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We respond to the comment by Schiff on our 1984 invited paper along three lines. First, we clarify points that appear to have been misunderstood. Second, we emphasize our disagreement with several aspects of Schiff's position that find particular currency within a small, but not negligible, portion of the donor community. Foreign assistance was equal to nearly two-thirds of gross domestic investment in the low income economies of Sub-Saharan Africa in 1984 and 13% of gross domestic investment for the region as a whole (World Bank 1984, 1986); the opinions of donors matter in Africa. Third, we use the opportunity to refocus the debate on the real issue of steps to improve agricultural investment in Africa. We feel that a critical mass of national and donor agency policy makers have made this transition but that we as an academic community have done relatively little in recent years to assist them.

Points That Need Reemphasizing

Of course, the power of the marketplace must be used to mobilize private resources for development purposes. The magnitude of the task involved in moving African agriculture surpasses the ability of national governments and donor agencies alone to provide the necessary resources. Certainly, governments in Africa have frequently pursued pricing policies that have limited producer incentives, and so donors and nationals alike must press for change in those policies. As we were at pains to point out in the original article, we see agricultural pricing at international levels as perhaps a necessary, but not a sufficient, condition for getting African agriculture moving. In any event, the position of virtually all African countries as price takers in international trade makes it difficult for them to pursue independent pricing policies, as the sad experience of the 1970s shows. Finally, we very much agree with the position of our colleague Yair Mundlak (as we did in the 1984 paper) that agricultural supply response to price occurs through capital accumulation in the

rural sector and that technological change is central to that process.

Points of Disagreement

The last point indicates the fundamental problem we have with Schiff's analysis and, incidentally, his distance from Mundlak's position, whose notation he adopts to comment on our paper. Schiff (and he is not alone in this) defines agricultural incentives as "any policy affecting the price (or value added) of agriculture relative to nonagriculture. . . ." In effect, the barter terms of trade between agriculture and nonagriculture is his yardstick of incentives. We prefer the income terms of trade that measure prices paid to nonagriculture against agricultural income. This implicitly takes into account unit costs of production in agriculture. What matters to the African smallholder is surely the implicit wage rate rather than the unit return to a product independent of farm productivity.

Mundlak, in both the literature cited by Schiff and more explicitly in a chapter of a forthcoming IFPRI book on agricultural price policy, takes the position that the effectiveness of prices in promoting capital accumulation in agriculture is dependent on a stream of research results (improved technology—a k_2 good in the comment's notation) being available. In other words, while we very much agree that output is likely to be responsive to private capital accumulation in agriculture ($\delta \ln y / \delta \ln k^* > 1$), we are less optimistic for the current condition of Sub-Saharan Africa about the responsiveness of private capital accumulation to price increases ($\delta \ln k^* / \delta \ln p$).

When agricultural infrastructure (roads, irrigation, research, extension, level of farmer education, access to agricultural services, etc.) is as low as it is in most of Africa, the responsiveness per unit of time of private capital formation to changes in the internal terms of trade is likely to be very small. A stream of such k_2 goods (or a stream of benefits from k_2 investment) increases agricultural incentives directly in each period by cutting unit costs of production. Furthermore, in the early stages of agricultural development, as in much of Africa, it may have an equally important effect by speeding up the responsiveness of private capital allocation to new opportunities in agriculture. At

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the margin, a higher relative price for milk will increase milk sales and investment in production but will presumably do so more rapidly from areas linked to the consuming area by a road.

Another reason for concern about the responsiveness of private capital accumulation to price incentives in Africa, in comparison to Asia and Latin America, is the relative absence of economic rent to land ownership outside the highest potential cash crop zones and the more densely settled or large farm areas of eastern and southern Africa. In much of West Africa in particular, easy availability of unfarmed but arable land of roughly equal quality to that being cultivated, combined with low purchased input use, leads to a marginal product of labor that is very close to the average product, which is already very low even by Asian standards (Mellor and Ranade). In such circumstances, labor shares in output are high and the marginal propensity to save out of increments to income for investment in agriculture is likely to be low without a major increase in the average product of labor through unit cost-reducing innovations. Thus, without structural change, extra income is likely to go to increased consumption rather than rural investment.

The particular importance of agricultural infrastructure broadly defined in explaining differences in agricultural productivity across countries, and most particularly in the relatively poorer countries, has been well-established; Antle gives a recent survey of the literature plus his own results in this regard. Furthermore, the role of infrastructure broadly defined in investment in Asian high-yielding varieties is also well known (Mellor, Mundlak 1985). Where the level of agricultural infrastructure, including human capital, is already high, it is probable that the response to price incentives will be much greater than where it is low. This is not an argument against price incentives, but prices alone are not a substitute for a broader pro-growth agricultural incentives policy in Africa.

Finally, we come to a fundamental disagreement with Schiff that is basic to understanding both development processes and how policy is made. This concerns what is exogenous and endogenous. Schiff, and many others involved in African policy debates, appears to view the domestic terms of trade as an exogenous policy variable, with rural-urban migration, strong urban lobbies and consequent urban bias in budget allocations, weak rural lobbies, and foreign capital inflows (public and private) to nonagriculture being the endogenous result. Price and trade regime policies that affect the internal terms of trade for agriculture are then seen as causes, not outcomes, of the policy environment.

While we do not deny the importance of understanding the overall economic impact of trade regime and price policy changes, we do feel that it is essential for policy analysis to understand the forces that produced specific outcomes in the first place. While price policy reforms may be an impor-

tant part of an agricultural growth strategy, solutions that go beyond one-shot policy changes imposed through foreign assistance conditionality will need support from a broad coalition of interests. This necessarily involves strategies to reduce unit costs of production through public-sector-led investment in infrastructure, broadly defined.

The Real Issue

Given the view that aggregate agricultural output responds sustainably to private capital accumulation in agriculture and that the latter is only marginally affected by prices in areas where new technologies, crop opportunities, or other innovations and facilities that raise agricultural productivity are absent, the real issue becomes how best to provide the environment for capital accumulation by farmers. Put another way, which investments are needed to permit price policies to work, and how should they be sequenced? The answer is more art than science and will depend on specific circumstances. Yet, it is possible to give some general principles, spelled out more fully in Mellor, Delgado, and Blackie (chap. 33).

Uppermost is the need for a set of priorities. Several phenomena have contributed to lack of priority in Africa, despite the magnitude and urgency of key tasks to be accomplished. First, the role of domestic institutions of research and learning in policy research, analysis, and advice is especially weak. With a few exceptions, African governments have been slow to encourage such a role from their own academies. Instead, a number of disjointed, quick policy papers by individuals and foreign consulting organizations have played this role. Second, the large number of foreign assistance organizations, with differing viewpoints and objectives and with an aggregate economic impact of major importance on investment policy, have helped fragment efforts. Third, the jockeying for influence of domestic lobbies within major donor countries has led to inconsistencies within individual donor policies. Fourth, a natural concern with poverty, equity, and political stability within Africa has led in many cases to public investment budgets trying to do all things for all people with too few resources. The special urgency of priority setting in Africa arises from the scarcity of trained people and institutional structures.

Priorities need to be set along commodity, regional, and functional lines. They should be kept as simple as possible. They should concentrate resources to ensure success in one area of concern before moving to the next. Most of all, because of the need to mobilize all available resources, public investment (k_2 goods) should be allocated so as to maximize the overall level of capital ($k_1 + k_2$) available to agriculture. Such an approach would, for example, discourage capital-intensive state farming yet encourage transportation infrastructure to open

high potential areas where market outlets are a constraint. Finally, the overall objective of lowering per-unit costs to the large majority of producers, smallholder farmers, should be kept in mind. This is the only form of agricultural incentives policy that is compatible with both rural and urban interests in the short and long run.

The need for a set of priorities raises the need for national institutions to monitor, evaluate, and advise on both priorities and how to implement them. This requires skilled people to staff these institutions and the capacity to collect data for their use. Finally, there is a need for rural political processes to keep agricultural policy in the forefront of debate, to help mobilize and allocate national and local resources for agricultural development, and to provide legitimacy to decisions made. The latter stems from the recognition that price policies are outcomes from, as well as inputs to, the policy process.

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