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TOWARD MORE COMPREHENSIVE PLANNING IN EAST AFRICA*

It seems clear that development efforts in East Africa
are in transition from a phase of public project planning
to a phase of more comprehensive planning. The three govern-
ments are embarked on this transition for a variety of
motives - to push their economies forward to more satisfactory
rates of progress than in the last few years, to accelerate
industrialization in particular, to implement a philosophy
of African socialism, and to join in the experience of other
developing countries in Africa, Asia, and Latin America.
They are also undertaking the transition in different ways
and at different rates. Yet a common trend toward making
development planning more comprehensive seems clearly under way.

More comprehensive development planning is bound to
involve more extensive quantitative calculations. The purpose
of this paper, therefore, is to discuss the most important
forms of quantitative economic analysis which are likely to
be needed in the course of this transition. I will not
attempt to present the details of the techniques, but rather
to clarify the uses to which they can be put in more com-
prehensive planning.

The Nature of More Comprehensive Planning.

Let me first indicate the main ways in which more com-
prehensive planning is likely to diverge from the methodology
of current development plans in East Africa. By current plans
I refer to the Uganda five-year plan for fiscal years
1961/62-1965/66, the Tanganyika three-year plan for
1961/62-1963/64, and the Kenya three-year plan with one-year
extension for 1960/61-1963/64.[1] Apart from these current
plans, Tanganyika is in the process of drafting a new five-
year plan for 1964/65-1968/69, and Kenya is preparing a new
three-year plan for 1964/65-1966/67 and a tentative outline
plan for a further three years. Tanganyika's new plan does
attempt a major advance toward more comprehensive planning,
and illustrates the transition which is already taking place

First, a more comprehensive plan would be based on an
explicit quantitative analysis of desired trends in the
economy as a whole, from which the development program of the
immediate plan-period is derived. By contrast, the method
of constructing current plans was essentially that of select-
ing and adding together the projects which appeared most pro-
mising within a rough estimate of the amount which might possibly
be financed. It is true that both the Tanganyika and Uganda
plans took advantage of broad economic surveys undertaken
by visiting IBRD missions, but the roughly projected rates
of growth of gross domestic product were essentially independent
of the sets of projects finally included.

Second, a more comprehensive plan would embrace private investment as well as public expenditures, and would set targets for private economic activity needed to accomplish the plan objectives. By contrast, current plans cover expenditures by the central government and public agencies plus limited private participation in public projects. There is a chapter in the Uganda plan about private investment intentions, but it is based on an experimental survey and is related only tangentially to the plan proper. None of the plans provides a set of targets for all the main branches of private economic activity; the Uganda objective of raising cotton production from 370,000 to 500,000 bales is a notable exception.

Third, a more comprehensive plan would place greater emphasis on implementation procedures, and particularly on policy instruments designed to induce private actions in accordance with the plan. By contrast, current plans dealing with public expenditures assume implementation through normal budgetary procedures.

In the circumstances of East Africa, a special implementation problem arises from the fact that some of the most important policy instruments which might guide the path of economic development in the three countries are kept essentially uniform because of the <u>de facto</u> common market. I refer in particular to the level and structure of business taxation, which might be a key instrument of industrialization policy; to rates of customs duty, by which protection policies are implemented; to monetary and credit policies, now operated through the common currency board; and to investment in railways and communications, now operated as common services. The gap between separate national development plans and essentially uniform policies for these key instruments is at present a source of tension among the three countries. The trend toward more comprehensive planning seems bound to bridge this gap, either by disrupting the present degree of economic integration, so that these instruments can be used to carry out the national development plans, or by coordinating the separate development plans, so as to employ these common instruments more energetically and effectively.

These three points of contrast between public project planning and more comprehensive planning should not be interpreted as sharply critical of current plans. There are obviously many practical difficulties to be surmounted in introducing a more ambitious methodology, and the process takes study and time. But they do characterize the nature of the transition to more comprehensive planning which seems to be under way.

<u>Designing the Plan: Aggregative Projections</u>.

Quantitative economic calculations can play a variety of roles in the design of a development plan - that is, in helping to decide upon the preferred set of development activities to be undertaken in the current plan-period, which are commonly presented in a plan document, I find it convenient to distinguish three main functions of a development plan, and correspondingly three main kinds of economic calculations to be used in its design.

The first function is to determine how much development activity the economy can support in the current plan-period, what main lines of activity are to be undertaken, and how much progress seems realistically attainable in the economy as a whole. In short, the first function is to make the strategic decisions around which the rest of the development plan is built.

The quantitative economic calculations most closely associated with this first function are aggregative analyses of past trends in the economy and aggregative projections of future prospects under the development plan. These calculations provide a set of aggregative targets which are judged to be the maximum attainable during the current plan-period, and toward which all elements of the plans are directed. By the word "aggregative" here, let me make clear that I do not refer simply to national income and product, but to such

major aggregates as total exports, total imports, total government tax revenues, total government capital formation, total borrowing and assistance from abroad, total private capital formation, total non-agricultural labor force, total production of selected major agricultural crops, and total supply of people with post-primary education. Techniques of making aggregative analyses and projections, employing such empirical relationships as marginal capital-output ratios, income-elasticities of demand for major categories of consumer goods, marginal tax rates, and trained manpower requirements, have been described elsewhere.[2] These techniques are part of the common tool-kit of development planners, and with the relatively abundant statistical data available in East Africa, should be quite applicable here.

It is true that some problems arise from the fact that in the order of a quarter of national product is consumed directly without passing through the market, and perhaps 90% of the population engage at least partly in non-market production. In these circumstances, particularly for interpreting the welfare significance of long-run trends in the economy, special attention must be paid to treating non-market economic activities in a systematic way, such as the proposed rural household sector in national accounts for African countries.[3] But there are still real aggregative constraints on the development plan - the most critical of which are likely to be total foreign exchange availability, total investment funds both private and public, and total supply of trained manpower. Demands for these critical resources fortunately stem almost entirely from market economic activities. Thus aggregative analyses and projections of the market economy are still practicable for making the strategic decisions of the plan, even in economies with substantial non-market activity.

Designing the Plan: Sector Coordination.

The second main function of a development plan is to make sure that the development activities to be undertaken in all the various sectors of the economy are consistent with each other and feasible within the resources available. This function of balance is one of the main advantages to be sought by introducing planning to supplement unguided development of the economy. If major expenditures are to be made in improving the transportation system, requiring imported transportation equipment and fuels, then expanded export earnings must be planned to finance them; if exports are to be expanded, then broader agricultural extension services may have to be provided; if extension services are to be made more comprehensive, then larger expenditures are needed for training agricultural technicians in secondary schools and universities; and so on. At the same time, the development activities in all sectors must obviously fit the resources at the nation's disposal, so that the plan can be implemented without costly disruption

and without leaving some sectors partly idle because of
bottlenecks. As already suggested, the most critical basic
resources are likely to be foreign exchange, investment funds,
and trained manpower. There may also be specific constraints
in certain sectors supplying producers' goods-construction
materials, fuels, electric power, transportation services.

The quantitative calculations which may be used in per-
forming this second function cover a broad range in theoretical
sophistication. Conceptually the crudest devices are the
material balances which are such a notable feature of Soviet-
style economic planning. Each material balance is simply
a two-sided tabulation of sources and uses of a producers'
good or factor of production used in the economy. The basic
difficulty in practice is to insure that the output projected
in each of the materials balances is compatible with the inputs
provided in all of the others, and when hundreds or even
thousands of materials are subject to central allocation, the
planning process becomes extremely cumbersome.⁼ Conceptually
the most refined devices are the inter-industry and linear
programming tables which are being experimented with in such
countries as India, the U.A.R., and Colombia. These tables
in essence pull together into a single calculation an entire
set of material balances, so that a single solution is automat-
ically internally consistent and feasible, and alternative
solutions can be readily compared. The basic difficulty in
practice is to specify reliably in advance all of the connections
between inputs and outputs in the material balances needed for
a solution.[5]

In development planning in East Africa in the years
immediately ahead, techniques for ensuring balance among
sector targets probably do not need to be either as all-
inclusive as a Soviet-style system of material balances or
as internally rigorous as a complete inter-industry or linear
programming table. Extensive trade relations with the rest
of the world economy permit a great deal of flexibility, sub-
ject to the foreign exchange constraint, in sector planning.
It should thus be practicable to operate with only a limited
number of planning balances, for the critical resources of
foreign exchange, investment funds, and trained manpower, and
for a few producers' goods supplied largely domestically. Input
requirements of these key factors and materials, however, should
be estimated systematically for all the sector targets of the
plan, thus arriving at a partial framework of the inter-industry
or linear programming type. It should be extremely interesting
to see what experience reveals about the usefulness of this
kind of partial inter-industry framework.
Designing the Plan: Project Analysis.

The third main function of development plan is to select
the individual projects which contribute most to attainment
of the aggregative and sector targets. In part this function
consists in comparing alternative possible projects for producing
essentially the same output. If a hydroelectric plant is
being designed, a choice may have to be made between alternative
heights of the dam, or between present and future installation
of generating units not immediately needed to meet present
demands. In part this function may consist in comparing rather
different alternative projects within the same broadly-defined
sector. If additional transportation capacity between an inland
producing area and a country's major port is being considered,
it may be necessary to choose between expanding the rolling
stock of the existing railroad and upgrading the traffic capacity
of the existing road system. And in part this function may
even include comparison between alternative projects in different
sectors of the economy. If obtaining more foreign exchange
for imported capital equipment is accepted as a target, it may
be relevant to choose between a project for expanding production

of an agricultural export crop and a project for manufacturing
more textile products domestically.

The quantitative calculations helpful in performing this
third function fall under the general heading of project analysis.
A project analysis can take various forms; the benefit-cost
ratio commonly employed in multi-purpose water resource projects
may look rather different from the rate of return on investment
commonly employed in industrial project decisions. But whatever
the form, in essence project analysis calculates the net gain
to the economy as a whole from a particular project, taking into
account both the value of its outputs or services and the cost
of its inputs, and it does so in a systematic way which permits
comparison with alternative projects. The project analysis
approach is quite powerful, and can be extended even to such
difficult questions as the net gain to the economy of expanding
the number of secondary school graduates by, say, a quarter.[6]

One recurring problem in comparing projects is that of
taking account of the true scarcity values of factor and material
inputs which they absorb -- that is, the values which these inputs
could actually produce in other uses if they were not absorbed
in these particular projects. Economists often suggest that in
less developed economies which have embarked on energetic develop-
ment programs and which have only imperfectly functioning market
systems, the scarcity values of such critical resources as foreign
exchange, investment funds, and trained manpower are likely to
diverge substantially from their market prices. If this is so,
then there will also be related divergences for materials inputs
which use different amounts of these critical resources in their
production. Thus it may be very illuminating to estimate scarcity
values for certain key factor and material inputs, and to apply
these values in a uniform procedure for project analysis.

Making quantitative estimates of such scarcity values is
clearly not easy. Though in principle they can be calculated
with the linear programming technique, the most practicable
approach is likely to be a series of ad hoc estimates of prices
which might balance supply and demand for the various critical
resources as rapid development proceeded. Thus for foreign
exchange an estimate might consider such influences as trends
in export earnings and the likely effect of vigorous develop-
ment on import demands; for investment funds, such indica-
tors as rates of return on known development projects and
interest rates on private loans; and for trained manpower,
such factors as social costs of education and the likely
effect of vigorous development on hiring demands. But if true
scarcity values diverge markedly from market prices, even
rough estimates should be helpful in a standard project
analysis procedure.[7]

Until recently in East Africa it appears that scarcity values of foreign exchange, investment funds, and trained manpower probably did not diverge substantially from their market prices. Export earnings adequately covered import demands, and the currency board system made foreign exchange interchangeable with the domestic money supply; investment was limited more by the market than by the availability of foreign or domestic funds; and shortage of trained manpower only became obvious as a consequence of Africanization. In these circumstances, a systematic project analysis procedure could be quite helpful for planning, simply using market prices. In the years ahead, however, if more comprehensive planning does succeed in accelerating the rate of growth until the East African economies run up against these basic constraints, the scarcity values of foreign exchange, investment funds, and trained manpower will rise above their market prices. Thus in selecting preferred projects for inclusion in the development plan it could be quite important to make quantitative estimates of these scarcity values for use in project analysis.

Implementing the Plan.

As more and more nations have accumulated experience with development efforts, it has become almost a platitude that effective implementation is even more challenging than wise design of a development plan. Within government, implementation involves continuing day-to-day action, year after year, by thousands of officials in hundreds of offices. Civil servants will recognize that even with the best will in the world it is extremely difficult for all parts of the governmental structure to carry forward the actions for which they are responsible, promptly, and in ways which mesh with rather than interfere with actions by other offices. Outside government, the private actions needed for successful economic development are of course even more decentralized and diverse. Nations such as those in East Africa, which maintain a mixed economy of private and public enterprises, to preserve the advantages of decentralized initiative and simplified central administration, must employ planned fiscal, monetary, and regulatory policies to induce desired private actions. The question continually arises: are private agricultural producers, traders, industrial managers, or bankers responding to government stimuli in the ways required for the development plan?

Quantitative economic calculations can make their greatest contribution to effective implementation of the plan by providing a battery of measures of results as the plan unfolds. Such quantitative measures can be extremely helpful, in both government and private spheres, in assessing how rapidly progress is being made toward targets specified in the plan, and in determining whether different kinds of development activities are proceeding in step with each other. For example, in implementing a transportation program in a region it would be revealing to keep track simultaneously of how many miles of realigned roads the Ministry of Works is completing, how many train-miles are being scheduled by the Railway Administration, how many acres agricultural producers are shifting from subsistence crops, and how many lorries private trucking firms are being induced to invest in. Lagging activities need to be identified before they can be corrected.

But what kinds of quantitative measures of results should statisticians and economists be asked to devise? Let me suggest two general points. First, the measures should whenever possible be measures of outputs rather than inputs. Particularly within government, there is a tendency to measure

development activity in terms of budgetary expenditures
for a specific program, using information which emerges
in the course of normal government accounting. Yet how
much more relevant it is to measure results of the acti-
vities of the Ministry of Education in terms of numbers
of graduates with different levels of training, rather
than in terms of expenditures on buildings or even teachers'
salaries. Output measures also provide an invitation to
calculate costs per unit of output, which can be very sug-
gestive in choosing among alternative activities, such as
alternative ways of organizing secondary education.

Second, measures of results will be most useful for
plan implementation if their scope is sufficiently narrow
to be related to activities of particular government
agencies or particular groups of private producers. Here
I think professional economists ought to be somewhat apo-
logetic to government officials trying to carry out deve-
lopment plans for our tendency to think in terms of broad
aggregates. The outstanding instance is our predilection
for establishing targets and measuring results in terms of
national product per capita. This measure is so broad that
it is almost impossible to relate it to greater or lesser
effectiveness in performance in the development plan. Of
course my comment should not be interpreted to question
the value of a reliable and comprehensive system of national
accounts for other aspects of development planning. But
to support effective implementation of the plan, a battery
of narrowly-focused measures of results is what is needed.

Conditions of Comprehensive Planning

These then are the main forms of quantitative econo-
mic analysis which it seems to me are likely to be needed
in East Africa in the transition to more comprehensive
planning - - aggregative projections, partial inter-in-
dustry frameworks for sector coordination, systematic pro-
ject analysis procedures employing some scarcity values,
and quantitative measures of results. Before concluding,
let me discuss at least briefly two underlying conditions
for most effective use of these techniques in more com-
prehensive planning.

First, political leaders must set reasonably clear
objectives for the development effort. These objectives
provide the guidelines which economists and administrators
need for working out the targets of the plan and keeping
track of measures of its results. In the planning pro-
cess economists and administrators are essentially in the
position of engineers, or perhaps architects, designing
and implementing means to political ends. Thus it is im-
portant that their guidelines be specified in clear, and
wherever possible quantitative, ways.

This point should not be interpreted as a counsel of
perfection. Of course political leaders have qualitative
objectives, such as greater national unity among people of
different tribal backgrounds, as well as quantitative
objectives, such as a reduction in urban unemployment and
a rising proportion of manufactured goods produced dome-
stically. Implicit weights for these diverse objectives
can probably be worked out gradually in the course of pre-
paring successive drafts of the development plan, just as
individuals discover their tastes in clothing in the pro-
cess of buying shirts and shoes. But on the most difficult
issues -- those involving conflict between immediate improve-
ments in living standards in the current plan-period and
cumulation of economic activity for self-sustaining develop-
ment in the longer run -- it is important that clear directives
be provided.

Let me cite just one example. It is the conflict between concentrating development efforts geographically where they are most likely to cumulate in the future and distributing their immediate benefits more widely. Every country has some geographical regions which are more favourably endowed with natural resources, location relative to natural transportation routes, or prior experience in economic activity than other regions. Moreover, if industrialization is to be a significant feature of the plan, only one or two larger cities may offer the prospect of an industrial complex of sufficient scale to be mutually reinforcing. A plan which emphasizes development efforts in more favorably endowed regions and in the most promising cities will generate larger increases in national product, create more mutual stimuli among related kinds of economic activity, and as development cumulates, given mechanisms for transferring put of the material gains to the rest of the country, actually permit greater improvement in the less-advantaged regions and cities than an initially even-handed policy.

Considering East Africa as a whole, a more or less equal distribution of development activities, particularly industrialization, among Kenya, Uganda, and Tanganyika probably would not involve any significant economic costs. But within each country the conflict between concentration and dispersion is surely more serious, and this is the kind of issue on which each country's planners need definite guidance.

A second condition of effective comprehensive planning is continually improving statistics. Again this should not be interpreted as a counsel of perfection. Planning techniques must always be tailored to the statistical information obtainable, and East Africa now has a statistical base which should support significant progress toward more comprehensive planning.

The point which I wish to make here, however, concerns the time horizon of actions taken to improve the statistical system. If the prognosis of increasingly comprehensive planning is sound, and if development does proceed at a rate which strains basic resources, then quantitative economic techniques which today appear more advanced and complex than present conditions warrant will become more urgent by 1968, or certainly 1973. More complex planning techniques will require more extensive economic statistics. Moreover, because of the tremendous organization and training problems which must be faced in extending and improving a country's statistical collection system, there are long lead-times involved. Even after a new body of statistical information is collected, time is required to assess its economic significance. Thus in deciding what statistical projects are to be undertaken during a current plan-period, the question which ought to be asked is: what statistical information will be necessary for drafting the next development plan? A notable instance today is an industrial census collected on a uniform basis for all three East African countries. But many statistical needs become more urgent when viewed as a condition of the transition to more comprehensive development planning.

Footnotes

1. See Uganda Government, The First Five-Year Development Plan, 1961/62-1965/66, and Estimates of Expenditure, 1963/64; Tanganyika Government, Development Plan for Tanganyika, 1961/62-1963/64, and Estimates of Revenue and Expenditure, 1963/64; Kenya Government, Development Estimates for the Year 1960/61, and Development Estimates for the Year 1963/64.

2. Various U.N. publications do an excellent job of exposition. See UN (ECAFE), Programming Techniques for Economic Development, 1960; UN (ECAFE), Formulating Industrial Development Programs, 1961; UN (ECLA), An Introduction to the Technique of Programming, 1955; and UN (ECLA), The Economic Development of Colombia, 1957 (a detailed illustration).

3. See UN(ECA), Report of Working Group on Treatment of Non-Monetary (Subsistence) Transactions, 1961.

4. A good brief description of Soviet use of material balances is H.Levine, "The Centralized Planning of Supply in Soviet Industry," which is perhaps most accessible in M.Bornstein and D.R.Fusfeld, The Soviet Economy, Irwin, 1962. See also the thirteen selections on the recent Soviet planning and pricing controversy in H.G. Shaffer, The Soviet Economy, Appleton-Century-Crofts, 1963, section X.

5. A standard exposition of these techniques is H.B.Chenery and P.G.Clark, Interindustry Economics, Wiley, 1959. See also the U.N. sources cited in footnote 2.

6. Project analysis techniques are described in various U.N. publications. See UN(ECAFE), Formulating Industrial Development Programmes, 1961; and UN(ECLA), Manual on Economic Development Projects, 1958. For a method of applying them to education, see G.S. Becker, "Underinvestment in College Education?", American Economic Review, May 1960.

7. Jan Tinbergen, The Design of Development, Johns Hopkins, 1958, has a good discussion of scarcity values, called accounting prices in his terminology, especially in chapter III. See also the UN sources cited in footnote 6.

8. This development strategy is associated with Francois Perroux's concept of poles de croissance and with Albert Hirschman's concept of unbalanced growth. See F.Perroux, L'economie du XXe siecle, Presses Universitaires de France, 1961, especially part two, for a recent statement; and A.O. Hirschman, The Strategy of Economic Development, Yale, 1958, especially chapters 3 - 6 and 10.