the so-called Congressional mandate in the U.S. and various White Papers on the subject in Britain.[10]

The new focus on assistance for poverty alleviation and domestic food production in recipient countries generally, and in Africa in particular, resulted in five of the six MADIA countries experiencing substantial real growth in capital transfers for nearly a decade, much of which was justified in terms of the need to give priority in donor assistance to agriculture and rural development, and especially to achieving food security.[11] Aid levels rose on a per capita basis and as a proportion of both GDP and government expenditures. The share of resources allocated by development agencies to agriculture and rural development also rose sharply: the World Bank adopted an informal guideline that 25 percent of its lending should go to agriculture and rural development, with the result that this category of its assistance more than doubled. Development financing rose strongly in real terms in the late 1970s or early 1980s but fell in the following years, though the size of the flows varied considerably by country, before rising again in 1986.

By the late 1970s, a combination of developments -- including the two oil price shocks, the decline in Africa's terms of trade owing to the recession in OECD countries, and the internal expansionary policies pursued by governments had begun to produce major macroeconomic difficulties in many African economies. Implementation of the large portfolio of rural development projects had also become a financial and administrative impossibility leading to a shift in the focus of development assistance towards support for policy reform.[12] With the benefit of hindsight, it is evident today that the conjunction of an imperfect understanding of the international economic environment (especially the decline and volatility in terms of trade and domestic public expenditure), and an inadequate grasp

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10/ See Bruce Johnston, Allan Hoben, Dirk W. Dijkerman, and William K. Jaegar, "A Review and Assessment of AID Activities to Promote Agricultural and Rural Development in Sub-Saharan Africa," in Aid to African Agriculture: from Two Decades of Donor Experience, ed. Uma Lele, World Bank, Washington DC, forthcoming; also see larger report by Johnston, et.al., "An Assessment of Aid Activities to Promote Agricultural Development in Sub-Saharan Africa," MADIA Paper, World Bank, Washington, DC, February 1987. See John Howell, "U. K. Agricultural Aid to Kenya, Tanzania, and Malawi," in Aid to African Agriculture; ed. Lele, forthcoming.

11/ Nigeria, which benefited from the oil bonanza, did not experience any increase in ODA. Its substantial oil windfall was spent no more efficiently than the extra ODA flowing to other African countries, although Nigerian expenditures did differ from those that donors supported in other MADIA countries. See Lele, et. al. "Nigeria's Economic Development." Nevertheless, the World Bank assistance in Nigeria focused explicitly on increased food production.

12/ See Postcript to Uma Lele, The Design of Rural Development: Lessons from Africa. Johns Hopkins Press, Baltimore, 1979.

of the diverse mix of variables affecting the internal growth processes of individual developing countries, adversely affected the content of donor policy advice and development assistance. In retrospect, this judgment holds true for both the overcommitment to the anti-poverty crusade of the 1970s and the similarly zealous faith in "getting prices right" during the early 1980s.

For example, the effect of concerns about poverty alleviation as reflected in integrated rural development projects was to shift donor and government resources (a) away from export crops (which the "colonial" donors had tended to emphasize) and towards support for food crops, and (b) away from the high potential areas where export crops were typically produced and towards low-income regions. We shall also show that such a change in investment policy, which favored resource-poor regions with few known technologies, slowed agricultural growth -- although it did support important socio-political objectives of governments, including national integration, while also laying the foundation of human services in areas previously barely touched by infrastructural and agricultural investment.[13]

However, the subsequent shift of development philosophy in the early 1980s -- away from emphasis on integrated rural development and in favor of macro and sectoral adjustment lending and private sector initiatives -- has been similarly flawed by its inadequate recognition of the variety of causal factors underlying past growth (or decline), of the likely effects of price-based policy reforms on aggregate supply responses, and of the complementary, nonprice microeconomic actions needed to ensure that the policy reform process was sustainable beyond the short term, and that it harmonized with underlying developmental realities and long-term goals.

Before addressing the evolution of aid to agriculture in MADIA countries, however, it is necessary to put it in context by outlining the nature, scale, and sources of the relevant development assistance flows over the past two decades. This we do in the next sections.

Trends in Aid Receipts of MADIA Countries, 1970-84. At the country level, Tanzania, which had turned out to be the poorest performer among the MADIA countries by the late 1970s, received the highest levels of Official Development Assistance (ODA) in absolute terms ($669 million in 1981), followed by Kenya (a peak of $484 million in 1981), Senegal (a peak of $397 million in 1980), Malawi (a peak of $143 million in 1979), Cameroon (a peak of $274 million in 1978) and Nigeria (which received virtually no ODA in the 1970s) (see figures 2a and 2b).[14] The next poorest performing country, Senegal, received the highest per capita ODA over the 1970-84

13/ See Lele and Meyers, op.cit.

14/ Data for this section come from Geographical Distribution of Financial Flows to Developing Countries (OECD, 1986). According to OECD, Official Development Assistance (ODA) is defined as "flows to developing countries ... provided by official agencies for development purposes with a grant element of at least 25 percent". p. 281.

Fig. 2a: MADIA: TOTAL ODA, 1970--1986

In Constant 1983 U.S. Dollars

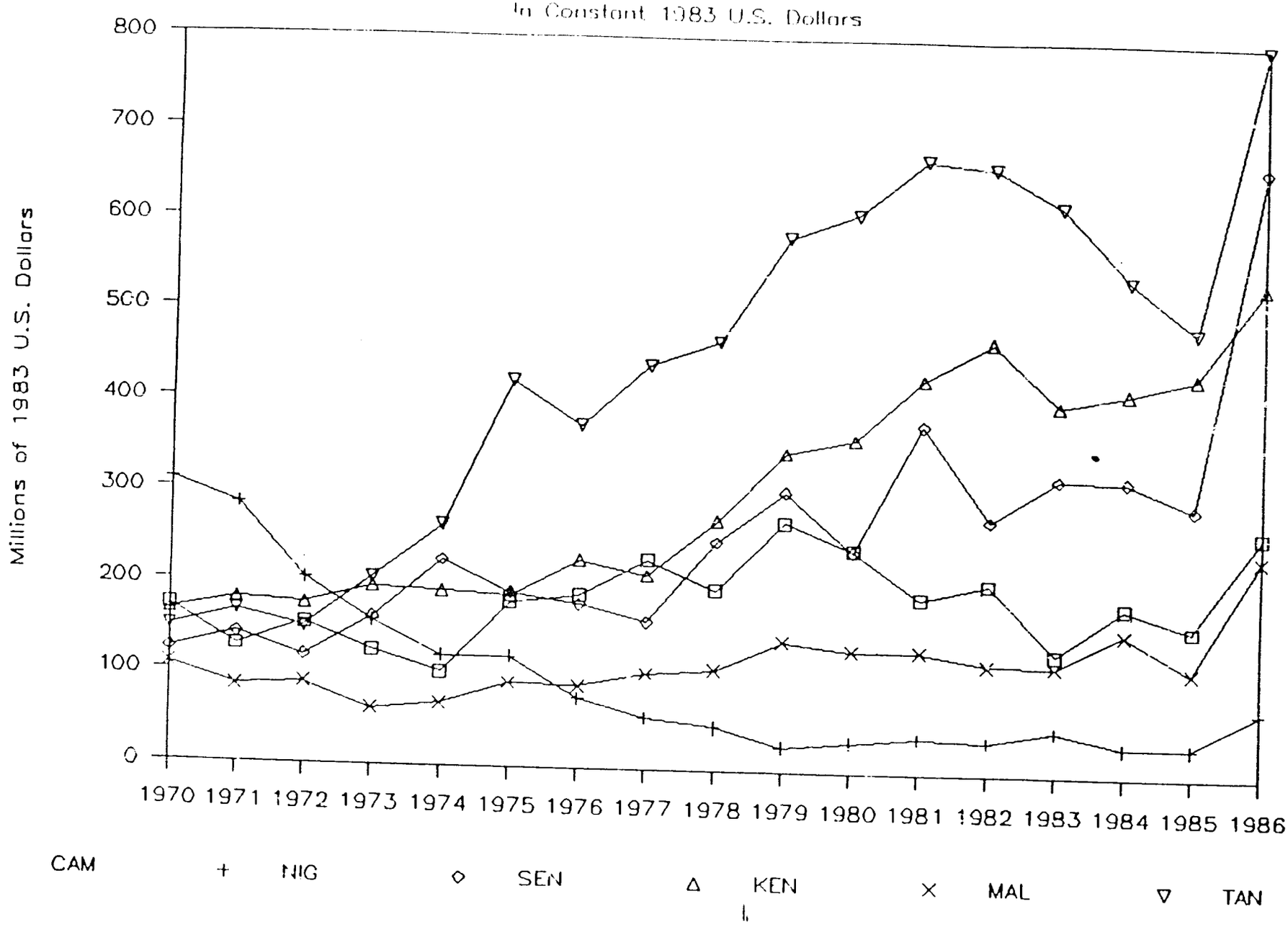
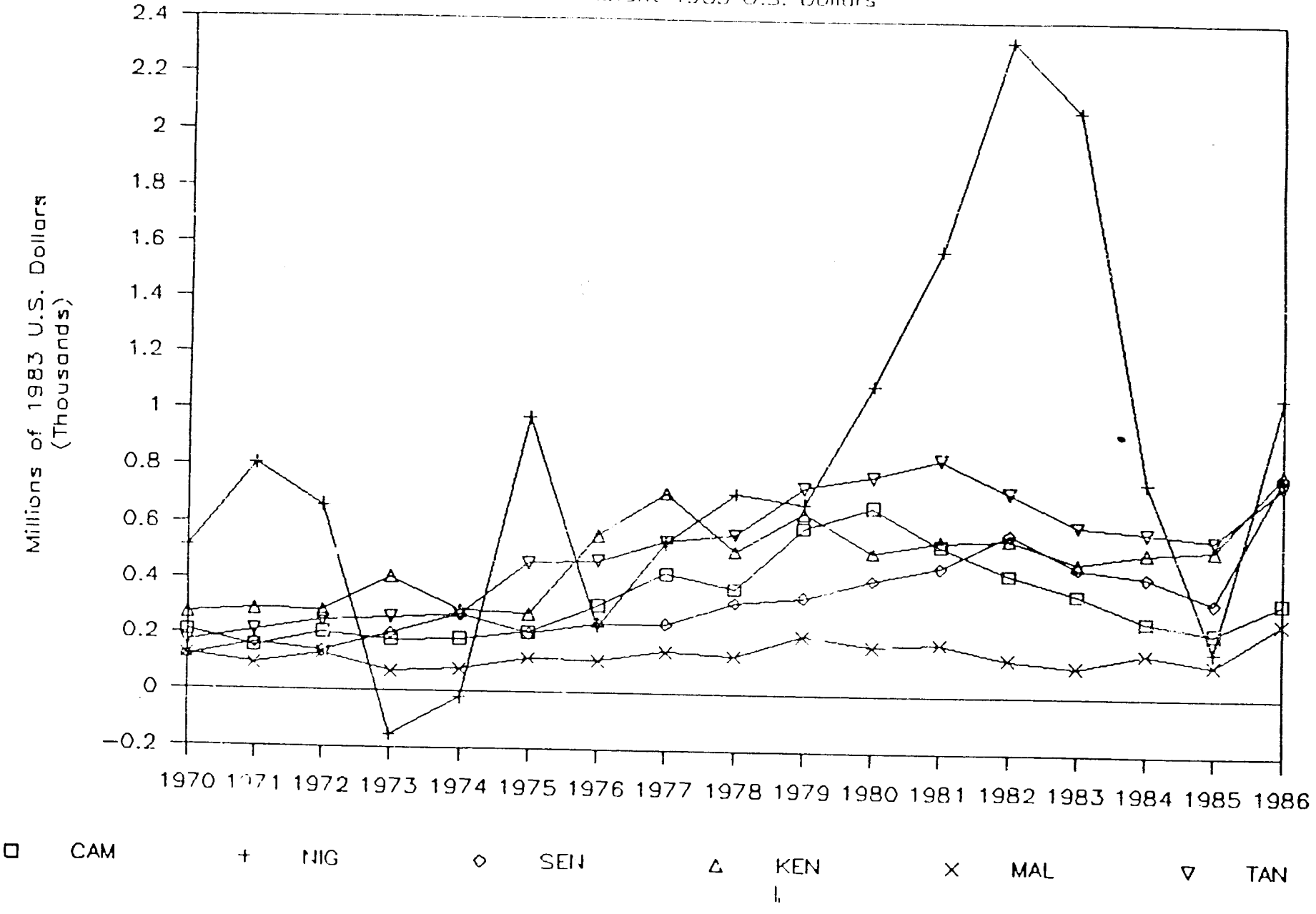


Fig. 2b: MADIA: TOTAL TRN, 1970–1986

In Constant 1983 U.S. Dollars



period (averaging $41 per capita in 1983 terms) among the MADIA group, followed by Tanzania ($24), Cameroon, ($22), Kenya ($19) and Malawi ($19)(see Figures 3a-3f)

ODA peaked in 1981 in both Senegal and Tanzania, as donors began to take account of poor project portfolios and the need for macro policy reforms in the 1980s. Nevertheless, aid levels remained higher in these two countries in per capita terms in 1984 ($45 and $25 respectively) than in Kenya ($21) and Malawi ($23). Kenya's ODA showed a significant rise from 1977 to 1982, declining thereafter. Cameroon, like Nigeria, received very little ODA and the level declined after its oil revenues increased in late 1970.

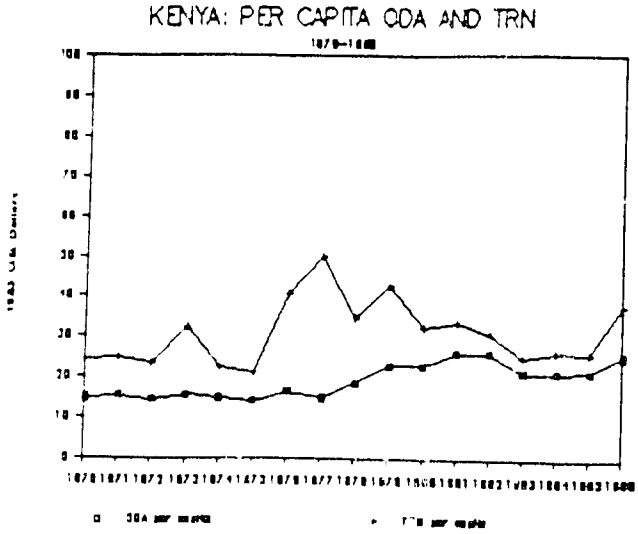
The ranking of countries is similar when Total Receipts Net (TRN) are considered rather than ODA.[15] Senegal averaged $56 per capita of TRN (at constant 1983 US$) over the 1970-84 period, followed by Cameroon, Kenya, Tanzania and Malawi at $42, $32, $29 and $23 respectively. Nigeria averaged $10 per capita TRN.

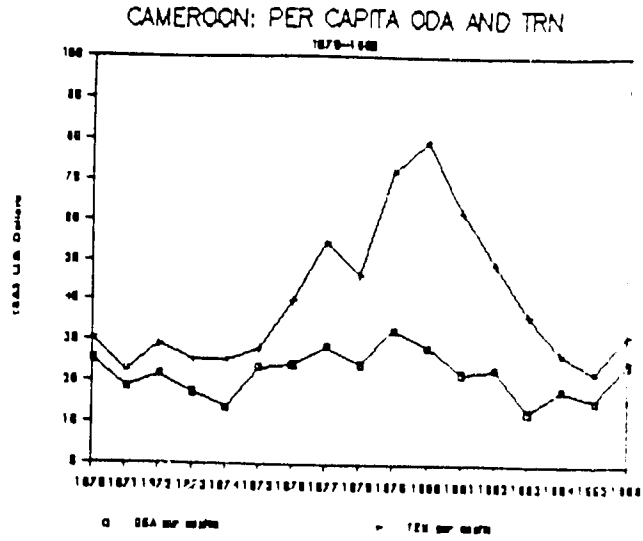
The concessionality of the terms under which aid is supplied influences the extent of a recipient's debt burden, i.e., the real cost of aid, and can be summarized in terms of the share of ODA (which is concessional by definition) in TRN. Among the MADIA countries, Tanzania and Malawi received the highest shares of resource transfers on concessional (i.e., ODA) terms, 84 percent and 81 percent respectively (see Figure 4). Senegal also received a large share of capital transfers in the form of ODA (73.5 percent over the 1970-84 period), though the percentage declined over time, leading to an increased debt burden. In Kenya, the percentage of TRN qualifying as ODA averaged 61.7 percent. Cameroon's much lower ODA share (52.4 percent) since the increase in its oil revenues has resulted in reduced donor leverage there.

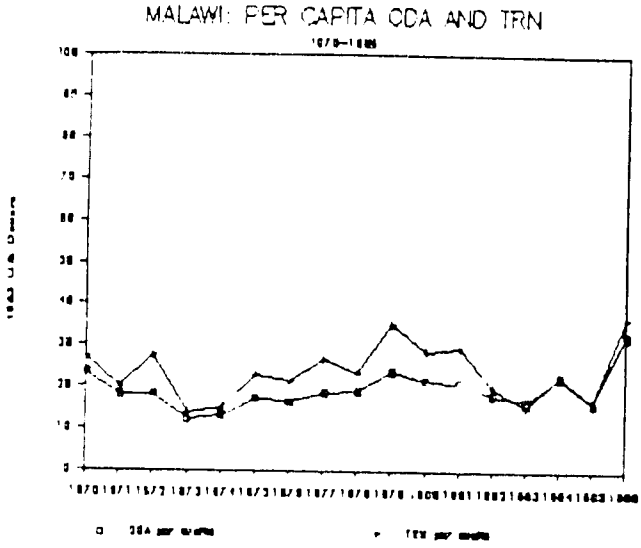
A major feature of the donor-recipient relationship that distinguishes the MADIA sample and African countries generally from their larger Asian counterparts is the multiplicity of donors supporting the former groups, each with different motives for, ideas about, and forms of development assistance. When such bewildering variety is combined with recipients' typically poor absorptive capacity, it becomes easy to appreciate the extent to which aid flows have tended to tax, rather than assist, the development process. In Tanzania, for example, 32 donors contributed $6,310 million in ODA (in 1983 dollars) over the 1970-1984 period (see Table 3). Kenya and Malawi received $4,225 million and $1,585 million in ODA respectively, from a total of 31 different donors. Senegal received $3,382 million from 30 donors. Cameroon and Nigeria received $2,683 million and $1,580 million respectively from just under 30 donors.

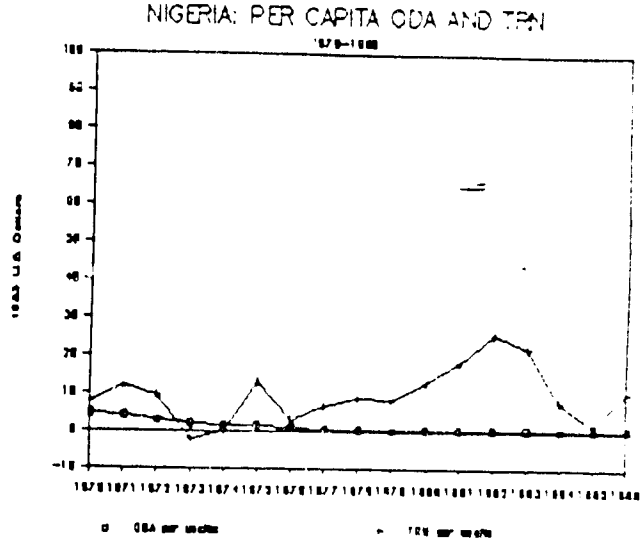
15/ Total Receipts Net (TRN) includes ODA as well as other official non-concessional, bilateral, multilateral and trade related transactions, including export credits and other changes in bilateral long-term assets of the private non-monetary and monetary sector, private direct investment, portfolio investment and loans by private banks (ibid., p. 282).

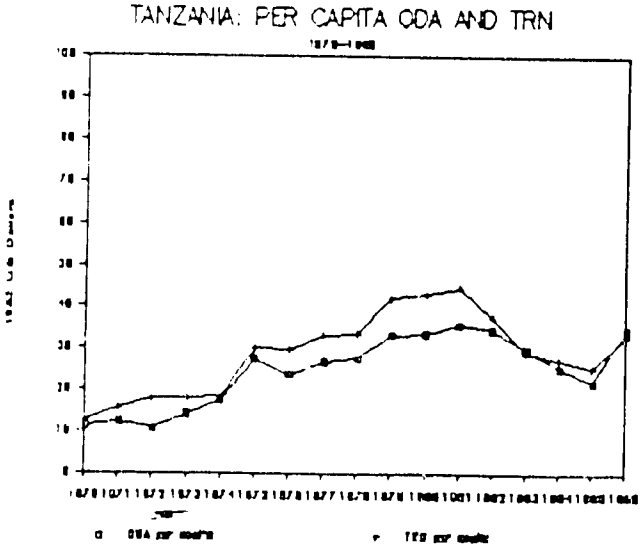
Figures 3a - 3f: Per Capita ODA and TRN











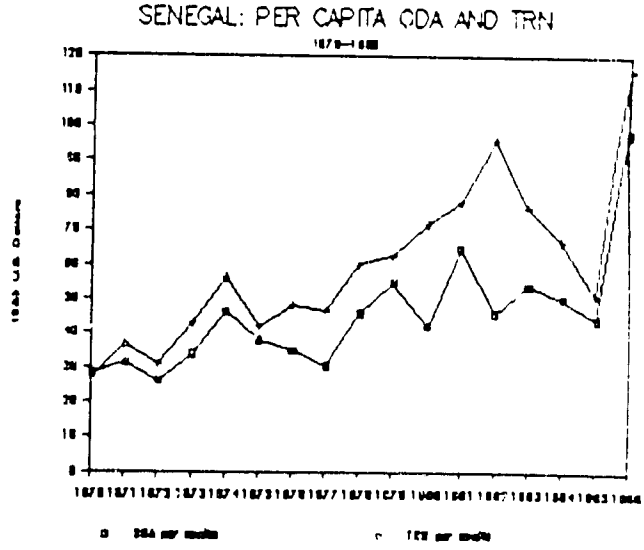


Fig. 4: ODA as Percent of TRN (MADIA Countries)

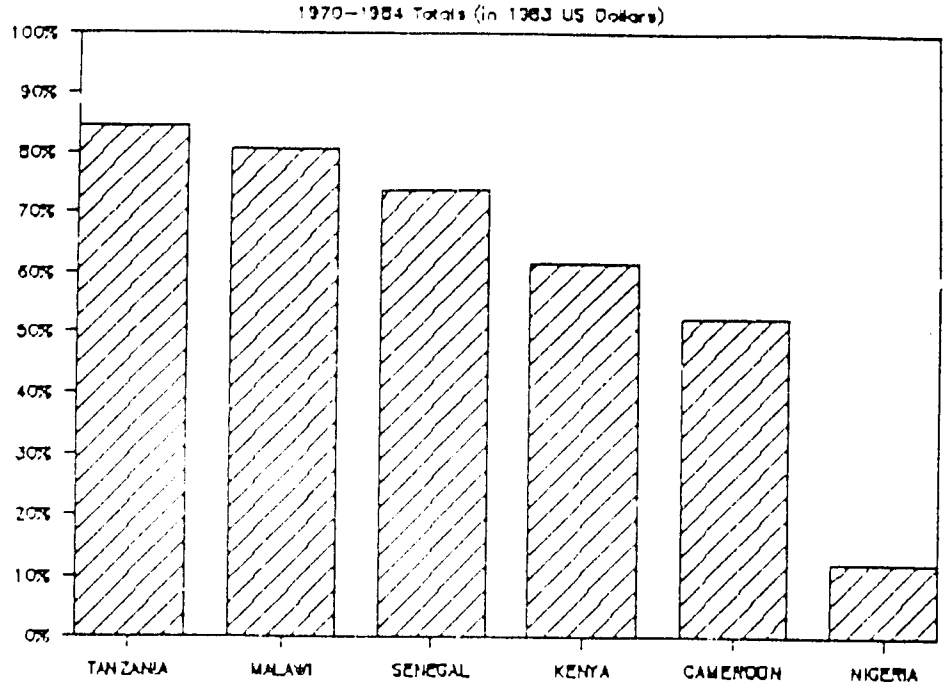


Table 3: NUMBER OF DONORS PER COUNTRY, AND AMOUNTS GIVEN
(1970-1984 Totals, Millions of 1983 US Dollars)

COUNTRY	AMOUNT		ODA AS % OF	NO. OF DONORS	
	ODA	TRN	TRN	ODA	TRN
TANZANIA	6,310.8	7,477.5	84.4%	32	34
KENYA	4,225.5	6,852.9	61.7%	31	34
SENEGAL	3,381.7	4,598.3	73.5%	30	33
MALAWI	1,585.7	1,968.4	80.6%	31	32
CAMEROON	2,683.5	5,125.5	52.4%	27	31
NIGERIA	1,580.4	12,794.8	12.4%	25	29

Source: Cancian, "A Review of OECD Database," Table 4, p. 77.

Data on the share of aid in government expenditures provide some indication of both the extent of a recipient's direct dependence on external resources and the degree to which donors can exert a less tangible, but nevertheless real, influence over the recipient's development strategy -- at least in facilitating, if not actively encouraging, the investment choices made. (Examination of the scale of aid shares in government expenditures also prompts questions about the effectiveness with which high levels of aid flows can be used by recipient governments at early stages of development, and especially about the relationship of the effectiveness of aid to the pattern of its allocation among sectors.) Once again, Senegal leads the MADIA pack with 63 percent of government expenditures funded by ODA in 1982, compared to 1983 lows of 9 percent in Cameroon and less than 1 percent in Nigeria (see Figures 5a-5f). If the entire 1970-1984 period is considered, ODA has been a large percentage of government expenditure in all MADIA countries except Nigeria, but has been substantially larger on this basis in Malawi and Senegal (averaging 44 percent and 42 percent respectively over 1970-84), than in Tanzania, Cameroon, and Kenya (which average 32 percent, 23 percent, and 22 percent respectively).

We will discuss some important features of donors' influence on country policy choices in the next section. In the present context of broad estimates of aid shares in recipient government spending, it is necessary only to add at this point that changes in aid levels can create difficulties for governments with high aid/expenditure ratios. In Kenya, for example, fluctuations in aid flows have been marked; year-to-year swings have exceeded 20 percentage points, with major adverse consequences for the planning of development programs, and most critically for the recurrent budgetary support that is typically needed to keep projects operating. The MADIA study of U.S. assistance stresses the adverse effect of U.S. policy-based fluctuations on the U.S. aid levels in Africa.[16]

Non-project lending, which became important in the early 1980s, also altered country-by-country patterns of aid receipts. By 1987, the MADIA countries as a group had received just over $1,200 million in World Bank non-project lending. Nigeria was the largest recipient, accounting for 37 percent of the total. Senegal had received one early structural adjustment loan in 1979, followed by a hiatus until 1985 when a second SAL brought its share up to 17 percent. Cameroon received no non-project lending during the period. In East Africa, because Kenya and Malawi were more willing than Tanzania to undertake policy reform, they received greater structural adjustment support -- 20 percent and 15 percent respectively of the MADIA total, compared to Tanzania 12 percent.

By the mid-1980s, the volume of non-project lending had begun to become significant in relation to World Bank project financing. As of June 1987, Malawi had received three Bank structural adjustment loans totaling approximately $200 million,[17] compared to $86.3 million provided in agricultural and rural development project loans during 1980 to 1987, while Kenya had obtained three adjustment loans amounting to $245.9 million,

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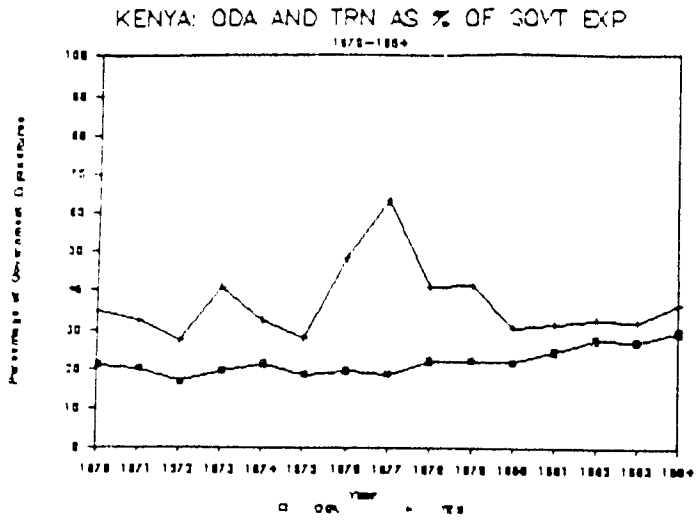
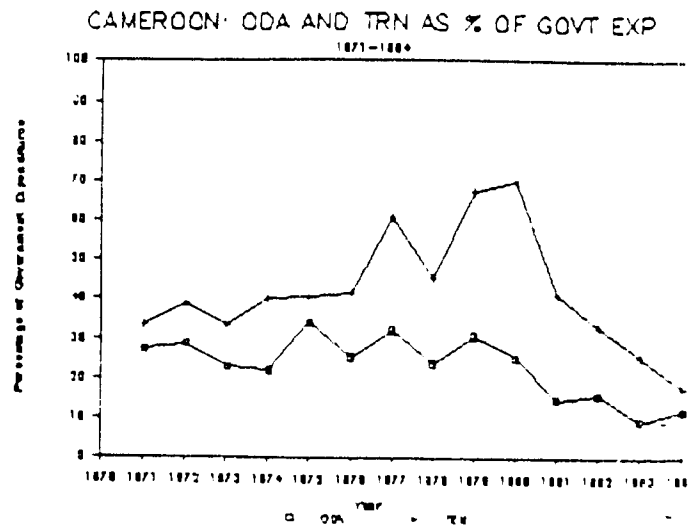
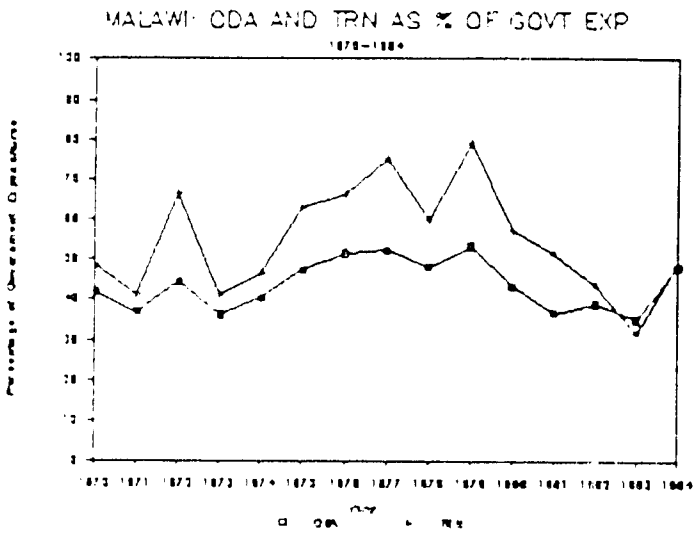
16/ See Johnston, et. al., op.cit.

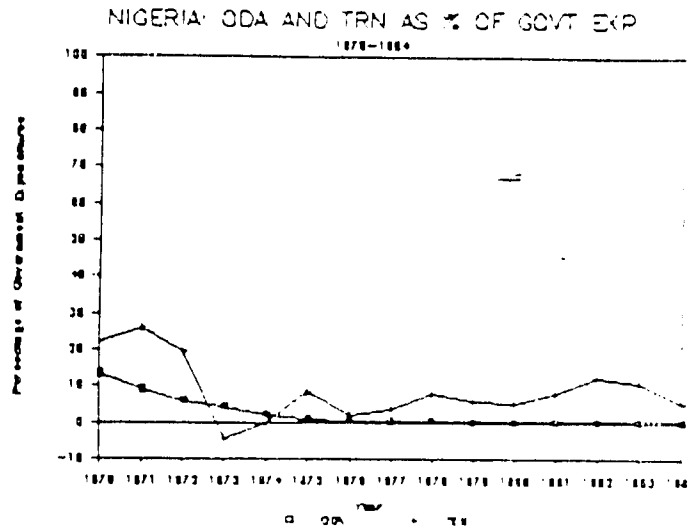
17/ including co-financing arrangements with Japan, West Germany and USAID.

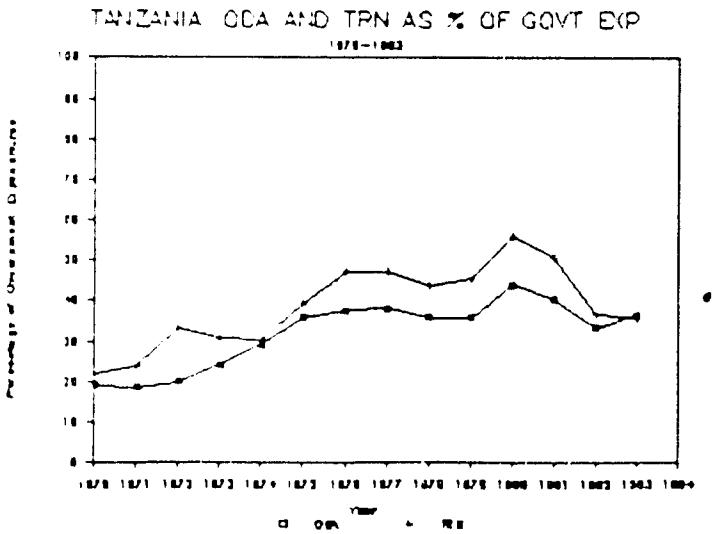
Figures 5a - 5f: ODA and TRN as a % of Govt. Expenditure

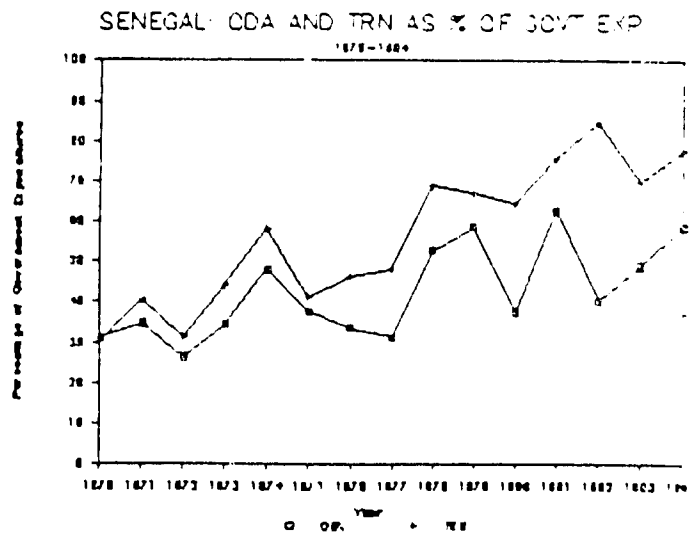












compared to agricultural project lending of $187.0. Tanzania received no funding from the Bank for SALs or projects in the agricultural sector from 1982 to 1986, when a multisectoral rehabilitation loan was approved. Senegal received three structural adjustment loans totalling $209 million in that period whereas loans for the agricultural projects amounted to only $55.9 million. In Nigeria, non-project lending reached $452.0 million in 1987 and $1,239.5 million went to projects in the agricultural sector.

The Donors' Record: Aid Flows and Policy Influence. This section summarizes trends in the scale and terms of the development financing provided by donors to the six MADIA recipient countries.

Among the bilateral donors, Denmark and Sweden, whose aid is important in Tanzania and Kenya, had the highest percentage of TRN qualifying as ODA, followed by Germany and the U.S. (See Table 4 for ODA as a percentage of TRN flows from MADIA donors to MADIA recipients.) [18] Interestingly, France and the U.K. had the lowest percentages of TRN qualifying as ODA (ranging from 31 percent to 63 percent of TRN from France to all MADIA countries except Nigeria, and from 39 percent to 66 percent of U.K. TRN to the East African MADIA countries), and France's share of grants in total TRN to Senegal has been declining over time.

Among the multilaterals, 74-100 percent of TRN from the EEC to MADIA countries (except Nigeria) qualified as ODA, while IDA flows to MADIA countries were 100 percent ODA. Nigeria received over 90 percent of its transfers from the Bank [19] on non-concessional terms, while the figure for Cameroon was about 50 percent; terms have hardened for both countries since their emergence as oil producers. Indeed, both Nigeria and Cameroon have pleaded for increased concessionality, especially in the case of investments with long gestation lags, e.g., agricultural research: as falling oil prices and devaluation (by 400 percent) have reduced Nigeria'sper capita GNP, its case for concessional assistance has become stronger.

Colonial connections, commercial interests, and recipients' political and ideological attractiveness have produced major differences in the relative importance of individual donors in concessional flows. Not surprisingly, the U.K. (15 percent), U.S. (10 percent), Germany (10 percent), and the World Bank (9 percent) have been the major players in Kenya (see Figures 6a-6f). These donors have also been predominant in Malawi. In the case of Tanzania, Sweden (15 percent), the Netherlands, (9 percent), and Denmark (7 percent) have been attracted by its socialist ideology, (and the views of these donors -- who have been described as

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18/ Danish TRN to Kenya and Tanzania was 99 percent and 97 percent ODA, and Swedish TRN to these countries was 94 percent and 96 percent ODA respectively. German TRN to the MADIA countries (with the exception of Nigeria) was 72-93 percent ODA, while the U.S. TRN to MADIA countries was 62-98 percent ODA.

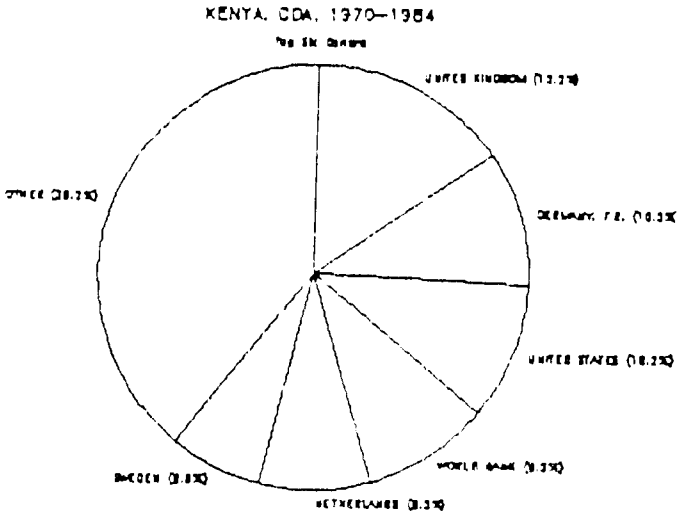
19/ e.g., IBRD & IDA combined total.

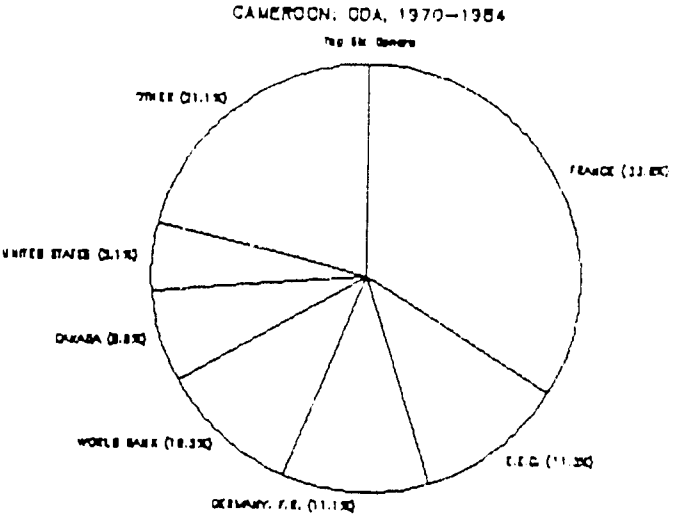
Table 4 Official Development Assistance (ODA) As Percent of Total Receipts Net (TRN) Transfered from MADIA Donors to MADIA Countries
(1970-1984 Totals in Millions of 1983 U.S. Dollars)

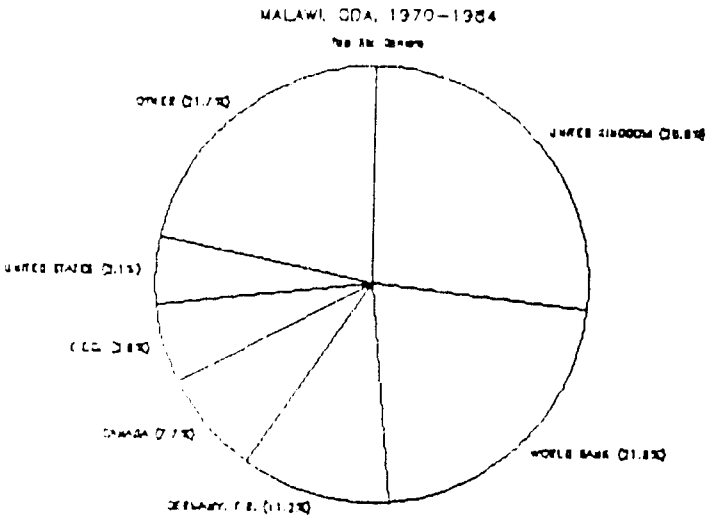
DONORS	CAMEROUN			NIGERIA			SENEGAL			KENYA			MALAWI			TANZANIA		
	Tot ODA	Tot TRN	Pct ODA	Tot ODA	Tot TRN	Pct ODA	Tot ODA	Tot TRN	Pct ODA	Tot ODA	Tot TRN	Pct ODA	Tot ODA	Tot TRN	Pct ODA	Tot ODA	Tot TRN	Pct ODA
DAC COUNTRIES																		
- Denmark	22.5	41.8	54.0	7.8	250.2	3.1	30.6	32.0	95.8	205.0	207.5	98.8	56.0	56.1	99.8	433.3	448.1	96.7
- France	908.4	2439.6	37.2	20.8	2108.5	1.0	1159.9	1854.4	62.5	59.2	186.4	31.8	10.9	17.2	63.1	31.6	102.2	30.9
- Germany, F.R.	298.8	336.7	86.7	188.0	2066.7	9.1	142.5	165.3	86.2	444.9	614.5	72.4	177.5	198.6	89.4	590.5	632.0	93.4
- Sweden	0.0	32.2	0.0	4.1	-13.6	-29.7	0.2	2.7	7.3	293.3	312.2	93.9	0.1	3.4	2.9	936.3	971.2	96.4
- United Kingdom	48.4	159.5	30.4	192.4	3944.0	4.9	9.7	43.1	22.4	643.3	1646.3	39.1	424.5	647.3	65.6	361.7	608.0	59.5
- United States	136.3	220.9	61.7	341.6	482.2	70.8	329.6	336.0	98.1	429.5	454.8	94.4	80.8	83.7	96.5	382.0	393.5	97.1
MULTILATERAL																		
- E.E.C.	304.5	343.8	88.6	16.6	41.6	39.8	570.3	596.5	95.6	169.5	228.7	74.1	91.9	103.8	88.5	242.5	243.2	99.7
- IBRD	20.6	300.1	6.9	0.0	1098.2	0.0	19.0	98.6	19.2	13.2	940.8	1.4	17.6	72.3	24.3	41.8	305.7	13.7
- IDA	262.1	262.1	100.0	34.6	34.6	100.0	230.6	222.2	103.8	389.0	389.0	100.0	327.9	327.9	100.0	563.2	563.2	100.0
GRAND TOTAL	2463.5	5125.6	52.4	1580.4	12794.8	12.4	3381.7	4598.3	73.5	4225.6	6852.9	61.7	1585.7	1968.4	80.6	6310.8	7477.5	84.4

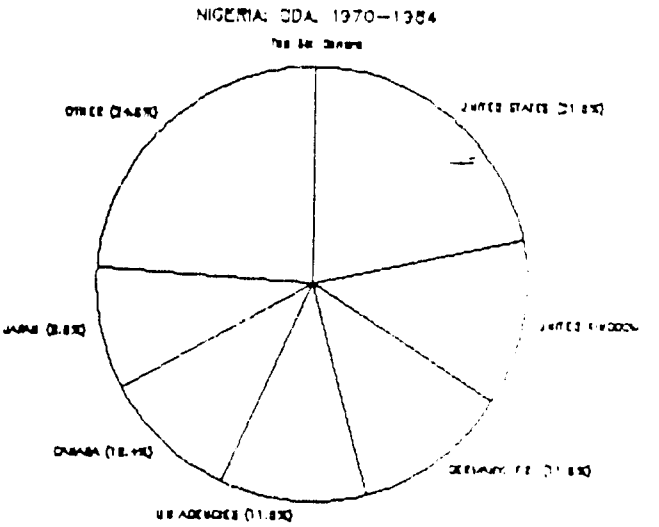
Source. OECD, Geographical Distribution of Financial Flows to Developing Countries

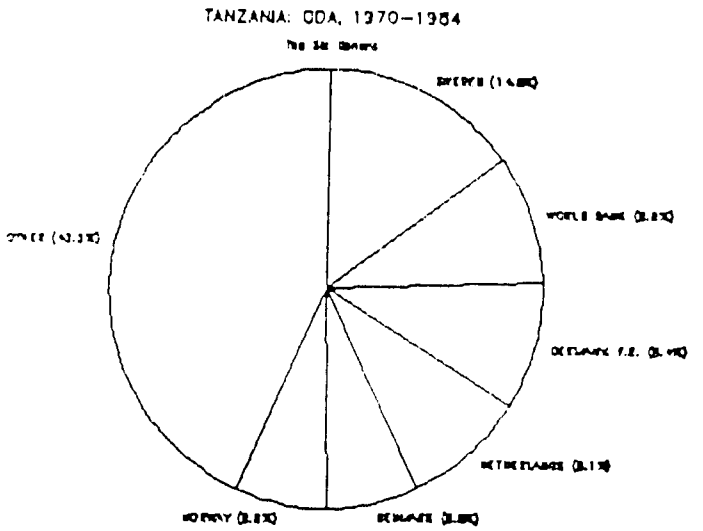
Figures 6a - 6f: Top Six Donors of ODA (MADIA Countries)

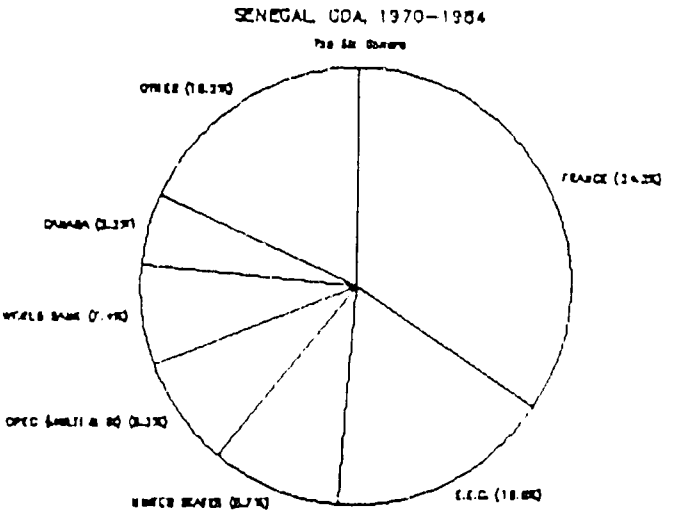












"friendly donors" by Tanzania -- were on the whole slow to change on the need for adjustment.[20] Their infrastructural support, together with the levels of framework aid by all donors, enabled Tanzania to postpone reform measures promoted by the IMF and the Bank until well into the 1980s. In contrast to these new donors, Tanzania's traditional donors (the U.K. and W. Germany, with both of whom it has had a long colonial connection), had actually terminated their aid in the 1970s, owing to foreign policy differences over Southern Africa. In West Africa, again reflecting colonial ties, France has been the primary donor in Senegal (34 percent) and Cameroon (34 percent), while the U.K. has been the leader in the more commercial (TRN) transfers in Nigeria (31 percent), followed by France (16 percent) and Germany (16 percent).

Changes over time in individual donors' support for particular recipients both reflect and prompt changes in their relative influence, and especially in the impact of their policy advice. In Kenya, for example, the most striking changes are the declining role of the U.K. in percentage terms and the diversification in the countries offering assistance. On the other hand, many of Kenya's successes in smallholder agriculture (e.g., in tea, coffee, dairying, etc.) are explained by the inheritances of British institutions, policies, and manpower.[21] By the same token, the depletion of cotton research capability in much of anglophone Africa reflects the U.K.'s withdrawal from the cotton industry well before indigenous capacity was established, together with a major change in the character of its technical assistance from a long-term supportive presence in the colonial period to much shorter-term and smaller-scale assistance in more recent years.[22]

Declining U.K. aid is also evident in Malawi, where the E.C. has emerged as a major donor (and where the World Bank's role has increased after a dip in flows during the mid-1970s). In Tanzania, Sweden contributed twice as much ODA as any other donor in the early 1970s (20 percent) but had little presence in agriculture. Its concentrated on social services and industry.[23] (Indeed, the much greater share of donor resources going to industry and social services in Tanzania compared to other countries explains how Tanzania was able to maintain its pro-industrialization and equity-oriented policies as well as it did.) The importance of Tanzania's original top six donors has also declined, with the contributions of others rising from 32 percent to 48 percent for TRN, and from 30 percent to 46 percent for ODA. A larger number of donors now each contribute smaller amounts of assistance. Tanzania's so-called friendly donors have now begun to appreciate more fully the importance of the macroeconomic environment for development, and have supported the reform measures promoted by IMF and World Bank conditionality.

20/ See Ellen Hanak and Michael Loft, " Danish Development Assistance to Tanzania and Kenya (1962-1985): Its Contribution to Agricultural Development," and Marian Radetzki, "Swedish Aid to Kenya and Tanzania: Its Impact on Rural Development," both in Aid to African Agriculture, ed. Uma Lele, forthcoming.

21/ See Howell, op.cit.

22/ Ibid.

23/ See Radetzki, op.cit.

In West Africa, France has sustained and (in Senegal) even increased its leading role (with 33 percent and 40 percent of total ODA and TRN respectively) in contrast to the U.K. in East Africa.[24] At the same time, the EEC (which France joined in the early 1960s) has picked up more of the ODA share in Senegal (its share having risen from 10 percent to 24 percent of ODA). In the case of Cameroon, however, EEC flows have shrunk from 17 percent to 3 percent of TRN, and from 22 percent to 5 percent of ODA.

In Nigeria, the World Bank has been an important contributor of capital, especially in agriculture once the U.S. departed in 1974 (after Nigeria joined OPEC). Nigeria's higher per capita income after the oil boom reduced its eligibility for concessional assistance. While France and Germany are emerging as sources of non-concessional flows to Nigeria, the Bank's role in the agricultural sector has remained strong.[25]

The Bank's share in ODA flows to a country can be taken as an indicator of its influence in two quite opposite ways. We have already noted the implications of contributing large shares of total assistance, but in the specific case of the Bank, a relatively small share might mean lower direct financial influence but greater need for aid coordination--and hence a different but potentially important opportunity for the Bank to influence policy.

In the 1970s, much of the Bank's influence came from the authority of its country economic work and reports, from its role as the organizer of aid consortia and consultative groups, and coordinator of co-financing arrangements. As lending in support of policy reform increased (along with balance of payments support operations in which the Bank plays an important role), the Bank's influence on the size and form of total donor resources going to countries -- and on the associated policy reform packages -- has risen considerably.[26] Over the 1970-84 period as a whole, however, the Bank has played a relatively minor role in the volume of direct financing channelled to the six MADIA countries. IDA accounted for a small 9.5 percent of the ODA received by Kenya and Cameroon during 1970-84, compared to 20.7 percent in Malawi but only 8.9 percent in Tanzania and 6.8 percent in Senegal.[27] The share of total Bank, i.e. IDA and IBRD lending in TRN was

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24/ Claude Freud, "Policies of Rural Development in Senegal and Cameroon from Independence to Today," MADIA Paper (World Bank, Washington, DC, July 1987).

25/ We have shown elsewhere that nearly 40 percent of the contributions to Nigeria's Agricultural Development Projects (ADP) strategy has come from the World Bank. As the budget crunch increased, the Bank may have been influential in protecting expenditures on the smallholder sector relative to other expenditure cuts in, e.g., irrigation investment. See Lele, et. al., "Nigeria's Economic Development."

26/ See Radetzki, op.cit.

27/ See Maria Cancian, "Aid Allocations to Cameroon, Kenya, Malawi, Nigeria, Senegal and Tanzania: A Review of the OECD Database," MADIA Paper, (World Bank, Washington, DC., February 1986).

only 9 percent in Nigeria during 1970-84; in Eastern Africa, the shares were 19 percent in Kenya, 20 percent in Malawi, but only 12 percent in Tanzania.

The Bank's influence in promoting important development ideas has been distinctly greater than that suggested by its ODA contributions, especially since the 1973 McNamara speech and the subsequent growth of the Bank's share in capital transfers to developing countries. Among the MADIA countries, this expanding influence emerged earlier in the anglophone countries, as the Bank moved into the vacuum left by the declining U.K. role. Bank influence on integrated agricultural development also increased in francophone MADIA countries, but it only became really substantial by the late 1970s and early 1980s, as the need for macroeconomic adjustment grew in these countries.

Several factors help to explain this development. First, the Bank's breadth of experience and professionalism relative to that of bilateral and even other multilateral aid agencies is generally acknowledged, as is its international (and hence non-partisan) status. This has tended to give its presence and policy stance more weight. The personal commitment of Messrs. McNamara, Clausen and Conable on poverty and adjustment lending also played an important part. This is far from implying, however, that there have been no criticisms of the Bank: indeed it has attracted vociferous critics, e.g., for helping socialistic countries, encouraging public sector growth and promoting welfare states in the McNamara years, and for its excessive private sector orientation and movement away from its earlier poverty alleviation stance during the Clausen and Conable periods.[28]

It should also be remembered that support in the donor community for policy reform and adjustment lending has been variable. The U.S. has been the most overt and active supporter of adjustment assistance and of the use of conditionality. The U.K. and Germany have followed suit, although they have been less active in devising conditions for lending. Because of the need for burden sharing, France has had to go along with adjustment lending, although in several cases adjustment programs are dismantling the very institutions that France has established.[29]

Meanwhile, knowledgeable technocrats are concerned about how far new lending patterns take adequate account of the variety of technical, organizational, and other constraints on smallholder development, the successes and failures of past donor efforts to address these issues, the respective roles of adjustment and project lending, and the need for balance between assistance based on conditionality and policy reform on the one hand, and that which emphasizes long-term capacity-building to address the many complex development issues facing African agriculture, on the other. It is to these issues that we now turn.

28/ See Michael Lipton, "Limits of Price Policy for Agriculture: Which Way for the World?" in Development Policy Review, London, 5 (1987): 197-215.

29/ See Freud, op.cit.

Agricultural Performance in MADIA Countries

This discussion of country performance needs to be viewed against the background of several major ongoing debates about the appropriate balance between (1) food and export crop production, (2) growth and equity objectives, and (3) price and nonprice factors in enhancing (and explaining) agricultural performance. We outline the issues in these debates and our own hypotheses below, before providing the relevant evidence from the MADIA study.

Development debates and government and donor policies have tended to emphasize the conflict between food and export crop production, rather than promoting policies that support balanced development of the agricultural sector as a whole. This approach has resulted in swings in aid flows and activities supported by donors, with a major shift of focus from export crop expansion in the 1960s (reflecting the priorities of the colonial era) to support for foodcrop expansion in the mid-1970s, in response to the deteriorating food situation on world markets and in the African continent. This was followed by a new emphasis on the need for export orientation in the early 1980s, associated with the World Bank's report on Sub-Saharan Africa (the so-called Berg Report) and exemplified by the structural adjustment programs initiated in Africa and elsewhere. In the latest swing of the pendulum, this priority has been succeeded by a revival of concern about food security, as reflected in recent policy statements of major donors.[30] In later sections, we shall address this issue by contrasting the experience of Kenya, which has pursued an agriculturally-led development strategy, and has achieved growth in both food and export crop production, with the very different policy stances and performance records of several other countries in the MADIA sample, where unbalanced positions <u>either</u> favoring <u>or</u> discriminating against the export crop sector have had adverse consequences for both growth and equity objectives.

Development economics literature in the 1970s tended to emphasize the extent of complementarity (rather than competition) between growth and equity objectives, without paying adequate regard to its key determinants in particular the profile of asset distribution in a given economy, and the substantial public sector planning and implementing capacity needed for the provision of public goods in support of smallholder production. These two factors critically determine the time horizon within which growth and equity objectives can be reconciled. We shall use evidence from Kenya, Tanzania and Malawi to illustrate the extent of the tradeoffs between growth and equity that have in fact occurred during the short and medium run under specific country conditions. The comparative experience of these countries also illustrates the complex interactions between initial conditions, resource endowments, external shocks and policy responses that

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30/ See the Annual Meeting Speech of Barber Conable, President of the World Bank, to the Board of Governors (World Bank, Washington, DC. September 1987), and the recent policy paper on food security, <u>Poverty and Hunger</u>. World Bank. Washington, D.C. 1986.

have determined short- and long-run growth and equity outcomes.

The primacy given by donors to "getting prices right" since the publication of the Berg Report on Sub-Saharan Africa has come under criticism from several analysts. [31] We shall use examples from the three West African MADIA countries to show that price incentives are a necessary but by no means a sufficient condition for broadly based and sustained agricultural growth. A variety of nonprice factors -- including the availability of effective agricultural research, extension, input supply and output marketing arrangements -- have played important roles in determining overall supply responses, as distinct from relative cropping shifts. We shall also demonstrate the part that country-specific political and other unquantifiable factors have played in providing nonprice preconditions of growth.

The analysis will show how structural adjustment lending needs to be complemented by other forms of project and nonproject assistance, in order to reconcile the short-term nature of structural and sectoral adjustment programs and the time required to alleviate man of the nonprice constraints on growth. This is not to imply that Africa is not getting other forms of assistance. Rather that the glamour which is attached to the relatively short-term structural adjustment lending now needs to be attached to the broader and longer-term developmental concerns which received attention in the 1950's and 60's.

The Roles of Resource-Poor and Resource-Rich Regions in Agricultural Development One of the development debates that has not yet occurred -- or rather, that has taken place mainly by default in the 1970s (as a result of the perceived failure of the trickledown following the green revolution in Asia) -- relates to the appropriateness of diverting scarce government and donor resources and policy attention to the alleviation of poverty and food security concerns in resource-poor regions -- as opposed to focusing on the development of other areas with better natural endowments or known technological potential. We shall use the contrasting approaches of Tanzania and Kenya to illustrate their different growth performance, and how -- despite Tanzania's worthy efforts to open up areas of high potential -- its policy of quick universal coverage of services to all rural areas made it financially impossible to maintain many of its worthwhile long-term developmental efforts in the productive and social sectors, despite substantial external assistance. We now summarize country performance growth and equity and food and export crop production.

An Overview of Country Performance. The primary focus of our discussion is on the 1970 to 1985 period. 1970 was selected as the base as it was a relatively normal year in terms of climate and the institutional environment in most of our countries (with the exception of Nigeria where a civil war had recently ended), as well as in terms of the international market environment. The 1985 cutoff was selected for similar reasons. This period also permitted comprehensive coverage of production performance in all six countries. To understand developments in the 1970 to 1985 period, we examine "initial" conditions prior to the 1970s (including those

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31/ See Lipton, op.cit.

emanating from the colonial experience). Finally, the review covers production performance in the years of structural adjustment since the early 1980s to explore the extent to which policy reforms have addressed the crucial constraints on production identified in our long-term analysis. It needs to be stressed that data on export crop performance are far more reliable than on foodcrops, and for foodcrops, there are differences among MADIA countries in data consistency. Our judgments on country performance are not based on statistical measurements alone but also on other information such as the nature and extent of technical change, growth of input use, effectiveness of services, etc.

Growth rates for major food and export crop production for the six countries are presented in Table 5. Kenya has been the best performer in the agricultural sector. Not only did its production of virtually all major export and food crops increase, but the share of small farmers in the production of all crops also increased substantially relative to that of large farms and estates. [32] Moreover, higher smallholder production did not come at the cost of the large farm/estate sector; rather, the former increased mainly through area expansion (with yield growth in maize and coffee only), while large farm/estate output expanded mainly through increases yield per hectare. Because small farm yields increased little, despite policies which favored intensification in the smallholder sector, yield differences (in the case of tea and coffee) between small farms and estates remained in the order in 100 percent (see below).

In Malawi, estate production of major crops increased impressively, especially for tobacco (13 percent p.a.) and sugar (15 percent p.a.). Smallholder maize production stagnated, however, falling in per capita terms, but since output of all other smallholder crops fell to a greater extent (in per capita terms), the profile for all smallholder crops shows a net shift towards maize and away from export crops until about 1985. Smallholder productivity showed no increase, but estate sector tobacco yields increased considerably, with an average differential of four times relative yields in the smallholder sector (compared to Kenya's differential of two times). Malawi's much higher estate/smallholder land productivity differential reflects the fact that its development strategy strongly favored estate agriculture to take advantage of the export opportunities opened up in the mid-1970s.[33] Productivity differences based

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32/ See Lele and Meyers, "Agricultural Development and Foreign Assistance."

33/ It should be noted, however, that Kenya's gains in the smallholder sector were slow and steady, arising from growth in smallholder production over a long period beginning in the late 1950s and the early 1960s, whereas Malawi's estate-led export crop growth showed a rapid burst during the 1970s and peaked at the end of the 1970s and early 1980s (a point that we shall take up later when we discuss structural adjustment). Malawi's superior performance has tended to be attributed to favorable macroeconomic policies and outward orientation. This observation is only partially true as it applies to the estate sector. See Bela Balassa, "Policy Responses to External Shocks in Sub-Saharan African Countries, 1973-76," World Bank Reprint Series No. 270 World Bank, Washington, DC. 1987.

Table 5 Average Annual Percentage Growth in Volume, 1970-1985
(Major Agricultural Exports, Estate and Smallholder Production, and Food Imports)

Country	Major Agricultural Exports						Production: Smallholders						Production: Estates					Food: Maize (Official)				Food: Imports	
	Coffee	Tea	Cttn	Tbcco	G'nut	Hort	Coffee	Tea	Tbcco	Cttn	G'nut	Sugar	Coffee	Tea	Tbcco	Cttn	Sugar	Prod.	Purch	Sales	Imprts	Fd Aid
East Africa																							
Kenya	3.8%	7.5%				12.7%	6.0%	13.5%		4.9%		16.9%	1.0%	5.5%				3.9%	2.4%	9.2%	6.4%	43.1%
Malawi		5.2%	-12.5%	11.7%	-13.2%				3.0%	1.1%	-7.4%				12.9%		14.7%	1.5%	19.1%	23.7%	3.1%	28.6%
Tanzania	0.8%	1.9%	-2.3%	-4.7%			2.3%	13.7%	-4.8%	1.6%			-4.1%	1.0%	-7.5%		0.8%	2.1%	1.1%	1.9%	3.0%	23.5%

Country	Major Agricultural Exports						Production: Smallholders					Production: Estates					Production: General					Food: Imports				
	Coffee	Cocao	Cttn	G'nut	Rubber	Plm Oil	Coffe	Cocao	Cttn	Rubbr	Plm Oil	Cttn	G'nut	Cocao	Rice	Maize	Ml/Sgm	Rice	Wheat	Sugar	Gen Fd.	Aid
West Africa																										
Cameroon	1.9%	0.4%	4.6%		-5.9%	6.6%	1.0%	2.0%	8.3%	2.7%	4.2%				16.5%	4.1%	1.3%				6.1%	4.1%
Nigeria												-6.1%	-3.2%	-4.9%	10.5%	6.1%	0.2%	46.7%	15.2%	20.0%		
Senegal			na	-9.5%								6.8%	-0.4%		1.2%	5.6%	0.2%	7.3%	0.5%	-6.8%		

Source: Compiled From MADIA Country Highlights.

Note: Growth rates averaged for certain crops, e.g. burley and flue-cured tobacco.
Growth rates for Nigeria production are calculated using FAO data.

on farm size have profound implications in the short and the long run for foreign exchange earnings, government revenues and expenditures, output growth, land distribution, and for the robustness of the growth process generally.[34]

Kenya and Malawi are the only countries in the MADIA sample that expanded world market shares for major export crops; all others lost shares (see Table 5a).

Both large and small farm export agriculture performed poorly in Tanzania (see Table 5). Coffee and tea exports stagnated, and exports of all other major crops declined. Within the smallholder sector, there was a major shift in agricultural production away from export to food crops until about 1986.

Informal food markets were active in all three countries, but the government's share of purchases and sales of maize increased in Kenya and Malawi, whereas in Tanzania, informal (including parallel or black) markets had become more active by the end of the 1970s -- both internally and across national borders, mainly due to the flexibility maize offered in exchange for consumer goods which had become more scarce in Tanzania relative to Kenya or Malawi, due to a poor macroeconomic environment.

Despite its lackluster performance in maize production, Malawi was a consistent net exporter of maize except in 1980-81 and 1986. In spite of increases in maize production, however, Kenya, Tanzania, and Malawi all increased food imports and food aid, Kenya being the most dependent of the three on these sources. Malawi's food exports may have been due to a lack of effective demand at home, owing to its skewed land (and consequent agricultural income) distribution. The growth in food imports in Kenya may reflect exactly the contrary -- a more dynamic internal demand for maize, stemming from more broadbased income growth. The growth of Tanzania's food imports and food aid receipts, in spite of its land abundance and high levels of financial assistance, emphasizes its poor policy environment.

In West Africa, Cameroon's performance was the best of the three MADIA countries but was unimpressive relative to Kenya's and Malawi's. Among export crops, palm oil, cotton and robusta coffee expanded, while all others stagnated. Poor data make foodcrop performance harder to gauge, but rice production, for which relatively reliable statistics are available owing to its enclave status, increased sharply at 16 percent p.a. (although from a small base). Rootcrops, sorghum and millets, the prime food sources, kept pace with population growth. An important development in Cameroon has been the growth of maize production, and even though this comes from a small base, it shows much potential for growth as a food and feed crop in the long run.

Cameroon was the least dependent on food imports of the three West African MADIA countries, with the exception of rice, imports of which

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34/ See Uma Lele and Mohan Agarwal, "Smallholder and Large-Scale Agriculture: Are There Tradeoffs in Growth and Equity?" MADIA Paper World Bank, Washington, DC, forthcoming.

Table 5a:
Export Volumes, Shares, and Growth Rates of Major Crops Grown by MADIA Countries and their Major Competitors (1961-1986): Average Values for Indicated Periods. (volume in thousand metric tons)

CROP	1961-63 VOLUME	1961-63 SHARE	1971-73 VOLUME	1971-73 SHARE	1983-85 VOLUME	1983-85 SHARE	1961-86 GROWTH RATE
COCOA BEANS							
World	1,043.2	100.0%	1,135.1	100.0%	1,319.5	100.0%	0.74%
Ghana	417.0	40.0%	366.8	31.0%	158.2	12.0%	-4.05%
Cote D'Ivoire	94.4	9.2%	149.8	12.6%	384.9	29.0%	6.44%
Brazil	76.1	7.3%	101.4	8.5%	144.1	11.0%	2.65%
Ecuador	33.2	3.2%	42.9	3.6%	40.5	3.0%	-1.73%
Malaysia	0.3	0.0%	4.3	0.4%	68.3	5.2%	27.72%
Cameroon	70.5	6.8%	81.9	6.9%	86.2	6.5%	0.59%
Nigeria	187.3	18.0%	237.7	20.1%	143.2	11.1%	-2.75%
COFFEE							
World	2910.3	100.0%	3559.9	100.0%	4220.6	100.0%	1.54%
Brazil	1057.2	36.3%	1051.9	29.6%	1001.7	23.7%	-1.39%
Colombia	366.9	12.6%	398.4	11.2%	574.5	13.6%	2.52%
Cote d'Ivoire	160.6	5.5%	195.5	5.5%	218.3	5.1%	1.71%
Angola	140.1	4.8%	192.4	5.4%	22.7	0.5%	-8.39%
Mexico	85.1	2.9%	111.5	3.1%	198.6	4.7%	3.71%
Indonesia	64.5	2.2%	94.0	2.6%	273.7	6.5%	6.54%
Cameroon	39.2	1.3%	70.6	2.0%	90.8	2.2%	3.49%
Kenya	34.3	1.2%	65.0	1.8%	97.3	2.3%	5.03%
Tanzania	25.9	0.9%	50.2	1.4%	49.8	1.2%	2.28%
COTTON							
World	3547.9	100.0%	4299.2	100.0%	4294.9	100.0%	0.82%
USA	1103.8	30.1%	981.2	22.2%	1265.1	29.4%	1.20%
Mexico	366.8	10.1%	182.9	4.3%	85.7	2.0%	-6.35%
USSR	349.2	9.6%	642.4	14.9%	691.6	16.1%	3.55%
Egypt	278.5	7.6%	304.4	7.1%	175.7	4.1%	-3.31%
Brazil	214.5	5.9%	264.6	6.2%	99.7	2.3%	-10.76%
Pakistan	121.6	3.3%	216.3	5.1%	203.6	4.7%	1.79%
China	NA	NA	22.0	0.5%	203.3	4.7%	14.91%
Nigeria	37.8	1.0%	10.7	0.3%	NA	NA	-8.85%
Tanzania	37.3	1.0%	60.0	1.4%	33.1	0.8%	-1.75%
GROUNDNUT							
World	1385.0	100.0%	917.4	100.0%	785.5	100.0%	-2.95%
Sudan	105.5	7.6%	120.9	13.2%	17.1	2.2%	-6.60%
Niger	76.0	5.5%	76.3	8.4%	NA	NA	-29.65%
S. Africa	65.8	4.8%	56.8	6.2%	10.8	1.4%	-4.96%
Gambia	50.4	3.7%	34.0	3.7%	31.0	4.0%	-2.38%
USA	14.8	1.1%	163.4	17.1%	266.8	33.9%	12.54%
China	2.6	0.2%	32.1	3.5%	154.0	19.6%	13.50%
Argentina	NA	NA	1.2	0.1%	93.4	11.9%	46.37%
Cameroon	11.9	0.9%	9.4	1.0%	0.3	0.0%	-20.62%
Malawi	20.7	1.5%	30.8	3.4%	4.9	0.6%	-4.78%
Nigeria	554.7	40.0%	147.1	16.0%	NA	NA	-33.25%
Senegal	249.9	18.1%	17.2	1.9%	13.7	1.8%	-19.54%

Table 5a

CROP	1981-83 VOLUME	1981-83 SHARE	1971-73 VOLUME	1971-73 SHARE	1983-85 VOLUME	1983-85 SHARE	1981-86 GROWTH RATE
GROUNDNUT CAKE							
World	1,426.8	102.6%	1,630.8	100.0%	591.1	100.0%	-4.07%
India	615.2	43.8%	845.0	51.9%	248.1	43.1%	-4.07%
Burma	152.3	11.0%	51.3	3.1%	4.2	0.7%	-14.85%
Argentina	127.3	9.2%	73.5	4.6%	30.6	5.5%	-5.33%
Brazil	101.5	7.4%	150.5	9.2%	28.9	5.4%	-5.37%
Gambia	2.9	0.2%	16.0	1.0%	13.6	2.6%	4.03%
USA	NA	NA	NA	NA	16.5	3.1%	1.80%
Malawi	1.0	0.1%	1.8	0.1%	1.5	0.3%	0.85%
Nigeria	84.0	6.1%	112.6	7.0%	NA	NA	-25.41%
Senegal	163.3	11.9%	201.9	12.2%	115.1	18.2%	-2.70%
GROUNDNUT OIL							
World	354.9	100.0%	466.2	100.0%	383.8	100.0%	0.02%
Argentina	55.2	15.2%	53.0	11.5%	35.6	9.3%	1.95%
India	37.7	9.8%	0.1	0.0%	NA	NA	-14.16%
China	3.2	1.8%	19.3	4.2%	53.0	13.8%	6.44%
Brazil	5.6	1.5%	59.6	13.1%	54.3	14.7%	6.19%
Nigeria	60.1	13.9%	64.5	13.7%	NA	NA	14.76%
Senegal	116.0	33.7%	126.4	26.2%	109.1	26.7%	-2.24%
PALM OIL							
World	601.7	100.0%	1376.2	100.0%	4513.7	100.0%	10.73%
Zaire	149.3	24.8%	87.0	6.5%	8.9	0.2%	-14.48%
Indonesia	109.1	18.1%	236.0	17.1%	435.2	9.5%	6.64%
Malaysia	106.4	17.7%	689.4	49.8%	3029.1	67.6%	17.36%
Singapore	32.5	5.4%	210.5	15.3%	685.3	14.9%	14.52%
Cameroon	8.9	1.5%	3.4	0.3%	5.7	0.1%	-0.29%
Nigeria	138.5	22.9%	7.4	0.6%	NA	NA	-21.91%
TEA							
World	611.4	100.0%	778.0	100.0%	1049.2	100.0%	2.46%
India	213.5	34.9%	196.9	25.3%	216.1	20.6%	0.16%
Sri Lanka	201.6	33.0%	203.2	26.1%	186.8	17.7%	-0.47%
China	30.2	5.0%	43.7	5.6%	135.7	12.9%	7.26%
Indonesia	29.6	4.9%	40.0	5.1%	81.5	7.7%	4.76%
Kenya	16.2	2.6%	50.3	6.5%	111.9	10.7%	8.98%
Malawi	12.0	2.0%	20.4	2.6%	36.8	3.5%	5.47%
Tanzania	3.8	0.6%	9.0	1.2%	13.4	1.3%	5.73%
TOBACCO							
World	879.0	100.0%	1161.5	100.0%	1375.0	100.0%	2.17%
USA	223.1	25.4%	260.1	22.3%	247.1	18.0%	0.49%
Zimbabwe	76.9	8.7%	60.0	5.1%	90.7	6.6%	2.21%
Turkey	74.6	8.5%	105.8	9.1%	80.7	5.9%	0.78%
Bulgaria	68.7	7.8%	64.4	5.6%	61.7	4.5%	-0.57%
India	59.9	6.8%	72.7	6.2%	76.2	5.6%	1.99%
Greece	58.4	6.6%	59.8	5.2%	84.3	6.1%	0.59%
Brazil	45.0	5.1%	63.5	5.5%	187.6	13.6%	7.12%
Italy	15.6	1.8%	22.8	1.9%	87.3	6.3%	12.83%
Malawi	13.0	1.5%	27.5	2.4%	57.8	4.2%	6.83%

Source: FAO trade tapes, from BESD.
Note: In cases where data for certain years were not available, interpolations based on averages were made to allow calculation of growth rates.

increased rapidly with the rapid growth in internal demand from urbanization and income growth.

In Nigeria, production of most export crops fell sharply; Nigeria not only lost its shares in world markets (see Table 5a), but became a major importer of crops such as edible oils and cotton. Production of other (nontraded) food and root crops probably kept pace with rural population growth, but not with the increased demand resulting from rapid urbanization and income growth.[35] As in Cameroon, the production of rice and maize appear to have done well. Nevertheless, there was accelerated demand for the traded food crops (rice and wheat), with increased imports of wheat, rice and maize until 1986, when a ban was imposed on food imports.

Senegal's agriculture stagnated, though with substantial year-to-year fluctuations (see Table 5). Such production increases as occurred were due to area expansion. Technical change in the form of drought-resistant groundnut varieties arrested a production decline which would have occurred from increased frequency of droughts in the early 1970s. Senegal has had the lowest self-sufficiency ratio of the MADIA countries, with food imports accounting for nearly 35 percent of aggregate calorie availability (compared to 10 percent or less for the rest of the MADIA sample). Stagnant domestic production and expanding internal demand pushed up rice imports sharply until they peaked in 1984/85 at over 370,000 mtons. As in the other two West African MADIA countries, maize production did well in Senegal but also from a small base.

Factors Explaining Performance

We now turn to an assessment of agricultural performance in terms of three categories, described in the introduction, namely luck, macroeconomic policies and sectoral policies. For analytical purposes, each of the three explanatory categories is subdivided into a total of 23 variables as follows: "luck" -- eight variables covering initial conditions at independence, and four variables related to subsequent political or economic (internal and external) shocks; macroeconomic policies/environment -- four variables covering implicit and/or explicit taxation and public expenditures; sectoral (mostly nonprice) policies/environment -- seven variables related to land, labor, credit, technological, and institutional factors needed to support agricultural growth.

Table 6 presents the results. Each of the six countries is rated for each variable on the basis of a simple 0/1 rating, where 0 = unsatisfactory, and 1 = satisfactory. Our judgment is based not simply on how perfect the policies have been, but rather on the extent to which the countries have used the first quarter century effectively to lay a foundation for long-term growth relating to these various categories. In reality, of course, the story of initial conditions and subsequent policy responses is much more nuanced than the table suggests; a more fully articulated picture of the genesis and evolution of the relevant policies is provided in the sections that follow.

35/ Nigerian foodcrop production data are by far the most inconsistent among MADIA countries, and subjective judgment is needed to arrive at conclusions.

Table 6: COUNTRY ENDOWMENTS AT INDEPENDENCE AND SUBSEQUENT POLICY RESPONSES IN SUPPORT OF SMALLHOLDER AGRICULTURE
(Rated on Scale of 1 = Favorable, 0 = Unfavorable)

COUNTRY	ENDOWMENTS: LUCK: Initial Conditions: Resources: Land Quant	Land Qual	Physical and Human Capital: Infra-Struct	Health Svce	Life Expect	Educa-tion	Srfe Water	Inst. Endow	Subsequent: Internal & External Shocks: Civil Strife	Int'l T.o.T.	Int. Rates	For. Demand	POLICY RESPONSES: MACROECONOMIC ENVIRONMENT: Taxation: Implicit (exch)	Explicit	Govt. Expend.: Intract. Balance	Level & Quality	SECTORAL ENVIRONMENT: Land Policy	Labor Policy	Credit Policy	Tech. Policy	Institutional Govt.	Institutional Comerc	Policy Grass Roots
EAST AFRICA																							
Kenya	0	1	1	1	1	1	0	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1
Tanzania	1	1	0	1	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Malawi	0	1	1	0	0	0	1	0	1	0	1	0	1	0	1	1	0	1	1	1	1	0	0
WEST AFRICA																							
Nigeria	0	1	1	0	0	0	0	1	0	1	1	1	0	1	0	0	1	0	0	0	0	1	0
Cameroon	1	1	0	0	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1	0	0
Senegal	1	0	0	1	0	0	1	1	1	1	1	0	1	0	0	0	1	1	0	0	0	0	0

Source: Initial Conditions rated from WDR 1987 and MADIA Database on Land and Infrastructure;
Internal and External Shocks rated by country experts.
Macroeconomic and Sectoral Environment rated on case-by-case basis by Lele/MADIA Team.

Notes: Land Quantity rated favorably above 1.5 hectares per capita arable land (cultivable/rain-fed).
Land Quality rated favorably based on agro-climatic conditions (soils, rainfall, length of growing season).
Infrastructure rated according to road densities with respect to population, total and arable land areas.
Health Services rated favorably below 25,000 persons per physician and below 3,000 persons per nurse.
Life Expectancy rated favorably above 43 years average.
Education rated favorably above 50 percent enrollment in primary school of total age group.
Access to Safe Water rated favorably above 25% of total population.
Institutional Endowment rated favorably in presence of developed marketing, legal, and judicial bodies. [UMA?]
Civil Strife rated unfavorably in presence of overt ethnic rivilaries or civil war.

The "Luck" Factor

Initial conditions reflecting "luck" are divided into the quality and quantity of natural, human capital, and institutional resources at the time of independence. Following Balassa and others, external shocks are then decomposed into changes in overall international terms of trade, interest payments on foreign borrowings and changes in foreign demand for their overall exports, i.e., the extent to which shares were maintained in world markets. Finally, internal or external political strife that affected the countries' performance is also considered as well as the effect of domestic decisions on the current account.

Initial Conditions at Independence. Tables 7, 8, and 9 show population, per capita income, arable land, social indicators and road densities in MADIA countries at independence and subsequently. In East Africa, per capita income was the highest and the general level of development was the greatest in Kenya, followed by Tanzania and Malawi. In West Africa, Senegal's per capita income was the highest, followed by Cameroon and Nigeria. Unlike East Africa, per capita income levels in West Africa do not necessarily represent the development of the countries' rural sectors as the more detailed discussion below of the land resources, social indicators, infrastructure, etc., will make clear. Even in East Africa, judgements on these matter need to be carefully balanced.

Per capita land availability needs to be considered jointly with land quality as an indicator of a country's natural resource endowments. The population factor is something of a two-edged sword. On the one hand, high population densities make intensification of agricultural production possible by increasing the supply of labor and reducing wage rates. They therefore facilitate the production of export crops and the adoption of new foodcrop technologies, which tend to use large quantities of labor.[36] In countries at relatively early stages of development, however, high and growing densities also increase land pressure which in turn leads to environmental degradation through reduced bush fallow and increased cropping intensity. The relative effects of autonomous increases in population densities and policies which counter their adverse effects on agricultural growth is still a largely unexplored issue. [37] Here we need only note that in terms of per capita arable land (see Table 7) Tanzania and Cameroon have been the two land-surplus countries (although they have pockets of land pressure). In terms of simple consideration of per capita arable land, Malawi, Nigeria, and Kenya have had the most land pressure at independence, in that order, followed by Senegal. Given Kenya's higher

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36/ See E. Boserup, "The Conditions of Agricultural Growth" Aldine Publishing Company, New York 1982. Also see Prabhu Pingali, Yves Bigot and Hans P. Binswanger, "Agricultural Mechanisation and the Evolution of Farming Systems in Sub-Saharan Africa" The Johns Hopkins University Press for the World Bank, Baltimore, 1987).

37/ See Uma Lele, S. Stone, and Kundhavi Kadiresan, "Population Pressure and Agricultural Intensification: Does the Boserup Hypothesis Hold?" MADIA Paper World Bank, Washington, DC, forthcoming.

population growth and lesser growth of urbanization than Nigeria's, however, actual pressure of population on the land has been clearly greater there.

Malawi inherited the least favorable position of the three East African countries when consideration of per capita arable land is combined with land quality.[38]

Within the West African group, Senegal was clearly the worst off.[39] Cameroon and Nigeria enjoy a much greater range of production possibilities, because they not only include semi-arid lands in the north (similar to but better watered than Senegal's) but also the Sudano-Sahelian areas in the middle belt and humid southern rainforest zones.[40]

Table 8 shows road densities in the MADIA countries at independence. Kenya, Nigeria, and to a lesser extent, Malawi were clearly

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38/ The high degree of micro variability in soils and rainfall, however, makes a global evaluation difficult. Besides, little systematic analysis of soils, rainfall, and technological possibilities exist on a comparable basis, with the notable exception of a recent FAO study. See G. M. Higgins, et al. Potential Population Supporting Capacities in Developing Countries, FAO/IIASA Rome. 1983. Kenya has a greater range in the quality of (high and low potential) land (and rainfall levels and patterns) whereas a relatively greater proportion of the land in Tanzania and Malawi is of medium potential. Malawi only has a unimodal rainfall compared to the bimodal rainfall regimes in Kenya and Tanzania, a combination of land quality and rainfall regime means that production possibilities are more limited in Malawi than in Kenya and Tanzania.

39/ On Senegal's groundnut basin the inferior soil texture, lower rainfall levels and their greater overall variability have limited production possibilities of groundnut and sorghum/millets.

40/ It is hard to make comparisons in land quality between countries in East and West Africa. For example, whereas the FAO study shows greater carrying capacity in Nigeria than Kenya (defined by agroclimatic potential) what limited data on fertilizer responses exist for various ecological zones in Nigeria suggest much lower response coefficients there for maize, sorghum and millets than in areas of comparable rainfall in Kenya. At an aggregate level average maize yields are also lower in Nigeria than in Kenya, but this is because much of Kenya's maize production is in areas of relatively high potential not found in Nigeria. See Uma Lele and Robert Christiansen, "Issues in Fertilizer Policy in Africa and Adjustment Lending Experience in MADIA Countries, 1970-87," MADIA Paper World Bank, Washington, DC, forthcoming. Some agronomic studies conclude as we do that on the whole the East African semi-arid tropical soils may be superior to those in West Africa. See Peter J. Matlon, "The West African Semi-arid Tropics," in Accelerating Food Production in Sub-Saharan Africa, eds. John Mellor, Christopher Delgado and Malcolm Blackie The Johns Hopkins University Press, for IFPRI, Baltimore, 1987.

Table 7: Per Capita Arable Land, Present and Projected
(In Hectares per Person)

Country	1965	1985		2000	
	Total Population	Rural Population	Total Population	Rural Population	Total Population
East Africa					
Kenya	1.34	0.86	0.73	0.60	0.42
Malawi	0.86	0.81	0.73	0.60	0.45
Tanzania	3.99	2.59	2.30	1.68	1.44
West Africa					
Cameroon	5.99	5.23	3.34	4.76	2.09
Nigeria	1.22	1.01	0.71	0.88	0.48
Senegal	2.67	2.38	1.62	1.80	1.04

SOURCE: Calculated from Ministry/Government data from respective countries.

Notes: 1/ Arable Land: Estimates and methodologies vary; for Kenya, which conducted a detailed agro-climatic analysis in conjunction with the German Agency for Technical Cooperation (GTZ), the estimate is 26%. Other countries, such as Cameroon and Nigeria, where extensive soil analysis is lacking, the estimates reach 75% of total land area.

2/ Population: Figures projected from most recent census in country to year 1985 and 2000. Rural population calculated from government estimates of urban population, and percent urbanized in year two thousand. For more information on data and methodology used see origals tables (S. Stone/MADIA).

Table 8: Roads in MADIA Countries at Independence and at Present

ROADS IN MADIA COUNTRIES AT INDEPENDENCE

	Paved (km)	Gravel/ Earth Roads	Total Classified	Population ('000) (9)	Density (m/person)	Total Land (7) ('000 sq-km)	Arable Land (8)	Density to Total Land (km/100 sq-km)	Density to Arable Land (km/100 sq-km)
Kenya (1)	2013	39934	41947	9404	4.5	569.25	26.0%	7.4	28.3
Malawi (2)	431	9697	10128	3854	2.6	94.08	37.0%	10.8	29.1
Tanzania (3)	1300	14292	15592	11596	1.3	886.04	56.0%	1.8	3.1
Cameroon (4)	1231	13122	14353	5332	2.7	469.44	75.0%	3.1	4.1
Nigeria (5)	11053	60818	71871	54278	1.3	910.77	75.0%	7.9	10.5
Senegal (6)	1658	6851	8509	3839	2.2	192.00	53.0%	4.4	8.4

ROADS IN MADIA COUNTRIES AT PRESENT

	Paved (km)	Gravel/ Earth Roads	Total Classified	Population ('000) (9)	Density (m/person)	Total Land (7) ('000 sq-km)	Arable Land (8)	Density to Total Land (km/100 sq-km)	Density to Arable Land (km/100 sq-km
Kenya (10)	7944	56640	64584	18791	3.4	569.25	26.0%	11.3	43.6
Malawi (11)	2176	9253	11429	7644	1.6	94.08	37.0%	12.1	32.8
Tanzania (12)	3194	78701	81895	21497	3.8	886.04	56.0%	9.2	16.5
Cameroon (13)	2922	46599	49521	10555	4.7	469.44	75.0%	10.5	14.1
Nigeria (14)	24900	88200	113100	93402	1.2	910.77	75.0%	12.4	16.6
Senegal (15)	3688	10260	13968	6036	2.3	192.00	53.0%	7.3	13.7

(1) Data for 1985. International Road Federation, World Road Statistics, 1985/89
(2) Data for 1984. Inventory of Designated Roads in Malawi, 1984, Government Printing Office
(3) Data for 1985. Same as (1).
(4) Data for 1980. Cooperation Nord-Sud Echecs et Succes: Les Cas des Infrastructures de Transport au Cameroon Louis Wyelo, Geneve, 1984.
(5) Data for 1982. Fourth National Development Plan, Lagos, 1981.
(6) Data for 1984. Appraisal of a Feeder Road Project, Senegal, World Bank, 1978.
(7) FAO
(8) Stone, Steve, Population Pressure and Agricultural Intensification, Forthcoming
(9) Data from UN Social Indicators, BESD, for same year as road length statistic.
(10) Data for 1983. International Road Federation, World Road Statistics, 1985.
(11) Data for 1985. Inventory of Designated Roads in Malawi, 1985, Government Printing Office
(12) Data for 1984. Same as (10).
(13) Data for 1986. Information de Base sur le Reseau Routier Camerounais, Julliet, 1984. Min. of Equip., and Etude d'un Plan "actions pour le Developpement des Routes de Collectes, BCEOM, July 1987.
(14) Data for 1983. National Transport Survey and Projections, Interim Report, Vol. I, 1983.
(15) Data for 1982. Same as (10).

better endowed with transportation networks than Tanzania, Cameroon, or Senegal. Kenya's superior development of internal transportation resulted from its having had the largest European settlement in Africa, and the related development of large-scale farming of coffee, tea, maize, dairying, etc. Kenya's transportation network also included a railway connecting the so-called "White Highlands" to the port of Mombassa.

Nigeria's road and rail network supported a thriving smallholder export agriculture. While Nigeria ranks high in terms of kilometers of road per unit of area of arable land its per capita road mileage was similar to Malawi's. The latter's road and rail network -- while relatively favorable in terms of arable land, has not offset extremely high transportation costs that come with being landlocked. These costs have more than doubled since the closure of its traditional shipping outlets in Mozambique in the early 1980s. Senegal's density of roads and rail to arable land similarly looked especially favorable. The groundnut basin benefited from investment in an effective road and railway network made by French colonialists to facilitate the exchange of smallholder groundnut production and Indo-Chinese rice. [41] Cameroon and Tanzania had relatively little physical infrastructure, although they enjoyed good ports.

Economic literature has documented that investment in human capital is critical for increasing agricultural productivity. The MADIA study did not undertake a detailed analysis of policies and investments in the social sectors (except to the extent that such investments were included in integrated rural development projects financed in the 1970s). Data on social indicators presented here need to be considered with caution (especially when cross-country comparisons are made as they are based mainly on secondary sources.) Nevertheless, what evidence exists suggests that Kenya had generally more favorable initial conditions in terms of life expectancy, infant mortality, population per physician and primary school enrollment (see Table 2). Consistent with its lowest per capita income in 1965, Malawi had the lowest life expectancy, the highest child mortality and the highest population per physician. Tanzania had poorer indicators than Kenya's in terms of its primary school enrollment percentage and access to safe water. It made major strides in the 1970s particularly in access to primary education and safewater, but also in child mortality and life expectancy, transportation, etc. However, excessive emphasis on the pursuit of equity in absence of growth-oriented policies made it difficult to sustain these gains. Nigeria's social indicators at independence in terms of life expectancy, child mortality, access to physicians, school enrollment and safe water were not particularly impressive relative to other MADIA countries but clearly improved after the oil boom. Being the center of the French West African colonial empire, Senegal had the highest level of secondary school attendees. Also (along with Malawi) Senegal had the highest proportion of population with access to safe water. Both Senegal and Malawi retained their leading positions in this respect, but Senegal's position worsened in GNP per capita and secondary school attendance by the end of the period. Malawi's social indicators remained the least favorable despite considerable strides over the base period.

41/ See Freud, op.cit.

Table 9: Basic Social Indicators

ITEM	Year	East Africa: Kenya	East Africa: Malawi	East Africa: Tanzania	West Africa: Cameroon	West Africa: Nigeria	West Africa: Senegal
Population	1965	9.5	3.9	11.7	6.1 2/	48.7	3.4
	1985	20.4	7	22.2	10.2	99.7	6.6
Population Growth Rate:	1965-73	3.8%	2.8%	3.2%	2.4%	2.5%	2.4%
	1980-85	4.1%	3.1%	3.5%	3.3%	3.3%	2.9%
GNP Per Capita:	1965	103	63	76	188	49	241
	1985	290	170	290	810	800 1/	370
Life Expectancy (in years):	1965	45	39	43	46	42	41
	1985	54	45	52	55	50	47
Infant Mortality Rate:	1965	112	199	138	143	177	171
	1985	91	156	110	89	109	137
Population per Physician:	1965	12,820	46,900	21,700	26,680	44,230	21,100
	1981	10,140	53,000	19,810	13,990	12,000	14,200
Percent Enrollment in Primary School:	1965	54%	44%	32%	94%	32%	40%
	1984	97%	82%	87%	107%	92%	55%
Secondary School:	1965	4%	2%	2%	5%	5%	7%
	1984	19%	4%	3%	23%	29%	13%
Safe Water Access: (percent of population)	1973	15%	23%	13%	26%	15%	37%
	1980	26%	41%	34%	53%	36%	42%

Source: World Development Report, 1985 - 1987.
Social Indicators of Development, 1986. Per Captia GNP for 1965 calculated from IMS Statistical Yearbook (1987).

Notes: "Safe Water Access" figure represents percentage of population served.
Cameroon 1980 figure calculated from "Enquete Nat'l Sur la Nutrition," p. 133 for 1978.
Nigeria calculated from 2nd Five Year Plan for 1973; and from Lele, Bindlish et al. for 1980.
1/ As a result of the recent devaluation, per capita GNP in Nigeria was reduced to US $200.
2/ for 1968.

Subsequent External Shocks and Domestic Policy Developments. Developments in the external environment, such as terms of trade volatility,(in particular, oil price hikes), worldwide recessions, escalating interest rates on foreign debt, and exchange rate fluctuations have affected economic growth and financial stability of all MADIA countries. At the same time, countries' own policies, such as excessively expansionary fiscal measures, failure to adjust relative prices, restrictions on trade, etc., have been also affected growth and payments in these countries. In order to understand their magnitude and relative effects, we have evaluated of external shocks and domestic policy developments in MADIA countries between 1967 and 1984. Table 10 shows the results on the basis of a ranking assigned to each country with (1) meaning have suffered (benefited) the least (most) and (0) meaning have suffered (benefited) the most (the least).[42]

Comparing the six MADIA countries in terms of the total effect of external shocks as a percent of current GDP, the three West African countries benefited from shocks due to their mineral resources while their East African counterparts, which are dependent mainly on agricultural exports, suffered substantially from external shocks [43] In terms of rank order, Nigeria and Cameroon benefited the most, with Senegal a distant third. In East Africa over the entire period, Kenya suffered the greatest loss from unfavorable shocks, followed by Tanzania and Malawi respectively. (The ranking between Malawi and Tanzania changes if the period since 1970 is considered.)

Detailed analysis of the shocks shows that: (1) whereas the effect of favorable movements in oil's terms of trade dominated in Nigeria, in Cameroon, the effect of increased foreign demand was more dominant. Senegal, on the other hand, suffered a terms of trade loss primarily due to a trade imbalance between import and export volumes; a strong gain from increased foreign demand for rock phosphate, however, more than outweighed the negative terms of trade effect, leading to a minor positive net effect of external shocks; (2) the negative effects of shocks in Kenya, Tanzania, and Malawi are dominated by the unfavorable movements in their agricultural terms of trade, with Kenya suffering the greatest loss, followed by Tanzania and Malawi, respectively, (3) higher interest payments, associated with higher interest rates on foreign loans, had adverse effects on all MADIA countries except Tanzania. While the five countries increased the proportions of their debt owed to private sources and subject to fluctuating interest rates, Tanzania relied more on debt from public sources (concessional loans), and did not alter its debt profile significantly, even in the era of structural adjustment. Cameroon suffered the greatest loss, followed by Senegal, Malawi, Kenya and Nigeria.

42/ It should be noted that this section refers only to items that are in a broad sense formally measurable. It does not include natural or manmade disasters such as droughts or wars that have substantial but essentially unquantifiable "shock" effects.

43/ See Yaw Ansu, op.cit." also see Seka, "Macroeconomic Shocks."

Table 10: External Shocks and Policies, 1967-1984
(percent of Current GDP)

	WEST						EAST					
	CAMEROON		NIGERIA		SENEGAL		KENYA		MALAWI		TANZANIA	
	Effect	Rank	Effect	Rank	Effect	Rank	Effect	Rank	Effect	Rank	Effect	Rank
1. CURRENT ACCOUNT VARIATIONS	-2.4	(2)	-0.0	(1)	-7.8	(5)	-4.4	(3)	-8.0	(6)	-5.9	(4)
2. SHOCKS	5.6	(2)	9.0	(1)	0.2	(3)	-4.5	(6)	-1.0	(4)	-1.5	(5)
terms of trade	0.1	(2)	6.6	(1)	-1.3	(3)	-6.5	(6)	-3.9	(4)	-4.8	(5)
foreign demand	6.0	(1)	4.1	(2)	2.9	(5)	4.1	(2)	3.0	(4)	2.6	(6)
interest rate on Debt	-0.6	(6)	-0.2	(2)	-0.4	(4)	-0.3	(3)	-0.4	(4)	0.3	(1)
net factor inc.less k.inc.	0.0	(3)	-1.7	(5)	-1.1	(4)	-1.9	(6)	0.2	(2)	0.5	(1)
3. POLICY	-3.4	(2)	-1.7	(1)	-12.9	(6)	-3.9	(3)	-6.8	(4)	-8.6	(5)
Exports Promotion (+)	-0.0	(2)	5.4	(1)	-1.9	(3)	-1.9	(3)	-2.2	(5)	-5.9	(6)
Income Growth Effect	1.8	(1)	2.1	(2)	13.3	(6)	3.7	(3)	8.2	(5)	7.7	(4)
Imports Compression (-)	1.1	(1)	2.8	(6)	-2.1	(3)	-1.7	(4)	-3.7	(1)	-3.4	(2)
Increased Borrowing	-0.6	(5)	-0.2	(1)	-0.9	(5)	-0.8	(4)	-1.2	(6)	-0.7	(3)
4. OTHER	-4.0	(5)	-7.4	(6)	4.9	(1)	4.5	(2)	0.8	(4)	3.9	(3)
Yearly Fluctuation in Exports	-3.6	(5)	-5.1	(6)	1.3	(2)	2.5	(1)	1.5	(3)	0.5	(4)
Yearly Fluctuation in Imports	-0.0	(4)	-0.1	(1)	-0.1	(1)	0.3	(6)	0.1	(5)	-0.1	(1)
transfer payment	0.1	(4)	-0.3	(6)	2.4	(1)	-0.1	(5)	0.3	(3)	1.6	(2)
NET NFS	-0.6	(4)	-2.0	(6)	1.1	(3)	1.6	(2)	-0.9	(5)	1.7	(1)
5. RESIDUAL	-0.6	(4)	0.3	(1)	0.0	(3)	-0.6	(4)	-1.1	(6)	0.3	(1)
Memo Items												
6. Policy-Controlable Factors Excluding The Effect of GDP Growth: Pure Policy	-1.7	(6)	0.4	(2)	0.4	(2)	-0.2	[illegible]	1.4	(1)	-0.9	(5)
7. Imbalanced Tot Effect	-3.4	(3)	-21.5	(6)	-6.7	(5)	-1.0	(1)	-1.9	(2)	-4.30	(4)
Pure Tot Effect	3.5	(3)	28.1	(1)	5.3	(2)	-5.5	(6)	-2.0	(5)	-0.5	(4)

Notes: The rank is per order of positive to negative .
* For 1967-1973, Interest payments are included in net factor income from abroad. But for 1974-84 , it has been possible to single out interest payment from it
** Imports enter the current account with a negative sign. Hence, when summing the various factors to obtain their total impact on the current account , the sign of the imports item are reversed.

Sources: IMF International Financial Statistics, 1985
World Bank-CEM (for some of the 1984 data).
EPD, for Net Factor Income from Abroad

Kenya, Nigeria, and Senegal, in that order, are net exporters of factor incomes, while Tanzania and Malawi are net importers. This positive effect of factor income in Tanzania and Malawi is due primarily to remittances by their natives working in the mines of South Africa. The net factor income effect is neutral in Cameroon.

Effects of Domestic Policies on Current Account Variation. Item (3) in Table 10 presents effects of internal policies on export promotion as reflected in changes in world market shares, income growth effect, i.e., import income elasticity, import compression effects (i.e., induced by changes in aggregate demand) and increased borrowings. Item 6 presents the total of these various effects less income growth effect. Distinction between total and implicit income effects on imports is also an important one, given that by increasing imports, growth can be seen to have a "bad" effect on policy and on variations in the current account. Item 6 clearly shows policies to have played a positive (contracyclical) role in Malawi, as in Kenya. Tanzania lost the most-market shares followed by Malawi and Kenya. On the other hand, the growth effect on imports was most most important in Malawi. Import compression was also the greatest in Malawi. Tanzania's loss of market shares offset the positive effects of import compression. In West Africa the ranking is led by Nigeria and Senegal, followed by Cameroon. It is essential to understand the factors underlying this interpretation however.

The ability to increase shares in world markets had to do with the fundamental importance of the commodities exported as well as policies directed toward them. The relatively better performance of Nigeria is explained by the substantial growth in export market shares in oil which more than offset negative effects of import expansion and other policies of traditional exports. The net policy effect (6) is primarily due to import expansion and increased borrowing in the context of change in the market shares of exports. Senegal's smaller role relative to the three East African countries is once again due to the role of phosphates. Only Nigeria increased its market share, followed by Cameroon (whose share stayed fairly constant). The remaining four lost market shares, the loss being the greatest in Tanzania, followed by Malawi, Kenya, and Senegal.

Facing deteriorating export market shares, these countries were forced to contract imports in order to survive substantial external disequilibria. They therefore used import compression to ease their deteriorating current account, with the extent of compression being the greatest in Tanzania and Malawi, followed by Senegal and Kenya.

Nigeria and Cameroon, on the other hand, were not constrained to compress imports. Indeed they (particularly Nigeria) increased their import shares along with their expansion of export market shares.

The cost of interest payments owing to increases in the volume of debt was the greatest in Malawi, followed by Senegal, Kenya, Tanzania, Cameroon, and Nigeria.

Others Factors. Shocks which cannot be accounted for as external or internal are classified under the heading "other." They comprise yearly

fluctuations in exports and imports, transfer payments, and nonfactor services (freights and insurances).

Owing to the volatility of the oil market, Nigeria and Cameroon (see Table 6) have suffered the greatest export income loss. The agriculturally dominated countries on the other hand benefited from market fluctuations, with the greatest benefit accruing to Kenya, followed by Senegal, Malawi, and Tanzania. The cyclical effect of imports is generally very small.

Transfer payments (grants) mainly benefited Senegal, Tanzania and Malawi, while Nigeria and Kenya were net losers. Cameroon recorded a very small beneficial effect. Tanzania and Kenya benefited substantially from nonfactor services, followed by Senegal. Nigeria appears to be the biggest loser in that respect, followed by Malawi and Cameroon.

Other shocks that were not amenable to systematic measurement owing to their random nature but still considered important by policymakers should also be noted. For example, Kenya and Tanzania broke up the East African Community and closed their borders in 1977. Although informal trade in agricultural goods continued between the two countries, Tanzania's agricultural export trade (which had relied on sales through Kenyan-based traders and export markets) and agricultural research (which had relied heavily on the Community) suffered. Tanzania also paid a heavy price for its war with Uganda in 1979.[44]

While all countries suffered from droughts, in Senegal climate (along with poor trading arrangements for its major crop, groundnuts) had a more severe adverse influence on the outlook of policymakers. Malawi, meanwhile, suffered the most from adverse external political and logistical constraints. The closure of the ports in Mozambique not only increased transport costs, but increased insecurity of transport, and also the number of refugees, which by 1987 had amounted to well over 500,000 or close to 10 percent of its population.[45]

Nigeria had by far the worst internal political difficulties. The civil war in the late 1960s was followed by six military coups, numerous changes of governments and divisions of states, all of which created an unpredictable political and administrative environment, leading to numerous new policy initiatives, with successive changes in the governments.[46]

Macroeconomic and Sectoral Policy Responses

Examining the nature and scale of initial resource endowments and subsequent exogenous events only tells us about the general availability of

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44/ Some commentators consider a number of the items listed here to have been consequences of voluntary policy decisions, and thus not "shocks" in the strict sense. See Ansu, op.cit.

45/ See Uma Lele, "Structural Adjustment, Agricultural Development and the Poor: Lessons from Malawi," in World Development, forthcoming.

46/ See Lele et al. "Nigeria's Economic Development."

resources for development. We now turn to an analysis of the ways in which the six MADIA countries' policymakers and their donor supporters have managed those resources and events, and the returns they have earned over 1970-1984.

Whatever one's judgments about the relative resource positions of the six MADIA countries at independence, it is clear that all six have been faced with absolute shortages of critical physical, institutional, and human capital assets, such that governments and donors need to deploy scarce resources optimally to obtain the best developmental returns. In reviewing the evidence on relative returns to resource use in agriculture vis-a-vis other sectors it is important to recognize that returns in agriculture are a function of output and input prices as well as the productivity of the resources deployed. Also, expectations about future world and domestic market prospects have been as important -- if not more so -- in determining the policies pursued than the actual subsequent course of developments in these markets.

Whereas input and output prices (as determined by exchange rates, taxes and subsidies) have been the primary focus of economic analysis, the role of nonprice factors has attracted less analytical attention. In our view, an item in this latter category -- i.e., public (including donor) investments -- have formed a significant but usually overlooked part of the picture. These investments have in turn influenced the levels of taxes and subsidies on production and consumption that governments have tended to apply in subsequent periods, in order to maintain and implement activities initiated in the preceding periods. Similarly, by influencing the technological frontier, public expenditure has influenced the relative returns to factors of production. Finally, the actual allocation of land, labor and capital to activities in agriculture has also been determined by the ability of small farmers to mobilize and use resources efficiently -- and that has been affected by market as well as nonmarket forces.

An important theme in the competition for public resources in our countries has been diversification of three kinds: (i) out of agriculture into industry and construction; (ii) within agriculture, especially in favor of import-substituting food crops; and (iii) by small producers into opportunities outside traditionally defined and often controlled economic activities.

Overall Development Strategies and Diversification out of Agriculture

Only Kenya and Malawi followed moderate diversification strategies and both performed better than the other four countries in terms of growth of agricultural exports. Table 11 shows changes in the shares of agriculture and other sectors in the GDP and trade for the MADIA countries since independence. Tanzania's primary policy response to export pessimism was an intense import substitution effort, implemented through a Basic Industrialization Strategy involving the establishment of heavy industry as well as development of the agroprocessing sector to increase domestic value-added in export

Table 11:

Share of Agriculture in Exports, Employment and GDP in MADIA Countries

COUNTRY	-------AGRICULTURE AS A SHARE OF------ EXPORTS 1967-73	EXPORTS 1985	EMPLOYMENT 1965	EMPLOYMENT 1985	GDP 1967-73	GDP 1985
East Africa						
Kenya	75%	57%	84%	78%	34%	31%
Malawi	97%	94%	91%	83%	44%	38%
Tanzania	78%	79%	88%	86%	41%	58%
West Africa						
Cameroon	81%	65%	86%	70%	31%	21%
Nigeria	38%	4%	67%	68%	41%	36%
Senegal	71%	46%	82%	81%	24%	19%

Note: For details on structural change over time, see various MADIA country papers.

Source: World Development Report, 1987, World Bank Trade System (EPD), and P. Seka/MADIA Database. Shares represent latest available data.

agriculture. Both these strands of Tanzania's industrial policies were supported by donor assistance to a greater extent than in any other MADIA countries.[47] Agriculture's share in GDP, employment and exports was smaller and urbanization was greater in West Africa than in East Africa, even in the early post-independence years.

In Nigeria, as in Tanzania, further diversification out of the export crop sector involved a substantial expansion of the industrial and construction sectors. In Senegal, again like Tanzania, diversification included agroprocessing and the development of the fertilizer and the fisheries sectors. Cameroon's industrialization efforts were more moderate than Nigeria's. It maintained the emphasis on its plantation agriculture later than most other countries, but nevertheless expanded investments in physical infrastructure and industry.[48]

Following a Kuznetsian pattern of growth, agriculture's share in GDP and exports should be expected to decline with overall development. This had happened in Kenya and Malawi by the end of the 1970s; in Tanzania, however, where industrialization had been given primary emphasis, agriculture's share in GDP and exports had paradoxically increased.[49]

Agriculture's share of GDP, employment and exports fell further in all three West African countries, with the sharpest decline in Nigeria; this reversed the positions of Cameroon and Nigeria at the end of the 1970s in terms of the importance of agriculture in GDP.

Industry's share increased in all three West African countries; the increase was sharpest in Nigeria, reflecting the importance of the mining sector. As in Tanzania, however, Nigeria's manufacturing sector declined. Senegal, which started with a higher industrial share than either Nigeria or Cameroon, showed no gains in that sector's share, but public administration and defense increased their shares sharply (surpassing the share of infrastructure) and remained the highest in the three West African countries.

Nigeria's economic structure showed a more unstable pattern than Cameroon's and Senegal's. The three West African countries' decline in agricultural employment was more rapid than in the East (reflecting the importance of their mining sectors), the wage rates of unskilled workers

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47/ See Uma Lele, "Tanzania: Phoenix or Icarus?" in World Economic Growth ed. Arnold Harberger. Institute of Contemporary Studies San Francisco, CA, and Paul Collier, "Aid and Economic Performance in Tanzania" in Aid and Development: The Transition from Agriculture to Industrialization, and from Concessional to Commercial Capital Flows ed. Uma Lele and Ijaz Nabi World Bank, Washington D.C., forthcoming.

48/ See Lele, et al. "Nigeria's Economic Development," and Christine Jones, "A Review of World Bank Agricultural Assistance to Six African Countries," MADIA Paper World Bank, Washington, D.C. May 1985.

49/ See Ansu, op.cit.

were higher and increased more sharply in all three countries with industrialization, with the increase being the sharpest in Nigeria.[50] Real wages did not increase commensurately as the inflation increased. The food component of the CPI grew more rapidly than the rest.

Implicit and Explicit Taxation of Agriculture. Figure 7 shows the behavior of the trade-weighted exchange rates in the six countries, providing an indication of the extent of implicit taxation. Tanzania and Nigeria had the most acutely overvalued exchange rates, which led to substantial implicit taxation of export agriculture. In Tanzania's case, the coffee boom in the mid-1970s combined implicit taxation of this kind with considerable explicit taxation of the coffee sector -- the country's main export. In Nigeria, subsidies to export crop producers through producer prices in the 1970s did not inadequately compensate for exchange rate overvaluation.[51]

Kenya and Malawi adjusted their exchange rates regularly, and Cameroon and Senegal (both of which are members of the West African monetary union) also had a relatively moderate record on exchange rate policy. Tables 12a and 12b show the ratios of producer to international prices at nominal and trade-weighted exchange rates. While they do not reflect transportation costs, they do provide a general indication of the level of taxation of export crops and the means by which it was achieved.

Only Kenya refrained from imposing any significant explicit taxes on its two important crops, coffee and tea, the prices of which were determined by the international market. Kenya also eschewed mobilizing resources through regressive taxation of the smallholder sector, offering the same price incentives to its smallholder tea and coffee producers as to estate producers (barring the slightly higher costs involved in the marketing of small farm production).

Malawi's smallholders, who were only allowed to produce dark-fired, sun-cured and oriental tobacco (because growing of burley and flue cured tobacco was reserved for estates through a licensing policy) were expected to sell their crops to ADMARC, Malawi's agricultural marketing parastal, at officially fixed prices: Malawi's estates could sell their tobaccos at open auctions. Small farmers typically received only about a third of the price ADMARC obtained for their tobacco on the auction floor. Even taking into account ADMARC's higher marketing costs for smallholders compared to those incurred by estates, this differential involved taxation of small farmers at rates of well over 50 percent.

In Senegal, as in Tanzania, expansion of the groundnut processing sector in the latter half of the 1970s resulted in higher margins going to the processing sector; this partly explains the lower producer share in the international price. Senegal's groundnut pricing problems were also compounded by the removal of the protection accorded by France since 1929.

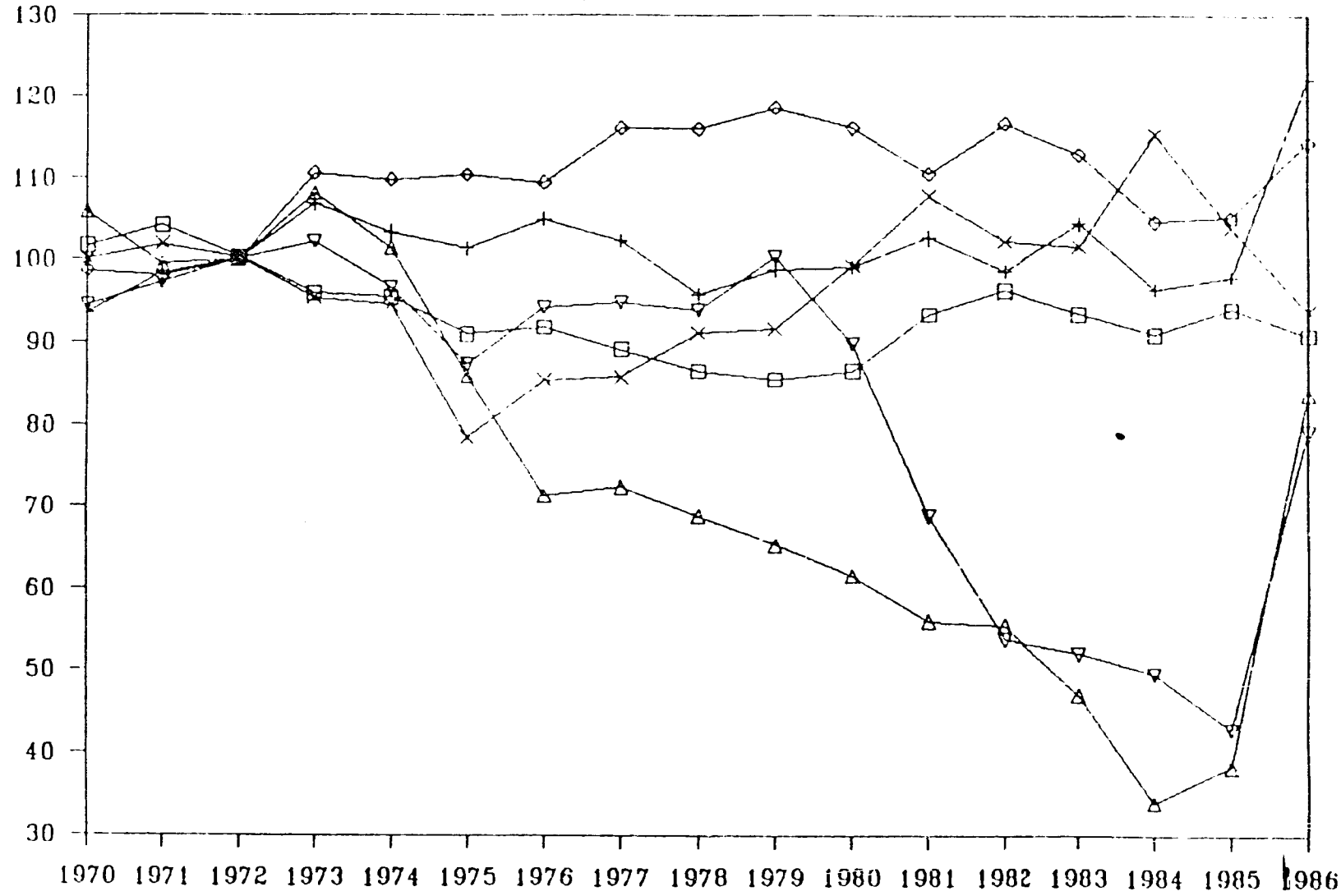
50/ Nominal wage rate in agriculture in Nigeria's Kaduma State increased from N 1.75 in 1976 to N [illegible].0 in 1986.

51/ See Lele et al. "Nigeria's Economic Development."

Figure 7:

REAL EFFECTIVE EXCHANGE RATE INDEX

(1972=100)



□ CMR + KEN ◇ MWI △ NGA × SEN ▽ TZA

Rates were calculated using current trade shares as weights. Using constant (1970-72 average) weights give similar results.

SOURCE: GAPIA database, calculated by F. Seka and P. Richstein.

Table 12a: RATIOS OF PRODUCER PRICES TO INTERNATIONAL PRICES, 1970-1986
Nominal Exchange Rates

Year	KENYA Smallholder Coffee	KENYA Smallholder Tea	MALAWI Smallholder Dark-Fired	MALAWI Estate Burley	MALAWI Estate Flue-Cured	TANZANIA Smallholder Tobacco	TANZANIA Smallholder Cotton	TANZANIA Smallholder Coffee
1970	0.91	0.60	0.22	0.43	0.57	0.43	0.72	
1971	0.90	0.67	0.25	0.39	0.68	0.50	0.61	
1972	0.98	0.63	0.23	0.40	0.63	0.46	0.57	0.57
1973	0.96	0.60	0.22	0.54	0.86	0.44	0.35	0.43
1974	0.97	0.55	0.23	0.62	0.84	0.42	0.32	0.43
1975	1.01	0.63	0.22	0.47	0.66	0.47	0.51	0.36
1976	0.85	0.57	0.21	0.48	0.70	0.40	0.41	0.30
1977	0.92	0.70	0.26	0.60	0.76	0.42	0.45	0.35
1978	0.94	0.84	0.26	0.50	0.74	0.47	0.55	0.39
1979	0.93	0.56	0.24	0.45	0.65	0.37	0.51	0.29
1980	0.98	0.76	0.23	0.45	0.40	0.35	0.52	0.41
1981	0.84	0.62	0.19	0.73	0.56	0.33	0.61	0.53
1982	0.83	0.56	0.24	0.51	0.50	0.30	0.73	0.52
1983	0.90	0.93	0.23	0.27	0.39	0.38	0.67	0.47
1984	0.80	0.66	0.25	0.30	0.38	0.27	0.65	0.47
1985	0.88	0.76	0.21	0.26	0.34	0.36	1.07	0.53
1986	0.79	0.69	0.22	0.43	0.45	0.32	1.11	0.33

Source: See Below

Table 12a: RATIOS OF PRODUCER PRICES TO INTERNATIONAL PRICES, 1970-1986
Real Effective Exchange Rates

Year	KENYA Smallholder Coffee	KENYA Smallholder Tea	MALAWI Smallholder Dark-Fired	MALAWI Estate Burley	MALAWI Estate Flue-Cured	TANZANIA Smallholder Tobacco	TANZANIA Smallholder Cotton	TANZANIA Smallholder Coffee
1970	0.95	0.56	0.22	0.42	0.58	0.41	0.68	
1971	0.98	0.68	0.24	0.39	0.66	0.49	0.59	
1972	0.98	0.63	0.23	0.40	0.63	0.46	0.57	0.57
1973	1.02	0.64	0.24	0.59	0.95	0.45	0.35	0.44
1974	1.01	0.57	0.25	0.68	0.92	0.40	0.31	0.41
1975	1.02	0.64	0.25	0.52	0.73	0.41	0.45	0.32
1976	0.89	0.59	0.23	0.53	0.78	0.37	0.39	0.29
1977	0.94	0.71	0.30	0.70	0.88	0.40	0.43	0.33
1978	0.90	0.61	0.30	0.58	0.86	0.44	0.52	0.37
1979	0.92	0.65	0.29	0.53	0.77	0.37	0.51	0.29
1980	0.98	0.75	0.27	0.54	0.46	0.31	0.47	0.37
1981	0.86	0.64	0.21	0.81	0.62	0.23	0.42	0.36
1982	0.82	0.56	0.28	0.59	0.59	0.16	0.39	0.28
1983	0.94	1.02	0.26	0.31	0.44	0.20	0.35	0.24
1984	0.77	0.64	0.26	0.31	0.40	0.13	0.32	0.23
1985	0.87	0.74	0.22	0.27	0.36	0.15	0.46	0.23
1986	0.96	0.85	0.25	0.50	0.52	0.25	0.88	0.26

Source: Commodity Data from IMF Commodity Statistics
World Prices are: Coffee "Other Mild Arabica," Tea "Average Auction (London)," Tobacco "United States All Markets," Cotton "Egypt (Liverpool)."
IFS for nominal exchange rates. P. Sova/HADIA for real effective exchange rates. (updated for 1984-86 by P. Fishstein, 11 Dec 1987). Weight are current trade shares.
Producer Prices are from Kenya: M.J. Westlake, M.O.A.
Malawi: Christiansen/Economic Surveys
Tanzania: Hanlon/ FAO/IBRD Agr. Sector Mission, 1987 (Annexes).

Note: Seed cotton producer prices converted to lint cotton equivalent using 34% conversion rate.
Green leaf producer prices converted to made tea equivalent using 22% conversion rate.

Table 12b: RATIOS OF PRODUCER PRICES TO INTERNATIONAL PRICES, 1970-1986
Nominal Exchange Rates

Year	CAMEROON				NIGERIA		SENEGAL	
	Arabica Coffee	Robusta Coffee	Cocoa	Cotton	Cocoa	Palm Kernel	Ground-nuts	Cotton
1970	0.55	0.49	0.45	0.50	0.61	0.51	0.27	0.16
1971	0.60	0.48	0.50	0.44	0.77	0.59	0.27	0.14
1972	0.62	0.50	0.56	0.45	0.84	0.80	0.36	0.15
1973	0.65	0.53	0.40	0.37	0.66	0.76	0.25	0.10
1974	0.54	0.43	0.32	0.37	0.67	0.51	0.17	0.09
1975	0.76	0.50	0.49	0.50	0.86	1.18	0.45	0.14
1976	0.41	0.29	0.31	0.40	0.51	1.04	0.41	0.10
1977	0.26	0.21	0.24	0.50	0.42	0.71	0.31	0.12
1978	0.44	0.38	0.34	0.53	0.48	0.65	0.29	0.13
1979	0.43	0.40	0.41	0.57	0.61	0.60	0.35	0.14
1980	0.47	0.47	0.55	0.54	0.91	1.06	0.44	0.13
1981	0.48	0.54	0.55	0.53	1.02	1.03	0.30	0.12
1982	0.44	0.43	0.58	0.59	1.11	1.29	0.56	0.13
1983	0.37	0.37	0.46	0.48	0.91	0.87	0.53	0.11
1984	0.30	0.32	0.39	0.55	0.82	1.00	0.46	0.10
1985		0.38	0.42	0.77	0.75	1.57	0.51	0.13
1986				1.25		1.61		0.27

Source See Below

Table 12b: RATIOS OF PRODUCER PRICES TO INTERNATIONAL PRICES, 1970-1986
Real Effective Exchange Rates

Year	CAMEROON				NIGERIA		SENEGAL	
	Arabica Coffee	Robusta Coffee	Cocoa	Cotton	Cocoa	Palm Kernel	Ground-nuts	Cotton
1970	0.56	0.49	0.48	0.51	0.65	0.54	0.27	0.16
1971	0.63	0.50	0.63	0.46	0.77	0.59	0.27	0.14
1972	0.63	0.50	0.58	0.45	0.84	0.80	0.36	0.15
1973	0.63	0.51	0.39	0.35	0.71	0.83	0.25	0.09
1974	0.52	0.41	0.30	0.35	0.58	0.52	0.16	0.08
1975	0.67	0.40	0.44	0.46	0.74	1.01	0.35	0.11
1976	0.37	0.27	0.28	0.36	0.37	0.74	0.35	0.09
1977	0.23	0.18	0.21	0.44	0.30	0.52	0.28	0.10
1978	0.38	0.33	0.29	0.46	0.33	0.45	0.27	0.12
1979	0.37	0.34	0.35	0.49	0.40	0.39	0.32	0.12
1980	0.41	0.40	0.47	0.47	0.56	0.65	0.44	0.13
1981	0.45	0.50	0.51	0.49	0.57	0.58	0.32	0.13
1982	0.43	0.42	0.56	0.57	0.62	0.72	0.57	0.13
1983	0.35	0.35	0.43	0.45	0.43	0.41	0.53	0.11
1984	0.28	0.29	0.36	0.50	0.28	0.34	0.53	0.12
1985		0.36	0.39	0.72	0.29	0.60	0.53	0.14
1986				1.13		1.35		0.26

Source Commodity Data from IMF Commodity Statistics and World Bank Commodity and Price Trends (1986)
World Prices are Coffee "Other Mild Arabica" for Arabica and "Angolan (Ambriz 2AA)" for Robusta;
Cocoa "ICCO average daily price (New York and London)."
Cotton "Egypt (Liverpool)." Palm Kernel "Nigerian (Europe)."
Groundnuts "Nigerian (London)."
IFS for nominal exchange rates P. Sake/MADIA for real effective exchange rates
(updated for 1984-86 by P. Fishstein, 11 Dec 1987) Weight are current trade shares.
Producer Prices are from Cameroon: Mukherjee/IFDC, Bilan Diagnostic and World Bank (Ministry of Agriculture), Cagne-Gervais and World Bank (SODECOTON and Ministry of Agriculture)
Nigeria: MacDougall/Lele,Oyejide, Bum and Bindlish (Nigerian Commodity/Marketing Boards)
Senegal: Mukherjee and Hanlon/Jammeh, Ministere du Developpement Rural, Direction Statistique.

Note: Seed cotton producer prices converted to lint cotton equivalent using 34% conversion rate.

Under this arrangement, groundnut producer prices had been about 50 percent of the French import price (which itself was about 25 percent above the world price).[52]

Since the signing of the Yaounde convention in 1967, the international groundnut prices received by Senegal have declined, and the ratio of domestic to international prices has also fallen, never reaching the earlier 50 percent. Whereas EEC's STABEX assistance was intended to compensate this loss to the producers, it appears to have gone for the expansion of other sectors of the economy. This has meant thatgroundnut/millet price ratios, which had earlier favored groundnuts, now favored millets and remained close to 1. Groundnut prices also moved unfavorably vis-a-vis producer prices of rice. Import substitution of the latter became the primary focus of Senegal's food self-sufficiency strategy.

Only Kenya had relative prices of coffee and tea vis-a-vis maize that assured favorable (albeit fluctuating) returns to land and labor use in the production of the two export crops.[53] The higher returns to coffee and tea producers in Kenya also reflected the higher quality of Kenya's arabica coffee and smallholder tea. Thus, the actual international market prices Cameroon earned were only 65 percent of those earned by Kenya at the end of the 1970s. When Kenya's quality premia are placed against other countries' taxation of major export crops (e.g. coffee in Cameroon and Tanzania, tobacco in Malawi, cocoa in Cameroon and Nigeria, etc.) the Kenyan ratios of export crop prices to maize prices were better a fortiori, than the comparable ratios in other MADIA countries (see Tables 12a and 12b).

Turning to trends in the producer price structure as a whole, all MADIA countries but Kenya (and Malawi, for estate-grown crops) had officially fixed prices for the export crops, and the structure of producer prices moved in favor of food crops. This was true regardless of whether food markets were controlled, as in East Africa, or free, as in West Africa, (with the exception of rice)[54] -- despite the increase in food imports in several countries earlier noted.

West African food crop prices tended to be substantially higher than those in East Africa and far above international levels. For example, the prices of maize were typically twice their East African levels (even when calculated at trade-weighted exchange rates). Relative prices thus help to explain production shifts from export to food crops in all MADIA countries with the exception of Kenya.

52/ See Freud, op.cit.

53/ While the maize producer price was fixed by the government and increased at about 10% annually in local currency terms to make up for the low maize prices in the early 1970s, it was subsequently adjusted so that it remained by and large in tune with international prices.

54/ Where rice prices were influenced by a combination of trade policy and internal price controls.

How unfavorable West African export prices have been compared to food crop prices in the East is evidenced by Kenya's coffee/maize producer price ratios. These were well over twice as high as Tanzania's (becoming even more favorable to Kenyan coffee since the late 1970s if higher informal maize prices in Tanzania are considered), but as much as four times as favorable compared to those in Cameroon. Similarly in Senegal, the maize/groundnut price ratio favored maize twice as strongly as it did in Malawi, again reflecting both lower groundnut prices and higher maize and millet prices in the latter.

Correction of a combination of exchange rate and producer price distortions in Nigeria and Tanzania since the introduction of structural adjustment programs in the 1980s is shifting some resources from food to export crops, although growing internal food demand and high food prices moderate this shift (especially if flexibility in the disposal of foodcrops relative to export crops is considered). Nevertheless, if aggregate supply response is going to materialize from the agriculture sectors, there is a need for increasing agricultural productivity. Here nonprice factors are important. Before we turn to these factors, we briefly review public expenditure patterns.

Public Expenditure Patterns. Information on overall expenditure patterns in MADIA countries varies. On the whole, among anglophone countries, Kenya and Malawi have better information than Nigeria and Tanzania, reflecting superior economic management. Systematic data on planned and actual expenditures in francophone countries have also tended to be weak.

To the extent that data permitted, the results of our detailed analysis of public expenditure patterns are presented in various MADIA papers.[55] Kenya and Malawi had a better intersectoral balance of government expenditures (i.e., between agriculture, transportation etc., relative to other sectors) than Tanzania in the East, Cameroon had a better record than Nigeria and Senegal in the West.[56] A comparison of Tanzania's spending patterns at the beginning and the end of the 1970s and relative to Kenya and Malawi show a higher share of government expenditures to GDP at the end of the period, from a lower initial base, but a sharp decline in the expenditure shares of agriculture, the social sector, and infrastructure compared to the share of industry and defense.[57] Unlike Tanzania, Nigeria did not neglect agriculture in government expenditures. Its budgeted expenditures on agriculture in 1981-1985 were 63 times greater than the actual expenditures in 1962-1968! Caution needs to be exercised in viewing relative shares of agriculture vis-a-vis other sectors as an

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55/ See Lele et. al., "Nigeria's Economic Development," Lele and van de Walle, "Agricultural Development in Cameroon," and Lele, Jammeh, and Ranade, "Agricultural Development in Senegal: Domestic Policies and The World Bank Role." MADIA Paper (Washington D.C., World Bank, forthcoming). Also see Lele and Meyers, "Agricultural Development and Foreign Assistance" and "Growth and Structural Change."

56/ See Lele and Meyers, "Growth and Structural Change."

57/ Ibid.

indication of commitment to agriculture without regard to expenditure quality. It has frequently been argued that Nigeria's agricultural share was still low in comparison to other sectors. However, even the level of expenditure that did occur could not be absorbed efficiently in Nigeria owing to a poor agricultural strategy which emphasized high-cost irrigation and faced substantial political, organizational, and technological difficulties.[58]

From this latter viewpoint, the three countries that we consider to have had superior intersectoral expenditure balances also operated superior expenditure programs in another sense, i.e., their spending was more predictable in overall level, in the balance between recurrent and capital expenditures, etc Nevertheless, it must be emphasized that much remains to be desired in public expenditure quality in even the best performing countries, partly reflecting the lack of a well-conceived overall agricultural sector policy.

Even well-intentioned donor expenditures did not have the results they expected.[59] In Nigeria, where donors gave priority to smallholder agriculture, the government stressed irrigated agriculture and industry. In Malawi, donors supported smallholders, while the government favored the estate sector.

Clearly, government and donor policy interactions on public expenditures as a whole, as well as at the sector level, are critical for understanding the precise nature and content of development policy. It is to this sector level analysis that we now turn.[60]

58/ See Lele et.al. , "Nigeria's Economic Development."

59/ Lele and Meyers, "Agricultural Development and Foreign Assistance," and "Growth and Structural Change." Also see Lele, "The Role of Prince and Non-Price Factors in Explaining Sources of Growth in East African Agriculture: Some Lessons for Government and Donors," in World Bank Economic Review, forthcoming.

60/ For example, the MADIA country study on Kenya (see Lele and Meyers, "Agricultural Development and Foreign Assistance") shows that Kenya's agricultural sector generally performed well in the 1970s, but that the World Bank's agricultural portfolio did poorly (see Lele and Meyers, Growth and Structural Change."), notably because its assistance went largely to projects for agricultural credit, sugar, development of semi-arid areas, etc., which had relatively low (or even negative) rates of return. In Tanzania virtually all MADIA donors' projects performed relatively poorly. Production did not match up to the agroprocessing capacity established, and overcommitment of government expenditures in the economy as a whole undermined the effectiveness of area projects. In Nigeria, however, the Bank played an important role in providing assistance that improved the quality of expenditures both between agriculture and the rest of the economy, and within agriculture (by focusing its resources on smallholder related agriculture). (See Lele, et.al., "Nigeria's Economic Development.)

Relative Roles of Price and Nonprice Factors. Based on the preceding discussion it would be tempting to conclude that the absence of price distortions in Kenya relative to other MADIA countries explains its better overall agricultural production performance. Certainly the shifts between food and export crop production in the MADIA countries can be explained by relative price incentives, as we pointed out earlier. However we now turn to the discussion of the relative roles of price and nonprice factors first by reviewing the importance of technological issues and then by considering the roles of price levels, stability, etc., especially relative to other factors.

Table 13 shows the yield difference for major crops grown in MADIA countries. As can be seen from this Table, coffee, tea, and maize yields ere as much as two to four times as high in Kenya as in Cameroon, Tanzania or Malawi. This means that the relative advantage for coffee to maize production in Kenya was at least twice as great as the relative price differences reviewed earlier suggested (allowing of course for some increase in input use which enabled the achievement of these higher yields).

The relatively easier access of Kenya's small farmers to research, extension, credit inputs and marketing, handling, processing and information compared to the access and quality of services available to their counterparts in Tanzania, Malawi or Cameroon is of special importance. This and other institutional factors can critically affect the willingness of producers to apply their labor in ways that enhance yields.[61]

Kenya's coffee and tea research is of high quality. So is Malawi's. Kenya's smallholder coffee cooperatives and the Kenya Tea Development Authority are recognized to be among the most effective smallholder institutions in the provision of services for export crops. Their clientele, includes an unusually high proportion of politically conscious and vigilant small farmers (reflecting the generally more grassroots development of Kenya's commercial and political institutions).[62] It is difficult to quantify the relative importance of these factors compared to price levels as determinants of the efficiency and profitability of particular crop growing activities, but there is no question of their positive impact.

Cotton in Cameroon and cocoa in Nigeria show that price levels are not necessarily the most important determinants of crop expansion. On the contrary, technology and organization can counter adverse price effects. Cotton producer prices in Cameroon were substantially lower than in Kenya,

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61/ The processing units for smallholder tea and coffee funded by the World Bank and CDC in Kenya also improved crop collection and greatly encouraged production of both these crops.

62/ Members of KTDA recently won a lawsuit against the Authority for having illegally retained funds from the proceeds of tea payments for construction of an office building in Nairobi. KTDA was obliged to pay back the sum with accumulated interest.

TABLE 13: Comparative Crop Yields, 1970-85
(In Kg. per Hectare)

East Africa		TEA Smllhldr	TEA Estate	COFFEE Smllhldr	COFFEE Estate	TOBACCO Smllhldr	TOBACCO Estate	SUGAR	COTTON	MAIZE
MALAWI										
	1971-75	231	1,399			375	1,076	10,696	403	
	1976-80	416	1,734			398	1,189	10,528	563	
	1981-85	648	1,929			342	1,238	11,290	557	1,171
KENYA										
	1971-75	1,345	1,735	608	1,139				236	1,895
	1976-80	1,199	2,239	737	1,271				184	1,881
	1981-85	1,137	2,524	604	1,075				194	1,821
TANZANIA										
	1971-75	252	1,149						528	645
	1976-80	408	1,356						513	-
	1981-85	430	1,291						389	-

West Africa		COCOA	COFFEE	RICE	MILLET/ SORGHUM	GROUNDNUTS	COTTON	MAIZE
SENEGAL								
	1971-75			1,081		718	1,089	823
	1976-80			1,328		706	829	811
	1981-85			1,617		750	1,006	990
CAMEROON								
	1971-75	348	325		773	787	481	1,151
	1976-80	252	270		848	520	1,022	822
	1981-85	267	295		785	266	1,307	980
NIGERIA								
	1971-75	3,426		1,679	574	516	290	764
	1976-80	2,374		1,906	613	702	263	857
	1981-85	2,037		2,033	709	946	115	996

Source: Lele/Agarwal "Growth and Equity" (forthcoming).

Malawi or Nigeria throughout the 1970s, not simply in nominal terms but when considered in real effective exchange rates. [63] (see Figures 8a and 8b). Nevertheless cotton yields in Cameroon at the end of the 1970s were 4 to 8 times as high as in Kenya or Tanzania. As a result, returns to cotton production in Cameroon have been significantly higher than in the anglophone countries. This has greatly increased cotton production, at 8.3 percent p.a. (see Table 5).

Interestingly, Cameroon's cotton success story seems to contain some of the same ingredients as that of smallholder tea and coffee in Kenya, raising important questions not simply about the price and nonprice factors but about the relative roles of the private and public sectors, and about the relative importance of financial, technological and managerial factors that have contributed to it. SODECOTON in Cameroon is a public sector-operated agency. In terms of management practices, it is a more paternalistic operation compared to the participatory KTDA and coffee cooperatives in Kenya. Comparison of the services available to the cotton sector in Cameroon and its Nigerian or Kenyan counterparts indicate that SODECOTON has access to an excellent network of research on cotton undertaken by CFDT in French West Africa, especially in contrast to anglophone Africa.

Moreover, since the returns to CFDT (which has equity interests in SODECOTON) depend on the amount of cotton exported, it has considerable incentive to increase cotton production by improving services, whereas cotton cooperatives and parastatals in anglophone East Africa have not had such a stake. (We shall note later the way in which grassroots cooperatives were undermined in Tanzania as they threatened to become an alternative political power base and a source of political influence.) [64] In addition, Cameroon's cotton sector benefited from sound capitalization until 1986 when falling world market prices, overvaluation of the CFA franc and rising government demands that SODECOTON provide developmental services in the cotton areas combined with higher producer prices led to financial difficulties for SODECOTON. Until that point, stable access to capital had ensured that farmers actually received the official price at harvest time -- in contrast to the situation in anglophone Africa where the regular lateness or absence of payments (along with underweighing of the crop) have reduced the effective of prices that farmers have received. Finally, the political support of the government of Cameroon for development in the country's northern and extreme northern regions has been crucial for SODECOTEN's success.

63/ This is despite the fact that the bulk of Cameroon's cotton gets classified as higher quality (strict middling 1' 1/16 to 1' 3/32 memphis) compared to Nigeria's strict low middling (medium staple) from 1' to 1' 1/32 texas. The difference in Memphis and Texas cotton was estimated to be some $125 dollars per ton of lint. Moreover the ginning outturn in Cameroon had reached 39.5% in 1986 compared to an estimated 33% in Nigeria, leading to a difference of $250 per ton of lint.

64/ Tanzania's cooperative sector did, however, have an impressive record of cotton development in the 1960's. See Lele, The Design of Rural Development.

Fig. 8a: NOMINAL COTTON PRODUCER PRICES

1970-1986 (US $)

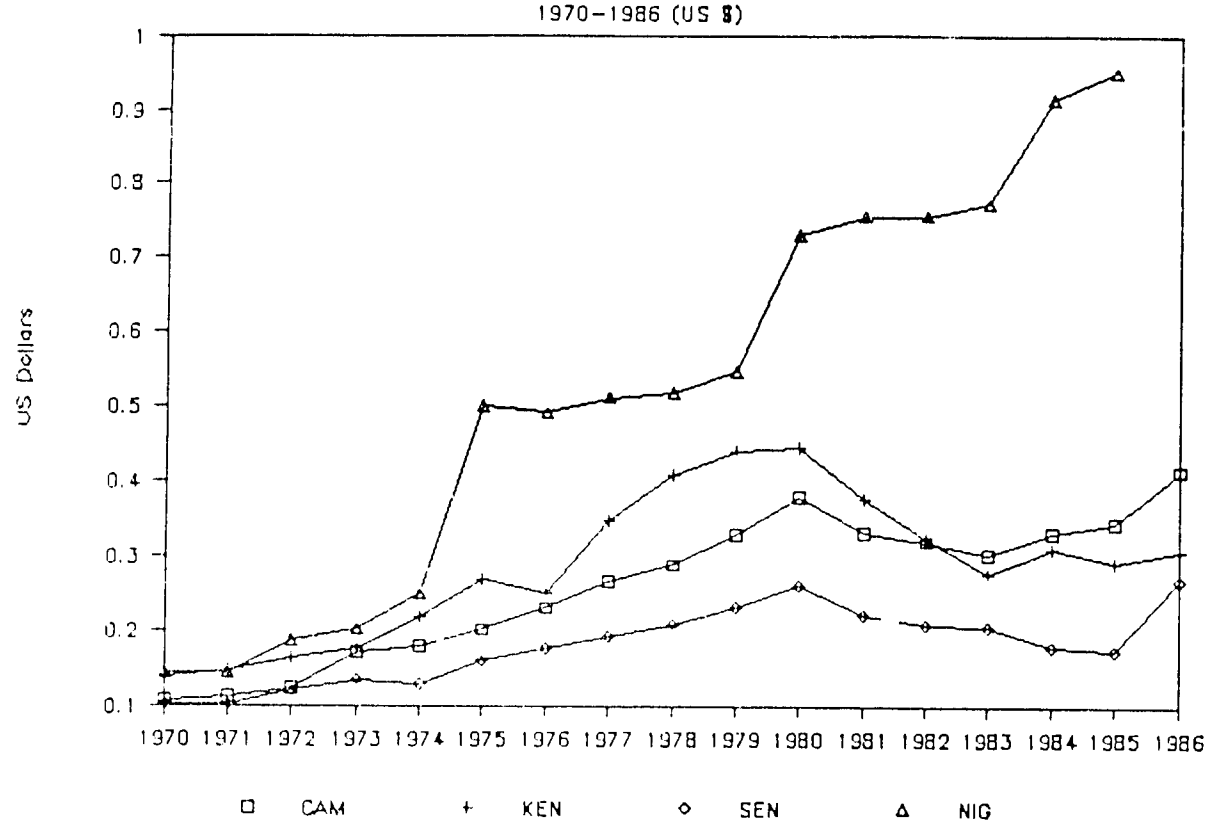
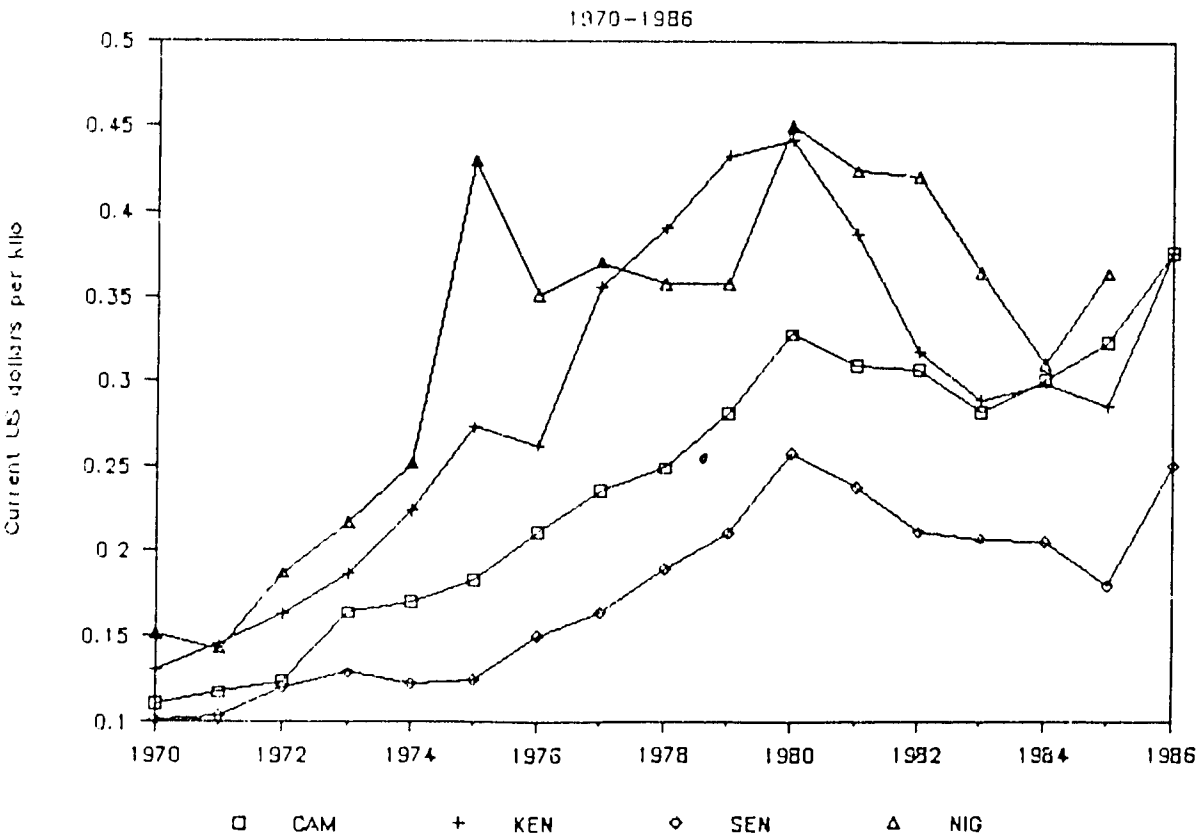


Fig. 8b: REAL EFFECTIVE COTTON PRODUCER PRICES

1970-1986



The private sector nature of cotton production in Nigeria does not appear to have ensured efficiency of the cotton sector. Whether privately, cooperatively or publicly operated, cotton sectors in anglophone Africa have suffered from inadequate capitalization, lack of credit and a poor record of payments for output, and in particular, a lack of accountability to producers.

Two World Bank-funded cocoa projects in Nigeria offer another example in which nonprice factors explain both the success throughout the 1970s and the decline of smallholder cocoa project level development. The Bank-funded projects coincided with the oil boom when cocoa was relatively heavily taxed and when there was also a 300 percent increase in the nominal wage. Nevertheless, the two projects exceeded their cocoa planting targets -- a rare occurance in donor-funded agricultural projects in Africa -- primarily because the almost totally Nigerian-operated cocoa subsector was well-managed. A second contributory factor in this case was the fact that returns to planting of improved cocoa strains were fully competitive with labor use in the non-agricultural sector, leading participating farmers to conclude that benefits from cocoa would match those in other sectors of the economy once the oil ran out. Finally, tree plantings make land rights more secure than planting annual crops, or leaving it fallow. Also, increased land pressure in the cocoa belt meant investment in cocoa had a high return. The World Bank, however, decided not to finance the third cocoa project in the 1970's even after its internal processing had advanced. This was because the problems between the federal and state governments on the level of financing for cocoa investments could not be resolved. Neither was the extent of subsidy on interest rates in the credit component for cocoa resolved. It is interesting to note that the Bank's pessimistic outlook on financing of cocoa investments (as in tea and coffee in East Africa) also played a part. Finally, the Bank concluded (contrary to our assessment here) that the adverse macropolicy environment had undermined incentives to the cocoa sector to a point where financing of a third project was not worthwhile.

These cases raise questions about the extent to which prices alone matter relative to numerous non-price factors. They also raise questions about the role stable vs. unstable prices play an increasing production, and whether there are differences in this regard between annual and tree crops. In the case of export crops, price stabilization has typically been associated with taxation of the export crop sector. We therefore consider the role of price stability together with that of taxation in the growth of export crop production.

Coffee and tea in Kenya, cotton in Cameroon and cocoa in Nigeria show good performance of the export crop sectors both in circumstances of low and high taxation and stable and unstable prices. The argument which emphasizes the need to provide international (meaning unstable and high) prices to producers, frequently states that tree crop prices fluctuate less than annual crop prices, that upswings in tree plantings occur in periods of price booms and that countries that do not pass on international prices to producers lose out on the consequent supply response. By the same token, in periods of low prices producers tend not to uproot tree crops but simply to reduce variable expenditures -- unless of course the price declines are sustained through public policy as in Tanzania. Certainly Kenya's experience supports all the above arguments. It also shows that

considerable revenues can be generated even at low (but mildly progressive) rates of taxation by increasing production in response to high prices. Besides, the efficiency of private expenditures resulting from the increased household savings and investment that higher producer incomes permit are more efficient for growth because of the dynamism they create in the rest of the economy.

Many reasons, however, are offered in support of price stabilization and export taxes. For example, relatively inelastic world demand for a given commodity under conditions of high producer responsiveness and high shares of individual countries in the world market could lead to excess supply and a fall in world prices. Indeed, as we have shown elsewhere,[65] concern about this scenario led the World Bank to adopt a policy in 1972 of halting financing for further expansion of tea and coffee (except when countries had no production alternatives), and confining assistance for these crops to investments in improving productive efficiency, including the processing of output already on-stream. Paradoxically, Kenya's smallholder tea and coffee production rose in the 1970s, partly as a result of World Bank lending for processing; growth came mainly from area expansion rather than from increases in land productivity.[66]

With regard to export taxes, we have also pointed out elsewhere[67] that a strong comparative advantage in the production of an export commodity may entail substantial producer rents, some of which could be taxed away without adverse effect on the return to resource use relative to the next best option. Further, taxation of the agricultural sector may be compensated for by government expenditures that directly or indirectly support agriculture -- for example, by expanding markets and raising productivity through better farmer access to technology, inputs, and information. Thus policies for taxation of the agricultural sector or producer price stabilization cannot be judged adequately without also taking into account public expenditures on agriculture that offset the revenue raised.

Stabilization may be more appropriate for annual crops than tree crops. First, annual crops' prices and yields vary more than those of tree crops, thereby increasing farmers' risks and uncertainties. Second, most annual crops are of lower value than tree crops (at international prices), so that the return to factor use tends to be less attractive compared to competing foodcrops -- making switches from annual export crops to foodcrops more probable.

65/ See Lele and Meyers, "Agricultural Development and Foreign Assistance."

66/ Meanwhile, concern that falling tea prices would mainly benefit developed world consumers rather than developing country producers has been substantially offset by the fact that much of the growth in consumption has taken place in developing rather than developed countries. This may also turn out to apply in the future to coffee and cocoa as the demand for them grows in developing countries.

67/ See Uma Lele, "Comparative Advantage and Structural Transformation: A Review of Africa's Economic Development Experience," (paper presented

Continued on next page

Finally, fluctuations in domestic production to which annual crops are more prone than tree crops may also adversely affect capacity utilization in downstream processing activities -- as in the case for groundnuts in Senegal and cotton in Kenya (where price stabilization may help stabilize supply by permitting increased use of purchased inputs). Per contra, rising capacity utilization of processing facilities may reduce processing margins and stimulate higher producer prices and production as Ranade and Jammeh have shown to be the case in Senegal. [68] Supply stabilization through domestic production stabilization may be also necessary as trade policy, which is supposed in theory to improve internal supply. This was some of the reasoning underlying British and French colonial decisions to support price stabilization for export crops.

These various arguments, and the ability to find evidence from MADIA countries to support conflicting conclusions suggests that there is no unique solution to the pricing issue -- and that donors need to beware of over-enthusiastic application of generalized blueprints for "reform" that gloss over the need for case-specific responses to individual crop production and country realities. Meanwhile, recipient governments also face domestic socio-economic and political dilemmas of their own with regard to this issue: in particular, a stabilization-plus-export-tax approach may appeal to them on the grounds that they are unwilling to incur the substantial regional income disparities and income instability that the application of international parity pricing would entail. Their ultimate decisions on this point may depend a great deal on the political history of their countries. In the MADIA sample, Kenya seems able to handle these sociopolitical problems but other MADIA countries seem less able to do so; however, recent evidence with policy reforms suggest that even this might change over time.

Diversification Policies Within Foodcrop Agriculture[69]

The priority given in West Africa to rice production is explicable by government concern about food security for urban populations. Investment also increased in sugar in most MADIA countries. The rapidly growing urban demand for rice, wheat, and sugar contrasts with the rural pattern of diverse and region-specific dominance of traditional food crops (sorghum, millets, cassava, yams) in domestic production. The costs of domestic rice were subsidized through major investments in local production, consumer prices of food imports were kept low through overvaluation of the exchange rate (e.g., in Nigeria), and through trade and price policies (in Cameroon and Senegal). In East Africa, where maize dominates in production and consumption, there were less acute import substitution efforts for rice and other preferred crops.

In view of the foreign exchange constraints faced by countries, it is instructive to note the heavy foreign exchange requirements of the "new"

Continued from previous page
at the Symposium on "Current State of Development Economics: Progress and Perspective" at Yale University, April 11-13, 1986) forthcoming.

68/ See Sidi Jammeh and Chandra Ranade, "Agricultural Pricing and Marketing in Senegal," MADIA Paper (Washington, D.C., World Bank, January 1986).

69/ Small producers have pursued increased production of horticultural crops for domestic urban markets and exports. Sugar irrigated or mechanized rice played an important role particularly in West Africa.

crops in relation to the needs of the traditional crops -- for example, the requirements of Tanzania's sugar industry in the early 1980s alone were estimated to be 40 percent of the total requirements of the agricultural sector.[70] Employment content of the "new" crops is also worth considering. Only Kenya pursued an active smallholder sugar production strategy; all the other MADIA countries treated it as a quasi-enclave industry. Only Malawi's sugar production was an almost completely labor-intensive estate crop.[71]

Nigeria pursued by far the most active expansion of large-scale irrigation for rice production, when considered as a share of total investments, although the other five countries also operated irrigation schemes costing between $10,000 and $25,000 per hectare. The role of price expectations is important to note as well. Many of the investments, including those financed by donors, were undertaken in the mid-1970s when world prices were projected to reach well over $500/ton by 1990 (compared to the current projected 1990 prices of $240/ton). Although these schemes attracted substantial amounts of donor funding, little systematic information on their actual production costs exists, however, and few studies have been undertaken of factors influencing internal demand for rice (especially of the factors determining the income and price elasticities of demand) and, therefore, the likely effects of alternative production, consumption and import policies on employment, income distribution, foreign exchange earnings and savings, government budget, etc.

Nevertheless such data as the MADIA study has been able to draw on suggest that the unit production costs of rice have been high in MADIA countries compared to those in Asia. Inter alia, this reflects high costs of capital works, high operating costs of the schemes, low utilization of irrigation works and high labor costs.[72] In addition, high internal transport costs of shipping rice to the urban centers in the port cities of the south compared to the current costs of rice imports have resulted in a continuing need for subsidies in Cameroon, Senegal and Nigeria, as high as 100 percent at current international rice prices. At the same time, while individual countries subsidized domestic rice production (in order to make it competitive with imports in distant port cities), the appropriate markets happened to be across national borders. This raises important issues about international and regional trade policy. For example, the

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70/ See Tanzania Agriculture Sector Report World Bank, Washington D.C., August 1983.

71/ See Lele and Meyers, "Growth and Structural Change."

72/ The Nigerian Agricultural Development Projects (ADPs) funded by the World Bank provide an important positive example of a significant effort to introduce low cost to well and surface irrigation which have the potential to transform agricultural prospects in that country. Even in these projects, however, emphasis on improving indigenous capacity for policy planning, implementation, management and operations of irrigation development, including, in particular, implications for long term soil and resource management have been few. See Lele, et. al., "Nigeria's Economic Development."

market for rice produced in northern Cameroon is logically located in nearby Nigeria rather than in southern Cameroon. However, Nigerian bans on rice imports in 1986 have resulted in substantial losses in rice production in Cameroon. This does not mean however that parallel markets across national boundaries do not exist, only that the costs of marketing are higher than they need be, the risks and uncertainties greater, and the difficulties in planning production policy harder to overcome.

Given the growing urban demand for rice, the income effect of rising rice prices and the investments that have already been made in domestic production, restraining (if not reducing) the future production costs of such investments is of considerable policy importance. In practice, however, governments and donors have tended to overlook the gross inadequacy of domestic capacity in Africa to operate and maintain these investments. This has resulted in a recurring need for rehabilitation, involving continued technical assistance and imported equipment. For instance, 30 percent of the investment costs of rehabilitation of rice schemes in the Fleuve region of Senegal has been spent on technical assistance for management.

Finally, past high world market price projections have exacerbated subsidies, resources for which could have gone for traditional food and export crops, in turn, allowing for more efficient growth in the short- and the medium-run until true comparative advantage could be developed. Thus in Senegal in a normal year, for instance, income from groundnuts production is 7 times that of rice. Contrary to much of the donor analysis, results of the MADIA study conclude that Senegal has a distinct comparative advantage in groundnut production in Casamance under improved technology. Improvement in groundnut production there has, however, received relative little attention compared to the policy priority given to the promotion of irrigated rice in the Fleuve.

Donors' Foodcrop Diversification Investments. A consistent and long-term financing policy towards diversification would seem clearly to be necessary both within each donor agency and in the donor community as a whole, based on a probabilistic (rather than deterministic) analysis of world market prospects, country-specific and regional considerations, etc. The outcomes of investments in diversification in Africa have depended more on the radically different price expectations over time as well as on the ebb and flow of country-specific dialogue and the roles and views of individual donor and African government officials, rather than on a well-conceived overall strategy. Thus while the World Bank provided financing for irrigated rice production in northern Cameroon during the early and mid-1970s, it withdrew support in the late 1970s as rice prices declined and production costs exceeded expectations. The EEC and France, however, continued their support. In Senegal, on the other hand, at around the same time, the Bank did not participate in the investment in irrigation works in the Fleuve (for which several other donors provided support), but then undertook to finance field investments for the production of rice in the large and small perimeters in the 1980s on grounds of sunk costs (once the investment in the barrage had been financed). More recently, donors have begun to coordinate their policies towards rice investment in West Africa, but it is too early to notice the results.

Similarly, while several donors (including the World Bank) invested in Bura irrigation in Kenya in the mid-1970s (which later turned out to have had a negative rate of return), at around the same time, the Bank steadfastly -- and wisely in our view -- insisted on the pursuit of a rainfed strategy in Nigeria and followed it up later with assistance for the development of low-cost irrigation, with an important positive effect on Nigeria's own smallholder development strategy.

Diversification into Horticultural Crops. Horticultural crops have tended by and large not to be controlled by governments. They tend to be high-value crops, with substantial scope for income and employment generation among small farmers. The growth of many such crops offers several impressive examples of "uncontrolled" diversification in, e.g., northern Nigeria, the northern and southern highlands of Tanzania and the highlands of Cameroon -- and of course including the growth of Kenya's horticultural exports at nearly 12 percent a year (albeit from a small base). This substantial diversification to meet growing urban and export demand has occurred in response to investments in physical infrastructure, particularly roads. Such diversification typically gets overlooked in an evaluation of price policy, especially the impact on welfare gains as the mainly partial analysis of efficiency and welfare losses focuses on traditional food and export crops. Unfortunately, despite the importance of developments of this kind for income and employment generation, their implications for public policy (in terms of the need for supportive transportation, information and financial market networks for private trade) have yet to receive attention by governments and donors on the necessary scale.

Subsidies

Resources taken out of agriculture through implicit or explicit taxation may also be returned to the sector, through general subsidies on interest rates, or through specific subsidies on inputs, or both. We discuss input subsidies which have been justified on grounds of encouraging learning-by-doing by reducing the farmers' risks of adopting new technology and correcting for other (e.g., output--mainly export-- price) distortions. Of the six MADIA countries, Kenya has been the least reliant on explicit subsidies on fertilizers (removed in 1977), Nigeria and Tanzania, the most. Recall that the latter two also subsidized fertilizers and other inputs implicitly through overvaluation of the exchange rate, whereas Kenya did not. The rate of explicit fertilizer subsidy in Nigeria and Tanzania was similar (75 percent in the 1970s in Tanzania and 85 percent throughout in Nigeria). Explicit fertilizer subsidies in other countries have been relatively more moderate -- e.g., Senegal 55 percent, Cameroon 54 percent, and Malawi 23 percent.

Fertilizer use has been directed towards particular crops through specific development programs in specific regions. Use at the farm level has been influenced by incentives as producers perceive them, and consequently a great deal of fertilizer, including that directed at export crops has gone to food crop production, e.g., away from coffee to maize in the Western highlands.[73] Growing food insecurity as reflected in price

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73/ Rate of subsidies represent means: For Senegal, mean for 1970-82; for Cameroon, mean for 1977-82; for Malawi, mean for 1983-87. From Lele and Christiansen, "Fertilizer Policy in Africa," Table 6.

shifts has also led some governments, e.g. Nigeria and Malawi, to explicitly promote fertilizer use on food crops. Kenya has had the most diversified direction and use of fertilizers in food and export crops.

Given levels of output prices, and taking into account the extent of implicit and explicit fertilizer subsidies, Nigeria has had the most favorable food output/input rice ratios. Reflecting its high transport costs and slightly undervalued exchange rate, Malawi has had the least favorable output/fertilizer prices.

Profitability of fertilizer use has also been determined by the output-input coefficients. Our survey of fertilizer responsiveness at the farm level stresses how little attention has been devoted to developing consistent and reliable information on this important issue. Existing evidence suggests that fertilizer use is by and large profitable on maize (and especially hybrid maize) at undistorted prices in Malawi, Kenya, Tanzania and large parts of Cameroon. The least is known about output-input coefficients in Nigeria and Senegal. Profitability on other crops depends greatly on assumptions regarding technological coefficients.

The growth of nutrient availability in the countries has been influenced by price as well as nonprice factors, in particular foreign exchange availability and promotion of fertilizer use through extension efforts. Because of liberal foreign exchange availability Nigeria has had the highest rate of growth of nutrient availability, followed by Cameroon, Malawi, Kenya (see Figures 9a and 9b). Senegal and Tanzania have had no growth in fertilizer use.

The budgetary implications of fertilizer subsidies have been the most important concern in their abolition, in addition to the misuse and wastage of fertilizers resulting from distorted prices. Nigeria's budgetary costs have been the greatest. Thus implications of fertilizer use or misuse for retention of soil fertility under conditions of rapidly growing population pressure, and declining soil fertility have received relatively little attention in initial structural adjustment dialogues and in the pressure applied to countries by donors for policy reform, although this is changing.

Removal of fertilizer subsidies and its likely effects on fertilizer consumption raise complex questions about the relationships of factor productivity to food crop prices (given that close to 80 percent of the value-added in food crops under traditional technology comes from labor), and of food crop prices to wage costs in the economy, given that food constitutes a major share of the cost of labor. These relationships have major efficiency as well as welfare implications. Increased cost of food under conditions of little or no technical change (as prevails in most of West Africa) leads to increased costs of labor with adverse effects on export and import substitution competitiveness. In Malawi and Kenya, on the other hand, the lack of productivity growth in circumstances of immense land pressure is also leading to increased market dependence for food even by rural producers. Up to 50 percent of the food consumed in the Eastern and Central provinces of Kenya by rural households is bought in the market. The shares are even higher in Malawi's Southern and Central regions. Higher food prices therefore have significant adverse welfare implications,

Fig. 9a: TRENDS IN FERTILIZER CONSUMPTION

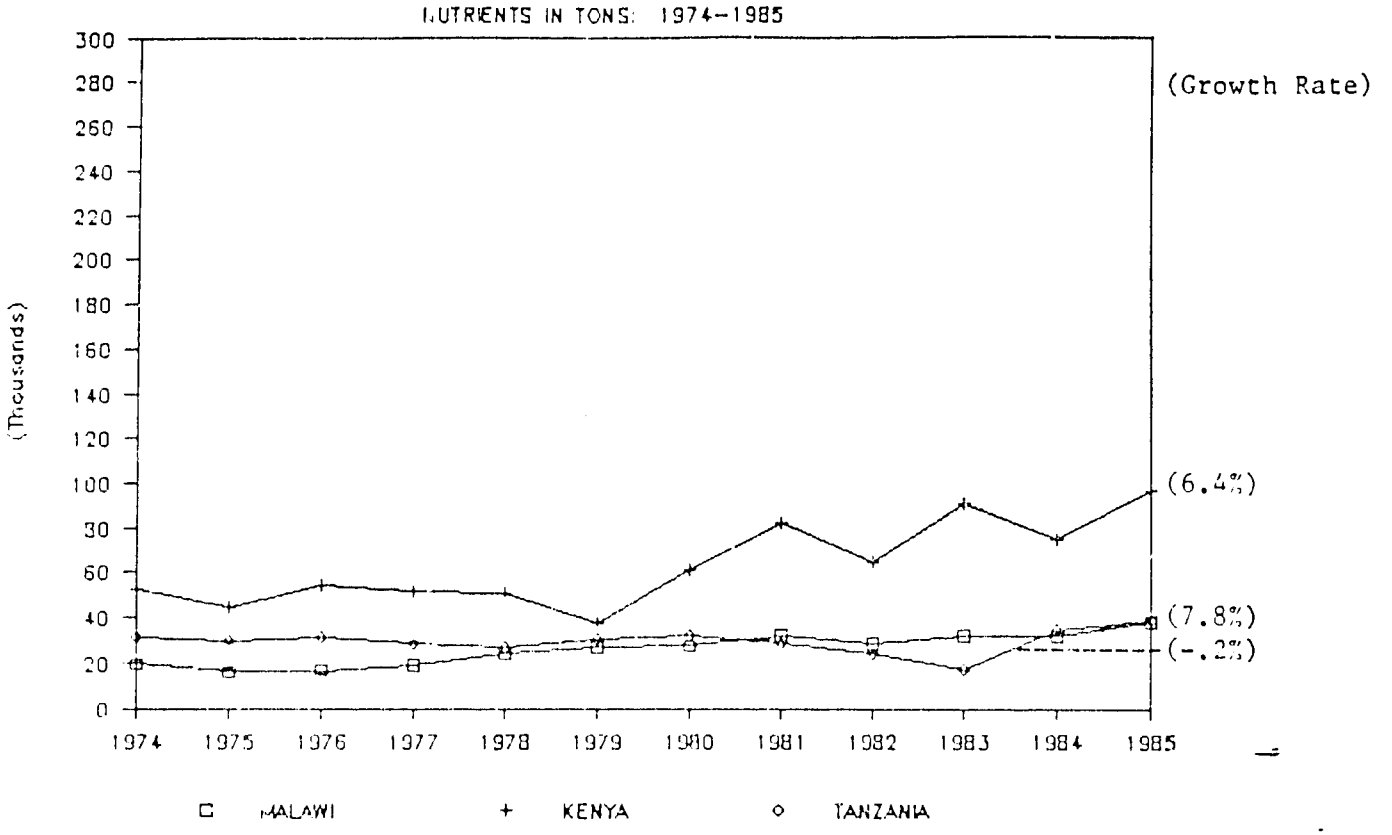
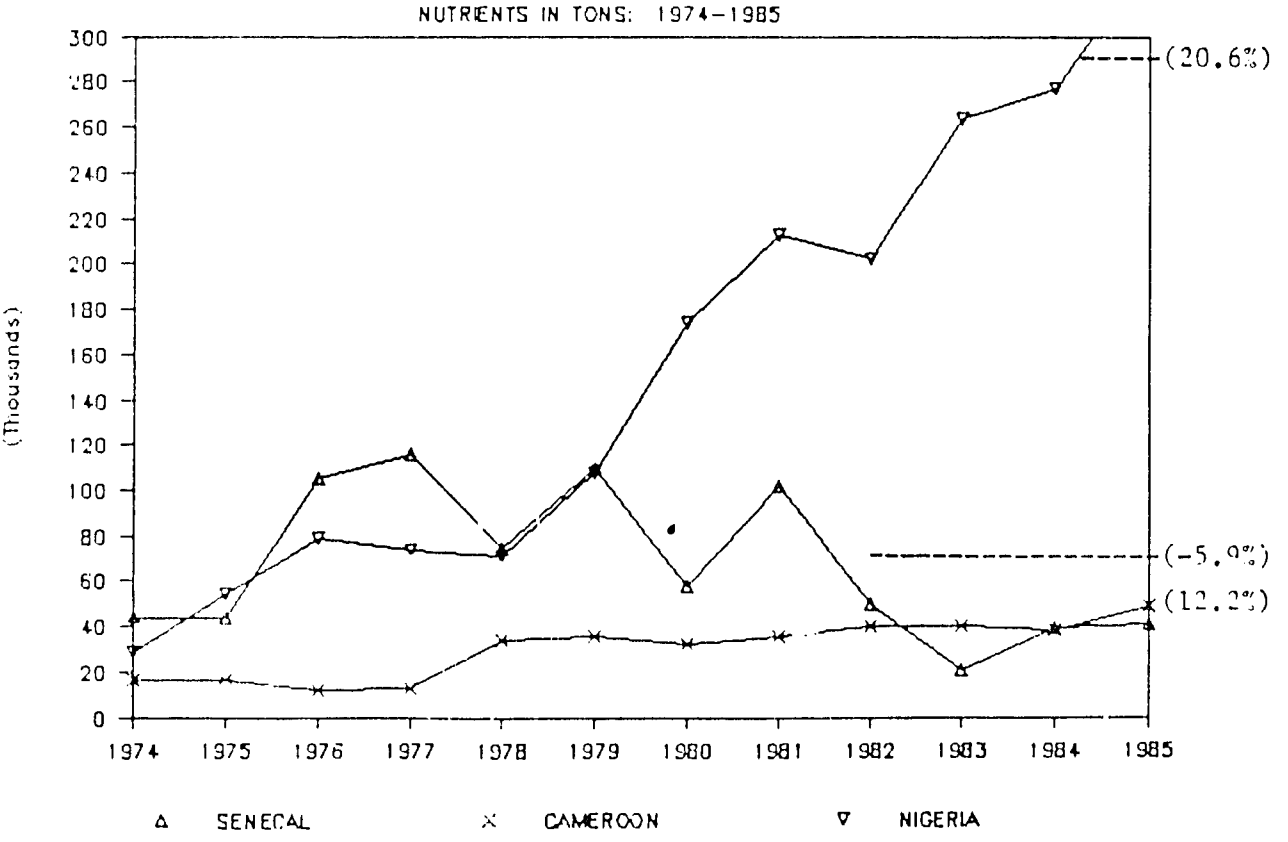


Fig. 9b: TRENDS IN FERTILIZER CONSUMPTION



especially for low-income rural households, if they are not offset by increased food imports or food subsidies. Fertilizer subsidies also need to be considered in this broader context of effects on labor efficiency and labor welfare under conditions of growing land pressure and declining soil fertility on the one hand, and increased food imports and budgetary expenditures on food subsidies on the other.

All six MADIA countries have subsidized agricultural interest rates, but Kenya's and Malawi's have been lower than Tanzania's, Nigeria's or Senegal's. The effective level of interest rate subsidy has depended on the amount of seasonal and medium-term credit -- largest in Kenya, followed by Malawi, Senegal and Tanzania. In Cameroon, credit is tied to the promotion of specific export crops, such as coffee and cotton. It benefits a smaller number of farmers than in Kenya or Malawi. Whereas much of the subsidized credit has gone to the relatively larger farmers in all countries, Kenya's small farmers have tended to benefit the most in relative terms from institutional credit followed by Malawi's. [74]

The indiscriminate growth of inadequately supervised credit has resulted in low repayment rates and consequent erosion of the financial capital of credit institutions in Kenya, Tanzania and Senegal (although erosion of the financial capital of individual institutions in Kenya has nonetheless coexisted with the relatively high saving and investment rates of rural households). Malawi and Cameroon, on the other hand, have had an excellent record on repayments -- group credit in Malawi and supervised credit for cotton in Cameroon. Group pressure to repay credit in Malawi, however, discouraged its expansion to those low-income small producers who most need credit but cannot bear the risk.[75]

Inequitable access to subsidized institutional credit and erosion of financial capital due to nonrepayment elicited the view in the 1970s that institutional credit is unnecessary for agricultural development. [76] There has also been a view that the supply of informal credit in rural areas tends to be larger than is generally acknowledged.

The extent of free-standing credit projects or credit components in agricultural projects has differed among countries. While Kenya has had the highest number of donor-funded credit projects followed by Tanzania, Malawi and Senegal, Nigeria has had no credit components in donor funded-projects. In recent years, however, donors have suggested that the supply of institutional credit should not be expanded until there has been an

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74/ In Nigeria, credit was formerly available to cocoa and palm oil producers (through World Bank-funded projects). But these groups' access to credit may well have fallen owing to the decline of the export crop sector, whereas that of the larger more mechanized farmers involved in maize and poultry production appears to have increased -- nearly 96 percent of the credit provided by Nigerian commercial banks to agriculture in 1983 went for poultry production.

75/ See Uma Lele "Structural Adjustment, Agricultural Development and the Poor: Lessons from Malawi" in World Development, forthcoming.

76/ Dale Adams, Douglas H. Graham and J.D. Von Pischke, Undermining Rural Development with Cheap Credit, Westview Press, Boulder, CO. 1984.

adequate effort first to mobilize rural savings. MADIA research, in common with other studies of rural households, indicates that easy access to cash -- e.g., through remittances -- has facilitated the adoption of new technologies,[77] while cash shortages have been a major constraint to the adoption of new technologies among small farmers.[78] Studies have repeatedly pointed to the need for increasing the supply of institutional credit, especially where increasing the use of hired labor and modern inputs is critical for raising productivity. So even though institutional mobilization of rural savings is essential, abolition or undermining of rural credit until rural savings are mobilized may be counterproductive. This is especially the case as costs of purchased inputs increase due to abolition of subsidies, devaluations and increased internal transport costs. The MADIA study clearly shows the likely adverse effect on input use, especially among low-income producers as cash purchases are being promoted at the same time that input prices are increasing (e.g., as in Senegal and Malawi).

Both Kenya and Nigeria operate subsidy schemes on tractor services for land preparation. The Nigerian program is the more substantial of the two and has been a major bone of contention between the World Bank and the Government of Nigeria. Tractor hire services were subsidized by state governments to the extent of 50 - 75 percent of cost; tractors were sold at 50 - 75 percent of their cost prices.

Maize price stabilization operations have been another potential source of food subsidies in Kenya, Tanzania, and Malawi. The overdrafts of the parastatals on the maize account have frequently been large in macro-

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77/ William L. Collier, Agricultural Technology and Institutional Change in Java, Agricultural Development Council, New York. 1975.

78/ In Kenya, for instance, the practice of plucking two buds and a leaf by small farmers - which ensures its high quality premia in the world market - is said to reduce the quantity of tea plucked per hectare. Our own field investigations (supported by a recent survey of small tea farmers) indicate, however, that shortage of cash for hiring additional labor is a far greater constraint on increasing smallholder yields in Kenya than other factors, e.g. inadequate fertilizer supply or extension (see Stanly Mwangy Karuga, "An Evaluation of Tea Productivity on Smallholders in Kenya, "unpublished M.A. thesis, University of Glasgow). And yet credit policies in Kenya have discriminated against small farmers, because many have argued that credit is unimportant for small farmers. Further even if credit is provided, it is offered in kind (fertilizers and pesticides) rather than cash (for hiring labor) on the grounds that input use will be more easily monitored. It is only in the cocoa project in Nigeria that early Bank projects recognized the need for cash to intensify labor use. See Uma Lele, "Structural Adjustment," in World Development , forthcoming. Also see Lele and Meyers, "Agricultural Development and Foreign Assistance."

economic terms and in relation to the size of the recurrent budgets of the agriculture ministries. [79] It is hard to determine whether consumers or the producers have been the primary beneficiaries of the maize price subsidies, as the relationship between open market prices and official producer (and consumer) prices have been inversely related to the size of the crops -- and varied greatly year by year, owing to substantial production instability. Some analysts have argued that consumers have not benefited -- because of the poor availability of food supplies at official prices in periods of scarcity, nor have producers, because of the marketing boards' inability to purchase all the maize supplied in years of surpluses owing to inadequate working capital.

Consumers and producers, especially in remote areas where private trade tends not to operate, and where producer and consumer prices tend to fluctuate more in the absence of stabilization, have gained on balance from the relative price stability that marketing boards have provided. Costs of the marketing boards' operations could certainly be reduced by increasing managerial efficiency, allowing greater interseasonal and spatial price variability, and making them buyers and sellers of last resort.

However, it is clear that governments have attached greater importance to price stability on grounds of political stability, consumer welfare (especially of the lowest income groups) and maintenance of real urban wages than have donors. This is already an important issue in countries with high land pressure such as Kenya and Malawi, where the proportion of food purchased even by rural households has reached 50 percent or more. If intensification of land use with increased use of fertilizer does not proceed then the problem will be further exacerbated. Increased urbanization is also increasing the proportion of population dependent on the market, but it is the rural poor which are the most vulnerable to price fluctuations. An equally neglected issue is the importance of capitalization of public sector grain marketing institutions, especially if they become the buyers and sellers of last resort and do not have the profits to offset against the inevitable losses in interyear price stabilization, under conditions of substantial year-to-year fluctuations in both supply and demand.

Overall, Kenya's pricing and subsidy policies seem to have been the least distortionary. While distortionary policies extracted resources out of agriculture in Nigeria, more resources have been returned to small farmers producing food crops in the form of government expenditures and subsidies than is generally recognized. On the whole, however, there has been a redistribution of income from export to foodcrop producers since agricultural taxes have been levied on export crops, (with the exception of Kenya) and production and input (including subsidy) programs have focused mainly on foodcrops.

79/ Kenya's and Tanzania's marketing parastatals accumulated losses, for instance, have been estimated to be of the order of $300 million and $200 million, in 1987 for Kenya and in 1983 for Tanzania respectively, compared to the annual budgets of the ministries of agriculture of between $100-200 million at official exchange rates.

Land Policy

It is important to bear in mind that most of the increase in agricultural production in MADIA countries over the past two decades has come from increases in the area under cultivation, and that the composition of output has been determined mainly by the shifts in relative prices of crops. Pricing variables have determined the value-added by labor use, the most critical single factor determining output, although the ability of producers to mobilize additional land (and labor) -- along with such little capital as is used in production in the form of implements, animal traction or fertilizers -- has also been important. In Cameroon and Nigeria, access to tractors has helped to determine the ability of rural households to clear land, and subsidies on tractor operations, together with the social and political factors that influence individuals' access to tractor power, have made a difference to the mobilization of land.

On the other hand, the institutional/judicial aspect of land policy -- such as legally specified rights to the use and the ownership of land or rights to grow crops has not been an important factor in West Africa compared to the three East African countries. Indeed, despite the growing land pressure in at least two of the three West African countries, land has been a surprisingly unimportant issue in public discussion and policy formulation. This does not mean, of course, that land access has been equal.

The land issue in East Africa has received more public attention and consisted of three factors: ease of access to land, the right to cultivate and to own land, and rights to grow crops and to hire labor. In our view, these factors have fundamentally determined agricultural production performance in the 1970s.

In Kenya, land policy mainly involved settlement of Africans on land formerly owned and operated by European settlers in the Rift Valley and the White Highlands, along with substantial increases in land titling in areas of high potential where tree crops such as tea and coffee, together with dairying have been promoted. Kenya's data for overall land distribution are limited, especially for the large farm sector. The piecemeal evidence that is available suggests that there has been a broadening of the distribution of land, with the proportion of total land under the control of smaller rural households rising over time, and with a substantial increase in the land market. Nevertheless, given growing land pressure and differential access to institutional credit, land access will continue to be a central policy issue determining growth and equity outcomes in Kenya.

In Malawi, on the other hand, the increased alienation of land for estates, leading to increased land pressure in smallholder areas than simple statistics on arable land/person ratio suggest, combined with restrictions on small farmers' rights to grow certain crops is the single most important factor explaining the lack of growth of smallholder production (along with the more conventional discriminatory producer pricing policies discussed earlier). Land registration has not progressed far in Malawi, and much of smallholder cultivation is undertaken on customary land. But the alienation of land for tobacco, sugar and tea

estates, as well as increases in the amount of public land, has shrunk the share of customary land under small farmer control over time. [80] The subsistence needs of a growing population under conditions of land pressure, combined with the government's policy of using a licensing system to restrict the rights to grow high value export crops (flue cured and burley tobacco, tea and coffee) has meant an increase in the skewedness of land distribution between the estate and smallholder sectors. Within the estate sector, although farm size has declined over time, [81] there is still much underutilization of land -- as much as 75 percent of estate land is estimated to be underutilized. Especially as producer price distortions between the estate and the smallholder sector are being corrected, land policy is one of the most important factors determining Malawi's future growth in productivity in smallholder agriculture. Without its resolution, a three tier land ownership of estate owners, smallholders and marginal (or near landless) is beginning to emerge.

In Tanzania, government policy towards land both discouraged land titling a la Kenya or the use of customary land rights a la Malawi. Traditional land rights were instead transferred to the public sector, with individuals being given rights to the use of land. The ideology of the ruling party, and growing political mobilization at the grassroots level in support of that ideology in the 1970s, discouraged "capitalist" farming by either large or small farmers.

By far the most important land policy decision in Tanzania was to move farming households into "Ujamma villages" -- frequently against the wishes of rural households in circumstances where poor land quality required dispersed rather than concentrated populations. Villagization increased walking distances to the farm, while at the same time increasing land degradation, both because of the increased cropping intensity that land pressure encouraged, and because of the reduction in the tree cover as farmers made use of public land for firewood -- while resisting replanting trees under the arrangement of village wood lots that the government attempted to promote.

On a more positive note, Tanzania opened up high potential areas in the southern highlands by investment in the Tanzam road and the railways. Western donors had declined to finance the latter, leading Tanzania to obtain funding from the People's Republic of China. Tanzania's southern highlands now constitute an important source of agricultural production (including coffee, tea, maize, tobacco, etc.) Nevertheless, the growth that resulted from opening up these areas of high potential was offset by the government's discriminatory pricing and investment policies

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80/ For instance, between 1966 and 1985 land available for cultivation decreased by one half-million hectares, or 26 period, while area under tobacco estates has grown by 400,000 hectares in the period 1977 to 1983 alone.

81/ For example, while in 1976 the total number of tobacco estates in Malawi was only 710, by 1985 that number had grown by 21 percent p.a. to reach 3,972. The average size meanwhile decreased from 34 ha. to only 11 ha.

(which mostly hurt the traditionally established production areas in the north and the west) and its active support of low-income and resource-poor regions.

Labor Policy

An important and related issue affecting factor mobilization in East Africa is that of labor policy. Labor legislation, use of minimum wage laws and unionism were all the most active in Tanzania. These factors, together with the political campaign to discourage the use of hired labor, all help to explain the decline of smallholder and large-scale agriculture alike in Tanzania, given the labor-intensive nature of export crop production. The Malawian government's virtual neglect of unionization of labor and wages, on the other hand, explains Malawi's growth rate of wage employment of nearly 10 percent annually in estate production in the 1970s, in circumstances of a declining real wage created by an elastic supply of labor due to the land policy. Kenya, on the other hand, created a wide range of employment opportunities in the agricultural sector (i.e. in both large-scale and smallholder farming). While it provided minimum wage guidelines which were generally observed in agricultural employment, it nevertheless followed a more middle-of-the-road course towards labor than either Tanzania or Malawi. As a result, employment has grown rapidly in agriculture and the nonfarm sector alike, while real wages in the rural sector, despite rapid population growth have fallen less in Kenya compared to their levels in the early 1970s and relative to in Malawi and Tanzania — where they have declined by nearly half.[82]

Technology Policy

The fundamental importance of increased factor productivity in agriculture has been stressed in a variety of different contexts in MADIA countries. Increased foodcrop productivity is important not simply for improvement of human welfare, because small producers give first priority to achieving food security through the use of their own resources. This releases land and labor for diversification into other higher-value activities for domestic consumption or the market.

Growth of maize production in a wider range of ecological conditions in MADIA countries is therefore of interest as a case of technical change in the foodcrop sector. Not only do traditional varieties of maize yield higher than the sorghum, millets, and rootcrops they replace, but more fertilizer-responsive varieties of maize have been available. In the case of improved maize technology once again Kenya had made the greatest strides. Up to 60 percent of Kenya's smallholder maize acreage is under improved (hybrid or composite varieties) compared to less than 10 percent in all other MADIA countries.

This in part is because the better watered high- and medium-potential areas of Kenya have shown greater fertilizer responsiveness than elsewhere in Africa. Moreover, Kenya has had an active seed production program and an effective extension system. Research now indicates that the willingness of Kenya's relatively better-endowed small farmers to undertake

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82/ See Uma Lele and Manmohan Agarwal, op.cit.

risks have also played a part in greater adoption in Kenya than in Malawi, where even after 20 years of generally effective agriculture development programs less than 6 percent of the the small farmers use improved maize varieties.[83] However, the greater progress of Kenya also reflects a longer history of effort for developing agricultural technology suited to the particular requirements of small farmers. This was not a priority for governments and donors in the 1970s when extension programs received priority over research. It is only in the 1980s that donor financing to establish national agricultural research capacity has been provided in Africa. Our analysis of the experience in building indigenous research capacity indicates that, in contrast to Asia earlier, there is still relatively little political commitment to science and technology for the development of smallholder agriculture. In externally assisted programs, the substance of research (as it relates either to factor endowments or agricultural policy), has received relatively little attention compared to the provision of physical capital and external technical assistance. This is because there is not yet adequate agreement among the donors and governments on the substance of research. Only the U.S. has played an effective role in building African scientific manpower, albeit primarily in foodcrops research. Meanwhile, ineffective foodcrop research systems and the diversion of resources from those systems into the staffing of rural development projects and elsewhere have been major problems in all MADIA countries.

Commodity research for export crops has historically been of high quality but deteriorated in most MADIA countries, e.g., in Tanzania and Nigeria. In the latter, a once impressive Nigerian scientific community remains unsupported and unproductive (despite substantial increases in expenditures on research during the oil boom), mainly because of unstable funding and lack of political support for research.[84] In Tanzania, the breakup of the East African Community and subsequent primacy of ideological over technocratic considerations in the formulation and implementations of agricultural policy has undermined research. More generally, the rapid indigenization of research staffing has been a problem in most MADIA countries, along with poor research management and leadership.

In the francophone countries, commodity research carried out by the French has continued to be strong, but little training of nationals has taken place relative to that which was formerly provided by the British in anglophone Africa for export crops (and more recently by the US in foodcrops). Moreover, although commodity research has yielded major innovations (such as drought-resistant varieties of groundnut, promotion of sole cropping, and increased use of animal traction in Senegal), it has not addressed the serious problems of soil degradation, especially the integration of cropping, livestock and tree farming by smallholders that is urgently needed to protect the environment from rapid population growth.

83/ Strong preference of traditional maize varieties is often offered as an explanation for the low adoption of hybrid maize in Malawi.

84/ See Lele et al. "Nigeria's Economic Development."

MADIA analysis of technological capacity stresses that long-term political commitments of governments at the highest level will be essential for establishing sound research policy and its implementation. This will have to involve far better utilization of trained African manpower on a stable basis, as well as far greater investment in indigenous human capital and in the organizational and management capacity for research.

Finally, the MADIA study emphasizes the neglect since the early 1970s of export crop research (in contrast to the colonial era) by governments and donors alike (partly reflecting the combination of competing commercial interests. In the U.S., for example, humanitarian concern about food security, and the related public relations importance of food security issues among constituents of foreign aid in the Western community, as well as the concerns about environmental effects of export crops prevailed. It is striking to note, for example, that the Consultative Group on International Agricultural Research (CGIAR) provides relatively little support for export crop research, and despite the emphasis placed on export-led growth in policy reform in Africa, there has been little discussion of export crop research and support from the international community, except through individual bilateral efforts. Even the latter are atrophying with passage of time. Thus we do not yet see solutions to promote agriculturally-led export growth in Africa. The emphasis has continued to be on a relatively short horizon, mainly in the context of policy-based lending -- approaches that have important merits in the right context, but that lack the specifically targeted and catalytic approach to building a larger balance of capital that we consider essential.[85]

Infrastructure

Rural feeder roads have a key role to play in the growth of smallholder production.[86] In Senegal and Malawi, however, a relatively good feeder road network has not stimulated agricultural growth; in Senegal due to poor natural resources, and in Malawi due to poverty aggravated by effects of land and price policies which keep internal effective demand low. Kenya and Malawi have continued to have a good general record on feeder road development and maintenance. Nigeria and Tanzania have had a rather poor record, especially of maintenance of newly constructed and existing feeder roads. Cameroon's feeder road network has been the worst.

Contrary to general belief, our observations -- albeit based on field visits and fragmentary data -- suggest that markets for foodcrops are not well-integrated in Africa and government control -- which is important in East Africa -- is not the only constraint to market integration. Unavailability of information, lack of standardization of weights and

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85/ See Uma Lele and Arthur Goldsmith, "The Development of National Agricultural Research Capacity: India's Experience with the Rockefeller Foundation and its Significance for Africa," in Economic Development and Cultural Change, forthcoming.

86/ See Uma Lele, "Agriculture and Infrastructure," paper presented for a Symposium on Transportation and Structural Adjustment, organized by the Transportation Department, The World Bank in Baltimore, MD, May 6-8, 1987.

measures, shortages of credit to private traders, and inadequacy of private transport and storage have inhibited the development of local marketing infrastructure in all MADIA countries. Kenya and Nigeria, however, already show a distinct edge in the role that markets and the private sector play, a role in part augmented by high population densities and greater effective internal demand.

Institutional Development

The MADIA study addresses several dimensions of institutional development that together critically determine the formulation and implementation of a cohesive agricultural policy. The first issue concerns the relative roles of technocracies vis-a-vis political factors in the formulation and implementation of policy. Kenya and Malawi have placed more emphasis on the role of technocrats than Nigeria, Tanzania or Senegal. Ministries of agriculture have had clearer roles in policy planning and implementation in the former than in the other MADIA countries, where the ministries have been very weak. Fragmentation of responsibility for policy planning is a major problem. In Tanzania the party (CCM) and the Prime Minister's office have had far greater policy influence in agriculture than the ministry of agriculture since the decentralization of the government in the 1970s. In the francophone countries and in Nigeria, planning and implementation of agricultural development is mainly undertaken by large numbers of parastatal agencies and autonomous project units rather than by government departments or ministries of agriculture. As to the formulation of agricultural policy, other ministries -- commerce, industry, planning, science and technology -- play important roles with little coordination and no clear center for decision-making.

Because of the strategic importance of agriculture, in particular the food security issue, the role of the Presidency in agricultural policy has been strong in all countries. In some cases (Malawi), the President has retained the agricultural portfolio; in others, the president's office increasingly "second guesses" the ministry of agriculture. In Nigeria such centralization has allowed donors to deal with a single center of power vested in the federal government. However, the weak capacity of the state departments of agriculture, as well as of local governments and cooperatives has been a particularly serious problem in ensuring responsiveness of smallholder development programs to the diverse needs and potentials in a large country and especially to ensure their sustainability.

As with so many other developmental variables reviewed in the MADIA study, in Kenya there has been greater responsiveness of agricultural policy to grassroots interests through the establishment of routine mechanisms which articulate these interests. This reflects Kenya's political struggle for independence, which was based on the Africans' assertion of their rights to land and to grow export crops, rights which were denied to them during the colonial era. Kenya's policy, therefore, represents agricultural interests to a greater extent than other MADIA countries.

Elsewhere governments have tended to show little enthusiasm for grassroots institutional development, because they have perceived it as leading to alternative centers of political power.

Emergence of such alternative centers of power explains the lack of stability of institutions even in circumstances where political stability has existed. Malawi, Kenya and Cameroon have enjoyed more stable institutions, although even in these countries institutional instability is increasing. Institutional instability has been a major problem in Tanzania, Senegal and, of course, in Nigeria.[87]

Encouragement of privatization, of course, is another critical form of economic decentralization. Whereas Nigeria and Kenya have shown a greater proclivity in this direction--in the case of Nigeria even to the abolition of marketing boards in 1986--the examples of cocoa, coffee, cotton, tea and maize cited in this paper provide support to our argument that that the private sector is invariably more efficient than the public sector in marketing, agroprocessing or exports. Meanwhile the public sector has an irreducible regulatory function involving the establishment and enforcement of weights, measures, standards, quality and payment procedures (as in export crops marketing), together with investment/implementation responsibilities for the provision of public goods through the development of transportation and communications, and the dissemination of information; even agroprocessing may best be undertaken by the public sector in instances where the potential availability of scale economies means that time is needed to develop production and to put these institutions on an economically viable basis in the private sector.

Substantial weaknesses in MADIA countries' formal institutional structures, as well as broad organizational shortcomings and poor demarcation of responsibilities between different levels of government (and among different units of management at the same levels) are the norm as are similar weaknesses in the allocation of developmental roles between government, commercial organizations and participatory institutions. In our view, the institutional issue is an important constraint on development that has received far too little attention in analysis of agricultural development in Africa in relation to the weight given to macro and sector policy reform, even when allowance is made for the promotion of privatization and strengthening of the planning capacities of ministries under recent structural adjustment loans. Indeed, given the underlying sociopolitical factors which have affected institutional choices, it is not clear to us that adjustment programs have adequately reflected their implications either for the content or the speed of institutional reforms.

87/ In Tanzania, Malawi, Cameroon and Senegal, the role of private trade in agriculture was actively discouraged in the late 1960s. In Senegal and Tanzania, this was followed by the encouragement of the cooperative movements, in the early 1970s, then by its replacement with parastatal credit, marketing and processing since the mid 1970s, followed by abolition of parastatals in the late 1970s and early 80s and their replacement again by cooperatives and the private sector.

Concluding Assessment

This paper has demonstrated the complexity of agricultural development in Africa, the number of variables that impinge on the outcomes and in particular the extent of variability in the endowments of the countries as well as in the policy responses and outcomes.

In terms of initial conditions Kenya and Nigeria were the most well off, followed by Cameroon and Tanzania. Senegal and Malawi inherited by far the least favorable initial conditions. Nigeria and Cameroon had favorable external shocks due primarily to the dominance of oil. In Senegal, while the changes in external terms of trade were favorable due primarily to the role of phosphates, other external shocks relating to agriculture turned out to be unfavorable both as regards terms of trade changes for groundnuts and the climate.

Fortunes of the more agriculturally based economies in the East were less favorable than in the West. Terms of trade losses were the greatest for Kenya, although both Malawi and Tanzania also suffered from major losses.

Only Kenya among the MADIA countries made the most of its initial conditions and pursued a combination of macroeconomic and sectoral policies that achieved rapid agricultural growth while also achieving equity.

While Malawi's growth record was good in the 1970s due primarily to its good macroeconomic policies, the land and price policies swamped the effects of other favorable policies in smallholder agriculture.

Nigeria's adverse policies and "luck" in terms of internal shocks to the system meant that it did not make good use of the resources at its disposal to lay the foundation for long-term growth, although much physical infrastructure got developed and social indicators improved. Political problems have been enormous in Nigeria, indeed the nature of policy responses were in many ways symptomatic of those political and institutional problems.

Cameroon followed more moderate policies than Nigeria, albeit with highly variable performance between cotton and other subsectors of the agricultural economy.

Tanzania and Senegal were the least well performing countries. Whereas adverse policies played a part in both countries, Tanzania's more favorable resource endowments relative to Senegal's dominate the role of policies in explaining performance. In Tanzania's case, genuine strides were made on the equity front but could not be sustained due to inadequate attention to agriculturally-led growth.

While favorable price incentives through conducive macroeconomic and sectoral policies played a key role in explaining performance, the fundamental importance of the quality of natural resources, technological, institutional, political and human and physical investments played a major role in the ability of small farmers to mobilize land and labor, the two most important factors explaining growth. There was relatively little technical change in the agricultural sectors of MADIA countries.

An important foundation of physical and human capital was laid in all countries, but successes and failures in MADIA countries show the amount of time involved in learning-by-doing, and therefore how important it is to exploit initial conditions as well as how difficult it is to create a new niche through diversification. Ironically, the countries that attempted to diversify their economies the least rapidly did well.

Given the growing population pressure on limited land resources in Kenya, Malawi, and Senegal, they face the most difficult problems. Now that Kenya has developed a sound foundation of smallholder agriculture, productivity increases will be crucial for growth. In Malawi and Senegal, smallholder agriculture faces far more complex problems in part due to the policies pursued in the 1970s. Tanzania and Cameroon, and to a lesser extent Nigeria, have better prospects, if only because of favorable resource endowments.

We have noted the relatively small role that donor assistance has played in the growth that has occurred in MADIA countries -- large amounts of donor assistance have been allocated with the best of intentions but to types of activities that have had little effect on growth. Nonetheless, there are some outstanding examples of the catalytic role that well-conceived donor assistance can play. They include smallholder tea and coffee development in Kenya, cotton in Cameroon, and maize and small-scale irrigation in northern Nigeria and elsewhere. The success with which donors have contributed to the growth process seems fundamentally to depend on the extent to which they understand the myriad microlevel constraints on growth prospects in individual projects and subsectors. Not surprisingly, therefore, those donors with prior colonial connection with Africa have had a relatively greater share of the successes achieved than others. The importance of the "colonial" donors has been declining in Africa, however, and their ability to create sustainable indigenous systems has been limited. This decline in external expertise and knowledge about Africa is especially worrying in relation to the amount of external financial resources being devoted to alleviating the continent's crises. Equally worrying is the fact that with the major exception of the U.S. record (in Asia as well as in Africa), "new" donors have tended to underemphasize the importance of human and institutional capacity, while overestimating the utility of aid in the form of physical plant and expatriate technical assistance.

It is important to stress that our findings reflect the donor studies carried out for the wider MADIA program. The official studies contributed by donors themselves emphasize the extent to which the effectiveness of external assistance has been undermined by the donors' limited ability to tailor their assistance to important aspects of the local conditions under which their programs operate, and to take adequate account of the impact of microlevel constraints. Donors also note the tendency to respond to such problems by falling back on technological and organizational solutions arising from their own particular backgrounds and expectations, which may have relatively little connection in practice with recipients' needs or organizational and manpower capabilities. Time and again, studies by MADIA's collaborating donors stress the problems associated with lack of country-specific knowledge, including historical and situation-specific constraints: they also emphasize the pressing need for a greater institutional memory in the donor community and a better

understanding of the sociopolitical and technological factors operating in recipient countries, if the current focus of reform programs on the removal of price distortions is to be appropriately complemented by the institutional and other nonprice changes needed to give the pricing reforms a chance to work. There also needs to be greater emphasis on the longer-term "superstructural constraints" that persist even while SAL-type programs are being completed, constraints that only Africans themselves can remove with increased political will and improved human and institutional capital.

The MADIA study also stresses the imperfect understanding of the real sources and causes of growth and the means to promote them -- donors and governments do not always agree on means or even on specific ends. An objective diagnosis of a particular development problem (or definition of a particular policy goal) can only be built up through data-based analysis, in which donors and recipients need to share. This should enable donors and recipients to reach a consensus about the steps needed to solve the problem or achieve the goal. A second broad consensus then needs to be built within the recipient country (based on the involvement of individual recipient country policymakers in the previous two stages), so that there is a sustained indigenous commitment to the reform process.

Finally, if the MADIA study has one observation to offer in addition to that of the need for greater depth in framing and implementing agricultural development strategies, it is the extent to which the swinging pendulum of donor concerns -- from a preoccupation with equity in the 1970s to emphasis on efficiency in the 1980s -- has tended to divert attention from more basic, long-run problems. The emphasis on "quick" poverty alleviation during the 1970s gave priority to helping low-income regions and populations, and to raising foodcrop production. The present tendency to emphasize equally "quick" solutions based on correction of price incentives and markets, can lead to inadequate attention to an appropriate balance between food and export crop development, between growth and equity objectives (regionally and nationally), between short-term macropolicy adjustments and long-term capacity building, and between physical and human capital development.

The problems associated with framing and maintaining agricultural development strategies based on specificity and balance are very real. If such strategies are to become successfully institutionalized, fundamental changes in approach will be needed. This entails a new focus on the part of donors and recipients alike -- a more comprehensive, data-based, systematic and comparative understanding of specific development issues and constraints on a <u>continuous</u> basis, perhaps using much broader-based programs of analysis of the kind attempted in this study. As a part of the aid coordination process, donors need to specialize and concentrate their resources on their respective comparative advantages. The process of knowledge acquisition and utilization by African governments themselves needs to be supported, so as to improve their ability to address their own development needs successfully. This process should include establishing and fostering centers of excellence on African issues, in both African and donor countries.