4 OPTIMAL PLANNING

THE UNKNOWNS OF THE PROBLEM

This last chapter will be devoted to indicating the "best" way of planning for economic policy. We have described in Chapter 1 the economic activity called central or government planning and indicated some alternative techniques to produce the same—or almost the same—product. In ordinary economic activity the question which necessarily follows is how to choose among the various alternatives in order to find the best technique under the circumstances in which the process has to be carried out. The standard answer of the economist is that the technique must be chosen which maximizes profits or the contribution to national product. For our purpose we must not take this advice too literally; we must also look for the choice which maximizes the result to be obtained in comparison to the means used.

Optimal Planning

The problem of optimal planning, however, because of its close links with the economic regime and the policy to be planned can be posed in a wider and a narrower sense, which must first be clarified. In the wider sense the question to be put is what is the optimum regime for a given country; in the narrower sense we take the regime for granted and ask how, for this given regime, planning can best be carried out. Both questions, moreover, can be put for a national economy as well as for the international economy.

As a first step on the road to a solution—which we think is not yet available—we may specify somewhat more explicitly what, in the logical sense, are the *unknowns* of each problem. An economic regime is characterized by a number of institutions (each with their tasks, activities, procedures, and methods); they actually represent the unknowns of the problem of the optimum regime. Examples of such institutions are private or public enterprises, tax systems, markets, and unions. Their activities depend on a continual number of decisions regarding production, consumption, pricing, taxing, and so on. In the optimum regime the joint decisions must be such that a maximum of well-being for the community is obtained. The way in which the decisions are taken depends on the setup of the institutions: a private enterprise tries to maximize its profits, an individual household to maximize its satisfaction, both of them under the particular conditions in which they are operating. In the optimum regime these decisions must coincide as much as possible with the decisions maximizing general well-being and this must occur as a consequence of a "clever" choice of the institutions and their tasks.

Also a planning system is characterized by a number of institutions, with certain tasks, activities, procedures, and methods, which are part of the institutions in the economy as a whole. In the wider setting of the problem of optimality we want to know how all institutions, including those of planning, must be chosen. In the narrower setting of the problem we want to know only how to choose the planning institutions, considering the others as given already. Clearly, in the latter case the planning institutions depend on the regime, and are determined by its aims and means. In a liberalist regime very little planning will be needed; in a communist system a good deal of it is necessary. We are going to specify both choices in the next few sections.

THE OPTIMUM REGIME

The problem of finding the optimum regime is the central problem of *welfare economics*. In this sector of economics we know that among the data of the problem a social welfare function is the first element. This means that we assume knowledge about two things: first, about the preferences of the individuals constituting the economy and, second, about how to weigh the interests of different individuals in determining social well-being or social welfare. In customary economic language this means, first, knowledge about the utility functions of individuals and, second, about the social utility function. These are far-reaching assumptions, because our knowledge about individual utility functions is very limited, and the social welfare function depends on how we compare utilities of different persons. For the time being this is done intuitively only and therefore leaves much room for differences of opinion. It is interesting to note that notwithstanding these uncertainties welfare economics is able to make substantial contributions to the solution of our problem.

The core of the method used by welfare economics is to formulate a number of conditions of maximum welfare and to try to interpret these conditions in terms of institutions.

The main problem concerns side conditions. What must be maximized is social utility or welfare under the side conditions of the laws of production. No other side conditions must be added, in particular no conditions of an institutional character, since the institutions are unknown. The only laws we cannot violate are the laws of nature. A well-known example of the older, Paretian, version of welfare economics is that one set of conditions which must be fulfilled in a state of maximum welfare says that the marginal utilities derived from any pair of commodities must show the same ratio for all persons. Since such a state of affairs would be forthcoming if all people bought or sold these commodities in a competitive market, the institution of the market may be used to construct an optimum regime. This example is given only to clarify what we mean by "interpreting the maximum conditions in terms of institutions." The example is correct only if several hypotheses are fulfilled which need not always apply.

Before speaking about concrete solutions of the problem of the optimum regime we must make some additional statements on the general logic of the method used in welfare economics.

To begin with, we shall have found a solution only if we can enumerate a *complete* set of institutions whose decisions together fulfill all the maximum conditions of our problem. Institutions whose activities would fulfill only some sets of maximum conditions may not be even part of a solution, if we cannot find other institutions which meet the remaining maximum conditions. The complete solution, if there is one, may not be unique; there may be other institutions also leading to the optimum. Thus, the function performed by a free market may also be performed by a set of government rules and controls.

But, on the other hand, it may also be—and it looks very much for the moment as if we are in that position—that we do not know any solution. This situation presents itself whenever we cannot find an institution which is able to satisfy one of the sets of maximum conditions. This, for the time being, is the case with the equations asking for equalization of the marginal utility of income among all consumers. This set of equations is equivalent with a type of income redistribution not met by any of our existing taxes. What is required is the so-called *lump-sum redistribution*, that is, a redistribution which does not change the marginal decisions of consumers. Income taxes, which are the most important redistribution device used at present, do not satisfy this condition.

If, then, one set of conditions of maximum welfare cannot be met by any existing institution, the institutions that satisfy the other conditions become of doubtful value too. Indeed, they may well help to violate the nonsatisfiable conditions to such an extent that they had better not be applied. What we must now try is the method of the second-best. If we do not know a set of institutions which together satisfy all the maximum conditions, we may look for a set of institutions which bring us as close to the maximum as possible. This set we cannot find by a direct "interpretation of the maximum conditions in terms of institutions"; we simply must try the solutions out. We will call this the *indirect method.* Solutions found in this way will have to be given up if better solutions are found later. Elsewhere the author has tried to give an example of the indirect method, where the income tax appears as such a "second-best" solution.[1]

One aspect of the solution concerns the degree of decentralization in decision-making which is compatible with the maximum conditions. The free market with free individual

1. J. Tinbergen, "Should the Income Tax Be among the Means of Economic Policy?" *Festskrift til Frederik Zeuthen* (Copenhagen, 1958), p. 351.

enterprises offers the well-known example of a complete decentralization of production decisions, which is compatible with maximum conditions if the laws of production show decreasing or constant returns and no external effects. But there are also activities for which these production laws do not apply, and where complete decentralization may not be permitted. This is true typically for activities having "external effects" as well as for activities with increasing returns.

Our knowledge is insufficient to solve the problem of the optimum regime, except in oversimplified cases such as the Pareto case where no external effects and no increasing returns are assumed and where it is assumed tacitly that a lump-sum redistribution can be made. Yet we may sketch, on intuitive grounds, the probable structure of a solution, as a first crude approximation. Some of the general remarks made before about the non-uniqueness of the possible solutions and the second-best character of some institutions must be kept in mind, however.

For several reasons there is a need for an institution of the nature of the state where a number of decisions must be taken which cannot be decentralized because of their external effects or increasing returns. Measures dealing with safety, the maintenance of law and order, the stability of money value, the operation of roads, education, information, planning, and taxation must be controlled by such an institution. Some of these activities may even have to be centralized above the national level; others can be decentralized geographically and put into the hands of local authorities. Even some forms of production or distribution of commodities, such as energy, water, and steel, may be converted to public enterprises because of their external effects and because of increasing returns. Since increasing returns make price formation unstable, alternatively tending to either excessive competition or monopolization, their decentralized (private) operation meets with difficulties. For what have been called unstable markets in Chapter 3, government regulation may also be preferable.

The tax system must facilitate redistribution so as to equalize marginal utilities; taxes on wealth and income must therefore have high priority. It must also be conducive to a budget surplus, since the savings rate of the economy has important external effects and hence cannot be left to decentralized (private) decisions.

The remaining very numerous decisions on production and consumption can be made in a decentralized way, that is, by private production and consumption units (enterprises and families). These decisions will be influenced only in an indirect way by government (or lower public authorities') actions, such as those affecting investments made in the public sector, educational and information facilities, and tax policies. In designing their program public authorities will have to take into account, as much as possible, the reactions likely to be induced in the private sector by their own decisions. One may express this state of affairs by saying that what has to be done by the public sector is not to create alone a balanced process of development, but rather to induce in the private sector the most desirable reactions so that together they will achieve the optimal total process. This may imply, as Hirschman[2] likes to put it, that the public sector purposely creates "unbalances" in order to evoke the most desirable process of development. I do not think, however, that "unbalanced" is a very helpful term; in fact the category of unbalanced patterns implies a large number of patterns which do not evoke the proper reactions, and what Hirschman is after is only some very specific subcategory, which it would be better to define more specifically.

2. Cf. Albert O. Hirschman, *The Strategy of Economic Development* (New Haven, Yale University Press, 1958).

Large subcategories of the category of unbalanced patterns are highly undesirable.

While the preceding description of what might be an optimum regime has stressed the structure, such a regime also has a rate of development over time which must satisfy the optimum conditions of welfare economics. The question of the *optimum rate of growth* is a difficult one on which, only recently, remarkable light has been thrown by a number of rather complicated scientific analyses.[3] At present the optimum rate of growth for low-income countries cannot be based on the knowledge so far accumulated. For developed countries the point of view may be defended that a development of some 7 per cent per annum constitutes a maximum; higher rates will be suboptimal.

Clearly the choice of the degree of "tautness" of planning (cf. Chapter 1, page 12) will have to depend on the results of the analysis of what an optimum rate of growth should be.

OPTIMUM PLANNING: CHOICES TO BE MADE

As was already observed, the "best" way of planning economic policy will to a considerable extent depend on the regime. Planning, in a way, is a set of decisions on economic variables, such as production, prices, and incomes, and in a way a "general rehearsal" of real economic life. Therefore it must have a similar structure to that of the actual economy. The correspondence need not be complete,

3. Cf. G. Bombach and C. Chr. v. Weizsäcker, "Optimales Wachstum und Gleichgewichtswachstum," in *Optimales Wachstum und optimale Standortverteilung, Schriften des Vereins für Sozialpolitik* (Berlin, 1962); S. Chakravarty, "Optimal Savings with Finite Planning Horizon," *International Economic Review, 3* (1962), 338; L. M. Koyck and M. J. 't Hooft-Welvaars, *Economic Growth, Marginal Productivity of Capital and the Rate of Interest* (International Economic Association, Royaumont Conference, 1962).

however. It is clear from our preceding discussion that there are several degrees of freedom for the planning process.

In this section we will set out some of the major choices to be made in order to define, and hence to select, a planning process. We will deal successively with the task, the method and activities, the organization, the procedure, and the timing of the process.

As to the task of the planning institutions, the most important question is, *what* has to be planned. Should all production figures of hundreds or even thousands of branches be planned; should all big single projects be planned; or should only a few industry groups, maybe only the public sector and the unstable markets be planned; or, as an extreme minimum, only some major instruments of economic policy?

With regard to the methods and activities of planning, one of the most important questions is whether the various unknowns of the planning problem—all the figures—should be determined *simultaneously* or whether there is scope for a certain decomposition of the process into *stages* or phases (cf. Chapter 1, pages 26–27).

As an example of planning in stages we may give, as a basis for discussion, a rather precise list of activities to be carried out in succession:

I. The Macro-Stage

1. Instruction of planning bureau by government on aims and means of policy
2. Collection of statistics and forecasts on "data"
3. Macro-forecast
4. Confrontation with aims
5. Macro-plan

II. The Sector (and/or Regional) Stage

1. Collection of estimates on income elasticities

2. Sector plan, or regional plan, or both

III. The Project Stage

1. Issue of directives to "cells," request for projects
2. Project appraisal by sector authorities
3. Project appraisal by center
4. Revised sector-cum-region plan
5. Consultation with sectors
6. Consultation with regions
7. Changes
8. Submission to government

IV. Final Stage

1. Possible changes; adoption by government
2. Publication
3. Adoption by parliament

Numerous variations on this example are conceivable. Thus, if certain well-defined regional targets are set, regional planning of a macro-character may be made also in the macro-phase. If no such targets are set, regional plans may only become available after the selection of projects. Some of the initial phases may have to be repeated if it is found in later phases that some of the coefficients used in the early phases can now be estimated more precisely—e.g. the capital-output ratio, after the composition of production has been fixed.

The question of *organization* concerns the number of institutions needed—must there be sector and regional planning bureaus—and the hierarchy within the planning bureau.

With regard to *procedure,* there is considerable freedom even with a given method of planning. Contacts with the outside world may be more or less numerous, depending on how the elements involved are dealt with. These are, as was noted before: (a) the element of information, and (b) the element of democracy. The procedure with regard to the first element depends on the type of information needed and the way of obtaining it. With respect to the democracy factor it depends on who is to be consulted, what variables he is going to be consulted about, what influence is given to him, and what procedures of discussion are going to be used in such consultations.

The *timing* problem does not exist to any great extent for short-term planning, since there is little choice as to timing; there is more freedom in long-term planning.

CRITERIA FOR OPTIMUM PLANNING

The choice of the process among the many alternatives presented must, in principle, be made according to a number of criteria, which indicate the bases of appraisal to be applied. Among these the following may be stressed:

(1) An important criterion is the degree of *accuracy* obtainable, taken in the wider sense of being geared to the needs of the economy under the given circumstances. This means not only that the estimates must be as precise as possible, but also that the proper variables must be included in the set of estimates, having in mind the aims and means of economic policy.

(2) A second criterion must be the *time* needed for the operation; because of the usually short period available, especially for the preparation of short-term plans, economizing on time is an important aspect of the economics of planning.

(3) Other costs involved generally are all sacrifices to be made except time sacrifices; usually the latter will not be expressed in money. In a somewhat more general way, costs stand not only for efforts made by all officially concerned, but also for disutility springing from frictions, irritation, and so on. Obviously it will be possible to keep costs down by

trying to minimize the number of elementary operations involved.

(4) A final criterion may be the *degree of democracy* allowed in the sense of satisfying justified desires of interested groups to have an opportunity of giving an opinion, or even participating in a number of decisions about the plan.

In order to apply the criteria most effectively, their relative importance should also be known. It will be evident that we are still far from having sufficient information to apply the criteria in a scientifically accurate way; to a considerable extent the choice must be made on intuitive grounds. For the same reason it is not possible yet to make even the most tentative statement with regard to the degree to which actual plans today satisfy the conditions formulated.

SOME REMARKS ON OPTIMUM METHODS: WHAT MUST BE PLANNED?

The problem of finding the "best" way of government planning has not yet been solved nor will its solution be possible in the near future. At best, a number of suggestions can be made to help in finding the solution in the future. The discussions about planning are becoming more objective and are among the "living issues" of economic science. In a general way it may be said that there is a correspondence between the problems of the best regime and the best method of planning, as has already been observed. Both are connected with the mathematical or logical structure of the relations describing the economic mechanism, and some suggestions can be derived from that structure.

We will take up some of the main questions posed in pages 88–90, asking first what has to be planned. The answer is, in principle, all the decisions which it is proper for the government to take—as distinct from decisions which can be taken at the more decentralized levels, that is, by producers and consumers individually or in groups. We have already stated that welfare economics teaches us that some activities show characteristics which make them amenable to more centralized decisions; among these are economic actions having marked external effects and activities leading to increasing returns. They concern such traditional government tasks as preserving internal order and external safety, the operation of roads, support of education, maintenance of a sound monetary system and, more recently, the handling of a tax system aimed at a redistribution of incomes and an even development of the economy.

The last few items are more typically the instruments of a macroeconomic policy, used to attain short-term targets that are part of an anticyclical adjustment to outside disturbances. In this category there is a need for at least one instrument influencing the *volume* of operation of the economy and one influencing the *price* level. The former may be the total amount of expenditures minus taxes, or the "inflationary or deflationary gap" of public finance. The latter instrument may be either price and wage controls or flexible exchange rates. In addition to the general instruments to be used for short-term economic policy there may be some more specific ones, applying to single unstable markets.

Some of the instruments mentioned may also be employed for long-term purposes. Public finance, and more particularly public investments, can be used to influence the rhythm of development. In this realm the decision on the total amount of savings of the nation to be aimed at must be mentioned because this too is a decision with noticeable external effects.

Decisions concerning activities that show increasing returns include, in principle, decisions on the production of energy and transportation as well as on some heavy metal and chemical industries, often operated by the public sector.

One of the reasons why such decisions may better be centralized is the danger that too small units and too many of them would otherwise be created. For the developing continents it is preferable that the establishment of such units be controlled by public authorities.

All or most of the decisions summed up under the two headings of external effects and increasing returns should be planned, because of their impact on the well-being of others than those carrying them out. For the same reason it is not immaterial at what level—the national, or a higher or lower level—they are planned. Several of them should be subjects for some form of *international* planning. In the present situation of carefully guarded national autonomy this will often be done only in the form of loosely coordinated national decisions. For optimal results in the future some main decisions should be centralized at the international level.

There remain many decisions satisfying more or less the hypotheses of the old welfare economics: absence of external effects and of increasing returns. They are the production decisions in agriculture, retail trade, and the "light" industries—which can be made with more accuracy the smaller the optimum units of such industries are—and the consumption decisions of families relative to their disposable income. These decisions need not be planned by the government, even though they may be facilitated by broader information such as is provided by market analyses. Hence planning may imply an estimate of the total demand for a number of categories of goods in these sectors.

SOME REMARKS ON OPTIMUM METHODS: PLANNING IN STAGES?

The next major question about optimum planning methods concerns the topic of planning in stages. Under what conditions, we may ask, is it efficient to carry out the complicated process of estimation of the plan figures in several successive stages, as outlined in pages 88–89. Formally the situation is this. The mathematical structure of the set of equations describing the economic mechanism may show one of three characteristics.

(1) The matrix of its coefficients may permit the *ordering* described by Herbert A. Simon;[4] then, the planning process is one of stages.

(2) The matrix may be *close* to such a structure; then the planning figures can be approximated in a number of stages.

(3) The matrix may *not* be close to the structure needed for ordering; then a simultaneous solution is necessary.

Elsewhere the author has tried to give some arguments why, in several types of circumstances, planning in stages is possible and desirable.[5]

A separate execution of what was called the macro-stage was argued on the following grounds:

(1) The decision to be made is one of great importance and must be fully covered by the government; hence it is desirable to formulate it in such simple terms as are possible in the macro-stage.

(2) For lack of some fundamental data this decision cannot yet be based on any precise calculations; it must be partly based on intuitive considerations, which it seems better to isolate from the following stages.

(3) If an erroneous value for the capital-output ratio

4. Herbert A. Simon, "Causal Ordering and Identifiability," in *Studies in Econometric Method,* ed. W. C. Hood and T. C. Koopmans (New York and London, 1953), p. 49.

5. J. Tinbergen, "Planning in Stages," *Statsøkonomisk Tidsskrift,* No. 1 (1962), pp. 1–20.

is taken, this error can be easily corrected afterwards, since a strongly converging series of successive approximations can be made.

There are also good reasons to make a distinction between a *sector* stage and a *project* stage, as suggested above (pages 88–89). In the sector stage figures on the national sectors as defined earlier (see pages 9–12) can already be estimated almost independently of the choice to be made with regard to the international sectors. In somewhat different terms this means that the infrastructure investments (which coincide to a large extent with those in the national sectors) can be planned with sufficient accuracy in an earlier stage. The same argument applies to regional sectors in regional planning. In a general way this method has the advantage that decisions on the infrastructure can be taken before coordination at the higher geographical level on the international sectors is finished.[6]

Apart from the two major questions of method which have been briefly discussed (what to plan, and whether planning in stages is possible) there are a number of relatively less important methodological questions to be solved in order to define an optimum method. Some of them are mentioned below.

(1) The forecasts of data can be made in different ways. For some of the most important data in short-term planning *direct inquiries* may be the best method. A good example is the forecast of planned private investment during the next calendar year. It is safer and simpler to ask several large enterprises than to try to forecast their plans from some econometric relationship. The method of direct inquiries will be less reliable where the actual decisions have not yet been

6. J. Tinbergen, "De optimale organisatie der economische beslissingen," Kon. Ned. Akademie van Wet., *Mededelingen,* Nieuwe Reeks, Deel 24, No. 7 (Amsterdam, 1961).

taken, as in longer-term forecasts. Statistical practice has developed methods, ranging from least to highly sophisticated, of extrapolation of data. Among the simpler are the linear extrapolation of past movements over shorter or longer periods. Nonlinear extrapolation can sometimes be better depending on what the underlying theory is on the phenomenon to be extrapolated. Extrapolation on the basis of relationships with other phenomena is the next best method, available in a considerable variety, from one relationship to many. Thus demand for an export commodity may be based on an extrapolation of incomes abroad, which may or may not be calculated with the aid of an econometric model for the countries considered.

(2) This brings us to the subject of *estimating relationships*. The development of econometrics has produced here also a wide range of methods, starting with hand-drawn relationships derived from scatter diagrams, up to simultaneous maximum-likelihood estimates or two-or-three-stage least squares estimates of sets of relationships. There are some interesting examples where the coefficients found for some elasticities or propensities, with the aid of the more sophisticated methods, are significantly different from the figures found in more primitive ways, and here the former must be preferred. There is also, however, a danger that some econometricians may indulge in complicated methods instead of trying to obtain better statistical and other information on the forces at work. Much intuitive judgment and wisdom is needed to make the best use of a country's scarce manpower in these fields.

(3) There are also numerous methods of *appraising investment projects*. This activity will necessarily play a large part in the long-term planning of developing countries, but it may be very useful for developed countries too. A series of alternative criteria have been proposed, some of them

fitted to one situation and others better fitted to different situations. Before dealing with them we may say something about the objects to which they should be applied. Probably the most useful is a set of projects including one to produce international goods, together with all the necessary complementary sets producing national goods (energy, transportation, building, retail trade, education). In this way it is not necessary to deal with the latter separately, with all the difficulties of appraising services which do not have prices. Alternatively we may leave out of the complementary set just mentioned some types of national commodities of a very general character, which it is difficult to allocate to the ultimate users, such as general education, general administration, and security.

The criterion used should in principle be a fraction whose numerator indicates the contribution of the object to the aims of national policy and the denominator the costs of the investment, that is, of the scarce factors used. The simplest example assumes one aim only—say, to raise national product, and one scarce factor only—say, capital. In that case the criterion is the *output-capital ratio,* i.e. the inverse of the capital-output ratio or the recoupment period. More complicated policies may have the further aims of improving the balance of payments, of helping underdeveloped regions or low-income classes first, and so on. These aims must then also be represented, with a certain price, in the numerator of the criterion fraction. There may also be other scarce factors, e.g. qualified labor, to be taken account of in the denominator.

SOME REMARKS ON OPTIMUM PROCEDURES

Planning procedures must also be chosen and, as already stated, they serve two main purposes: to obtain better information and to serve democracy by involving as many interested groups as possible. The instrument of outside contacts is, as a rule, the *meeting,* although there are simpler methods such as the letter or the telephone conversation.

Meetings serving primarily the purpose of informing the planners may take one of two main forms. We first have the meeting where outsiders supply factual and numerical information, which in principle must be statistical data, including coefficients, e.g. the supply elasticity of agriculture. This type of information can best be supplied by experts of the sector concerned, agriculture in our example; but these experts may be interested parties, which creates a problem as to the reliability of the information. The contacts between sector experts and general (or central) experts in planning also create an interesting problem as to the proper questions to be asked of the sector experts. The data solicited should in fact be information about the coefficients rather than about the variables; in our example, the supply elasticity rather than the quantity to be supplied. The latter, being an unknown of the planning problem, should properly be found by the solution of a number of simultaneous equations, which is the task of the central planner. In other words, the sector expert should not be allowed to decide on the production figure, because that depends on other coefficients —the price level, the income level, and so on—on which he is not an expert.

The second type of meeting for information purposes is one where the central planners discuss with other experts the uncertain elements in the relations they use and the methods they apply. This is more like a *scientific* discussion, an exchange of views, and is very often necessary in a new field like planning.

While the element of democracy is already present in the types of information meetings just discussed, the most typical form of meeting serving democratic purposes is the *distributive meeting*, where the distribution of something—say, the building volume—over a number of interested groups—say, the ministries—is discussed and maybe even decided upon. This meeting tries to solve a number of equations—e.g. those representing the condition of equal marginal utility of various uses made of one product, in our example buildings. The meeting does this as an alternative to what the central planning office could do itself using, perhaps, the method of project appraisal.

There may be particular reasons for preferring such a meeting to a calculation by the center. The most important one is that, in a hidden way or more openly, a comparison of the utilities of different groups of the population is involved—the central problem of the structure of the social welfare or utility function discussed earlier (pages 82–87). In such a situation the equalization of marginal utilities cannot be done simply by the decisions of one person or firm, as in the case of that person's consumption pattern or that firm's use of raw materials for manufacturing purposes. Perhaps the clearest and most important example of the distributive meeting is the meeting of parliament in which the income tax rates are determined. Distributive meetings are also valuable when a product must be allocated for which no price is charged, such as education or the use of roads.

Even though there are still large unsolved problems, some rules for the optimum procedure of distributive meetings may be formulated:

(1) If democracy is to be served, all interests involved must be represented; otherwise decisions will tend to be to the disadvantage of those absent. For distribution problems in which many units are involved, it may, however, be efficient to make decisions in *stages* again: the distribution among large groups—farmers, workers, independent urban pro-

ducers—may first be discussed by representatives of those groups, leaving discussion of the distribution between *types* of farmers, workers, etc. until a later stage. For the first decision not all types of farmers need to be represented, since their interests at that stage are parallel. At the later stage they are more likely to diverge.

(2) The meeting must have as its task to discuss one or more "unknowns" in the system of equations. This may imply a rule for the composition as well as the agenda of the meeting. In the sphere of macroeconomic policy, that is, of interdepartmental committees, the meeting should deal with an instrument rather than with a target of policy. In other words, a committee on taxes or on wages makes sense; one dealing with the balance of payments or employment does not make sense. Decisions on taxes must be made in light of the desired balance of payments and level of employment; and each of these also has to be considered when wage policy is at stake.

(3) The meeting must always have before it a *proposal,* prepared by the center, satisfying the side conditions to be met, e.g. a building program that adds up to needed building capacity. Discussants may amend the proposal, but they cannot be asked to produce the proposal.

(4) Amendments admitted for discussion must also satisfy the side conditions: an amendment to raise one party's portion without indicating at whose expense is not feasible and to discuss it is a waste of time. Discussions not aiming at an amendment must be avoided.

Our remarks about the optimum procedure may be concluded by a suggestion for arriving at an optimum along lines familiar to the economist. Starting out with a method, activities, and procedures which may have grown historically or been chosen intuitively, small changes may be considered and appraised in the light of the criteria discussed in pages

90–91. Some changes will turn out to be valuable and leave a positive balance; others will not. One may hope to arrive at the optimum in this way, but there is no complete guarantee, of course.

Our discussion of the optimum process of planning applies not only to national planning operations, but to international activities as well. Thus, the rule that in a distributive meeting all interests should be represented has far-reaching international implications. Some of the most vital decisions in the financial sphere are made today at the national level. We must accustom ourselves to the idea that they should, according to our rule, be made in international gatherings. We do understand this already for decisions on commodity agreements and trade policy; we do not yet recognize it in the financial field. Policy as well as planning in the international community should be carried out partly by a set of appropriate international—or rather supranational—organs.[7]

7. Cf. J. Tinbergen, *Shaping the World Economy* (New York, 1962).