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SOCIAL DIMENSIONS OF ADJUSTMENT IN SUB-SAHARAN AFRICA



**WORKING PAPER NO. 9
POLICY ANALYSIS**

Poverty-Conscious Restructuring of Public Expenditure

**Marco Ferroni
Ravi Kanbur**

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WORKING PAPER NO. 9

Policy Analysis

Poverty-Conscious Restructuring of Public Expenditure

*Marco Ferroni
Ravi Kanbur*

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SDA Working Paper Series

Foreword

Integration of social and poverty concerns in the structural adjustment process in Sub-Saharan Africa is a major driving force behind the design of the World Bank's adjustment lending program in the Region. To further the goal, the Social Dimensions of Adjustment (SDA) Project was launched in 1987, with the United Nations Development Programme and the African Development Bank as partners. Since then many other multilateral and bilateral agencies have supported the project financially as well as with advice. The task presents a formidable challenge because of the severity of economic and social constraints in Africa and the intrinsic difficulty of tracing the links between economic policies and social conditions and poverty. It is essential to have a continuous professional dialogue between all concerned parties, so that the best ideas get discussed by the best minds, and become, as quickly as possible, available for implementation by policymakers. This is the aim of the SDA working paper series.

To fulfill its mission, the SDA Project operates on different levels. Conceptually, contributions need to be made which advance our understanding of how the

economic crisis in Africa on the one hand and the adjustment response on the other hand affect the living conditions of people. Empirically, major improvements are needed in our knowledge of the social dimensions of life in Africa, how they change, and whether all groups in society participate effectively in the process of economic development. Gaining this knowledge will demand new efforts in data collection and policy oriented analysis of these data. Most importantly, policy actions are needed in the short term to absorb undesirable side-shocks stemming from the adjustment process so that the poor and disadvantaged are not unduly hurt, and in the long term to ensure that these groups fully participate in the newly generated growth. The SDA Project's mandate is to operate, in a concerted way, in all three domains: concepts, data, actions. This working paper series will report progress and experience in all three areas. I encourage every reader's active participation in the series and the work it reports on. It is meant to be a forum not only for exchange of ideas but even more importantly to advance the cause of sustainable and equitable growth in Africa.

Edward V.K. Jaycox
Vice President, Africa Region

The Social Dimensions of Adjustment (SDA)

Project Working Paper Series

The SDA Project has been launched by the UNDP Regional Programme for Africa, the African Development Bank, and the World Bank in collaboration with other multilateral and bilateral agencies. The objective is to strengthen the capacity of governments in the Sub-Saharan African Region to integrate social dimensions in the design of their structural adjustment programs. The World Bank is the executing agency for the Project. Since the Project was launched in July 1987, 32 countries have formally requested to participate in the Project.

The Project aims to respond to the dual concern in countries for immediate action and for long-term institutional development. In particular, priority action programs are being implemented in parallel with efforts to strengthen the capacity of participating governments (a) to develop and maintain statistical data bases on the social dimensions of adjustment, (b) to carry out policy studies on the social dimensions of adjustment, and (c) to design and follow up social policies and poverty alleviation programs and projects in conjunction with future structural adjustment operations.

The working paper series "Social Dimensions of Adjustment in Sub-Saharan Africa" aims to disseminate in a quick and informal way the results and findings from the Project to policymakers in the countries and the international academic community of economists, statisticians, and planners, as well as the staff of the international agencies and donors associated with the Project. In the light of the three terrains of action of the Project, the working paper series consists of three subseries dealing with (a) surveys and statistics, (b) policy analysis, and (c) program design and implementation.

The Surveys and Statistics subseries focuses on the data collection efforts undertaken by the SDA Project. As such, it will report on experiences gained and methodological advances made in the undertaking of household and community surveys in the participating countries to ensure an effective cross-fertilization in the participating countries. The subseries would also include "model" working documents to aid in the implementation of surveys, such as manuals for interviewers, supervisors, data processors, and the like, as well as guidelines for the production of statistical abstracts and reports.

The Policy Analysis subseries will report on the analytical studies undertaken on the basis of both existing and newly collected data, on topics such as poverty, the labor market, health, education, nutrition and food security, the position of women, and other issues that are relevant for assessing the social dimensions of adjustment. The subseries will also contain papers that develop analytical methodologies suitable for use in African countries.

Another subseries, Program Design and Implementation, will report on the development of the conceptual framework and the policy agenda for the project. It will contain papers on issues pertaining to policy actions designed and undertaken in the context of the SDA Project in order to integrate the social dimensions into structural adjustment programs. This includes the priority action programs implemented in participating countries, as well as medium- and long-term poverty alleviation programs and efforts to integrate disadvantaged groups into the growth process. The focus will be on those design issues and experiences which have a wide relevance for other countries as well, such as issues of cost-effectiveness and ability to reach target groups.

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Executive Summary

This paper starts with a look at the pattern of public expenditure in Africa during the adjustment decade, paying particular attention to the social sectors. It concludes that the poverty focus and the poverty reduction impact of public spending in Africa is very low. The reasons for this include a lack of funds for nonwage recurrent expenditures in core economic and social services, inadequate intrasectoral resource allocation from a poverty reduction point of view, and public expenditure management inefficiencies. Absolute levels of expenditure on essential services are low in Sub-Saharan Africa compared with richer countries. It is therefore concluded that increases in financial resources to support anti-poverty programs are needed in Africa. But raising the poverty focus of governmental expenditures also requires changes in the within sector and the functional composition of public spending, as well as improvements in the factors which hamper the effectiveness of program delivery.

Since human capital inputs interact with each other and with directly income-enhancing economic sector expenditures it is not obvious how the flow of funds to certain sectors and programs should be prioritized from a poverty reduction point of view. A framework for public expenditure restructuring which takes into account human resource interactions and the multidimensionality of the standard of living is developed in the paper. The framework permits the estimation of the opportunity cost in terms of poverty alleviation of allocating a marginal dollar to a particular sector or spending program. It follows from the framework that

three sets of parameters are crucial in poverty conscious public expenditure restructuring: (i) those that quantify the importance of one dimension as opposed to another in the social valuation of the standard of living; (ii) those that quantify the links between public expenditures and achievements along several dimensions of the standard of living, and (iii) an assessment of what fraction of public expenditure in any given category reaches the poor.

In the paper, applications are developed in these three areas. First, the question is asked whether the social valuation of specified components of the standard of living which is implicit in UNDP's recently developed Human Development Index can be used as a guide to prioritize public expenditures. The answer is negative in the view of the authors because of limitations in the approach chosen to develop the Index. The second application asks how basic needs inputs (for example, health programs, education services) and the cost thereof in terms of public expenditure are linked to specified achievements in human development. An approach which links the household level production function for basic needs and detailed cost data on service delivery is proposed. The third application focuses on the analysis of consumer budgets of the poor. It shows how household data can be used to study the extent to which public spending patterns reach the poor.

The paper demonstrates the relevance of household income and expenditure surveys as planning tools to guide the restructuring of public expenditure from the point of view of poverty reduction.

1. Introduction

Public expenditure choices play a fundamental role in poverty alleviation through their effects on the supply response of adjusting economies and their contribution to human capital formation. Public investment and recurrent spending are important determinants of the quality and quantity of economic and social infrastructure which, in turn, affect human resources and labor productivity, as well as producers' ability to take advantage of adjustment-related changes in relative prices. But government budgets have become tighter during the 1980s in Sub-Saharan Africa because of stagnating economic growth (particularly in the more easily taxed formal sector), declining commodity prices and a more restricted international credit environment. Resource constraints and the need to control inflation by means of more conservative monetary and fiscal policy are motivating public finance reform in many countries today. The objective of these processes of reform is to bring spending more closely in line with revenue and to raise the efficiency and effectiveness of the government's participation in the economy in support of a specified development path and redistributive (including poverty alleviation) goals.

The objective of this paper is to provide an overview of public expenditure patterns in Sub-Saharan Africa during the adjustment decade of the 1980s and to develop a theoretical framework for retargeting of public spending toward poverty alleviation. Section 2 is devoted to an analysis of trends in public expenditures, paying particular attention to the extent to which expenditures focus on, and reach, the poor. In

Section 3, the links between public expenditure restructuring and poverty alleviation are explored in a framework which takes into account human resource interactions and the multidimensionality of the standard of living.

Section 4 illustrates applications of the framework of Section 3 with African examples. Three areas of applications are explored. We first review a recent attempt at deriving weights for various components of the standard of living (i.e. UNDP's Human Development Index). The question asked is whether the social valuation of specified components of the standard of living, which is implicit in the Human Development Index, can be used as a guide to prioritize public expenditures. The second application uses a production function approach to human resources. The question here is how basic needs inputs (for example, health programs, education services) and the cost thereof in terms of public expenditure are linked to specified achievements in human development such as levels of child mortality, life expectancy, and adult literacy. The third application focuses on the analysis of consumer budgets of the poor. This is combined with data on public spending and used to determine the degree to which government subsidies are reaching the poor in one particular country, Côte d'Ivoire.

Section 5 concludes the paper and suggests priority areas of research and data collection to support poverty-conscious public expenditure reform.

2. *Public Expenditure Patterns in Africa during the Adjustment Decade*¹

In this section, recent trends in public expenditure patterns and, in particular, in spending benefitting the poor are analyzed. This is a necessary step toward the formulation of recommendations, later in the paper, regarding poverty-conscious public expenditure reform. We look at aggregate expenditures, the intersectoral and intrasectoral composition of expenditures and the quality and effectiveness of programs and services delivered by the government.

2.1 **Aggregate and Sectoral Expenditures**

The study of public expenditure patterns in Sub-Saharan Africa is hampered by data deficiencies. There are no comprehensive data on program expenditures (as opposed to broad sectoral aggregates) and on regional and local expenditures. The IMF Government Finance Statistics (GFS) are the only comprehensive data source on central government spending. Even though the GFS data are in reality largely budget figures rather than actual expenditure data, they are used in this paper for want of a published alternative. The GFS figures are, however, complemented by evidence from the World Bank's recent public expenditure reviews in Africa, and this resource, as well as other knowledge makes it possible to develop at least preliminary conclusions regarding the poverty focus and poverty alleviation effect of public spending.

It is often assumed that central government expenditures in Africa and spending on social services (health, education) have plummeted during the debt and adjustment decade of the 1980s. GFS figures indicate that, on average, total real government spending (including interest payments) has grown during the 1980s with a flattening of the trend between 1982 and 1984 (see Table 1, which was developed using data for 20 African countries chosen on the basis of data availability for all spending categories and years considered in the table). The 1982-84 period was one of drought in the Region and particular resource constraints which were later relaxed to a degree by an

increase in donor finance and debt rescheduling in support of the adjustment process. Real per capita expenditures declined in 1983 and 1984, but grew in all other years and regained in 1987 the level attained in 1982. Real discretionary spending (i.e. government spending exclusive of debt service payments) increased in the early 1980s, stagnated in the mid-80s (it declined in 1983 and 1984 in per capita terms) and recovered thereafter. Discretionary spending as a fraction of GDP declined in 1983 and 1984, stagnated during the following two years and recovered in 1987. The overall picture, then, is one of a setback during 1983 and 1984 and moderate growth in the other years of the decade.

As might be expected, GFS data point to considerable between-country variation around these average trends. In a thorough, GFS-based study of fiscal policy change in Africa, Sahn (1990: 27-31) notes that discretionary government expenditures in low-income and oil importing countries expanded at a much slower pace than in middle-income and oil exporting countries during the 1980s. The author's country-specific analysis also indicates that there has been little growth in discretionary expenditures in CFA countries and East Africa, the mean trend of the latter group of countries being lowered by the decline in Tanzanian real expenditures observed during the 1980s. On the other hand, growth has been more rapid in central and southern Africa (extreme cases in the latter group of countries are Botswana, which exhibits rapid expenditure growth, and Zambia, where real expenditures declined, but began to recover during the second half of the 1980s). The countries where discretionary public expenditures per capita (expressed in constant 1980 US \$) declined during the 1980s include Kenya, Liberia, Madagascar, Malawi, Mauritius, Niger, Nigeria, Sierra Leone, and Togo. They increased, according to GFS data, in Burkina Faso, Cameroon, Ethiopia, Ghana, Mali, Somalia, and Zimbabwe, among other countries.

Looking at the decade as a whole, rather than its first half, GFS data indicate, in Sahn's words (p. 29), that

Table 1. Average Trends in Public Expenditures, Twenty African Countries (1980-87)^a

	1980	1981	1982	1983	1984	1985	1986	1987
Part A: Broad Aggregates								
Total real government expenditures (in 1980 US\$), indexed (1980 = 100)	100.0	108.0	117.7	117.8	114.0	122.5	129.5	137.4
Total real per capita government expenditures (in 1980 US\$), indexed (1980 = 100)	100.0	104.8	111.0	107.9	101.2	105.5	108.1	111.2
Total real discretionary government expenditures (in 1980 US\$), indexed (1980 = 100)	100.0	107.7	115.7	113.2	107.3	113.8	117.5	127.0
Total real per capita discretionary government expenditures (in 1980 US\$), indexed (1980 = 100)	100.0	104.6	109.1	103.6	95.2	98.0	98.2	102.9
Total real discretionary government expenditures as a percent of GDP	24.7	25.3	25.5	24.0	22.8	22.8	22.5	24.1
Part B: Sectoral Spending								
<i>Health</i>								
Real per capita expenditure (in 1980 US\$)	8.4	8.8	9.5	9.0	8.7	8.7	9.1	9.9
Share of discretionary budget (%)	5.5	5.6	5.8	6.0	6.0	6.0	6.0	5.8
<i>Education</i>								
Real per capita expenditure (in 1980 US\$)	24.0	25.3	26.0	25.4	24.8	24.2	24.6	25.3
Share of discretionary budget (%)	15.4	15.1	16.3	17.0	16.6	16.4	16.7	15.4
<i>Social Services (Health and Education combined)</i>								
Real per capita expenditure (in 1980 US\$)	32.4	34.1	35.5	34.4	33.5	32.9	33.7	35.2
Share of discretionary budget (%)	19.9	20.7	22.1	23.0	22.6	22.4	22.7	21.2
<i>Economic Services</i>								
Real per capita expenditure (in 1980 US\$)	41.6	38.2	39.7	37.7	37.6	39.2	43.0	39.7
Share of discretionary budget (%)	26.1	22.8	23.4	24.8	25.7	27.2	28.4	27.8
<i>Of which Agricultural Services</i>								
Real per capita expenditure (in 1980 US\$)	13.5	11.9	13.9	11.7	12.6	12.5	13.3	14.7
Share of discretionary budget (%)	8.1	7.6	8.4	8.7	8.4	8.4	9.7	9.5

a. See text for explanation. The countries are Botswana, Burkina Faso, Cameroon, Ethiopia, Ghana, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritius, Niger, Nigeria, Sierra Leone, Somalia, Swaziland, Togo, Uganda, Zambia, Zimbabwe. Source: Calculated on the basis of data from IMF, Government Finance Statistics (1989 Yearbook), Washington D.C., 1989.

there have been no "across-the-board reductions" in real discretionary government spending and that for most countries expenditures were "on the rise, or at least steady ... despite the proliferation of IMF and World Bank loans that often carry with them conditions involving budgetary austerity." In view of the 1983-84 setback in real spending referred to above, it seems, in fact, that adjustment programs, which really proliferated after 1984, have helped restore real spending by lowering the effective rate of inflation² and raising foreign resource transfers and (through debt-rescheduling) discretionary budgets.

Table 1 shows that social and economic sector spending tended to increase during the decade under review, both as fractions of total discretionary expenditure and in real per capita terms. (There was a decline in average economic service expenditures³ between 1986 and 1987, but not in spending on the agricultural component thereof.) Trends in social sector spending are closely correlated with trends in discretionary governmental spending in the data used to calculate Table 1. While social expenditures fluctuated between years, they were higher in 1987 (the last year reported in the Table) than at the beginning of the

decade. This, of course, should not be taken to mean that essential social services were adequately funded. But there is no evidence, in Table 1, of a decline in real resources devoted to social services. This expenditure category does not seem to have been vulnerable to cut-backs in government expenditures in Africa or to have borne the brunt of reductions in aggregate expenditures where they have occurred.

This supports the hypothesis formulated by Hicks and Kubisch (1984) that governments tend to protect social expenditures in times of economic difficulty. In their study, social expenditures emerged as the most protected of five expenditure categories examined in thirty-two developing countries for the period 1972–80. (The authors consider their conclusions preliminary, because their study is limited to consolidated central government accounts, excluding expenditures of state and local governments.) Updating this analysis for 1979–84, Pinstrup-Andersen et al. (1987: 75–81) found similar aggregate results for Africa but considerable reduction in social expenditure in Latin America. Sahn (1990: 56) found the elasticity of health (education) expenditures with respect to total government expenditures in Sub-Saharan Africa to be rather high, viz. 0.96 (1.08, respectively) for the 1985–87 period. Elasticities were estimated for three periods during 1974–87. The estimated values of elasticities increased with time, indicating that health and education expenditures were given progressively higher priority as time passed. The elasticities with respect to GDP were found to be above unity for both health and education, indicating that increases in aggregate economic growth have led to more than proportionate increases in government spending on the social sectors in Africa.

These trends do not permit conclusions regarding the redistributive or poverty alleviation effect of public spending. They actually appear to indicate that if poverty alleviation effects were weak (as will be argued below), and to the extent that GFS data can be believed, resource scarcity cannot, *a priori*, be invoked as the reason. Inequitable intrasectoral expenditure patterns, low effectiveness in program delivery and inadequate ratios of recurrent to capital spending are the reasons why the poor capture a disproportionately small share of public subsidies and services, as explained below. On the other hand, absolute levels of expenditure in such sectors as health and education are low in Sub-Saharan Africa compared with richer countries. Increases in financial resources to support anti-poverty programs are considered to be needed in Africa, but raising the poverty focus of governmental expenditures is also likely to require changes in the within and between sector composition of public spending, among other measures, as well as improve-

ments in the factors which constrain the effectiveness of program delivery.

2.2 Intrasectoral Resource Allocation

Anti-poverty spending encompasses economic sector spending to raise the income opportunities of the poor, “essential” social services, and transfer payments or “safety nets” to bolster the consumption of the chronically poor and, transitorily, the needy losers under the adjustment process. Economic sector expenditures to raise the incomes of the poor and to increase their contribution to growth include projects and programs to build infrastructure and institutions in support of labor-intensive sectors and patterns of production. Credit programs and interventions to improve poor people’s access to inputs and services and to improve the functioning and transparency of the markets in which they trade are items of high priority. Agriculture (including smallholder agriculture) is a key sector to be promoted, despite the fact that agricultural supply response takes time, since no other sector is capable of comparably participatory growth. Yet, macro price policy and development spending have tended to favor industry, in keeping with the African post-independence tradition of inward-looking, industry-based thinking about development. Within agriculture, public spending is often found to be biased in favor of state farms as opposed to private holdings and commercial farming as opposed to the smallholder sector. Rural infrastructure development and agricultural research and extension are deemed to be underfunded in many African countries (see, for example, World Bank 1989a, 1989b, 1989c).

Essential social services geared toward the poor are normally said to include primary and preventive health care (as opposed to hospital-based care, for example) and primary, rather than higher-level, education. The focus on primary education is explained by the fact that this is the foundation of schooling, that primary education is known to yield high private and social rates of return relative to higher-level education, and that primary enrollment rates have stagnated in Sub-Saharan Africa during the 1980s, and the quality of schooling has declined (World Bank, 1987). To judge the impact of public spending on the poor it is, therefore, necessary to study the record regarding the intrasectoral allocation of resources and the effectiveness of program targeting and delivery. This task cannot be carried out with reference to the aggregate GFS, and there is no comparably comprehensive, disaggregated source. The evidence must be pieced together, and we do this on the basis of World Bank Sector Reports and recent Public Expenditure Reviews, focusing in particular on social sector spending and

food-linked transfer payments. It is worth noting, however, that while Public Expenditure Reviews contain much that is relevant to our purpose, they do not focus explicitly on poverty, but on sector strategies and the implications of expenditure levels and patterns for the overall monetary and fiscal stance.

In contrast with the identified priority areas of anti-poverty social spending, public expenditures on health and education in Africa tend to be characterized by disproportionate resource allocation to higher order services which benefit the wealthier and, in particular, urban-based groups of society. For example, the budget of Ghana's Ministry of Health is directed predominantly at curative care for the one-third of the population living in urban areas (World Bank, 1989d: 44). In Tanzania, hospital services account for 68 percent in the 1988/89 budget of the central Ministry of Health, whereas preventive services claim 5.9 percent (World Bank, 1989b: 86). While this underestimates the actual expenditure on preventive care, because hospitals also offer this kind of care (for example, immunizations) and because the main responsibility for preventive care is reported to be at the district level and reflected in the recurrent budget of the Ministry of Local Government, this budget, too, shows only a small percentage of expenditures (4 percent) devoted to preventive care. Of total government recurrent expenditures for health, including those channelled to district councils, only 8.8 percent was allocated to primary health facilities in 1987/88 (World Bank, 1989e: 86-87).

In education, this pattern of discriminatory public spending finds expression in the fact that subsidies per user increase dramatically with the level of schooling. Thus, public recurrent expenditure per primary pupil in Sub-Saharan Africa has been estimated at \$48 in 1983 (15 percent of GNP per capita). It amounted to \$223 per secondary student (62 percent of GNP per capita) and \$2,710 per tertiary student, or eight times GNP per capita (World Bank, 1987: 141-143). While post-primary education must, of course, be promoted, it would appear to be appropriate, on equity grounds, to increase students' participation in the financing of costs, combined with the development of an educational credit system and a scholarship fund to enable students from poor families to enroll. Public funds thus released could be diverted to primary education where there is normally believed to be little scope for cost recovery, but where there is great need to increase coverage and quality.⁴

Turning to the issue of transfers, the last of the three broad areas of anti-poverty public spending identified above, and focussing on food subsidies, one finds that governments do not normally publish data regarding explicit financial subsidies. Real spending on food

subsidies is assumed to have declined in many African countries during the 1980s (for Zambia, this is documented in Pinstrup-Andersen et al., 1987: 86), but the impact of this trend on the poor is not straightforward. It depends on the distribution of the incidence of subsidies across the income spectrum, adaptive responses of the poor to price increases (both on the income and the consumption side), and whether policies to compensate the poor for price increases are put into effect. Since, as is well known, African food subsidies are not well targeted on the poor, declines in real financial subsidies may not be particularly harmful to this group. Malnutrition is, of course, wide-spread (see Alderman, 1990, for evidence regarding the incidence of malnutrition in selected African countries, and an analysis of the prevalence and determinants of malnutrition in Ghana), calling for remedial action capable of improving both income and human resource factors (for example, mothers' education) which determine nutritional status. Food subsidies clearly have a role to play among the envelope of policy options to improve nutrition (Behrman, 1989: 101), but they should be narrowly targeted to the poor—a condition which, for administrative and political reasons, it may be difficult to fulfill.

A method to determine the poverty consequences of food price changes is proposed and illustrated in Section 4.3. It hinges on the recognition that, in order to reach the poor and to significantly affect their real incomes, government subsidies must be directed at goods and services which are widely consumed by this group. To keep leakages of benefits to nonpoor groups small, the poor must account for a large proportion of the total national consumption of subsidized goods and services. The described pattern of intrasectoral resource allocation and the analysis of consumer budgets in Section 4.3 suggest that neither of these conditions is usually fulfilled.

2.3 Effectiveness of Public Expenditures

The efficiency of resource use and the effectiveness of public service delivery have been found to decline when government budgets contract (Gallagher and Ogbu, 1989). This is in large measure due to the circumstance that, in times of resource scarcity, governments tend to maintain the number of workers on their payroll, and nominal salaries, at the expense of non-personnel inputs. Nevertheless, real civil servant pay has declined drastically in some African countries (in Tanzania it declined by a factor of five between the early 1970s and the late 1980s; World Bank, 1989f: Vol. I, p. 3), leading to a crisis of motivation and ability to deliver on the part of the civil service and prompting many competent officials to move to the private sector

or engage in moonlighting activities. The frequently observed insufficiency of funds for materials, operations and maintenance, and mobility of personnel has had the effect of undermining government delivery systems in such sectors as transport, agricultural extension, and education and health. Inadequate operations and maintenance expenditures have diminished the productivity of past capital spending and have ushered in a period (which began in the 1970s in many countries) of degradation of economic and social infrastructure. The implementation of donor-assisted development projects has been slowed down by the lack of matching recurrent expenditures from governments.

In countries where data are available, wages and salaries have typically absorbed from one-half to three-quarters of recurrent expenditures. In Ghana's health budget, for example, wages took 62 percent and 76 percent in 1985 and 1986, respectively (Vogel, 1988: 26). The share of wages and personnel emoluments in Rwanda averaged 48 percent of recurrent spending in the health sector during 1982-88 and took over 80 percent in education. Only 3-4 percent of recurrent spending in education was left for materials and less than 1 percent for maintenance (World Bank, 1989b). This pattern of budgetary allocation under adverse conditions, unjustifiable on economic grounds, but understandable for political and social reasons, has all but crippled many government services in the Region due to shortages of drugs and disposable supplies in health, shortages of text books and school supplies in education, and immobility of service delivery personnel.

The effectiveness (and the poverty alleviation impact) of a given evolution of real discretionary expenditures can be very different depending on the differential trend of recurrent and investment expenditures within that envelope. For example, an expansion in discretionary expenditures coupled with a rapid decline in the ratio of recurrent to capital spending could exacerbate the shortage of funds for non-wage recurrent inputs referred to above. This was probably the case in Cameroon in the latter part of the 1980s since the average ratio of recurrent to capital expenditures fell from 2.3 to 1.3 between 1978-80 and 1986-87 in that country, while real wage expenditures rose (Sahn, 1990; Tables 7 and 8). In most African countries, however, the ratio of recurrent to investment expenditures appears to have increased during at least part of the 1980s according to GFS data, although the ratio varied considerably between countries and years (Sahn, 1990; Table 7). The analysis of the implications of given functional compositions of

expenditure, and of the decline in capital spending, in terms of future growth and the ability to deliver services requires a careful country by country evaluation of the trade-offs involved. This is beyond the scope of this paper. Where investment expenditures have declined in the face of growing discretionary expenditures, additional resources to defray recurrent costs have become available. Nevertheless, the Bank's recent Public Expenditure Reviews which were analyzed as part of the research undertaken for this paper consistently point to a lack of funds to cover the non-wage recurrent expenditures associated with essential services. This would indicate a need to raise the budgetary resources of sectoral agencies providing essential services and infrastructure, while at the same time undertaking measures to correct imbalances in the ratio of wage to non-wage recurrent expenditure. Raising the budget of the identified agencies for reasons of poverty alleviation is likely to require resource reallocation, and decision criteria to guide this process are developed later in this paper.

Beyond inappropriate input combinations and ratios of recurrent to investment spending, a crucial factor constraining the effectiveness and efficiency of public spending is the lack of adequate planning and management and, hence, of coherent public expenditure strategies. Efforts to raise the productivity of budgetary resources include the setting of realistic goals (arguably a difficult task in the light of political pressures and rapidly expanding populations), the explicit acknowledgment of recurrent cost implications of new projects and past investments, the exploration of opportunities to raise new revenue, the promotion of manpower competence in the civil service through training and management improvements, and the rationalization of donor assistance. It is now widely recognized that projects are often included in public spending portfolios because of the availability of donor funding, rather than their agreement with articulated sectoral priorities. Similarly, ministerial management capabilities are taxed to their limit by the diversity of projects and partners. In Zambia's agriculture sector, for example, there are about 150 projects supported by more than 20 donor agencies, each maintaining its own procedures and requirements. "Overlaps and conflict between the objectives of different projects are commonplace" (World Bank, 1989a: Vol. II, p. 29). The solution to the problems arising from donor proliferation is, of course, not to suggest a cut-back in donor assistance, but its progressive subordination to government priorities in the 1990s, although it is recognized that these

priorities may not yet be fully spelled out in some countries.

2.4 Conclusion

Our discussion suggests that the poverty alleviation impact of public expenditures in Sub-Saharan Africa is low because recurrent expenditures are underfunded, government subsidies tend to be directed to higher order services and commodities not widely consumed by the poor, and because management problems and suboptimal input combinations are diminishing the efficiency and effectiveness of service delivery. This is also the conclusion of the World Development Report 1990, on poverty, which finds that government spending "tends to be skewed away from the people who need it most—the poor" (World Bank 1990a, p. 76). An important assumption implicit in this conclusion is that the "poor" are separated from the "nonpoor" by a poverty line defined as the level of income which cuts off, say, the lower 30–40 percent of the income distribution. While this is not the place to discuss the measurement of poverty or the conceptual and practical difficulties inherent in the notions of relative and absolute poverty, it is obvious that if everybody, or a vast majority of the population, were classified as being poor (it is sometimes suggested in Africa that this be done), our conclusion regarding the poverty focus of public expenditures would not hold. The definition of a poverty line which helps policy makers focus on the lower end of the distribution of

income is a prerequisite for the formulation of public policy, including public expenditure reform, seeking to alleviate poverty.

If poverty alleviation is accepted as an explicit objective of public expenditure strategies, it is necessary to review and redefine the sectoral, intrasectoral and functional distribution of funds in the three areas of essential economic and social services and infrastructure, and transfer payments, identified earlier. It is, however, not obvious how this may be best done, because human capital inputs interact with each other and with directly income-enhancing economic sector expenditures, and these interactions are difficult to quantify. For example, what is the poverty alleviation effect of an additional dollar spent on agricultural extension for women farmers compared with an additional dollar spent on primary health care? A framework to analyze this problem is developed in the next section.

Notes

1. Research assistance from Richard Carroll and a note on this topic from Lemma Merid are gratefully acknowledged.
2. IMF data point to a decline in inflation in "strongly adjusting" African countries (see Jaeger and Humphreys, 1988: 1038).
3. Economic services include expenditures on agriculture, forestry, fisheries, mining, manufacturing, construction, utilities and transport.
4. It has been estimated in a study using data from twelve African countries that primary enrollments could increase by 18 percent with the public funds saved if university students paid their own living expenses (World Bank, 1987: 52).

3. Restructuring of Public Expenditures for Poverty Alleviation: A Theoretical Framework

Our analysis of public expenditure patterns in the previous section focused on two policy variables, viz. the flow of funds to certain sectors and programs, and the factors which determine the efficiency and effectiveness of expenditures (i.e. the functional composition of expenditures and public expenditure management). In this section we will focus on the first of these variables. We hope to contribute to the formulation of poverty sensitive public expenditure strategies through an analysis of public expenditure choices and effects. This is complicated, among other reasons, by the fact that the various dimensions of the standard of living of households and individuals are affected individually and jointly by the different components of a governmental spending program. Thus, public expenditure restructuring will have complex effects with many interactions, and difficult choices will have to be made from the various trade-offs. The purpose of the analysis that follows is to develop a framework in which some of these trade-offs can be clarified.

The multi-dimensionality of the standard of living has to be faced head on in assessing the consequences of public expenditure restructuring. The standard focus on income or expenditure based measures of welfare must be complemented by the concept of "basic needs" which was introduced in the 1970s. The "basic needs" literature stresses a number of indicators (in particular, life expectancy, literacy, health, nutrition, and housing) as being complementary, if not superior, to the usual income/expenditure indicator, and argues for a strategy to increase the values of these indicators. A closer reading reveals several arguments (sometimes not clearly separated) for a basic needs strategy:

(i) Thinking of basic needs requirements as entering the standard of living directly, it is argued that the standard of living of the poor can be raised more efficiently by focussing on basic needs. There are, in turn, two sub-arguments here. One is that for any poor person a dollar spent directly on basic needs will be

better than a dollar spent directly on income raising (which will then, indirectly, influence basic needs). Another is that basic needs spending could be better targeted toward the poor.

(ii) Thinking of basic needs achievements as being inputs into income generation, it is argued that the rate of return to such investment is higher than that, for example, in directly productive physical capital. Thus, even if income/expenditure were the ultimate aim, a basic needs strategy is superior. There is once again a targeting argument to supplement and bolster the basic case.

The "social sectors" in a governmental expenditure program display all of these considerations, but they lie along a spectrum. In the case of housing we come closest to the pure consumption end of the spectrum (at least, we have not seen studies that argue for housing in terms of its productivity enhancing properties). In fact, many studies on poverty do indeed monetize housing consumption by imputation through hedonic regressions and the like. Education is perhaps at the other end of the spectrum, where the literature concentrates primarily on its productivity aspects rather than on the consumption value. In principle, the decision rule for public resource allocation is straightforward—it depends on rates of return to different levels of education.

Health and nutrition are located toward the middle of the spectrum. They enter the standard of living directly as well as indirectly through productivity effects. The well-known controversy about the relative merits of growth oriented versus basic needs oriented public action in Sri Lanka (Bhalla and Glewwe, 1986; Sen, 1981; Isenman, 1980; Anand and Kanbur, 1990) can be seen to take the first route. All participants in the debate have agreed that infant mortality, for example, should be reduced because this is a desirable goal by itself. The only question is whether this is best achieved through income growth or through basic

needs intervention. An issue which is not addressed in the literature just cited is the feedback of improved health and nutrition on income growth. Another question which is not raised, although it is implicit in the discussion, is whether direct intervention (i.e. "social sector" spending) can be better targeted towards the poor. In this context, however, it should be noted that the entire discussion on Sri Lanka is based on national average indicators of basic needs fulfillment—the question of basic needs fulfillment of the *poor* can therefore be addressed only indirectly, if at all.

There seem, then, to be (at least) four complicating aspects of public expenditure restructuring: (i) One component of public expenditure can affect several aspects of the standard of living of a typical household; (ii) Each component of the standard of living can affect other components of the standard of living for a typical household; (iii) The different components of the standard of living have to be valued relative to each other for a typical household; and (iv) Some components of public expenditure when passed through (i) – (iii) above, are more effective than others in raising the standard of living of *poor* households.

Let us start by highlighting (i) – (iii) and focus, therefore, on a typical (not necessarily poor) household or individual. To put some of these issues into a common framework, consider the following simple model. Basic needs achievement B is a function of social expenditure E and income Y as follows:

$$B = \alpha_0 + \alpha_E E + \alpha_Y Y \quad (1)$$

Income on the other hand is a function of basic needs achievement and "productive" expenditure I :

$$Y = \beta_0 + \beta_B B + \beta_I I \quad (2)$$

There is a budget constraint

$$G = E + I \quad (3)$$

and the valuation of B and Y to give the "true" standard of living W is,

$$W = \gamma_0 + \gamma_B B + \gamma_Y Y \quad (4)$$

The government faces the choice of restructuring by changing the balance between E and I . In which direction should it move? In order to answer this question let us first solve (1) and (2) to give the values of B and Y for any given values of E and I :

$$B^* = \frac{\alpha_0 + \alpha_Y \beta_0 + \alpha_E E + \alpha_Y \beta_I I}{1 - \alpha_Y \beta_B} \quad (5)$$

$$Y^* = \frac{\beta_0 + \beta_B \alpha_0 + \beta_B \alpha_E E + \beta_I I}{1 - \alpha_Y \beta_B} \quad (6)$$

Substituting these into (4) we get

$$W^* = \frac{\gamma_0 + \gamma_B(\alpha_0 + \alpha_Y \beta_0) + \gamma_Y(\beta_0 + \beta_B \alpha_0)}{1 - \alpha_Y \beta_B} + \frac{1}{1 - \alpha_Y \beta_B} [(\gamma_B \alpha_E + \gamma_Y \beta_B \alpha_E)E + (\gamma_B \alpha_Y \beta_I + \gamma_Y \beta_I)I] \quad (7)$$

At the margin, therefore, the choice between putting one more dollar in E versus I depends on the comparison

$$\alpha_E(\gamma_B + \gamma_Y \beta_B) \geq \beta_I(\gamma_Y + \gamma_B \alpha_Y) \quad (8)$$

The comparison depends on a combination of productivity and valuation considerations. For example, suppose that we were interested only in basic needs achievement, so that $\gamma_Y = 0$. Then the choice between E and I depends on

$$\alpha_E \geq \beta_I \alpha_Y \quad (9)$$

In other words, it depends on a comparison of direct versus indirect effects. This comparison is at the heart of the debate on Sri Lanka's policies in the 1960s and 1970s. Anand and Kanbur (1990) have estimated the relationship (1) for Sri Lanka on time series data, and conclude that for the infant mortality rate the direct effects of social expenditure greatly outweigh the indirect effects operating through investment in income earning opportunities. But this is a country specific finding which may not apply to Africa.

If basic needs had no productivity effects, so that $\beta_B = 0$, then (8) collapses to

$$\alpha_E \gamma_B \geq \beta_I [\gamma_Y + \gamma_B \alpha_Y] \quad (10)$$

or

$$(\alpha_E - \beta_I \alpha_Y) \gamma_B \geq \beta_I \gamma_Y$$

Thus a prerequisite for basic needs expenditure to be worth considering at all is that direct expenditure leads to a bigger effect (α_E) on basic needs than the indirect effect through income increase ($\beta_I \gamma_Y$). This is the Sri Lanka controversy again, but now there are extra considerations in γ_B and γ_Y . Even if the direct effect was greater, the social valuation of basic needs achievement would have to be sufficiently high for basic needs expenditure to be worthwhile.

Finally, if basic needs had only productivity effects and there were no feedbacks via income to basic needs, so that $\alpha_Y = 0$, and basic needs were not valued for themselves but only for the income they generate, so that $\gamma_B = 0$, then (8) collapses to

$$\alpha_E \beta_B \geq \beta_I \quad (11)$$

This is a straightforward marginal productivity comparison between expenditure on education, say, and expenditure on other production activities. A unit of expenditure diverted from these other activities has opportunity cost β_I in terms of income foregone. But it leads to an increase in education, which in turn leads to an increase $\alpha_E \beta_B$ in income.

Thus we see that many of the strands of the arguments surrounding basic needs fall out as special cases of (8). Moreover, the above analysis can be applied to the choice between any two categories of public expenditure regardless of the level of sectoral or intrasectoral aggregation—health and education, health and economic infrastructure, primary and higher levels of education. While the technical parameters α and β are necessary and not easy to estimate, what seems to stand out is the need to arrive at clear social weights γ between different dimensions of the standard of living.

The above discussion highlights some of the interactions between different categories of public expenditure in their impact on the standard of living of a typical household or individual. We now turn to the extent to which the policy actions affect the poor. As noted earlier, an implicit argument in some of the literature is that certain types of expenditure are to be preferred because they are or can be better targeted. This argument needs to be made explicit, to be made precise, and to be quantified.

Suppose that there are n units in the economy, indexed by $i = 1, 2, \dots, n$. Out of the total expenditures E and I , let E_i and I_i be the amounts that reach unit i . Clearly,

$$\sum_{i=1}^n E_i = E; \quad \sum_{i=1}^n I_i = I \quad (12)$$

The individual counterpart to (7) is thus given by

$$W_i^* = \frac{\gamma_0 + \gamma_B(\alpha_0 + \alpha_Y \beta_0) + \gamma_Y(\beta_0 + \beta_B \alpha_0)}{1 - \alpha_Y \beta_B} \quad (13)$$

$$+ \left(\frac{\gamma_B \alpha_E + \gamma_Y \beta_B \alpha_E}{1 - \alpha_Y \beta_B} \right) E_i + \left(\frac{\gamma_B \alpha_Y \beta_I + \gamma_Y \beta_I}{1 - \alpha_Y \beta_B} \right) I_i$$

Equation (13) gives the effect on individual income of expenditures E_i and I_i reaching individual i . We now need to formalize a focus on poor units, so as to gauge the impact of restructuring on them. This is not the place to discuss in detail the drawing of poverty lines or the formulation of poverty indices. There is now a large literature on this. Suffice it to say that given a poverty line z which delineates poor from nonpoor, one index that is becoming quite commonly used is that put forward by Foster, Greer and Thorbecke (1984). This is defined by:

$$P_\alpha = \frac{1}{n} \sum_{i=1}^q \left[\frac{z - W_i^*}{z} \right]^\alpha; \quad \alpha \geq 0 \quad (14)$$

When $\alpha = 0$, this index turns into the commonly used head count ratio or incidence of poverty. When $\alpha = 1$, it measures the normalized "poverty gap." As the value of α increases, more and more weight is given to the poorest of the poor. This family of measures has proved useful in operationalising poverty measurement, while allowing us to represent a range of value judgements through the ability to vary the parameter α .

Suppose now that a marginal budgetary shift from E to I occurs in the aggregate. How does this feed through to individuals? One might entertain different possibilities. One is that individuals gain or lose in proportion to their current levels of E and I . Let each E_i become $E_i(1 + \theta)$ and each I_i become $I_i(1 - \sigma)$. Clearly, from the budget constraint (3):

$$\theta E = \sigma I \quad (15)$$

Totally differentiating (14) and using (15) we get

$$\begin{aligned} dP_\alpha &= - \left(\frac{1}{n} \right) \sum_{i=1}^q \left(\frac{\alpha}{z} \right) \left[\frac{z - W_i^*}{z} \right]^{\alpha-1} [C_E E_i d\theta - C_I I_i d\sigma] \quad (16) \\ &= - \left(\frac{E}{n} \right) \sum_{i=1}^q \left(\frac{\alpha}{z} \right) \left[\frac{z - W_i^*}{z} \right]^{\alpha-1} \left[C_E \left(\frac{E_i}{E} \right) - C_I \left(\frac{I_i}{I} \right) \right] \end{aligned}$$

Where,

$$C_E = \frac{\gamma_B \alpha_E + \gamma_Y \beta_B \alpha_E}{1 - \alpha_Y \beta_B}$$

$$C_I = \frac{\gamma_B \alpha_Y \beta_I + \gamma_Y \beta_I}{1 - \alpha_Y \beta_B}$$

As might be expected, the impact on poverty depends on the current shares of total expenditure of each type reaching the poor. Thus, when $\alpha = 1$, we get

$$dP_1 = -\left(\frac{E}{nz}\right) \left[C_E \left(\frac{E^p}{E} \right) - C_I \left(\frac{I^p}{I} \right) \right] \quad (17)$$

Where E^p and I^p are expenditures of each type reaching the poor. Thus, with this framework the "targeting"

case for certain categories of expenditure relies on high values of ratios of the type $\frac{E^p}{E}$ and $\frac{I^p}{I}$. These are in principle verifiable and quantifiable.

4. Toward Implementation: Some African Illustrations

It is convenient to think of the problem of poverty-conscious public expenditure restructuring as follows. For a given total of public expenditure, the policy instrument available to us is to alter the composition of expenditure between *relatively broad* sectors and programs within sectors. While the answer to the question "how broad?" is country specific, we would like to retain the sense that we are not here discussing very fine micro management of individual programs. While this is important, our task here is to change the pattern of resource flows at a more aggregative sectoral or intrasectoral level. Given the current structure of utilization of these resources, we wish to determine how best to allocate expenditure across different categories. The theoretical analysis highlights three sets of parameters that are crucial: (i) those that quantify the importance of one dimension as opposed to another in the social valuation of the standard of living, (ii) those that quantify the links between public expenditure and achievements along several dimensions of the standard of living, and (iii) an assessment of what fraction of public expenditure in any given category reaches the poor. We now consider each of these parameters in turn.

4.1 Social Weights on Different Dimensions of the Standard of Living

Attaching weights to the various dimensions of the standard of living is a *normative* question. The topic of weighting different outcomes in, say, health, education and income needs considerable thought, not least from policy makers, so as to arrive at coherent ways of assessing the normative evaluation of alternative policies. Otherwise, every policy can be justified on some weighting or the other.

Developing such a weighting is not an easy task, and attempts to do so are fraught with danger. One recent attempt is that of UNDP (1990), whose Human Development Report advances a Human Development Index (HDI) as a measure of achievement that

incorporates income and non-income factors. The HDI is defined as follows. First, we specify three relevant indicators at the national level as its components—life expectancy (X_1), literacy (X_2), and the logarithm of real GDP per capita (X_3). Looking across a range of countries, the maximum and minimum value for each indicator is established. A "deprivation" index for the i^{th} indicator and the j^{th} country is then defined as

$$I_{ij} = \left(\frac{\max_j X_{ij} - X_{ij}}{\max_j X_{ij} - \min_j X_{ij}} \right) \quad (18)$$

Clearly, I_{ij} lies between 0 and 1. UNDP (1990) then defines the deprivation index for country j as a simple average of the three deprivation indexes for the country:

$$I_j = \left(\frac{1}{3} \right) \sum_{i=1}^3 I_{ij} \quad (19)$$

The "Human Development Index" is then defined as:

$$(HDI)_j = 1 - I_j \quad (20)$$

The reader is referred to the original source, UNDP (1990), for the calculated values of the HDI. It is worth noting that, in the report, forty-four countries are defined as having a "low" level of human development or an HDI of less than 0.5. Of these, thirty-two are in Sub-Saharan Africa. However, while the HDI is an interesting attempt at arriving at a unidimensional measure of achievement, it has to be viewed with caution. First, the normalization assumption seems problematic. In effect the index views achievement relative to the best country in the sample. Thus, if Japan's life expectancy were to fall, Kenya's HDI would go up! That is an odd sort of index to have. Second, even if we set aside this normalization problem, the index essentially gives equal weight to

achievement along the three dimensions. Is this an accurate reflection of value judgements, and is it even clear what value judgements this implies?

To see how one might set about developing an index from a coherent set of value judgements, and only as an illustration, let an individual's income at time t be y_t and his utility of income $U(y_t)$. Then his/her expected lifetime utility at birth is:

$$W = E \int_0^T U(y_t) e^{-\delta t} dt \quad (21)$$

where δ is a discount rate, T is lifetime (a random variable) and E is the expectation operator. Then, if T is exponentially distributed with parameter, λ

$$W = \int_0^{\infty} U(y_t) e^{-(\delta+\lambda)t} dt \quad (22)$$

Moreover, if $y_t = y$ for all t and $U(y) = \ln y$, then

$$W = \frac{L}{1 + \delta L} [\ln y] \quad (23)$$

where $L = \frac{1}{\lambda}$ is the expected lifetime. Thus, if $\delta = 0$, we get

$$W = L [\ln y] \quad (24)$$

The above expression is related to (at least two elements of) the HDI, but is nowhere near it in actuality—country rankings could be vastly different as between the two. However, the index just derived at least has the virtue of making its value judgements clear and transparent. With the HDI it is not clear what the judgements underlying the very precise implied tradeoffs are or where they came from. Thus, there does not seem to be a basis for recommending the HDI's weighting of welfare components as a guide to public expenditure reform.

4.2 Public Expenditures and Welfare Achievements

The second consideration mentioned above (i.e. the quantification of the links between public spending and welfare achievements) calls for an evaluation of complementarities (or substitutabilities) between different types of interventions in affecting relevant outcomes. For example, it is often argued that improving mothers' education is the best investment one can make for children's health. But *quantitative* estimates of the effect are rare. Would a dollar diverted from

primary health care to primary education for girls really lead to a long term decline in child mortality? If so, by how much? Within the health sector, would a dollar diverted from drugs in rural health centers to improving quality of health personnel in these same health centers lead to an improvement in measured health indicators? If so, by how much? Equally difficult questions lurk in the nutrition-health area. The complementarities here are well recognized but it is their quantification that is problematic and lagging behind. If the dreadful choice between maintaining a nutrition program or a vaccination program has to be made, what are the trade-offs? A badly nourished person is more likely to develop complications from a disease. But how much more likely?

These are not questions to which we have answers, but we doubt that policy analysts have often enough posed the question in this way, so as to force the limited econometric analysis that exists to speak to these issues. One notable exception is a recent Bank study on "Health Care Cost, Financing and Utilization" in Nigeria (World Bank, 1990b). This study concentrates on the problems and prospects for cost recovery in health care, using as an example Ogun State in Nigeria. Based on a household survey, the study first estimates the demand for health care in its various dimensions as a function of individual variables (income, education, etc.), price of care, as well as quality variables (for example, the availability of drugs and the physical condition of facilities). In this health production function (or reduced form demand analysis) the frequency of visits to different types of health facilities is taken as the dependent variable.

Such studies, on the intermediate or proximate determinants of achievements are common enough. Two recent studies of this type on the determinants of nutritional achievements in Africa are by Alderman (1990) and Sahn (1990). The explanatory variables in these studies include parental education and its effect on children's nutritional status as measured by anthropometric achievements. What is unknown in this approach is the influence of (past) public expenditure strategies on today's level of parental education.

Taking frequency of visits to modern (private and public) health centers as the policy variable of interest, the Nigeria study then simulates the impact of various cost-recovery related policy changes on the outcome. Examples of this might be (i) an increase in the price of health services provided by the public sector, (ii) an increase in the price plus an improvement in quality of facilities (suitably defined), and (iii) improvements in drug availability, and so on. For nineteen such policy options the study simulates the impact on frequency of visits and on the public budget. The study illustrates what is required before expenditure re-

structuring analysis can be done even on one quite narrowly defined outcome—frequency of visits to health centers.

While the simulation of the impact of these policy changes on the frequency of visits uses the estimated demand for health functions discussed above, their impact on the public budget requires a different type of analysis: In particular, the costs of quality and drug availability improvements have to be estimated. This requires a detailed cost analysis of the different components of the public health system, including personnel, drugs, and physical infrastructure. While this is presented in the Nigeria study, this type of analysis is typically not available for African countries. It is precisely this direction of research which is now needed to complement the growing literature on estimates of household level health production functions. The application of this approach to other sectors, for example, education, is in principle straightforward.

4.3 Public Expenditures and the Consumption Patterns of the Poor

The third component of the framework developed in Section 3 is the assessment of what fraction of public expenditure of a particular type is reaching the poor. It may be surmised that this is more easily analyzed than the questions asked in the two preceding subsections. This is in fact correct, but (like the estimation of the production function of basic needs satisfaction referred to above) it relies on the availability of household survey data of a type that is not yet widely available in African countries. We will illustrate the analysis with three examples from Côte d'Ivoire, a country which has undergone dramatic economic difficulties in the 1980s, and has been forced to reconsider the level and composition of its public expenditure.⁵

Let us start the discussion with a consideration of consumer price subsidies and their impact on the public budget and on the poor. As between subsidies on one commodity or the other, it can be shown that in expression (17) $C_E = C_L$, so that in a poverty-conscious restructuring of subsidies the government should move towards commodities that have a high value of the ratio of poor people's consumption to national consumption. This is shown formally in Besley and Kanbur (1988) but is intuitively obvious. A unit reduction in the national subsidy on a commodity saves the budget an amount proportional to the total amount consumed in the economy. The impact on the reduction of the poverty gap is (to a first order of approximation) proportional to the total amount consumed by the poor. Hence the critical ratio is that of the latter to the former—a poverty-conscious, and *balanced budget*, restructuring would mean spending more on commodities that had a higher value of this ratio.

The above analysis can be complicated considerably, but the rule of thumb developed here has the virtue of simplicity. It can be applied to household income/expenditure surveys that disaggregate consumption by commodities and permit the establishment of a poverty line. Let us start by analyzing each household's accounts in terms of sources of income and destinations of expenditure. In fact, total expenditure (per capita) will be our measure of individual welfare. The destinations of expenditure can be broken up into several basic categories: for example, consumer expenditure on food, consumption of home produced food, consumption of home produced non-food items, other consumption expenditure including nonfood items, and remittances paid out. Each of these can in turn be disaggregated further to any level that the data will allow and the policy analysis requires. Thus, if the price of kerosene is an important policy instrument this should appear as a separate category in the disaggregation of consumer expenditure on nonfood items. Similarly, if the price of rice looms large in policy discussions of consumer subsidies, these should appear as a separate category. In any event, given a mutually exclusive and exhaustive categorization of expenditures, and given a poverty line, the following expenditure decomposition matrix can be drawn up:

Expenditure Decomposition Matrix

<i>Expenditure/poverty category/group</i>	<i>Poor</i>	<i>Nonpoor</i>	<i>All</i>
1			
2			
3			
All			

Under the total in each cell should be the percentages it represents of the column total and of the row total. These percentages are highly relevant for the analysis of the poverty impact of food subsidy changes. But they have to be used with care. Often one finds analysts using column percentages to claim that the impact of a food subsidy reduction will or will not be large on the poor. Thus, if a particular commodity accounts for a small fraction of poor households' total consumption (i.e. a low column percentage), it is argued that this is an attractive commodity for a subsidy cut. However, this does not take into account what the saving will be on the fiscal deficit account—which is why the subsidy is being cut in the first place. An appropriate question to ask is: What is the poverty impact per unit of deficit reduction? For this it is the

row percentage that is relevant, as argued above. Of course one can make the analysis much more complicated, but in the operational context a matrix such as the one suggested here should prove useful as a first cut.

Often a price change will have an effect on producers of the commodity also. A similar strategy can be applied to the sources of income. Starting off from very broad categories (employment income, agricultural income, nonfarm self-employment income, remittances received), we can disaggregate down as far as the data will allow and the analysis requires. Employment income can be further broken down by production sectors and agricultural income by crop. Nonfarm self-employment income can also be further disaggregated to production sectors where relative price changes are occurring.

An illustration of the above analysis is the case of the price of rice in Côte d'Ivoire. From the Living Standards Measurement Survey (1985) for Côte d'Ivoire, Kanbur (1990) calculated the indicators in Table 2. The details of the calculations are given in the original source and are not our concern at the moment. In the third Côte d'Ivoire Structural Adjustment Loan Agreement (1986) explicit mention is made of the need to bring domestic prices of rice more in line with international prices. The efficiency based welfare economics of such policy reform is well known—the sum of producer and consumer surplus increases relative to the distorted equilibrium. However, there are distributional implications depending on how prices are changed and in what direction.

Table 2 shows that the incidence of poverty among rice farmers is 35.7 percent (compared to 30 percent for all Ivorians). Rice producers thus have a special claim in a policy of poverty alleviation. The mean area farmed by poor rice farmers is lower than that for all rice farmers. Combining 1 and 2 we find that the ratio of land farmed by poor farmers to total land farmed is 28.6 percent. While the relevant ratio suggested by theory is that of rice production by the poor to total rice production, the above is an adequate proxy. This ratio is to be compared with ratio 3 in Table 2. It is seen from these that rice is not really the poor man's food. Only 8.7 percent of total consumption is accounted for by the poor. Thus from the point of view of poverty

Table 2. Rice and Poverty in Côte d'Ivoire

1. Incidence of Poverty among Rice Farmers	35.7%
2. Ratio of Mean Area of Poor to Mean Area of All	80.0%
3. Ratio of Rice Consumption by Poor to Total Rice Consumption	8.7%
4. Ratio of Food Consumption by Poor to Total Food Consumption	13.4%

Source: Kanbur (1990)

targeting, if the choice is between reducing producer price or increasing consumer price, the indicators suggest that it is the latter which will do least damage to poverty at the aggregate national level. Similarly, if the choice is between increasing the producer price or reducing the consumer price, the former has priority in a poverty-focussed strategy.

Finally, compare 3 and 4. Relative to food on average, rice is decidedly the consumption of the non-poor. Thus, if the choice is between increasing the consumer price of rice and the price of food in general, rice would be the prime candidate. Likewise, where price reductions are concerned, food in general is preferred to rice. Similar indicators can be calculated for other foods as policy issues emerge around them during adjustment. The theory developed in Besley and Kanbur (1988), and implemented here for rice, which is highly relevant to the Côte d'Ivoire policy dialogue, has wide applicability and can be utilized for other countries as comparable or better data begin to become available.

Another illustration of how household survey data can be used in assessing public expenditure restructuring priorities is in the area of housing in Côte d'Ivoire. In the Second Structural Adjustment Loan Agreement (1983), the government announced a major disengagement from the housing sector, noting explicitly that it would pass on costs to public sector tenants in rental housing. What might be the consequences of this for the poor? Table 3 below provides some information on this. Using data from the LSMS, it gives an indication of how much of the public expenditure on rent was in fact going to the poor.

The table shows that while out of all individuals in the sample who rented, 27.3 percent rented from SICOGI/SOGEFIHA or some other public agency, only 6.9 percent of the poor did so. In fact, out of the 730 individuals in the sample who rented from these agencies, only 14 were below the poverty line. This seems fairly conclusive evidence that the poor have not benefited from the operation of SICOGI/SOGEFIHA; and

Table 3. Rental Housing Characteristics by Poverty Group in Côte d'Ivoire

	Poor	All
1. Own House (%)	91.9	74.4
2. Of those who rent, rental from SICOGI/SOGEFIHA/Public Agency (%)	6.9	27.3
3. Of those who rent, those for whom rent is paid by someone else (%)	6.9	12.8
4. Of those for whom rent is paid by someone else, payment by SICOGI/SOGEFIHA/Other Public Agency (%)	0.0	80.5

Source: Kanbur (1990)

Table 3 goes on to confirm this by showing that of those for whom rent is subsidized or paid by someone else, this subsidy comes from a public agency 80.5 percent of the time, but there were no poor who fell into this category in the sample.

Thus, the disengagement of the government from its present activities in the housing sector is unlikely to be detrimental to the poor given that current intervention is largely in favor of the top 70 percent of the population and not the bottom 30 percent. However, a caveat is in order. It remains true that for the vast majority of Ivorians, even more so for poor Ivorians in the rural sector, rental housing is not a concern. It is the quality of housing and amenities which matter, and it is to these that we now turn. Glewwe (1986) has analyzed these in some detail. He notes that the amenities of the poor are relatively worse on every count. Relatively more of them have no toilet access and of the people who do have such access, very few of the poor have access to a flush toilet or toilet inside the house. Similarly, the source of drinking water is a well (with or without pump) for most poor people and the next most important source is river, lake, spring, or marsh. These figures lay out the need for a restructuring of expenditure away from rental support to programs of improvement of amenities to the poor.

Table 4. School Attendance and Scholarships in Côte d'Ivoire

Percent	Poorest 30%	Wealthiest 70%	All
<i>% Household Members Attending School</i>			
Primary	11.7	19.7	17.3
Secondary	2.4	8.4	6.6
University	0.1	0.7	0.5
<i>Scholarship Money</i>			
As a %Household Expenditure	0.8	0.6	0.6
Per household member (CFAF/year)	467.3	1,417.6	1,137.9

Source: Glewwe and de Tray (1988)

Finally, we look at the example of education scholarships in Côte d'Ivoire. Table 4, adapted from Glewwe and de Tray (1988), illustrates the clear case for restructuring public subsidies away from generalized scholarships.

On the basis of the figures in Table 4, Glewwe and de Tray (1988) conclude as follows:

"... reductions in funding for university education will have very little effect on the poor. If these funds were instead used to improve the quality and availability of primary education instruction, the poor would likely receive substantial benefits. In terms of scholarships received, the impact is roughly the same among the poor and the non-poor measured relative to household expenditure levels. However, since the wealthier households have much higher expenditure levels in per capita terms, much more scholarship money is going to wealthier households (whose members are more likely to be in school at high levels of education) than to poor households. Cutting scholarship money across the board will not disproportionately affect the poor, while targeting that money to improve the quality of primary education is clearly to their advantage. Overall, policies for funding changes in education are more likely to benefit the poor than hurt them."

The above three examples, in the area of food subsidies, housing and education, illustrate the role that comprehensive household surveys in Africa could play in identifying poverty-conscious public expenditure restructuring possibilities. The collection of such data should clearly be a priority.

Note

5. In the analysis on Côte d'Ivoire presented below, the poverty line is defined as that level of income (approximated by total household expenditures per capita) which cuts off the lower 30 percent of the distribution of income.

5. *Summary and Conclusion*

In the foregoing pages, recent patterns of public expenditures in Sub-Saharan Africa were reviewed, an analytical framework to guide marginal resource allocation between spending alternatives was developed, and the scope and some limitations of poverty-conscious public expenditure restructuring analysis were illustrated by means of selected applications. It was concluded, in Section 2, that the poverty alleviation record of past public expenditure strategies is rather limited. However, decisions regarding the reallocation of resources to directly poverty-reducing spending programs are complicated by the fact that the various human capital inputs interact with each other and with productive sector expenditures targeted on the poor in producing welfare outcomes. How is one to prioritize the use of scarce resources for poverty reduction?

The answer suggested in Section 3 was that, given the multidimensionality of the standard of living, the choice between social and economic sector resource allocation at the margin (or indeed between any spending alternatives regardless of their sectoral affiliation and level of aggregation) depends on the comparison of total expected welfare effects working through both basic needs and income mechanisms. A distinction was made between direct and indirect expenditures, the former taking place in the primary sector in which one seeks to obtain improvements (for example, health), the latter occurring in other (for example, income-enhancing) sectors which will lead to improvements in health through interactive effects. The analysis implied that there is normally a case for a combination of direct and indirect expenditures.

In Section 4, approaches to the analysis of the poverty alleviation impact of public expenditures were discussed. Three pieces of information were identified as needed, viz. the weight to be attached to various components of the standard of living, estimations of the linkages between expenditures and achievements, and knowledge regarding the fraction of expenditures reaching the poor. The social valuation of the various components of the standard of living is a normative matter. We have therefore recommended caution in

the use of weighting schemes, such as UNDP's Human Development Index, as a basis for decisions regarding changes in the composition of public expenditure.

However, much is to be gained from production function approaches to the analysis of welfare achievements and from analyses which link public expenditures and the consumption patterns of the poor. For example, an individual's health production function can be said to include, among other arguments, a set of health inputs (medical consultations, preventive care, availability of health facilities) and a set of household "public" goods such as sanitation facilities, water quality and the like (World Bank, 1990c: 91). These inputs are a function of public expenditure levels and patterns (unless they are provided privately), and their contribution to health outcomes can be estimated on the basis of appropriately designed household surveys. The availability and prices of medical inputs and household "public goods" are determinants of the demand for health. Changes in public policy regarding these determinants (e.g. pricing or cost recovery policy; the expansion of health facilities) will thus affect health care choices as governed by the parameters of the health production function. If combined with studies of the cost of public services and their components, this demand side analysis allows one to trace changes in welfare achievements (or proxies thereof) to changes in public expenditures as exemplified in World Bank (1990b).

In conclusion, then, it is noted that household surveys are a prerequisite for policy research on the determinants of basic needs satisfaction and the degree of overlap between the pattern of government subsidies and the consumption habits of the poor. The collection of household budget and consumption data should therefore be promoted. The reader is referred to World Bank (1991) for the description of a prototype household survey which is designed to capture the information needed to perform the types of analysis identified above. On the supply side cost data on specified services and their input components, and data on service utilization, are required. Cost data are needed both to link expenditures and achievements

and as a basis for the improvement of public expenditure management, the need for which follows from the discussion in Section 2.3. The collection and analysis of these demand and supply side data is a demanding

task, but (as we hope to have demonstrated) well worth the effort in terms of the insights gained to guide the restructuring of public expenditures from the point of view of poverty reduction.

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