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**Limitations of Comprehensive Planning in the
Face of Comprehensive Uncertainty:
Crisis of Planning
or
Crisis of Planners**

by

WOLFGANG F. STOLPER

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Limitations of Comprehensive Planning in the Face of Comprehensive Uncertainty: Crisis of Planning or Crisis of Planners?

By

Wolfgang F. Stolper

Contents: I. The Policy Irrelevance of Aggregative Models. — II. Disillusionment and Alternatives: 1. Unsatisfactory Growth Rates; 2. The Difference Between Plan and Achievements. — III. Administrative Considerations. — IV. Summary.

The title of my piece was suggested by Mr. Reginald Green. The subtitle is my own desperate, or if you wish, cynical interpretation of its meaning. There does seem to be a general re-evaluation of what planning is and can do. India, by sheer size of its country and problems, but also by priority in time and intellectual excellence of its planners, has tended to dominate the field of non-Soviet type planning theory and practice. It has been presented frequently as a model of what planning meant. More recently, the difficulties and delays with the formulation and acceptance of the Fourth Plan have been analyzed in a conference and an excellent book on *The Crisis of Indian Planning*¹ which has suggested my alternative title.

Remark: Paper pres. at the Joint Annual Meeting of the African Studies Association (U.S.A.) and the Committee on African Studies in Canada, Montreal, October 1969. This paper is later to be published in a volume by Mc. Gill University Press. I acknowledge with thanks the critical help of Professors Ian Little and Paul Streeten, Oxford University, and Elliot Berg, Peter Eckstein, and Richard Porter at the University of Michigan.

¹ *The Crisis of Indian Planning, Economic Planning in the 1960s*, Ed. by Paul Streeten and Michael Lipton, Iss. Under the Auspices of the Royal Institute of International Affairs, London, 1968. Since the manuscript was finished a superb summary and analysis of Indian planning, including an analysis of empirical studies has appeared: Jagdish N. Bhagwati and Sukhamoy Chakravarty, "Contributions to Indian Economic Analysis: A Survey", *The American Economic Review*, Vol. LIX, Menasha, Wisc., 1969, No. 4, P. 2, Suppl.: "Surveys of National Economic Policy Issues and Policy Research", pp. 159qq.

I shall continue to refer to *The Crisis of Indian Planning* as an argumentum a fortiori: Indian planners “rely too much on bad data . . . over-emphasize the big aggregates of heterogeneous items, and neglect detailed and concrete analysis of social and economic microcosms”¹; produce sophisticated planning models with questionable connection to facts; have neglected until now cost-benefit analyses in making investment decisions²; and have pursued an import substitution policy at the end of which foreign exchange earnings “scarcely cover the current demand for raw materials and capital replacements”³. Surely if this was wrong in the supposedly more sophisticated Indian context, it is a waste of time to seek an “improvement” in Africa by introducing similar procedures there.

My title is intended to suggest that whether there is a crisis and whether there can or cannot be “comprehensive” planning, depends very much on what one expected in the first place. If the problems are wrongly seen it must be expected that the answers will be wrong or at best irrelevant, and the world being what it is, this will become apparent sooner or later. If you think that perfectly real tough problems can be made to go away by a process of logical incantation, you will necessarily be disappointed, particularly if your logical incantations pay more attention to internal consistency than to relevance to reality. But if you recognize the very severe limitations of reality and would rather suggest a minor improvement in reality and in the hard life of the ordinary African or Asian than construct yet another elegant scheme, then perhaps planning, even comprehensive planning, has an important place. I suggest that what is happening is a crisis of planners; and what may hopefully emerge is that attention is directed to the real problems of development instead of the homemade ones of development planners.

Perhaps a tentative definition of “comprehensive planning” is in order in this place. Since the rest of my discussion really is a more detailed working out of what I feel the more appropriate meaning is, the initial definition must be a little cryptic.

Comprehensive planning involves rational target setting and the prescription of optimal paths to achieve these targets. It also involves a way to deal with general interdependencies, preferable in a precise quantitative manner. Such a definition is so general that one cannot disagree, or be very sure just what it is one has agreed to. Differences come in two major respects. The first is that one view of planning implies that one can know and control the future. This has often the implication, secondly,

¹ Michael Lipton and Paul Streeten, “Two Types of Planning”, in: *The Crisis of Indian Planning*, *op. cit.*, p. 7.

² J. M. Healey, “Economic Overheads: Co-ordination and Pricing”, in: *ibid.*, p. 171.

³ James Mirrlees, “Targets and Investments in Industry”, in: *ibid.*, p. 75.

that planners must have the last word in everything and occasionally even that they should be executors. When things go astray one blames politicians and other unlovely creatures — perhaps imperialists or communist agents, as the case may be.

Now, we can influence — more or less — the future, but it nevertheless remains largely unknown and largely uncontrollable. I prefer to think of comprehensive planning as policy formulation and decision making with the knowledge that not only the future but even the present is largely unknown; that compromises are essential — is not this the real meaning of marginalism? — that decisions should be made by allowing for as many interactions as possible; and that they should be made on as detailed a basis as possible.

I. The Policy Irrelevance of Aggregative Models

Let me start with the widespread preference for aggregative planning models. There are several related points I wish to make. The first is that they all “rely too much on bad data.” The other is that even when the data become better than they are everywhere aggregative models will be of very limited usefulness for decision making for the future (though they may be very useful to explain what happened in the past).

(a) Modern economic growth, as Kuznets and others have pointed out, is the application of science to production. “Science” is a method in which assumptions and conclusions are continuously tested against reality. Too much of what goes on in economics in general and in economic development planning in particular is more akin to astrology than astronomy: there is the same emphasis on pseudo-scientific measurement and models with the same lack of factual basis and true testing, and the same lazy invention of data rather than collection by a tiring (not to say tiresome) process of field work. Streeten and Lipton have stressed the undue reliance on bad data, overemphasis of heterogeneous aggregates, and neglect of essential detail. To this we should add the sheer invention of facts and the pretense of knowledge where none exists.

This is a criticism that applies world wide. It is a criticism of methods of planning as well as of specific applications¹.

¹ *The Economist*, London, September 6, 1969, had a page (p. 41) on American “Monetary Glossary” problems: “Mr Henry Wallich has worked out ten separate definitions of the money supply alone. Mr Paul McCracken said of the money supply recently . . . that ‘the figures have fallen apart on us.’ Mr Otto Eckstein said: ‘if it really is the money supply that is to be regulated, there had better be agreement on the figures . . . who would rest a policy on so weak a statistical reed?’”

A. G. Armstrong and J. R. C. Lecomber, “Statistics for Medium-term Economic Planning”, *Journal of the Royal Statistical Society*, Series A, Vol. CXXXI, London, 1968,

Surely, when "only 11 per cent of the 646,000 [Indian] villages are connected with the rest of the country by all-weather roads, one out of three villages is more than five miles from a dependable road connexion"¹, one is entitled to suppose not only that "the spread of new attitudes and techniques as well as movements of physical goods"² is impeded, but that the knowledge of what goes on in the rural sector — in India as elsewhere in the underdeveloped world much the most important sector — is likely to be woefully bad. Indian agriculture in 1966 may indeed have contributed 115.95 billion rupees to a national income of 241.57 billion rupees³ or 48%; but the contribution might just as well have been 150 billion rupees or 60% (for example, if the planners and statisticians had less of an "urban" bias, as Lipton calls it) or perhaps only 100 billion. Moreover, as the OECD publication puts it⁴: "A large number of the basic statistics

pp. 45sq. (also University of Cambridge, Department of Applied Economics, Reprint Series, No. 290, 1969) point to the inadequacies of the statistical base for the British National Plan. To take just a few quotations: "Important data were not available, existing data had not always been adequately analysed, and there was a shortage of manpower involved in the Plan. As a result, the statistical base was weak" (p. 46). "... there are certain difficulties which must be overcome. (i) Census and short-period data are not always compatible. (ii) Price data are fragmentary and there appear to be major inconsistencies. (iii) Between-census measures of gross output at current prices and indicators of gross output at constant prices do not exist. (iv) There are insufficient data on inter-industry flows. (v) Even in census years the services sector is abysmally documented ..." (p. 47). "The ... hypothesis [of] a proportional relationship between investment and changes in output, while raising minimal data problems, not surprisingly exhibits little explanatory power" (p. 48). (Lovers of constant capital-output ratios please note.) "Crude estimates of the future trend in invisibles — and capital items — can make nonsense of sophisticated econometric studies of visible trade. Adequate analysis awaits adequate statistics" (p. 51).

Lest I be deemed an obscurantist, let me quote Leontief: "The progress of economics will have to be paced in the coming years by an increased flow of basic factual information. And what I have in mind is not a gradual improvement in government statistics ... but a shift of gear, the establishment of entirely new standards of excellence and performance." W. Leontief, "The New Outlook in Economics", *The Indian Economic Journal*, Vol. XVI, Bombay, 1968/69, p. 75.

Can any one doubt that there is not one underdeveloped country (and not many developed ones, if any) that has more reliable statistics than the United States or the United Kingdom? And can it really be doubted that planners must not rely too much on aggregates of doubtful meaning, but must concentrate — as is argued further on — on detail even if it means grubby and hard work to establish a reasonable base for their decisions?

¹ Healey, *op. cit.*, p. 164.

² *Ibid.*

³ OECD, Development Centre, *National Accounts of Less Developed Countries*, 1950—1966, Paris, July 1968, p. 144.

⁴ *Ibid.*, p. 140.

available is derived from sample enquiries. The results of these enquiries are often contradictory. Moreover, the relationship between the sample-size and the universe-size is little known.

The estimates published by the [Indian Central Statistical Office] C.S.O. do not as yet include data on private consumption, capital formation, and saving. Several tentative estimates were calculated for these items by various official agencies and individual experts ... Extreme caution should be exercised when using this information which is not comparable to other national accounts data."

I am quoting these points at length for a number of reasons. The first is frankly somewhat personal: it has been suggested that Nigerian national accounts data, for example, are unusually bad, while other data (Indian?, East African?) in the underdeveloped world are much better. I suggest that such differences that do exist make no difference for the problem before us, and that the Nigerian statisticians should not be downgraded merely for being more open about their product and its weaknesses!

The second point is less personal and hence more serious. We do need quantitative economics, after all, because numbers do make a difference, and sensitivity tests are obviously both necessary and useful. But you cannot argue that the problem of data is adequately dealt with by making such tests. If you find that results are not sensitive to variations in your quantities, they do not seem very useful for policy making. But if your results are sensitive to the data, you surely should not use them for policy purposes unless you are quite sure that they are good.

(b) But I would go much further. Reliance on aggregate statistics makes some sense for policy purposes, when the data are good and have been built up for micro-data in a reliable manner, and when a general policy decision can be relied upon to be translated by thousands of officials, business men, consumers, peasants and workers into the detailed actions that alone are reality. It would make little sense even if the data were much better than they are, to use them as a substitute for policy. Thus aggregate data are used to set targets for the economy and its major sectors. Such targets are in fact "physical" even when they are expressed in terms of money. Now it does make sense in some respect to set *real* physical targets: so and so many hospital beds for adults and so and so many for children; or y tons of phosphate fertilizers etc. But here we deal not with this kind of specific physical or monetary target, but with abstractions of little if any real content, such as "output" or "investment," whose very meaning depend on the precise knowledge of their composition. The consistency of such targets become as irrelevant as the targets

themselves. The aggregates themselves are concepts that cannot be acted upon. They are at best summaries of past events.

This criticism goes also for the manner in which programming models or input-output methods are used. First, the "sectors" are usually much too crude, they have inherently no reality; there simply is no such thing as "agriculture" as a policy parameter. Even a 100×100 table is much too aggregated for policy purposes. Even when the data actually refer to the economy in question rather than being taken from some other economy, input-output data refer to interindustry *purchases* and *not* to technical coefficients, and the purchases may or may not reflect efficient operations.

If interindustry purchases are to be used for projecting targets and allocating resources they ought to be economically optimal. When the market works reasonably efficiently, they will be so within practically tolerable limits. They will not be so when the market is imperfect or significantly distorted by deliberate wage, price, or exchange rate policies. Hence it is not permissible to use coefficients derived under such circumstances as a substitute for the market. Communist planning (which in the past did not use prices as a planning tool) has always been conscious of this problem and has substituted various input and output norms for actual past performance — though not always with outstanding success.

The implications of these criticisms which are, of course, quite well known, are several. First, the *ideas* which the aggregative models try to quantify are important and must not be neglected: interdependences are important and their neglect will cause trouble. But at best the methods can be used to delineate only *some* targets for inputs and outputs.

Secondly, however, they can under no circumstances substitute for either the market or deliberate policies¹. The notion that there is a unique

¹ I can refer to two examples. (1) Richard S. Eckaus, "Planning in India", in: *National Economic Planning*, A Conference of the Universities-National Bureau Committee for Economic Research, Ed. by Max F. Millikan, Universities-National Bureau Conference Series, 19, New York, 1967, pp. 305sqq., has a most sophisticated planning model of the Indian economy. Alan S. Manne's criticism of the technical aspects do not concern us here; Edward S. Mason's criticisms do. They are, in a nutshell, that the model is simply irrelevant for policy making purposes, and is likely to remain so for the foreseeable future.

See also the survey of Indian planning by Bhagwati and Chakravarty, *op. cit.* — In reviewing the model of S. Chakravarty and R. S. Eckaus, "An Approach to a Multi-Sectoral Intertemporal Planning Model" (in: *Capital Formation and Economic Development*, Ed. by P. N. Rosenstein-Rodan, Studies in the Economic Development of India, 2, London, 1964), Bhagwati and Chakravarty point out (*op. cit.*, p. 14), that "one cannot be sure that consistency necessarily implies viability." If, to avoid this problem, one "works recursively backwards from an assumed terminal condition ... in all probability, we would fail to tally exactly with the initial conditions" (*ibid.*). If I understand the models and the criticisms correctly (and given my knowledge of mathematics, there may be a legitimate

relationship between investments, or more generally inputs, and outputs is faulty on several counts. The efficiency of management varies, and with it the factor (input) proportions and the input-output relationships. Efficient management will in addition react to the circumstances into which it is put. If the exchange rate is wrong, it will use imported inputs wrongly. If foreign exchange allocations are used, it will (if the proper price is not charged) make matters worse. By now one has so many examples from India, or the communist world, that one is embarrassed to repeat the point. But it is essential to my argument: what will happen will depend on these other wage, price, tax, exchange rate policies. Hence they must be used to bring about the desired ends. Aggregated models can at best give input and output targets. Direct government intervention can at best insure the "fulfillment" of input targets — and that really only for a few very large scale favored projects¹ while their "economic" effect turns all too frequently out to be a more Freudian rationalization. Output targets cannot be achieved in such a manner. Nor can they be effectively set at the usual level of disaggregation.

Despite the fact that the criticisms voiced are really obvious and well known, the planning methods are not considered to be just in an experimental stage (as they would be if we dealt with an equivalent problem in physics or business); rather, having stated the criticisms, one proceeds anyway. The disillusionment is inevitable.

How can one explain that so much time is spent on methods whose effectiveness has nowhere been demonstrated and which everywhere lack an adequate factual base? On a psychological level one may venture the explanation that they seem elegant, hence attractive; but also, as the chief planner in one country surmised, they allow a flight from a politically and socially intolerable reality. On a safer level for an economist, one may surmise that the various comprehensive and aggregative

doubt) this means that the models do not tell us whether what we want is feasible in the real world.

(2) Joseph I. Stern, "An Evaluation of Interindustry Research on Pakistan" (Paper Pres. at the Conference of the Harvard Development Advisory Service, Sorrento, Italy, September 5—12, 1968, Development Advisory Service, Center for International Affairs, Harvard University, Cambridge, Mass., *Economic Development Report* No. 120, mimeo.), tested the performance of input-output analysis for errors in data, in coefficients, in the level of aggregation, and compares results of the more sophisticated input-output analyses with much cruder ones, which sometimes do better and never seem to do noticeably worse.

When economies are wide open and relatively unsophisticated, so that one or a few investments may change all coefficients derived from inversion, it is in any case dubious whether the effort is worthwhile.

¹ This probably accounts for the fact that they are so much favored.

planning methods and models used or allegedly used in India and elsewhere are considered to be *the* planning methods, the only ones appropriate to mixed and imperfect economies. Setting targets and specifying optimal paths to reach the targets seem to imply the use of the aggregative methods — or else there is nothing. Therefore it seems better to use them and the data, however imperfect they may be, than not to use them at all. It is the argument of this paper that this is not necessarily so. It is one's respect for *facts* that should make one suspicious of aggregative methods and aggregative data.

Of course aggregative planning projections are useful: but their usefulness depends on the quality of the data underlying the aggregations, the realism of the planners, and the adequacy of the policy prescriptions. They are useful primarily to check the consistency of what it is proposed to do. And there, too, the consistency will be meaningful only if the aggregations allow policy conclusions to be drawn, if the data are based on painstaking detailed work, and if the policy proposals are suitable as well as feasible.

The main point is however not that the aggregative data are bad and no substitute for policy. It is, rather that one cannot invest *in general*, one cannot act positively *in general*. One can try to save in general, since saving is a negative act of refraining from consumption. But investment (and virtually every developmental decision) requires a positive act that must take place at a certain time, in a certain place, and within definite limitations. To link the general act of saving as influenced tax or interest rate policy, say, to the particular act of investment requires, if things are not to go wrong, detailed knowledge.

Investments are after all wanted for their contribution to future output. Their value derives from that future output. To set targets for investments or for future output becomes impossible without detailed cost-benefit analyses. The aggregative models cannot tell whether input or output targets are economically sensible¹.

¹ This is also the point of Ian M. D. Little and James A. Mirrlees, *Manual of Industrial Project Analysis in Developing Countries*, Vol. II: *Social Cost Benefit Analysis*, OECD, Development Centre Studies, Paris, 1969. Ch. I summarizes Vol. I, Ch. V, on "Plans, Project Choice, and Project Design," pp. 578qq., has a judicious discussion of the relation between a plan and projects, pointing out, with British understatement that "the argument . . . that a proper analysis of projects itself requires good plans, can be overemphasized" (p. 61). — The point is also developed in my *Planning Without Facts*, Lessons in Resource Allocation from Nigeria's Development, With an Input-Output Analysis of the Nigerian Economy, 1959—60, by Nicholas G. Carter, Cambridge, Mass., 1966. — S. Chakravarty, *The Logic of Investment Planning*, Contributions to Economic Analysis, XVIII, Amsterdam, 1959, implies as much on a much more austere level of abstraction in his Ch. VI ("The Model in an Open Economy") and Ch. IX ("Prices in the Open Dynamic Model").

This implies that a scheme that is suitable to describe and perhaps explain the past, is not sufficient to make decisions about the future, which is what planning is all about.

II. Disillusionment and Alternatives

One reason for the disillusionment with comprehensive aggregative planning has been that after considerable efforts, underdeveloped economies are still poor, even if they grew — for a few years — at a satisfactory rate, that actual growth rates fell frequently short of planned rates; that the gap between rich and poor did not seem to close; that many balances of payments showed no significant improvements¹ and even deteriorated even after all the “import substitution” that was going on; and that all too frequently what happened bore little relation to what was planned to happen.

I. Unsatisfactory Growth Rates

Leaving aside the uncertainties of the numbers², why this emphasis of planning for high growth rates in the name of accelerated growth and in the face of substantially slower performance in the past? In criticizing the draft outline of the Fourth Indian Plan, A. H. Hanson referred to this unrealistic target setting as “idolatry”³. I prefer to call it “hybris.” A number of explanations can be suggested, each of them in turn implying a way of looking at planning that is bound to fail.

There is, first, the magnitude of the real problems. It is understandable that compassionate persons should want to achieve high growth rates in the face of a low base. It seems almost inhuman to suggest anything less⁴. The case becomes even stronger when in addition to an accelerated growth, other desirable targets are set. If the average income of the lowest income groups is to rise fast, while at the same time there are limits to the redistribution of income that can be achieved politically or that is

¹ It is more than likely that the policies of import substitution necessarily contributed to balance of payments troubles whenever they were planned without proper regard to profitability. But to discuss this here would burst the bounds of this paper.

² OECD, *National Accounts of Less Developed Countries, 1950—1966*, *op. cit.*, pp. 4, 37, suggests that the numbers generally are so poor that reality may differ as much as 50% from the given data!

³ A. H. Hanson, “Power Shifts and Regional Balances”, in: *The Crisis of Indian Planning*, *op. cit.*, pp. 39sq.

⁴ This is not self-evident. In the short run there may be a conflict between present and future consumption. It is possible that a further depression of the existing already pitiful standards of living will raise future incomes faster but that a compassionate person may wish to reduce the sacrifices imposed upon present for the benefits of future generations.

desirable economically (because supposedly only the rich save), a high growth rate offers the best way out of this dilemma. The puzzle remains why the practice of planning such growth rates continues in the face of past inability to achieve even half the rates; or why planning for unrealistic high rates should be considered politically or morally superior to planning for more realistic lower ones.

I forego speculation on the political consequences of the disillusionment that is bound to follow the raising of such unrealistic expectations coupled with policies designed to achieve the impossible. There are obviously other and more important reasons for unfavorable political developments than bad economic policies. I feel certain, however, that in many countries the economic policies pursued contributed to the political difficulties: in Ghana or Indonesia, the patrimony was used up in a vain attempt to raise permanently the level of production. The resources needed to continue the development effort were therefore not generated, and the "dynamic" leaders necessarily found themselves without the means to continue their "dynamism."

Rather, I would point to a fundamental economic difficulty with such attempts at perspective planning. Planning involves in this view the belief, first, that the present is known; secondly that the future is knowable; and thirdly that one can control events sufficiently to achieve the knowable future. All that is in this view necessary is "the political will" to translate into action what the planners have found need to be done.

By formulating the problem so bluntly, I have already indicated what I believe is wrong with it. The idea that a sufficient will can overcome any obstacles, quickly and almost without caring about the rationality of the actions involved seems to me a belief in magic. First, the starting point of the planner is obviously and painfully only very imperfectly known. Planning models may be useful to clarify interrelations and to teach economists how to work with numbers. It does not follow that, if numbers are introduced into an aggregative model, one knows sufficiently for policy purposes where one stands and what needs to be done. What may be good enough for teaching, perhaps even for an explanation of past developments, is most emphatically *not* good enough for decision making that relates to the future.

Secondly, most of the future is inherently unknowable. Again this obvious statement raises a number of questions. One cannot plan without having some sense of direction. Contingency plans or rolling plans to allow for knowledge as it becomes available are two possible answers. Yet, the further in the future the targets are, the more vague they must become. Specific technical targets are easy enough to set: x mil. kwh to be generated

by 1980; or $y\%$ of all school-age children to be in school by 1975. There is no difficulty about these kinds of targets, and "all" that remains are the technical difficulties of justifying them economically and specifying the path to achieve them!

A long-term perspective plan will include a few of such knowable targets; a short-term plan should, of course, be crammed full with them. In both cases, the specific content of the targets and the paths to achieve them should be subject to revision. However whether the electricity target makes sense depends on how it is to be achieved and what it is to be used for; the rationality of the education target depends on its detailed content, and is the more difficult to specify the higher the education that is planned.

Most targets, however, cannot be so specific and physical. And the paths to achieve them cannot be meaningfully defined by specifying the *amounts* of investment in general. When the particular programs are to be made concrete, as they must for action to be taken, what can be done *now* begins to loom very large, and present bottlenecks determine what can be done. Moreover, the prediction of bottlenecks becomes essential, and by the time one has overcome them, one may have arrived at a quite different place from the one planned for — and if technologies have changed, one may be glad one did.

This means, first, that no path may exist from the present to the planned future target, though if the path is not worked out in great detail on a micro level, the planner may not be aware of the phantom nature of the path! It means, secondly, that one need indeed specify the distant future only most generally. But this implies, thirdly, that when it is to be decided just what has to be done specifically, one can and indeed must largely ignore such targets as that savings are to be raised to $x\%$ and investments to $y\%$, and even that investments in a "sector" are to be z million dollars. Overall aggregative planning neglects the time relationship inherent in changing anything. It usually says nothing about such facts of life as that savings in period 3 can be achieved only if certain specific things are done in periods 1 and 2. Attempts to change reality very quickly reveal literally non-dynamic thinking, since a time path is the essence of dynamics. Such planning also tends to neglect the next step in favor of a rosy future by pretending that one can virtually overnight change the structure of the economy and with it solve the hard core of the development problem!

The planning literature is of course not unaware of these problems. The problem of the size of planned expenditures is dealt with essentially by trying to match available resources with planned targets and by the discussions on how to design an optimal program. The "dynamic problem"

is discussed in connection with time lags arising out of different kinds of investments, occasionally in connection with capital-output ratios associated with different industries and lags.

But the decision problem is really quite different. In the "present" time there is a certain limited knowledge of where one stands; and an equally limited knowledge of what the available resources are; and a limited knowledge of what could be done. Pushing out these limits will, of course increase the range of possible decisions as well as the resources to implement them. But this ignorance is inherent in reality. The only way to reduce it — it can never be eliminated — is to work on the next step. The only way to make a rational decision for the next step is to make sure that one's decisions lead to an increase in resources and to ensure as far as possible that no feasible and known alternatives are overlooked¹. The inherent uncertainty about the present and the future can be dealt with by ensuring as far as possible that the future is not blocked. Using up one's foreign exchange reserves while planning for increased foreign aid and no improvement in the balance of payments is an example of a likely blocking of the future. So is an investment pattern that recklessly burdens future savings. Neither of these two examples need be nonsensical, but they are clear and observable danger signals.

But this again means at least two things: some kind of cost-benefit calculation must be made from the very beginning. Only if the net result of a disposition of resources is more resources can there be growth. The volume and pattern of investments can only thus be determined and *not* by setting output targets which then are to be achieved by investments calculated by means of capital-output ratios. For whether the output can be achieved has to be determined in detail, at the same time when it is determined whether it makes economic sense that it should be achieved in the first place².

It means, next, that time path considerations become of the essence. You cannot average out available resources over time. The resources needed two years hence must be available two and not three years hence. If they are not, they will not be available in the third year which presumably required that certain things happened in year two. If you cannot

¹ This includes policies that counteract the possibly stifling effects of "non-resources" on the range of choice, such as the existence of monopolies.

² Bhagwati and Chakravarty point out (*op. cit.*, p. 24, note 51) that "one of the major deficiencies in Indian planning has been an inadequate appreciation of the need to analyze critically the economics of major investment projects prior to their approval and execution." The First Nigerian National Plan by contrast had only the crudest aggregative framework, but considerable (though for various reasons still inadequate) attention to the pay-off of the major projects.

swim and have to cross a lake, it does not do much good to know that on the average it is only one yard deep, if there are in the middle 25 yards with a depth of 50 yards!

Of course, you could run down previously accumulated foreign reserves or borrow to get through the lean years — provided the use of the reserves or of the additional foreign indebtedness gives reasonable assurance that the higher end could be reached in the specified time. In any case, the needed information is not contained in the aggregative planning; it is not contained in capital-output ratios. It is contained in reasonably thorough cost-benefit analyses and detailed economic evaluations of specific projects. It does not make sense to plan *any* physical target without such cost-benefit type investigations because neither demand nor cost are independent of prices and wages.

In addition, the ignorance of the present and the unknowability of the future require that a process of experimenting and learning is built into the planning. Hanson comments scathingly on the strange habit of (Indian) planners to assume that everything will go all right¹. And, of course, there is a strong optimism underlying Hirschman's approach to development, which may be characterized as the theory of unbalanced growth. But Hirschman's point is really different: development necessarily proceeds in an unbalanced way (which is most certainly true) and the unbalance will create pressure on the lagging parts of the economy, which the successes in the leading parts have transferred into bottlenecks. But if the "leading" part itself was ill designed or perhaps too far ahead, too tightly planned, the response of the rest of the economy may be much less certain. The "hiding hand" cannot always be relied upon to rescue human frailty, and even less human conceit².

Indian planners are in this respect no worse or better than their colleagues in other parts of the globe. Yet civil engineers build in safety factors of seven and in electronics they run at least 30%. We have recently seen the success of the lunar landing. But to achieve it, continuous tests were needed and one lunar module was destroyed in an unsuccessful test.

¹ "... one is never surprised when some little back-room planning bureau in a Ruritanian-type country comes up with a comically inflated projection of growth. But one *is* surprised when planners as knowledgeable, experienced, sophisticated, and prestigious as the Indians do the same — particularly when the failures of their past exercises in this *genre* are available for contemplation. Yet the practice of setting 'minimum' objectives, realizable — if at all — only on the supposition that the most favorable possible combination of circumstances actually materializes, is .. evident ..." (Hanson, *op. cit.*, p. 40). If Indian planners are no worse than others, neither do they appear to be any better. A good argument can be made that economic policies have, on the whole, been better in the supposedly less sophisticated African countries than in Asia or Latin America.

² Albert O. Hirschman, *Development Projects Observed*, Washington, D.C., 1967.

If the moon landing had been planned with the same tightness that gets such good marks in economic planning, only one lunar module would have been built, and the program would have failed.

The ignorance of social and economic data is at least as great. Costs have consistently (and with only very few exceptions) outrun estimates, and not simply because the general price level rose¹. Demands have lagged; complementary industries were not finished in time, etc. It may or may not make sense to use "unbalanced growth" as a stimulus to action à la Hirschman or to rely on the benevolence of the hiding hand; it makes no sense to ignore ignorance and eliminate safety factors necessary to overcome the inevitable failures.

It makes no sense to plan on an exhaustion of foreign exchange reserves. It makes no sense to leave no leeway for raising tax rates in emergencies and to plan budgets without contingencies. It simply is wrong to assume that feasibility studies will be finished in the shortest possible time, that world prices for one's exports will be higher than they are likely to be. Every planner and policy maker can add examples.

A substantial safety factor is also needed to allow for the capacity of the existing civil service and the corresponding personnel in the private (or state enterprise) sector. A plan that cannot be executed is an absurdity. Its supposed stimulating effect is shortlived, more the effect of alcohol than of solid food. The quality and amount of the personnel must determine what can be done *and* how it is to be done. This problem — which is generally recognized to be central — is also ignored by the aggregative planning from the future to the present.

2. The Difference Between Plan and Achievements

So far I have tried to sketch out the central limitation on aggregative overall planning: that it not only presumes a knowledge which inherently cannot exist but that it uses inherently nonoperational methods — appearances to the contrary notwithstanding. I have also already suggested that for meaningful planning to proceed it is not necessary to assume the

¹ This has been just as true for the American space program or some of the military procurement programs as for underdeveloped countries — and for similar reasons. There was no precedent for the moon landing, just as there is no real precedent for much of what has to be done in underdeveloped countries. Obviously, there are differences: Dam constructors have accumulated experience, and geologists are highly trained scientists. Yet no matter how many test holes are bored, when the foundation of a dam is built there still are apt to be surprises, and grouting may cost a great deal more than expected. At the same time, there are in both cases procedures of questionable ethics as well as of questionable efficiency: see, *The Economics of Military Procurement*, Report of the Subcommittee on Economy in Government of the Joint Economic Committee, Congress of the United States, 91st Congress, 1st Session, Washington, May 1969.

impossible; indeed I have stressed that it is necessary *not* to do so. The analysis of the discrepancy between what happens and what is planned to happen may shed further light on how planning may meaningfully proceed.

It is obvious that what will happen depends on what one does, and not on what one plans. "One" refers both to the Government which sets targets and executes some of them directly through Government-owned enterprises; but which executes most of them through policies. "One" refers, however, also to all the people who are to be affected by the Governmental policies and they, too, may be managers of Government enterprises or private persons.

Now it is again comparatively easy to execute specific physical targets, such as the construction of a dam or a mill. All you have to do is to hire a foreign contractor or engage in turnkey operations. It is already with such targets very difficult to make sure that (a) they stay reasonably within the cost estimates; (b) they are finished reasonably on time; and (c) they are reasonably profitable, i.e. that they fulfill their economic purposes.

When it comes to the economy as a whole, good policies become crucial. Such targets as the raising of Government revenue, the holding of expenditure levels for non-economic or administrative purposes to certain levels; or the earning of a certain amount of foreign exchange and the level of desired import substitution; all of those are essentially economic targets which cannot be executed in the manner of physical targets (like a dam or a steel mill) and which depend on good policies — and, to be sure, a certain amount of good luck for that part of the problem over which the country has no control¹.

Let me illustrate with three examples: agricultural policy; balance of payments policy; budgetary policy; three areas that are at the very center of effective planning, and that are closely related. Agricultural policy is part of general "industrial" policy, but output is usually produced by thousands of comparatively small units, and it is hardly possible to engage in turnkey operations as a substitute for a well thought-through action or as a short-cut to achieve an otherwise reasonable aim².

¹ This includes policies of other countries. But it also includes future developments. It is sometimes said that the spectacular economic development of the Federal German Republic was largely due to "luck." No doubt, this is true. But it is really a very great if somewhat unintentional compliment to German policy makers that they grabbed the opportunities that arose. How many underdeveloped countries have shown such flexibility?

² There are, of course, large farmers, and there may be examples of successful agricultural "turnkey" operations though I am not aware of any one. But the failures of rapid mechanization without the host of other policies, investments, changes in procedures etc.

Agriculture frequently provides most of the export earnings; it supplies most of the food; and it supplies most of the employment. And it does all that for the foreseeable future. Clearly, whatever additional sources of export earnings are developed, there is no sense in destroying or neglecting those one has. Since the elasticities of demand for export products are largely outside the control of a country¹, it can influence the price only through common international action. But it can do something about the productivity of particular industries (as was not or not adequately done with Indian tea or textiles); it can make a price policy that does not kill the goose that lays the golden eggs (as there is every evidence with palm oil in Eastern Nigeria); and it can make sure that the necessary inputs such as fertilizers, or spraypumps, or insecticides, are forthcoming even if they have to be imported (as there is evidence in Ghana that they have not been). Concern with fluctuations in raw material prices and the elasticities of demand must not allow attention to be diverted from improving productivity as long as the export earnings are worthwhile; or from pursuing a reasonable domestic producer price policy, unless it can be clearly shown that uses of the tax implied in low producer prices are superior from the standpoint of the economy as a whole to allowing a higher farm income. It is occasionally implied that the uses of the tax money have no opportunity cost, that peasants would have "wasted" the money anyway. I find this difficult to believe. Higher producer incomes, even if consumed would have expanded the market also for nonagricultural goods², while misinvestments burden the future as well as the present³.

West Africa has good export goods in cocoa or palm oil or ground nuts. But even for tea in India, or sugar in Cuba, or coffee in East Africa —

that have to be undertaken to make it successful abound. The failures are all the more surprising as the advocates of such a rapid transformation usually quote also Hirschman's linkages and the rest.

¹ Largely: something could be done by export campaigns etc. to increase the international desirability of the export product.

² The arguments as found in reality seem to imply (a) that farmers do not save. In this case it is implied that consumption as such is inferior to investments no matter how inefficient. Or (b) that increased consumption may go for imports and hence provide no stimulus to other domestic industries. This is a question of fact. But if demand rises sufficiently, it ought to make economic domestic production possible. If it does not, the balance of payments consequences are hardly a reason for not allowing higher incomes. Low producers prices *must* be defended on the basis of the uses to which the taxes are put.

³ This is true in a double sense. Most investments engender future operating cost. Even if they do not — a road that goes nowhere can be allowed to deteriorate — they still represent a misuse of resources which has reduced the productive capacity of the country below what it could have been.

the last two being commodities for which international agreements exist —, a case can be made that whatever else needs to be done, the productivity of export goods must be increased. It makes you competitive, and at worst it allows you to withdraw resources from the production of goods without reducing export earnings; at best it will make it possible to increase those earnings.

When it comes to food, a country like Nigeria is probably much better off than India¹; this is not so clear for Dahomey, say, with its rapid increase in population and meager resource endowment. At least, Nigeria need not worry too much about feeding its population should PL480 food cease to be available. Nor does it apparently have to worry too much about a conflict that may arise between keeping the urban cost of living low while keeping the earnings and incentives of farmers high: even the serious disruptions caused by the civil war have led to only temporary and local price increases of traditional foods in the territory of the Federal Republic, and in normal circumstances the supply responses of farmers with respect to traditional food stuffs appear to be quick and positive². These are all problems in India or, apparently in Latin America, but also in Dahomey and more generally in countries whose “industrial” and foreign exchange policies have nurtured high cost economies whose efficient integration into the growing world economy has been made increasingly difficult by the very policies that were to solve that very problem. In most African countries the problem is so far one of improving the diet, perhaps insuring that increased incomes that normally go to imported higher grade foods find an adequate cheap domestic supply. Here, too, the Nigerian experience has shown a most encouraging feasibility in substituting higher grade domestic for imported foods at reasonable prices.

Any conflict between the urban and rural policies that remain after reasonable price and wage policies have been adopted can be resolved only through increased productivity. This is partly a technical problem requiring research at all levels, partly an incentive problem to induce farmers to adopt practices that have been shown to be effective. Involved are “packages” with various time horizons, from very long biological-genetic research into proper seed stock and the development of supply and marketing channels, to the development of proper extension services, to a tax policy that allows the adoption of improved practices, to a foreign exchange policy that allows the necessary importation of fertiliz-

¹ The so-called Green Revolution may perhaps have changed this.

² The problem of general price inflation is, of course, another matter.

ers, seed strains, insecticides etc.¹, to a tariff policy that in the attempt to reduce the importation of luxury cars does not at the same time discourage the importation of utility cars and trucks, and so on.

I have mentioned already the quite well documented case of over-taxation of oil palm products in Eastern Nigeria. There are well documented instances of the wrong policies undoing the best (and sometimes not so good) plans in Ghana, India, Turkey and elsewhere. Thus Lipton points out that plans for agricultural crops bear little relation to past experience in India because of the policies pursued. For example, sugar production kept growing too quickly even though it was intended to hold its growth back to free water and fertilizer for food grains².

Something similar happened with sugar in Turkey: given Turkish price policies, it is just too advantageous to produce sugar. And something similar obviously happens in much soviet-type planning, where the fixed plan prices induce managers to produce the wrong goods, even when gross production plans are supplemented by assortment plans and the rest.

In Ghana, huge expenditures on agricultural machinery reduced output per man and per acre below even subsistence levels mainly, one suspects, because the tractors were merrily used to clear land when no thought had been given what to do with the land once it was cleared, so that after a while it just reverted to bush³. But the evidence accumulates also that even in India, output per acre and perhaps per man is higher on smaller than larger holdings⁴ while price and balance of payments policies favor larger operators (whether private or state farms)⁵.

¹ See the extensive studies on Nigerian agriculture made by Consortium for Nigerian Economic Development (CNERD) at Michigan State University, East Lansing, Mich. — Also J. C. Wells, *Agricultural Policy and Economic Growth in Nigeria, 1962—68*, forthcoming.

² Michael Lipton, "Strategy for Agriculture: Urban Bias and Rural Planning", in: *The Crisis of Indian Planning, op. cit.*, pp. 100sq.

³ This, and similar facts elsewhere — the evidence for negative value added in Pakistan, or capacity utilization of 10% and the like — suggest that much subtlety on models to determine precisely what interest rate or wage rate should be used to value a project is somewhat misapplied.

⁴ See M. Paglin, "'Surplus' Agricultural Labor and Development, Facts and Theories", *The American Economic Review*, Vol. LV, 1965, pp. 815sq. — Lipton, *op. cit.*, p. 106, makes the same point, though more cautiously. — An excellent critical summary of Indian research on agriculture is found in Bhagwati and Chakravarty, *op. cit.*, pp. 295sq.

⁵ At a conference at Glasgow in September 1969, Professor Hla Myint made this and related points most forcefully. It is painfully easy to give examples. In one country I know scarce foreign exchange is liberally allocated to the construction of dams and major irrigation works (which are indeed executed with admirable efficiency) while the Government Department that constructs the minor irrigation works and actually gets the water to the farmers is starved. In Ghana, tractors for state farms were easy to come by while sprayspumps for

I am quoting India because, if this is true even in that landhungry country, it is obviously much more true in comparatively landabundant Africa. Yet, despite evidence to the contrary investments are concentrated, nay wasted, on farm settlements and workers brigades, tractors and the like, as if such measures were magical incantations that make thinking about the proper policies unnecessary. Yet on the whole, one is happy to note that Africa has been much better on matters of agricultural policy than other parts of the world.

The failure to "hit upon a combination of policies which will ensure a high and sustained rate of growth in agriculture"¹ in India and elsewhere has, of course, other serious consequences. To the extent to which the recent studies of Indian agriculture are correct and applicable to other areas, the combination of high taxes on farmers and inefficient spending of Government revenues outside the agricultural sector will aggravate employment problems, even if the failure to raise agricultural productivity and output has no other serious consequences for the economy.

Increased taxation of agricultural output will reduce its returns, hence stifle incentives to expand, and in extreme cases lead to a withdrawal from the money economy. Unfavorable foreign exchange allocations will reduce the incentives as well as the ability to introduce innovations. At the same time, resources spent on ill thought through industrial projects — or for that matter on farm settlements and similar projects — cannot conceivably either create much employment or lead to imitative adoption by farmers at large. The high wage policy in the cities defended on the basis of "need," or on the grounds that they are not really high because they really represent a family income² increase a wage gradient which leads to an accelerated flow of labor into cities.

If the projects using the resources extracted from the farmers are well designed and economic they will at least not lead to budgetary and

private cocoa farmers were not. Fortunately, there are also examples of the opposite in Nigeria or Pakistan. For an account of somewhat different difficulties which innovation by small operators had to overcome, see Robert L. Sansom, "The Motor Pump: A Case Study of Innovation and Development", *Oxford Economic Papers*, N.S., Vol. XXI, 1969, pp. 109 sqq.

¹ Paul Streeten and Roger Hill, "Aid to India", in: *The Crisis of Indian Planning*, *op. cit.*, p. 342. — World Bank studies indicate that since 1967, when the book was drafted, there may have occurred a breakthrough in this area. It may also be worth pointing out that despite the failures, agricultural output in India did increase slowly over time.

² I am not arguing that unemployment or urban problems can be solved simply by proper price and wage policies. There exist population problems about which this paper says nothing. The hard development problems consist in technical changes and modernization. These are the real hard core of the development problem, and they cannot be solved quickly or without pain. On the other hand the price, wage, exchange rate, and investment policies actually pursued make the solution of the hard core problems more difficult, and may even make them insoluble.

foreign exchange problems. If they are poorly designed and noneconomic — which is all too frequently the case — the resources will not generate more resources in the future and will thus lead to a budgetary and foreign exchange problem. Moreover, when “underemployed” farmers become “unemployed” urban dwellers there arise additional problems of urbanization, slums, housing, and health which cannot be ignored politically and require further resources. The problem becomes aggravated when urban services are subsidized.

The policy thus feeds upon itself: the unemployed must be helped as cheaply as possible, food prices must be kept down, and the productive sectors taxed. All of which adds up to a further reduction of farm incentives, a budgetary problem, and an aggravation of both economic and social problems. Urban problems become virtually insoluble without a proper agricultural policy¹.

Failure to adopt suitable policies necessarily has direct balance of payments and budgetary consequences. In India, the reliance on PL480 imports makes this painfully obvious. But the problem is of course more general. In Ghana, food prices have risen sharply. Fish output did not rise commensurate with the expenditures on the fishing fleet: hence budgetary expenditures and no export earnings or import savings. (Matters have changed for the better in this industry since the fall of Nkrumah.) The expenditures on state farms in Ghana or on farm settlements in Nigeria have seriously burdened the budget, but since there were only inputs which were paid for in cash but no outputs worth talking about, the expenditures had to spill over somewhere, and they necessarily aggravated the balance of payments problem. No “transformation” of agriculture can possibly result from projects that have not been thought through and from policies that are self-defeating. Only political troubles can arise: for, sooner or later, the victims of the policies will revolt, while the beneficiaries cannot indefinitely be supported in the style to which they have become accustomed².

All of which points to the overwhelming importance of detailed microeconomic studies on what to do, a careful evaluation of the *real* cost, which includes the budgetary and balance of payments effects, and of developing the required consistency from below on the micro-level.

I turn now to balance of payments policy. There are three aspects that are interrelated: the exchange rate, export stimulation, and import

¹ I have pointed this out in my “Social Factors in Economic Planning with Special Reference to Nigeria”, *The East African Economics Review*, Vol. XI, Nairobi, 1964, pp. 159q.

² In 1969, there was trouble in Western Nigeria, as there was before in Ghana when Nkrumah imposed austerity for nothing. In 1969, producer prices of cocoa were substantially raised in Nigeria.

substitution. And all are linked closely to the budget. I shall not consider the proper policies to be pursued by developed countries¹ (although I believe that the criticisms of present policies are reasonable and that much more could and should be done). At the same time, it remains equally important that underdeveloped countries understand more clearly their own policy options and the importance for their success of their own policies, regardless of what developed countries do².

There seems to be a tendency to defend and prefer overvalued exchange rates. This preference appears to have many roots, some more rational than others. Since most aggregative models do not as a rule contain prices proper prices are not considered close to the heart of the development problem. (This is obviously not true for programming models designed to yield proper shadow prices. But those have other problems³.) Also, there may be a more or less subconscious preference for insulating one's economy as much as possible from the world economy, since the openness of the economy limits the freedom of action of the policy makers in obvious ways while the same limitation on the freedom of action emanating from balance of payments troubles can be attributed to difficulties of exporting due to low elasticities of demand and foreign economic policies (which may even exist) which in turn justifies the inward looking policies and overvalued exchange rates as an apparent way out. This has in essence been the justification for policies of import substitution.

On a more rational level overvalued exchange rates are preferred because they will keep the prices of imports down, and hence stimulate investments which must rely to a large extent on imported capital goods. They will also keep food prices down if food is imported or uses many imported inputs. The effects on exports are played down. Apparently it is not usually believed that exports could be increased very much any way, and some other ways of export promotion such as bilateral agree-

¹ See Harry G. Johnson, *Economic Policies Toward Less Developed Countries*, Washington, D.C., 1967. Is it just a coincidence that about half of Johnson's book deals in fact with policies of rather than towards less developed countries?

² It may not be amiss to point out that tariff structures of underdeveloped countries appear to be irrational, and that protective measures introduced on the assumption that they are needed as a defense against developed countries, more often hurt other underdeveloped countries. Underdeveloped countries discriminate as much against each other's textile industries as do developed countries!

³ I have discussed them in my *Planning Without Facts* (*op. cit.*) where reference to the literature can be found. — More recently, Peter Eckstein has raised similar questions in his *Accounting Prices as a Tool of Development Planning*, Discussion Paper No. 2, Center for Research on Economic Development, University of Michigan, Ann Arbor, Michigan, February 1968.

ment are used. This procedure implicitly assumes that the overvalued exchange rate will maintain the terms of trade at a more favorable level than the equilibrium rate would, and that the disequilibrium situation permits larger imports than an equilibrium situation would. While such a rationalization implicitly assumes specific elasticities and tends to neglect other repercussions, it is at least not as absurd as the view that prices really do not matter.

However, the balance of payments problem is aggravated. Exports *are* made more difficult; imports are stimulated as well as misallocated. This is a waste which has particularly serious consequences on the policies of import substitution. There is evidence in Pakistan that import substitutes have not saved foreign exchange¹. In India export earnings "scarcely cover the current demand for raw materials and capital replacements dictated by the existing industrial structure"² which was planned to save imports in the first place! There is evidence that this happened in Latin America, where even in the comparatively successful Brazilian case limitations on export earnings restrict import substitution policies³. Anne Krueger has shown that the "economic costs of the Turkish trade regime suggest that twice as much output, in value terms, could be obtained from new resources with a liberalized trade regime and an equilibrium exchange rate"⁴. And unpublished calculations suggest that a dollar spent on export promotion might produce about five times as much foreign exchange as is saved when it is spent on import substitution. And Nkrumah's industrialization policy obviously was a mess from the balance of payments standpoint (as well as from others). Nkrumah started with more than three quarters of a billion dollars in convertible sterling in the bank at the time of independence and he left the country with about \$1 billion in debt⁵!

¹ Ronald Soligo and Joseph J. Stern, "Tariff Protection, Import Substitution and Investment Efficiency", *The Pakistan Development Review*, Vol. V, 1965, pp. 249sq.

² Mirrlees, *op. cit.*, p. 75.

³ Nathaniel H. Leff, "Export Stagnation and Autarkic Development in Brazil, 1947 to 1962", *The Quarterly Journal of Economics*, Vol. LXXXI, Cambridge, Mass., 1967, pp. 286sq.

⁴ Anne O. Krueger, "Some Economic Costs of Exchange Control: The Turkish Case", *The Journal of Political Economy*, Vol. LXXIV, Chicago, Ill., 1966, p. 480.

⁵ I have never been impressed by the "dynamism" of Nkrumah or by the argument that not all he did was bad. Of course it wasn't! He spent roughly \$ 1³/₄ billion in ten years out of capital, plus untold millions out of current taxation. If you dropped £ 60 million a year for ten years from trees you are bound to do *some* good. As Mr. Liebling said in the *New Yorker* many years ago with respect to a "dynamic" American: all he proved was that if you inherit a billion dollars, you can waste a billion dollars!

Nor is it so legitimate to take it for granted that primary or industrial exports will not increase: they have in South Korea, Taiwan, the Ivory Coast, Hong Kong, Mexico, and Malaysia. Indian industrial products are said to be resold by communist countries, at lower prices, in the West¹ which proves not merely that bilateralism is no bed of roses, but much more importantly that one can export all right provided price and quality are right. Ghana has hinted at similar problems with its cocoa sold to the USSR². Turkey exports window glass and small tools to the US — at a loss — but again the point is proven that exports will respond if only price and quality are right.

A more thorough analysis than is possible here would have to allow for further points. Some may be hinted at:

(a) A distinction should be made between primary (and more specifically agricultural) exports and industrial exports. Within the primary products group, minerals will differ from agricultural raw materials, and tropical from temperate zone products.

(b) It is argued at times that if most underdeveloped countries really started to export, developed countries would place additional restriction on their exports. This cannot be proven or disproven. No doubt, domestic agricultural policies in all countries mitigate against exports of those products from underdeveloped countries. There are also textile quotas. Yet Hong Kong has overcome the latter, and all the evidence supports the belief — though, since we are dealing with the future it cannot be more than a belief — that future policies of developed countries designed to keep industrial export of developing countries out of developed countries will be more in the nature of a rearguard action than a victorious battle, and will at best succeed in slowing the advance, provided developing countries succeed in building up efficient industries. I find it very difficult to understand why success in the past should be considered proof of failure in the future! In addition, unrealistic exchange rates and haphazard tariff structures interfere as much with potential trade and specialization among underdeveloped countries as they do with exports to the developed world.

¹ Sydney Wells, "Foreign Trade: A Commodity Study", in: *The Crisis of Indian Planning*, *op. cit.*, p. 297.

² Republic of Ghana, *Economic Survey for 1966*, Accra, 1967, p. 49, § 197: "... cocoa consumption has to be encouraged in the countries where little or no cocoa is consumed. This could be done if governments, especially of countries in Eastern Europe and Asia would reduce taxes on cocoa, and in the case of the U.S.S.R. if reselling of Ghana cocoa on the world market at reduced prices could be stopped." The same *Survey* contains other hints and statements.

(c) The inefficient use of imports due to overvalued exchange rates and the exchange regime that goes with them tends to "maximize" rather than "minimize" imports. The relatively high ratio of imports to GNP or industrial production of underdeveloped countries is no doubt partly due to the industrial structure that has been built up, i.e. to technical reasons that are the consequence of preceding economic decisions. But inefficiency, as expressed in negative values added (which may have more than one reason, see Stephen E. Guisinger¹) means also, and indeed mainly, that less output is achieved for given inputs than is possible. Low import quotients (e.g., the Federal German Republic) may mean as much high imports with even higher outputs, as low imports. To put it paradoxically: free trade will minimize imports; autarkic policies will tend to maximize them!

The overvalued exchange rate necessarily has repercussions throughout the economy. Imports for industrialization may be cheaper, but the markets for the industrial products are also smaller, as exports are penalized and so the bottleneck of export earnings for internal expansion continues with increased force. If subsidies are introduced to offset the overvalued exchange rate, the budget and the savings rate will be directly affected. If a shadow exchange rate is used, the purchasers of the foreign exchange must be charged the rate in which case there is a restriction on investments, but the Government at least gets the revenue.

What will happen to investments and demand will, however, depend crucially on the actual rate of exchange and not on aggregative plans. But the "actual" rate is either the applicable official rate, or a rate modified by taxes, subsidies and controls.

What is true for the exchange rate is true for all kinds of prices. Too low prices whether for capital, foreign exchange, or transport services, lead to waste. And this waste will necessarily interfere with savings. The immediate proof is that it will cause budgetary problems. A deliberate policy of import substitution is typically unable to offset the effects of an overvalued rate of exchange and faulty prices in general.

For, what will happen, what sectors will grow, into what sectors or firms investments will flow, how resources will be allocated, all this depends crucially on prices within the level set by aggregative demand. And how aggregate real demand can develop over time will itself importantly depend on how sensibly resources were allocated over time.

There is some talk about the relative unimportance of proper resource allocation compared to growth. But this is either factually incorrect, or it involves a peculiar and very restrictive definition of allocation. Of

¹ Stephen E. Guisinger, "Negative Value Added and the Theory of Effective Protection", *The Quarterly Journal of Economics*, Vol. LXXXIII, 1969, pp. 415 sqq.

course, if we take a stationary economic system in which there are no net savings and investments but in which resources are misallocated, then it is quite imaginable that the higher level that could be reached by an optimal allocation in a stationary system is trivial compared with the growth that could be achieved if savings and investments were allowed.

But, of course, if we start with a growing system, then allocation effects must include all repercussions on savings potential and investment. In such a case to deny that allocation is important is to neglect the effect which a proper allocation of resources has on growth; the fact that when the proper allocation raises output it will thereby increase the savings potential; the fact that when the output is raised efficiently it will improve the balance of payments situation and bring about an increased supply of resources for further growth.

I now turn to the budgetary problem. I start with noting one peculiarity: planning models generally have remarkably little to say about the budget. Everything is supposed to be "real" rather than "financial." The budget is — correctly — relegated to the role of handmaiden of development. But it is — incorrectly — treated merely as "financial," as providing tax revenue and public savings, with some consideration of its function to insure the proper level of aggregative demand through undifferentiated deficits or surpluses. The budget equation has tax revenue items and current expenditure items, with their difference called "saving." When insufficient saving is forthcoming there is resort either to tax increases or to deficit financing.

With some exceptions, planners tend to assume that there is a necessary conflict with the Ministries of Finance who are said to be "no-Ministries," always obstructionist, always pointing out that this or that cannot be done because there is no money.

Perhaps so¹. Nevertheless, planners would strengthen their position not merely by understanding Finance's problems, but by realizing what the budget really could do for them.

In the first place, in virtually no country is it easy to find out what goes on in the public sector as a whole — which is what models usually mean by "Government." More precisely, most countries do not know what goes on in that part of the public sector which is directly or indirectly linked to the budget. In the second place, it is not always easy to find out what is a surplus or deficit in an economically meaningful sense. The administrative budget is mostly a rather haphazard affair. Thus invest-

¹ In Nigeria the planners had to help the responsible and able civil servants in the Ministry of Finance to restrain their minister whose exuberant spending nevertheless quite frequently showed a cunning and almost instinctive appreciation not merely of his personal but also of the economy's gain.

ment items are frequently included among current expenditures. Non-tax and non-fee revenues (e.g. revenue from the sale of property, occasionally even from borrowing!) are among the current revenues; there are instances of important items being completely outside the budget. This means that in many cases, the contents of the budget are accidental and explicable more on historic than economic grounds. In the third place, the budget is not usually presented in such a manner that it helps in any decision of whether to raise taxes; to cut expenditures and if so which; to raise prices of public authorities and enterprises to reduce budgetary deficits; and/or to borrow, and if so from whom. This means that the budget is not an adequate tool for development policy.

In Western advanced countries, there is not much sense in distinguishing between current and capital budgets, because Government is not expected to produce most of the economy's savings; there may even be danger in such a distinction if it leads to such proposals as to limit deficit financing to capital or "extraordinary" expenditures. But such a distinction seems useful for underdeveloped countries, because Government must contribute to savings. A current budget should, among its other functions, be designed to make clear how well the Government does in its savings efforts. A current budget that is presented as balanced is already in trouble: it ought to have a hefty surplus. Policies about deficit financing can only be formulated for the public sector as a whole!

Next it would, of course, be desirable to have some form of program budgeting, but the experience in advanced countries suggests that this is much easier said than done. Still it ought to be possible to present the budget (a) by ministry (since it is the ministries that are the executive agents); (b) by personnel expenditures vs. purchases of goods and services (since this allows some hint as to salary policy); and (c) separating out transfer payments, which could be further classified by debt service, social subsidies by category (health, education, etc.), and economic subsidies to producing enterprises, with the current budget showing only operating subsidies. It would help to focus attention on the *rationale* of economic investments and it would help to direct attention to the possibility of forcing the recipient enterprises to do something about subsidies; that is, it would help focus attention on the question of public price policy as an alternative to tax policy, and management problems as an alternative to price and tax policies.

Why all this trouble? Obviously purely fiscal planning cannot be expected to solve all problems. The relations between the Budget and the Plan are complicated, the Plan providing the *rationale* for the Budget, and the budget providing an unavoidable limit to what can be done as well as the final place where the choices before the policy-maker become

obvious and inescapable. In any case, it seems only reasonable that whenever Government is given such a crucial role in development, it ought at least to know what goes on in the public sector.

Beyond that it must be realized that the budget can tell planners a great deal about the success and failure of past decisions, and about the rationality of future ones. The choice between price and tax policy is a major one in underdeveloped countries, more so than the choice between fiscal and monetary policy. How often it is argued that industry is preferable to agriculture or capital-intensive to labor-intensive methods of production because they contribute more to savings. But whether that is true or not depends on the surpluses materializing in the first place. How often it is argued that there is a difference between social and "private" profitability — I put private in quotes to indicate that it really refers to all producing enterprises including state-owned ones — in order to propose subsidies or low prices. But whether this makes sense or not will ultimately come out in the budget. If it makes sense, taxable capacity ought to increase in some reasonable period of time, hence revenues should also rise without increases in rates. If that has not happened over a few years, the argument, whatever its validity *in abstracto*, made the wrong factual assumptions.

I have argued elsewhere¹ that the current expenditures engendered by capital projects ought to be a major determinant of the size of investments in the social sectors, where economic calculations proper are exceedingly difficult to make. The usual cost-benefit calculations of education, say, can be criticized on the grounds that they assume a growth in the economy which the reduced budget surpluses resulting from future current expenditures make impossible. The argument is "simply" that working out future budgets and savings is both an essential and a valid means of generalizing cost-benefit calculations. That this is not usually done is attested, for example, by the case of Indian planning. Again, substituting assumed overall rates of growth is no substitute for the painstaking analysis of the future budgetary implications of present spending patterns. If planners did that, they might perhaps find the Ministry of Finance their ally rather than their foe.

But I would go further in two respects. In most underdeveloped countries, the Government dominates the labor market both as to numbers and wage levels². Budgets are heavily weighted by salary expenditures.

¹ In my *Planning Without Facts*, *op. cit.*

² I am referring to the market for wage and salaried labor. Self-employed labor will be only indirectly affected. Wage labor in peasant agriculture will be also affected even when it is at the periphery of the labor market, the Government wage rate having an influence throughout the economy much as the steel price has in the United States.

This may be the result of an overexpanded and useless civil service, riddled with tribalism and nepotism. But the civil service problem arises even if there is no overstaffing. The issue is that wages policy has a direct influence on the budget, hence on Government savings, and on the rest of the economy, hence on the demand for labor. The country may simply not be able to afford even an efficient civil service unless the salary scales bear a much more reasonable relation to average incomes and tax revenues than they do, usually as the result of an inherited colonial structure¹. Whatever can be said for or against manpower planning and budgeting, it is certain that neither educational nor manpower policy can be meaningfully made without regard to the labor market and wage rates. The budget should give planners important clues in both respects.

In general, the budget is the place where all Governmental *and* private decisions come together. For the Government this is obvious: here the final hard choices have to be made when resources are scarce. But I believe the budget also tells something about the effectiveness of all Governmental and private investment decisions through the growth (or lack thereof) of taxable capacity, through the growth of current expenditures in undesirable directions and at unforeseen rates such as the growth of implicit or explicit subsidies; through the failure of the nonbudgetary part of the public sector to contribute sufficiently to the growth of taxable capacity and its all too frequent habit to need operating subsidies from the budget. In the budget it becomes obvious whether policies have worked, whether the expenditure pattern on individual projects of all descriptions taken together have achieved their desired aims. Planners had better learn how to read and use the budget as an allocative device and an essential aid in formulating policy.

III. Administrative Considerations

Finally, I wish to make two brief remarks concerning the administrative limitations on planning. The one is obvious: if you do not have the manpower to execute decisions, the decisions do not do much good. Hence what can be done will depend crucially on the quality and quantity of the

¹ I have seen "expert" reports (I hasten to say, not in Nigeria) which have investigated (on the basis of manpower figures "needed") how many civil servants could be spared, and came to the result that only about 3% of salary expenditures could be saved by the dismissal of a few low-power and low-paid people. Salary structures were not even considered worthy of investigation, or else treated as a politically too hot potato! On the other hand, there are cases where holding the line over the past six to ten years has in fact reduced the privileged position of the civil service, and in some places (e.g. Malta) the extent of self-help in the form of accepting a low salary structure is truly impressive.

administrative apparatus. Indirection is a means of stretching its capacity. Increasing administrative efficiency is important, but that includes its capability of formulating workable policies which will achieve their desired aims with minimal cost.

Increasing efficiency cannot, from the economic standpoint, be identical with improving the effectiveness of a civil service without regard to the economic policies to be implemented. The worst possible combination is an efficient civil service enforcing a foolish policy. Not much better is a civil service which does not understand how indirection works and sees efficiency merely as a comprehensive system of permissions to be given, quickly and impartially, by an all-wise, but also all-powerful, bureaucracy. Power can be real even if it is not seen. But too few administrators at the top seem to understand this.

This is a general problem. Even if it were solved, a second problem would remain. Comprehensive planners tend to assume that comprehensive planning is possible only if they are firmly in the driver's seat. At times they want to be executors, at all times they want the final say in all economic matters. Frequently the organization of the Indian Planning Commission under Nehru is put up as an example of how things should be done.

The point is logical, but not necessarily valid. Political decisions must be made by the political process regardless of the form of Government. Planners are technicians; they should not be technocrats as well. Bringing in the political level at an early stage may or may not be to the good. But planners should present the political decision makers with clear choices that express the economic gains and cost of each. They should not try to outguess the statesmen and become themselves involved in the final decisions which must be made both on economic *and* on other grounds. They would thereby compromise one of their major functions in which they are eminently competent, namely to point out the economic cost of non-economic decisions.

If planners try to become executors, the question necessarily arises: what do the executive (substantive) ministries do? It is inevitable that the planners would in such a case get the whole Government set against them, or else they would simply duplicate the rest of the Government. This would not merely be a waste of scarce manpower, it would not solve anything. To the extent that conflicts are purely personal, a centralization of decision-making would get rid of them. But most important conflicts have their roots in a recalcitrant reality. If so, the perfectly real conflicts would simply be centralized, which might even paralyze the planners into a failure to make the necessary decisions. If, on the other hand, planners did their proper job honestly, without trying to play games,

their influence could grow even as their power waned. Their function should be a combination of the Bureau of the Budget and the Council of Economic Advisors.

IV. Summary

I can summarize my argument quickly. Uncertainties about the present position and possibilities and about the future are inherent in the real world, and no amount of improvement in statistics or computers will change this. The executive capacity of *every* administrative service is limited. By definition, the better it is, the more there is to do; almost by definition one has never enough. The brain drain from less to more developed countries should be sufficient proof of this assertion. Were this not so, there would be no problem. There is every sense in striving to improve an existing situation which, being human, has its necessary faults. But there is no sense in pretending that the limitations do not exist. If comprehensive planning is defined so as to demand knowledge and power that cannot exist, it is obviously impossible. Much aggregative planning and many logically persuasive planning models have come to grief on the recalcitrance of reality, and there is disillusionment with comprehensive planning. In this sense there is a crisis of planners¹.

But there is an approach to comprehensive planning which allows for the fact that planners are not God. By concentrating on detailed investigations, limiting the aims of planning to what can be done now, using policy as the major method to get things done, and using the budget more effectively, overall (even "comprehensive") policies for the economy as a whole can be developed which allow sequential decision-making and recognize both the need for time to elapse and the need to allow for failures, to build in safety factors. If we have learned this, there need be no crisis in planning².

¹ Professors Streeten and Singer have informed me that there was in the fall of 1969 a conference at Sussex with the title of "Crisis of Planning." I notice with pleasure the parallelism of thinking of which I was unaware when I chose my title and wrote my paper. I do not, of course, know what happened at that conference.

² Mr. Streeten has suggested to me to add a section on how planners ought to be trained, and to expand the discussion of how planners should be placed in the Government. Both would, however, require separate papers. Mr. Streeten has himself contributed to *The Teaching of Development Economics, Its Position in the Present State of Knowledge*, The Proceedings of the Manchester Conference on Teaching Economic Development, April 1964, Ed. by Kurt Martin and John Knapp, London, 1967. — Albert Waterston's *Development Planning, Lessons of Experience*, Ass. by C. J. Martin, August T. Schumacher, and Fritz A. Steuber, Baltimore, Maryland, 1965, has become an influential classic in the field. The OECD Development Center has organized meetings on training and research, the results of which have been published.

Zusammenfassung: Grenzen einer umfassenden Planung angesichts einer umfassenden Unsicherheit. Krise der Planung oder Krise der Planer. — Planung umfaßt die Entwicklung einer Politik, nach der gehandelt werden kann. Aggregationsmodelle scheitern am Mangel an Daten. Aber Mangel an Wissen ist mit dem Problem eng verbunden, da sich Planung auf die unerkennbare Zukunft bezieht. Außerdem werden Aggregationsmodelle zwangsläufig in einer Art und Weise formuliert, die kein praktisches Handeln erlauben, sondern nur nützlich sind, um ihre Konsistenz in der Vergangenheit zu prüfen. Die eigentliche Planung muß auf detaillierte mikroökonomische Kenntnisse und eine sorgfältige Formulierung der Politik gegründet werden. Drei wirtschaftspolitische Bereiche werden im einzelnen erörtert: Landwirtschaftliche Preispolitik, die auch für die Lösung städtischer und industrieller Probleme wesentlich ist, Zahlungsbilanzpolitik, die wichtige Auswirkungen auf die Allokation der Ressourcen im Inland hat, und Budgetpolitik, die die Ersparnis beeinflußt. Alle diese wirtschaftspolitischen Maßnahmen sind wesentlich für die Festsetzung der Löhne und andere Bereiche der Wirtschaftspolitik und haben auch wichtige Auswirkungen auf die Allokation der Ressourcen. Es wird behauptet, daß das, was tatsächlich passiert, mehr von bestimmten Preisen abhängt als von den Parametern, auf denen die typischen Aggregationsmodelle aufgebaut sind. Zum Schluß wird kurz darauf hingewiesen, daß die Planung den administrativen Fähigkeiten des planenden Landes angepaßt werden muß.

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Résumé: Limites d'une planification générale en vue d'une incertitude générale: crise de planification ou crise des planificateurs. — La planification implique le développement d'une politique économique capable d'être mise en pratique. Les modèles agrégatifs ne réussissent pas à cause du manque de données. D'ailleurs, l'ignorance fait partie du problème, puisque la planification vise l'avenir qu'on ne peut pas connaître. Donc, les modèles agrégatifs sont formulés de manière à ne pas permettre la mise en pratique. Ils ne servent qu'à vérifier la conformité dans le passé. Une véritable planification devrait être basée sur des connaissances microéconomiques détaillées et une formulation soignée de la politique économique à suivre. Trois domaines de politique économique sont discutés en détail: la politique des prix agricoles, qui sont d'une importance capitale même pour la solution de problèmes urbains et industriels; la politique de balance des paiements, qui exerce une influence importante sur l'allocation nationale des ressources; et la politique du budget, qui affecte l'épargne, est essentielle pour la détermination de la politique des salaires et d'autres politiques économiques, et qui, elle aussi, exerce une influence importante sur l'allocation des ressources. On affirme que ce qui se passera en réalité dépend plutôt des prix spécifiques que des paramètres, sur lesquels le modèle agrégatif typique se base. Finalement, on insiste brièvement sur ce que toute planification doit être adaptée aux capacités administratives du pays en question.

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Resumen: Limitaciones de una planificación completa en vista de una incertidumbre general. La crisis de la planificación o la crisis de los planificadores. — La planificación entraña el desarrollo de una política según la cual se puede actuar. El uso de modelos agregativos no da resultado debido a la falta de datos, lo que está íntimamente ligado con el problema de la planificación por referirse ésta a un

futuro desconocido. Además, los modelos agregativos se escriben en una manera que no permite acciones prácticas, sino que es útil únicamente para controlar la consistencia en el pasado. La verdadera planificación tiene que basarse en conocimientos detallados a nivel micro-económico y en una articulación exacta de los objetivos políticos. Al tenor de esto, el autor analiza tres campos de acción de la política económica: la política de precios agrícolas, que es importante también para la solución de problemas de urbanización e industrialización; la política de balanza de pagos, que tiene importantes repercusiones sobre la alocación de los recursos en el interior; y la política de presupuesto, que influencia los ahorros. Todas estas líneas de acción son esenciales para el establecimiento de los sueldos y otras magnitudes económicas. El autor afirma que lo que verdaderamente sucede depende más de diversos precios que de los parámetros en que se basan los modelos agregativos típicos. Finalmente, el autor advierte, que la planificación debe adaptarse a las habilidades administrativas del país en cuestión.

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Riassunto: Limiti di una pianificazione di vasta portata in considerazione di un'ampia insicurezza. Crisi della pianificazione o crisi dei pianificatori. — Pianificazione abbraccia lo sviluppo di una politica secondo cui si può agire. Modelli di aggregazione falliscono per la mancanza di dati. Ma mancanza di sapere è congiunta strettamente col problema; infatti pianificazione si riferisce al non discernibile futuro. Inoltre modelli di aggregazione sono formulati inevitabilmente in una maniera che nessuna azione pratica permette, ma ciò è soltanto utile per saggiare la loro consistenza nel passato. La vera pianificazione deve basarsi su particolareggiate conoscenze micro-economiche e su una accurata formulazione della politica. Tre settori economico-politici sono discussi minuziosamente: la politica agricola dei prezzi che è essenziale anche per la soluzione di problemi cittadini e industriali, la politica della bilancia dei pagamenti che ha ripercussioni importanti sull'allocazione delle risorse nell'interno, e la politica di bilancio che influenza il risparmio. Tutti questi provvedimenti economico-politici sono essenziali per la determinazione dei salari e per altri settori della politica economica ed hanno anche importanti ripercussioni per l'allocazione delle risorse. Viene affermato che ciò che effettivamente succede dipende più da determinati prezzi che dai parametri sui quali sono costruiti i tipici modelli di aggregazione. In ultimo è richiamata brevemente l'attenzione sul fatto che la pianificazione deve adattarsi alle capacità amministrative del Paese pianificatore.

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