

ESSAYS IN INTERNATIONAL FINANCE

No. 24, September 1955

INTERNATIONAL COST-SHARING
ARRANGEMENTS

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DEPARTMENT OF ECONOMICS AND SOCIOLOGY

PRINCETON UNIVERSITY

Princeton, New Jersey

This is the twenty-fourth number in the series ESSAYS IN INTERNATIONAL FINANCE *published from time to time by the International Finance Section of the Department of Economics and Sociology in Princeton University.*

Prior to taking his present position as Associate Professor of Economics at Yale University, the author spent several years in Western Europe and in Washington as an official of the U.S. Government. Although Professor Schelling had many occasions during his years of government service to ponder some of the problems he discusses here, this essay has no official character and the author speaks only for himself.

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The submission of manuscripts for this series is welcomed.

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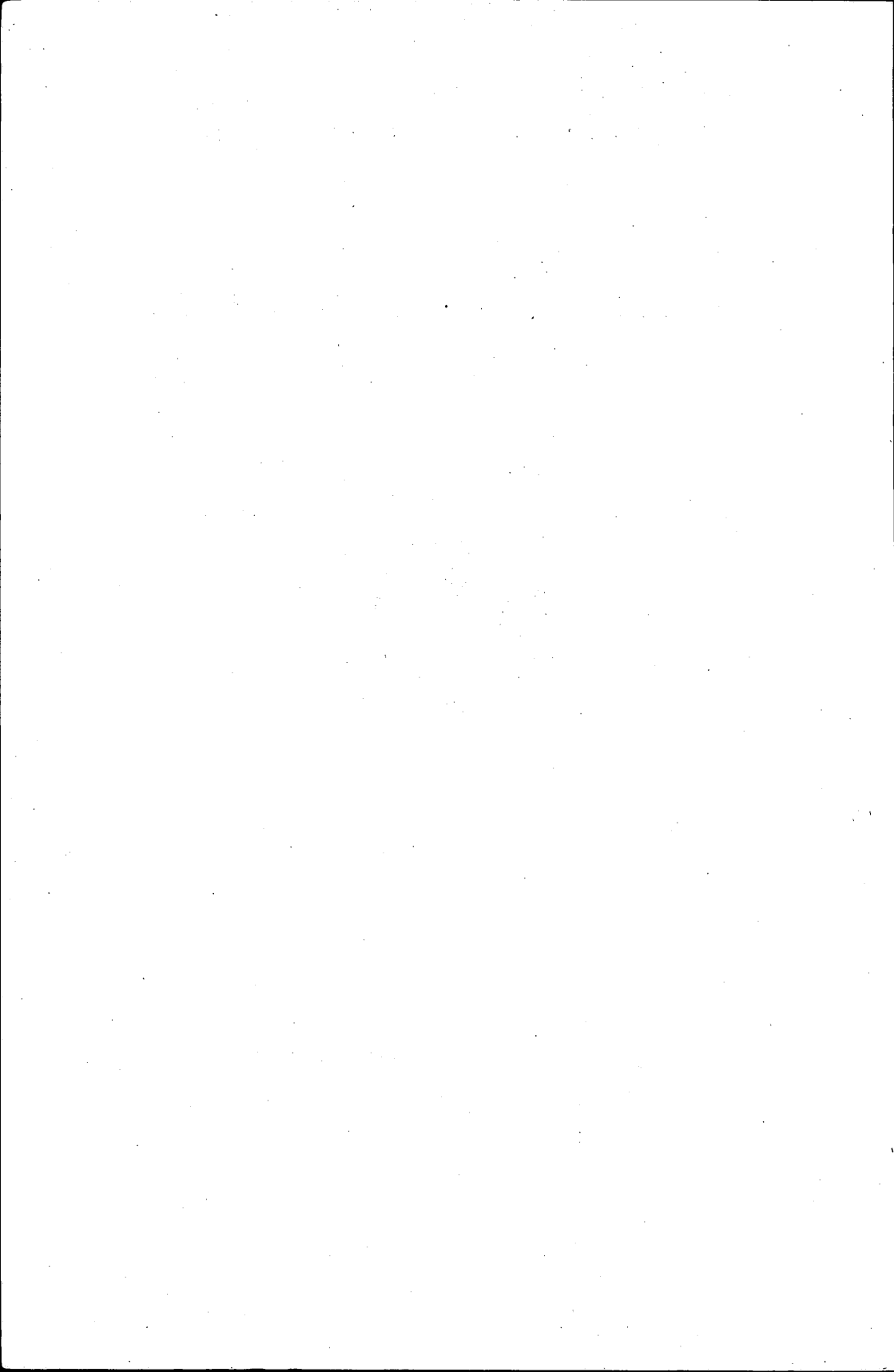


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A NEWLY prominent field of international economics has emerged during the last decade. It consists of programs—the United Nations Relief and Rehabilitation Administration, the North Atlantic Treaty Organization, the United Nations—undertaken jointly by several countries and involving costs that have to be allocated among them. In some cases the sharing of costs has been decided by *ad hoc* negotiations, unfettered by precedents, or agreed principles, or the desire to create any. But in many important instances there has been an attempt to apply recognized principles or agreed criteria to the sharing of costs; and in some cases the outcome has been a quantitative formula, supported by arguments of “equity” or “ability to pay.”

While there has been no coherent evolution of these cost-sharing schemes, some consensus on criteria does seem to be developing—criteria that are analogous to principles of international taxation or, perhaps more accurately, of intergovernmental taxation. A body of precedent is growing that is likely to influence future agreements. It may therefore be worthwhile to trace briefly the recent history of this development, to review some of the principles that are emerging, and to examine some of the theoretical and practical problems that have arisen or that will arise as the process continues. The process seems likely to continue, for the present era of expensive international collaboration gives no evidence of being over.

I. RECENT HISTORY

For historical perspective we can compare the efforts of the United Nations and the League of Nations to assess their members for operating costs. The United Nations early in its life delegated to a Contributions Committee the task of finding a fair system for sharing costs among the member countries. The Committee was instructed to follow the principle of “capacity to pay,” and the suggestion was made to it that national income would be the “fairest guide” to follow. The Committee deliberated for several months and submitted a proposed division of costs, expressed as percentages allotted to the various member coun-

tries for whatever total budget eventuated. No formula appears in the Committee's report, but the discussion states explicitly that the principle of "progressive taxation" was followed.

Progressivity—by which the Committee meant that the percentage of national income contributed should be higher for countries with higher per capita incomes—seems to have been achieved through the device of exemptions rather than by a variable "tax rate." Thus, "... in the case of countries with low per capita income only a portion of the total national income will be taken into account for assessment purposes, while in the case of countries with high per capita income all or practically all of national income would be considered."* This statement suggests that progressivity was obtained not just by fixed exemptions per capita, but even by smaller exemptions for countries with higher per capita income.

It is not worthwhile to search for *the* implicit formula in the percentages ultimately produced, for the Committee report makes clear that nearly every case was considered individually, with only the concept of progressive taxation as a guide. Foreign exchange difficulties and "temporary dislocations" resulting from the war were two additional factors mentioned. And, incidentally, the figure of 49.86 percent for the United States reflects the quite independent principle that the United States share should not exceed 50 percent.†

The League of Nations, faced with the same need to assess administrative costs on its members, initially followed the expedient of adopting an existing model. It turned to the Permanent Court of Arbitration at The Hague; the latter, in turn, had been using for twenty years the contributions arrangement of the Universal Postal Union, which in 1874 had adopted a system of seven classes based on population, area, and volume of postal traffic. Apparently with little debate, a provision was adopted in the League Covenant whereby costs would be divided in pro-

* The report of the Contributions Committee, which also contains extensive quotations from the Committee's terms of reference, is contained in UN General Assembly document A/80, October 11, 1946.

† The United States ultimately agreed to contribute 39.49 percent of the total, taking the position that a limit of $33\frac{1}{3}$ percent should apply in principle to the contribution of any one member. Announcing that its acceptance of a figure in excess of this limit should be interpreted as an extraordinary voluntary contribution, the United States further stated that "it would also anticipate that other factors than so-called 'relative capacity to pay' will be given hereafter the consideration they deserve as a matter of sound public policy in an international organization of 'sovereign equals.'" See UN General Assembly document A/274, December 13, 1946. The United States was represented on the Contributions Committee; it may therefore be surmised that the change of position was forced by the Congress. The United States share was subsequently reduced to $33\frac{1}{3}$ percent and that figure has often appeared as the preferred—though not always attainable—United States position on financing other UN programs.

portion to the members' Postal Union contributions. But almost immediately the League began to seek a better system. The experts assigned to the problem considered and discarded the idea that contributions should be related to the benefits that countries might receive from the organization* and adopted instead the principle of "ability to pay." For this purpose they recognized the relevance of national income figures but were forced by the undeveloped state of national income statistics to rely on cruder devices. They finally proposed to class each country according to a simple weighted average of its (a) government revenue calculated as a percent of total government revenue in all League countries, and (b) population calculated as a percent of total population of League countries. To reduce the effect of their huge populations, India and China were assumed to have populations equal to Britain's. Each country was placed in an assessment bracket, according (with a few exceptions) to a simple average of these two indexes; the ratio of the assessment in the highest bracket to that in the lowest was 95 to one. Whatever the results of this method, the intention was to "place the states in the approximate order of [national] income."†

Four points deserve emphasis in comparing these two schemes separated by twenty-five years. First, both bodies fastened in principle on national income as the basic statistical measure of a country's economic size, although it is doubtful whether many but the experts knew what national income meant in the early 1920's, and many government officials still did not know in the late 1940's. Second, in the 1940's it was statistically feasible to talk about national income estimates, at least for the more industrialized countries, while in the early 1920's an exceedingly crude and indirect statistical compromise was adopted. Third, the United Nations added a dimension to "capacity to pay" in the *personal* concept of income per capita, that is, in its progressivity principle. Not only did the League system lack "progressivity," it was biased in the opposite direction. If government revenue was a good estimate of national income, a country's population would have had to receive a negative rather than a positive value in the formula in order to achieve progressivity.

* For example, ". . . that a nation's expenditure on armaments is an indication of the likelihood of its being involved in war and therefore measures its need of the League of Nations."

† See League of Nations, Memorandum by the Secretary General, "Allocation of Expenses of the League of Nations," Annex 2, November 29, 1920. For a brief history of the League's allocation arrangements, see the pamphlet *Financial Administration and Apportionment of Expenses*, Information Section, League of Nations Secretariat, Geneva, 1928, Part II, pages 21-41. For a history of the negotiations over a contributions system for the UNRRA program, see George Woodbridge, *UNRRA, The History of the United Nations Relief and Rehabilitation Administration*, Vol. I, p. 81ff.

Finally, the difference in the two organizations' awareness of the problem is of some significance. The United Nations was aware of the need for a system and adopted straightaway the notion of "capacity to pay." Moreover, its discussions showed some awareness of precedent for future, and perhaps larger, contributions for other purposes. The League initially neglected the problem, then hastily adopted the nearest available model, treating the problem so carelessly that it became constitutionally dependent on a Postal Union of substantially different membership.* Eventually it had to extricate itself from this embarrassment by formal amendment to the Covenant.

The United Nations Relief and Rehabilitation Administration

Shortly before the contributions to the United Nations itself were worked out, a system of contributions had been established for the United Nations Relief and Rehabilitation Administration (UNRRA). In this case the eventual formula, after discussion of alternatives involving per capita income, foreign exchange reserves, volume of trade with recipient countries, and similar variables, was a flat percentage of national income.†

This use of national income does not by itself imply analogy with the personal income tax. The important characteristic of the latter is not that taxes are proportionate to income but that they are disproportionate. UNRRA used national income in the way the League seems to have wished to, as a measure of a country's economic "size." The system was, however, probably less regressive than the population-weighted system of the League.

The UNRRA distinguished between program costs, amounting to several billions of dollars, and administrative costs, amounting to some tens of millions. Contributions toward the latter were to be equal for all countries, regardless of size, and were levied on countries receiving aid as well as those providing it. This treatment, analogous to membership "dues," was a matter of principle and was designed to make every

* Even the official French and English texts of the League Covenant lent themselves to different legal interpretations on a critical ambiguous point, namely whether the Postal Union proportions of 1919 had been adopted permanently or the League proportions would change whenever the Postal Union changed its proportions.

† The uniform percentage conformed to the position taken by the United States throughout the negotiations. The same uniform-percentage rule also received official expression in relation to the incidence of the financial costs of World War II. The President's *Twentieth Report to the Congress on Lend-Lease Operations* (June 30, 1945) referred to approximately equal percentages of national income devoted to the war as being "according to the rule of equality of sacrifice and equality in effort." A quite different view was later expressed during the period of assistance to the North Atlantic Treaty Organization, when income per capita was stressed by the Executive Branch and recognized by the Congress as an important qualifying factor.

member a shareholder in the organization with the right to a voice in the operation of the program.

The distinction in the UNRRA program between *contributors* and *recipients*, which had no counterpart in either the League or the United Nations budgets, suggests a sliding scale of contributions. If some countries are sufficiently well off to be major contributors and some so badly off as to be large recipients, one logically expects other countries to be distributed in between in various gradations. But the problem of developing a sliding scale with a zero point to distinguish net contributors from net recipients was avoided in UNRRA through the formal device of determining potential recipients on a qualitative, rather than a quantitative, basis. Thus, recipients were to be among former occupied countries, with eligibility finally determined by individual consideration of needs and foreign exchange earnings.

As in the case of the United Nations, an effort was made to keep any one country from contributing more than half the total, but in the outcome the United States provided nearly three-quarters. This result reflected in part the large United States national income, but it also reflected recognition by the United States that if it wanted a large relief program it would, as a practical matter, have to put up most of the funds.

The UNRRA negotiations reflected a double standard. The big contributors' shares were the real issue, especially those of the United States and Britain; for small countries any necessary exceptions could easily be made without appreciable effect on the program. The problem was therefore to find an ostensible formula that was realistic in terms of the ability, willingness, and negotiating positions of the few big contributors.

In comparing the UNRRA contributions scheme with the later United Nations system it is important to keep in mind that UNRRA was to deal with billions of dollars while, at the outset at least, the United Nations budget was in tens of millions per year.* One can afford to be fair, moral, and logical about a tax system when the total tax is not going to be large; as a matter of fact, the immediately foreseeable United Nations budget was small enough to cause some countries to seek larger shares for the added prestige. But when substantial contributions are involved, as in UNRRA, the search for an equitable formula is likely to be a gentlemanly guise for bargaining. While the

* Compare the quaint statement in the League of Nations pamphlet explaining why the Postal Union formula was intolerable: "To apportion £265,494 (6,000,000 gold francs) among 32 States was, however, a very different matter from that of dividing 125,000 francs (the annual expenditure of the Postal Union) among 81 contributors." About three more zeros would bring the quotation into modern perspective.

guise itself affects the outcome of the bargaining, it must be taken at less than face value.

The International Monetary Fund and the World Bank

As episodes in the evolution of national quota systems, the Bretton Woods institutions deserve mention. Although the criteria behind the Fund and Bank quotas were more elaborate—involving trade, foreign exchange, and national income—they were less comprehensive in their philosophy than the United Nations concept of “capacity to pay.” In the former, “need” and “capacity” related only to the need for, and the capacity to contribute, foreign exchange rather than the need for higher living standards or the capacity to absorb a reduction in them. While one may question whether there is any logical basis for considering need and capacity except in relation to ultimate ends as reflected, for example, in the standard of living, it has to be recognized that the Fund was not devised to redistribute income but to make an international payments system work. The financial arrangements were to provide necessary flexibility in international payments to keep the “rules” from being broken or bent. This purpose is even more clear in the quotas of the European Payments Union, which were simply proportionate to the volume of trade.

NATO and the Marshall Plan

The most ambitious plan for negotiating “equitable” contributions was what came to be called the “burden-sharing exercise” of the North Atlantic Treaty Organization (NATO) during 1951. This unrealized venture was something of a successor to the problem of dividing aid under the Marshall Plan, and it may therefore be helpful to look first at the latter as an effort to perform taxation in reverse: to distribute benefits in accordance with some concept of need or equity.

The criterion for allocating Marshall Plan assistance has sometimes been described as the “dollar deficit.” But since the dollar deficits were subject to control by governments and were limited by government estimates of foreign exchange availabilities, this statement begs the real question: how were the balance of payments deficits apportioned among the recipients?

No agreed formula—or even any general set of quantitative criteria—for the division of Marshall Plan aid was ever developed either by the Organization for European Economic Cooperation (OEEC) or within the U.S. Government. A number of “considerations” were treated as relevant, but it is difficult to find any explicit weights attached to them in the various decisions and agreements. Nevertheless, at a very ele-

mentary level, it is possible to look at a few potential criteria to see whether these played a role.

For example, there was no attempt to distribute aid so as to equalize incomes in all countries. Nor was there an attempt to maximize the aggregate income of the countries taken as a group. The strongest, and continually recurring, consideration was the use of the prewar level of income of a country as a bench mark from which to measure "recovery" and sometimes as a measure of "normal" inequality of income among countries. This standard was never, and could not have been, erected into an explicit principle for it could too easily be charged as freezing an inequitable status quo, to say nothing of practical questions of choosing the appropriate prewar year. All that seems to have commended it was the absence of any competing criterion. The convenience of taking historical periods as points of reference was illustrated by one of the few quantitative criteria ever established by the OEEC: namely, the very short-term goal that consumption levels in each country in 1948 should be at least as high as in 1947. What probably made it tolerable to use historical income levels as even a rough indication of a "proper" distribution of income among countries was the emergency character of the Marshall Plan itself, focused on recovery and avowedly temporary.

In NATO, the search for an equitable distribution of the defense burden received emphasis from the desire to separate physical tasks from financial contributions. Among the ambitious principles of NATO were, first, "balanced collective forces" (meaning that the appropriate balance among services should be achieved for NATO as a whole rather than individually by each country) and, second, the allocation of military production on the basis of efficiency in production and strategic location. But productive efficiency and the strategic and political factors affecting the raising of troops would only by coincidence allocate the burden in an equitable fashion if each country financed its own physical effort. An equitable sharing of this burden could be achieved only if the financial costs could be rearranged among the countries. Even without any inter-country compensation payments, the national contributions to defense would have been the subject of negotiations among the participants; but the need for an agreed formula, or at least an agreed set of quantitative criteria, was even greater if financial contributions were to be separated from physical tasks.

The burden-sharing exercise itself never took place, at least not in a manner that rose above the level of *ad hoc* negotiation. Nevertheless, the negotiations themselves raised many of the questions that a formal distribution of the financial costs would have raised. Some of these were already foreshadowed by the Marshall Plan, the UNRRA, and other

programs, but several additional considerations assumed a prominence deserving mention.

A major concern was the existing level of taxation in each country. Countries with high ratios of taxes to national income claimed a lesser ability to make further contributions. This position did not arise from an unsophisticated confusion between government revenues and national incomes. Rather, it reflected the fact that there is more to collecting taxes than finding incomes to tax. Indeed, Congressional committees in this country have shown a special interest in the ratio of taxes to national income in the participating countries. A preoccupation with the "tax burden" is not surprising in those who have to legislate taxes themselves.

Another important consideration was the evaluation of a country's contribution. This problem had already arisen in minor fashion and in a limited sense during the UNRRA program, when a distinction had been made between a country's contribution in its own currency and a contribution in the form of foreign exchange. The solution in UNRRA, not adhered to in practice, was to require up to ten percent of each country's contribution to be in convertible currency. NATO had this evaluation problem in much more serious form, including the evaluation of a country's contribution of men in armed service.

A third problem was that of "overlapping jurisdiction." Some countries in NATO had defense commitments outside the North Atlantic area—France in Indochina, Britain in the Middle East and Far East, the United States and Canada in the Western Hemisphere, and so on. Furthermore, in some cases parts of a country's contribution are exceedingly difficult to allocate by area or specific responsibility: the British Navy or the United States Strategic Air Command. All countries had some military forces or equipment intended primarily for home defense; were these to count? And if some countries were receiving assistance outside the NATO program, was it to be treated as an enlargement of national income, as a deduction from the country's contribution, or as not relevant?

While NATO has managed so far without any agreed rules for country contributions, the European Defense Community would probably have been forced to develop, if not a formula, at least a set of formal criteria. Recent events have eliminated that case study, but many of the preparations for the European Army reflected problems and considerations similar to those touched on above, including the internal tax burden, the use of foreign exchange, and the treatment to be accorded military expenditures outside the Community area.

An important aspect of cost-sharing formulas is particularly visible in the NATO case, although it had been recognized in UNRRA and was implicit in much of the discussion of lend-lease. This is the tendency for a formula, or a set of formal criteria, to lend the character of rights and obligations to what might otherwise be viewed as unilateral charity and so to take some of the dominance and submissiveness out of the roles of donor and recipient. This point is particularly emphatic in the NATO case because each recipient of United States aid was a "net" contributor to the program for common defense, and was in a position to argue that the direction in which "aid" flowed was simply a reflection of the geography of defense. This argument was not only expressed by Europeans, but was used by the Executive Branch of the U.S. Government in persuading Congress, first, that we were contributors to a multilateral program and were not merely extending voluntary assistance, and, second, that the disproportionate European contribution of manpower to North Atlantic defense offset our disproportionate contribution of capital equipment to the defense forces. This consideration even entered the arrangements for Germany's financing of Allied occupation costs during the NATO period; occupation costs became a less sensitive subject with a country about to be taken on as ally when they could be construed as a contribution to defense and when the criteria applied in negotiation could be identified with the considerations that entered the NATO discussions over the size of defense efforts.

Note must also be taken here of the dual role precedent has played in the development of cost-sharing arrangements. One is to constrain subsequent developments by the force of prior suggestion or prior commitment as to general principles; the other to constrain the negotiators themselves through an awareness that precedent is being established.

The European Payments Union agreement provides a curious, though substantively unimportant, illustration of both these roles. The Union received a grant of funds from the United States and therefore had some "net assets." The question of how to distribute the net assets upon liquidation had to be resolved. But the logic of the Payments Union contained no very relevant criteria, the negotiators were in a hurry to finish, and the potential value of the net assets was apparently not taken very seriously because the United States retained an option to intervene. Any convenient precedent would serve the purpose.

For the sake of solution, a set of proportions was borrowed from a then current OEEC recommendation on the distribution of dollar assistance for that year. The ingenious quality of this solution was that, being almost completely arbitrary, attached to some ephemeral numbers, and borrowed from a fairly irrelevant context, it committed no

party to any set of principles that might return to embarrass it on a future occasion.

II. SOME THEORETICAL AND PRACTICAL PROBLEMS

We have already touched upon a number of the theoretical and practical problems involved in devising a formula for international "capacity to pay"; many more occur in any systematic reflection on the subject. No attempt will be made here to solve these problems. Indeed, most of them are not soluble by logic or analysis; they require value judgments, negotiated compromises, or arbitrary decisions. All that will be done is to outline the kinds of decisions that have to be made—or settled by default—and to clarify the concepts. Since recent schemes have been strongly influenced by income tax ideas, and since many of the issues that arise have counterparts in the personal income tax, it seems convenient to follow that analogy as a framework for sorting out the problems.

Definition and Measurement of Income

Two characteristics of the national income concept make it attractive as the "tax base" for international cost-sharing schemes. First, the national income is intended to be a total of all the incomes earned during the year by the citizens of a country. Second, because income arises mainly out of the production of goods and services, the national income also measures total net production in a country during the year, that is, "net" after deduction of the goods and services used up in the process of production. Consequently, whether one thinks of the nation as an entity, or of the individual families that compose it, he is led to approximately the same measure of total output or purchasing power.

But even for the most statistically advanced countries, national income estimates remain subject to large errors. Important questions of what to include or exclude have often had to be settled in an arbitrary manner. Even if the inclusions and exclusions were applied consistently among all countries—which they are not, and often cannot be—the relative importance of omissions will vary from country to country with disproportionate effects. Furthermore, actual national income estimates have usually aimed more at measuring the level of economic "activity" than the more subtle concept of economic "welfare," and, consequently, even in principle are not quite the "tax base" being sought.

Exchange rates present a special problem. National income calculations are initially money values in national currencies. If these figures

are simply converted at official exchange rates, extreme disparities can occur in the relative purchasing power, or "real income," of different countries. A good illustration occurred in 1949, when the British national income, as computed in United States dollars, fell by one-third over a September weekend, with the devaluation of the pound. Whatever the effects of the devaluation on real national income in the United Kingdom, they were nothing like the order of magnitude suggested by these figures. If either exchange rate—before devaluation or after—can be considered the "correct" one for our present purpose, the other one was strikingly incorrect. Even when exchange rates are constant, price levels rise in different degree in different countries and so there would be need to agree on a method of "deflating" the statistics if the distortion were to be eliminated. While there have been some statistical efforts to compare the purchasing power of different currencies, these can never be very precise because the composition of goods consumed differs substantially from country to country.*

This problem of price levels and exchange rates cancels out in one important case. If all countries are to contribute the same percentage of their national income, with no exemptions or other "progressive" devices, and if all contributions are to take the form of domestic currency expendable only on domestic production, any movement of the exchange rate or price level leaves the contribution the same percent of the national income, and hence does not affect the calculation.

Another difficult problem is the choice of base year for measuring national income. Not only are some countries' estimates available only after a serious time lag, but no year is ever normal; for any given year some countries had droughts or depressions and others were in process of rapid growth. Even the "latest" year is ambiguous when country estimates are available only with different time lags, or depend on censuses that are not conducted every year. These problems are of somewhat less difficulty for continuing—as distinct from once-for-all—programs, for annual vagaries eventually average out.

The Schedule of Contributions

If the foregoing problems can be solved, the national income can constitute the "tax base." Next a schedule of contributions has to be determined. But if "progressivity" is desired, an additional variable is needed because total national income does not indicate whether a coun-

* A recent study along these lines can be found in Milton Gilbert and Irving Kravis, *An International Comparison of National Products and the Purchasing Power of Currencies*, Organization for European Economic Cooperation, Paris, 1954. This study tends to confirm the frequent observation that official exchange rates may misrepresent "real" income by as much as one quarter or more.

try's people are "rich" or "poor." The average income per capita is the most commonly accepted measure of the "height" of a country's income. Consequently, the mechanics of a progressive schedule involve each country's contributing a percentage of its national income but with this percentage dependent on relative income per capita. Alternatively, a flat percentage contribution on national income with an "exemption" equal to a specified amount per capita will yield a degree of progressivity. For example, if every country were to pay one percent of its national income reduced by 200 dollars per capita, two countries with equal populations of ten million persons and national incomes of four billion dollars and eight billion dollars, respectively, would make contributions of 20 million dollars and 60 million dollars, or 0.5 percent and 0.75 percent of national income, respectively.

It should be noticed that "capacity to pay" has two dimensions here: one personal, the other national. Furthermore, when income per capita is used in this fashion, the result is as though the entire national income of a country were hypothetically distributed equally among its population and a standard personal income tax schedule applied to every citizen of every country with the hypothetical resulting tax total for each country levied on its government.

If countries are considered as the "tax paying" units, there are certain characteristics distinguishing this tax-paying population from the taxable population in an individual country. Most markedly, the number of taxpayers is small—dozens rather than millions. Also, the disparities in wealth, though still substantial, are much less than within any individual country. The richest country of Western Europe has a level of per capita income no more than some four times that of the poorest, and even the United States has probably no more than seven or eight times the real income per capita of Greece or Portugal; within a country the income range extends from zero to the hundreds of thousands or millions of dollars. Furthermore, within any individual country there is a substantial bunching of the population somewhere not far below the average income level, and the distribution has a long tail tapering toward the very high incomes. Many international groupings, on the other hand, show a significant bunching at the upper end of the scale, and occasionally even a gap in the middle. Among the Western European countries, for example, France, Britain, and Denmark are all grouped at the upper end of the scale.

One result of such a configuration of "taxpayers" is likely to be a very preponderant contribution from the few large countries, or from the one large country when the United States is involved. This result, in an arrangement that depends on unanimous agreement in a loose

alliance of sovereign states, has a political significance greater than might result from a comparison of taxes paid by rich and poor within a country.

There is little that can be said on logical grounds as to the "appropriate" degree of progressivity in a contributions schedule.* Perhaps the most important practical rule is that the schedule should be simple.† The simplest is probably the flat rate together with an exemption. But if it is desired, as a matter of principle, that every country should contribute something, the exemption has to be set somewhere below the lowest per capita income of the group and may therefore provide only a slight degree of progressivity. Moreover, if it then seems necessary to manipulate the rates for different income brackets, the smallness of the number of taxpayers becomes embarrassing, for each attempt to manipulate the rate tends to strike at one or two particular countries rather than a large population. In this situation, the discussion of a contributions schedule may degenerate into a debate on particular contributions of particular countries.

When decisions have to be reached, it is useful to be able to borrow from some existing system. Would it be possible to apply to international contributions the same degree of "progressivity" that is involved in the tax structure of some particular country? Would it be feasible—aside from its acceptability—to use the United States tax system as a model? Or would it be feasible to measure the degree of progressivity that each country used internally in its taxation, and then average these to form an international schedule, the defense of such a method being

* Professor Lionel Robbins has suggested that contributions toward common defense should be "proportionate, perhaps, to per capita income." (See his "Towards the Atlantic Community," *Lloyds Bank Review*, July 1950, p. 16.) Strictly interpreted—as a percent of national income that is proportionate to per capita income—such a contribution is equal to the square of national income divided by the population, that is, the per capita contribution is proportionate to the square of per capita income. If the contribution is proportionate to per capita income and to population, it comes out simply proportionate to national income; and, of course, a contribution proportionate just to per capita income is meaningless. Probably Professor Robbins' suggestion should be more loosely interpreted as "varying directly with per capita income" rather than as a specific mathematical proposal. It has been interpreted strictly here only to illustrate that one must be on guard against the mathematical pitfalls that lie in a too easy formula. The workability of most simple formulae depends a good deal on the absolute amount of contribution involved; for example, both marginal and average rates of contribution can exceed 100 percent in a strictly proportionate system.

† This rule is illustrated by a concise understatement in Woodbridge, *op. cit.*, p. 90, referring to a proposal during the UNRRA discussions that would have adjusted national income on the basis of per capita income and the level of internal taxation: "This plan involved the application of an algebraic formula that was beyond the comprehension of the majority of the subcommittee. They decided that if they did not understand it themselves, they would be at a disadvantage in explaining it to their various legislative bodies. The proposal was rejected."

that no country could properly challenge the fairness of its own tax system and that for several countries as a group an averaging process would be a reasonable compromise?

The answer is that it is nearly impossible. First, we should have to decide whether to take the measurement of progressivity from a country's income tax system, or from its entire tax system, or perhaps its tax and social security systems taken together. Unfortunately, not enough is known about the incidence of taxation to make a very good estimate of anything but the income tax portion. Second, it is mathematically ambiguous to scale down a country's income tax to a schedule with "equivalent progressivity" but a very much lower tax yield. Third, the averaging process would become extremely complicated when it had to take into account not only irregularities in the progression of bracket rates, but also different exemptions, allowances for dependents, deductions for expenses, estimates of income that avoid taxation, and all the different elements that go into the income taxes people actually pay. There would also be a problem in the averaging process of giving weights to different countries according to their size and the extent to which they relied on the income tax. Clearly, this is no simple solution, if a solution at all.

Exemptions and Allowances

A personal income tax usually not only provides a variety of exemptions, allowances, and deductions, but also incorporates such value judgments as that blindness is more important than deafness. Similar problems arise in discussions of international contributions.

A country that has not yet recovered from war damage claims special treatment; so does a country with a large population of refugees or unemployables. Countries with high internal taxation commonly cite this as a special difficulty in raising an international contribution. It has been charged that countries with low but rapidly growing income levels can more easily make contributions than countries with higher, but more stationary, incomes. It has been argued that aggregate consumption, not national income, is the correct measure of the tax base, and that inclusion of the invested portion of national income is a sort of "double taxation" of reinvested earnings. Others have held that depletion of national resources should be allowed as an offset to income in calculating assessments.

Many of these claims deserve recognition, but some involve "double counting," in that they may already be allowed for in the calculation of income or income per capita. Non-recovery from war or disaster, for example, is already reflected in lower income (both national and per

capita) and hence in a lower contribution. The country claiming special treatment because its population is swollen with refugees or other unemployables may be counting the same problem twice. This could be the case if there is progressivity in the contributions schedule, for the refugees have already been included in the population figure from which per capita income was calculated; and the effect here may well have been to give the country even better treatment already than it would receive if it could leave the refugees out of the population figure and exempt a portion of its national income as the expense of caring for refugees.

The logic of making allowances for the internal tax burden is ambiguous. If the taxes reflect extraordinary expenditure programs, it would be more accurate to consider those particular expenditure programs on their own merits. Otherwise, high taxation may only reflect income redistribution through social security programs, or the extent to which public utilities, education, and other services or industries are nationalized or handled through the government budget rather than through private industry. Alternatively, thinking of the *government's* "capacity to pay" rather than that of the *country*, some governments have more difficulty than others in raising taxes, and some are obliged for political or administrative reasons to raise their taxes in more painful ways. But this consideration does not necessarily point to greater leniency for countries with higher internal taxes, it may even point to the opposite.

Nevertheless, the practical problems of raising taxes, though not easily measured in a quantitative way, are too real to ignore. If it should be decided to make allowance for internal taxation, it remains to be decided what taxes to recognize. Is it only those taxes collected by the central government, or those by all levels of government? Is it total taxes offset by pensions, social security benefits, and other transfer payments that are analogous to "negative taxes"? Does it include the revenue used to subsidize railroads, housing, or other services which tend to offset the tax burden? Answers to questions of this kind will probably be found in negotiation rather than in logic.

Measurement of the Contribution

Within a country taxes are usually paid in money. Not only do international contributions often take the form of goods or services, but even when they take the form of money different currencies may be involved or various restrictions placed on the use of the funds. There is a need therefore to estimate the cost or value of a country's contribution to determine whether that nation is carrying its allotted burden. Furthermore, the international program may involve benefits identifiable with

particular countries, raising the question whether such benefits should be subtracted to arrive at the "net" value of the country's contribution.

A common form in which this problem arises—in UNRRA, in NATO, in the Monetary Fund and World Bank, and contemplated in the European Defense Community—is in the distinction between a contribution that is expendable only in the contributing country (a "tied" contribution) and a contribution in convertible currency. In UNRRA, as mentioned above, at least ninety percent of the contribution was to be usable only for procurement of goods within the contributing country; that is, no more than ten percent was to be available for expenditure in other countries. To put it differently, up to ten percent of the contribution might have to represent successfully marketed exports or reduced imports or some other source of foreign exchange. In EDC the figure was to be 85 percent expendable only within the country. (EDC was also to provide a limit, which the country could waive, on EDC budget expenditure within a country, equal to 115 percent of the country's contribution. Incidentally, the EDC case is a reminder that the foreign exchange impact of these provisions depends a good deal on what simultaneous arrangements, like the European Payments Union, may stipulate in the way of automatic balance-of-payments credits.)

There are several advantages in providing domestic goods and services (a fund of a country's own currency limited to expenditure on its own output). The one most emphasized during the UNRRA-Marshall Plan era was the effect on the balance of payments. More recently, when countries have worried more about employment and less about inflation, the effect of domestic expenditure on income and employment has assumed importance. This income effect is to some extent illusory if the alternative provision of foreign exchange would itself force an increase in exports or a reduction of imports, as these would have a similar effect on total employment and income; but if a country is free to choose the goods and services to be provided out of its own production, it can often allocate them to industries or crops where unemployment or surplus production is most embarrassing.

Another benefit is the tax revenue on the procurement of domestic goods—sales taxes, production taxes, or income taxes increased by the rise in domestic earnings—or, alternatively, a reduction in government outlays on such items as unemployment benefits that results from increased production at home. It is difficult, though, to disentangle the particular taxes that result from the expenditure of a country's contribution. Moreover, unless the tax component in the cost can be demonstrated to have inflated the prices of goods bought with contributed

funds, the fact that taxes are collected in the process may be more properly considered an internal matter of taxation technique than a "recapture" by the government of some of its contribution. Furthermore, if the contribution is partly financed by either increased taxation or a reduction in other government outlays, there are likely to be substantial, but not easily calculable, offsetting reductions in other production taxes or income taxes.

For contributions in foreign exchange, the system could conceivably apply a set of premiums and discounts related to the usefulness of different currencies to the program itself or to their scarcities to the contributing countries—in effect, a set of hypothetical "exchange rates" for the evaluation of contributions in foreign exchange. The attempt to do this would be difficult and controversial; indeed, it would have such implications for the delicate political subject of exchange rates, as well as occasionally on national prestige, as to be almost completely unacceptable in practice, and, in any event, would raise conflicts with existing payments arrangements among countries. The more arbitrary, but workable, solution of distinguishing only between a country's own currency on the one hand, and completely convertible funds on the other, with a quantitative limitation on the latter, seems likely to continue as the kind of compromise actually reached.

An unusual but important problem arises in putting a value on military personnel. Most military manpower is conscripted; some countries pay servicemen meager allowances; others pay something approaching a respectable wage. A million American soldiers appear in the budget as some billions of dollars, including both pay and allowances and subsistence expenditures; a million French soldiers show up as a few hundred million dollars, because most of them are conscripts whose pay is nearly zero, allowances modest, and subsistence on a much lower level than the American soldiers'. (This comparison is separate from the question of equipment and other operating costs that go into a total cost differential.) The French can argue that in their country conscription is a "tax" borne by the individual soldier while in America conscription is substantially compensated by taxes on the citizenry for higher soldiers' pay. The invisible tax and expenditure in the French budget—in the form of a levy on personnel services—they conclude, is much greater and causes a spurious comparison with America's budget.

Any attempt to meet this problem by trying to equalize the values of military service runs into delicate problems. It is politically intolerable to try to determine whether an American or French soldier is worth more, to say nothing of deciding how much more. Furthermore, the

danger of death or injury in case of war seems to belong in the balance of armed forces against other kinds of contributions; yet it is notoriously unproductive to try to weigh "blood against money."

Still, the differential is too great to leave uncorrected. Some solution has to be found. One possibility is to exclude all costs of troop pay and subsistence. A second is to value all soldiers equally, perhaps at the average level of pay and subsistence for the group. An alternative is to recognize inter-country differences in the *economic* value of troops while making no effort to value them *as troops*. The cost to the economy, in reduced civilian production, might be approximated by some average wage rate appropriate to each country. Conceptually, this valuation would be consistent with the way other parts of the contribution are valued. As a matter of fact, the latter approach was implied in the President's *First Report to the Congress on the Mutual Security Program*: "Less obvious, but equally important, are the very different rates at which most European countries pay the members of their armed forces, particularly the conscripts. European soldiers are paid at a very low rate, and the pay and allowances reflected in European defense budgets represent only a small fraction of the *value these men would have produced in industry or agriculture.*" (Italics added.)

It seems almost certain that actual decisions on troop strength for each country would be decided on other grounds. But the fact that decisions on the size of military establishments would be settled either unilaterally or by direct negotiation does not necessarily imply that the result should be ignored in the determination of financial or economic contributions. On the contrary, strategic or social considerations might be less inhibited by cost considerations if it were clear that the cost aspect would receive some allowance in the determination of financial contributions. The purpose of a valuation scheme would not be to replace the separate decisions on troop strength, but rather to make allowance for those decisions in arranging the monetary contributions.*

Incentives

As in domestic taxation, incentives can be important in an international contributions scheme. The composition of the contribution, for

* Professor James Meade has called attention to this problem of evaluating armed forces. His suggestion is simply that forces probably should be—and almost surely will be—allocated separately from any distribution of economic burdens. As far as it goes that view is in agreement with the view expressed here. But it seems even more reasonable, if agreement can be reached on a valuation technique, to make subsequent allowance for the economic cost of armed forces in any separate assessment of economic contributions. See J. E. Meade, "Economic Problems of Atlantic Union Rearmament," *Lloyds Bank Review*, October 1951, p. 41.

example, might be affected by the methods used in evaluating contributions. If special credit is given for contributions in foreign exchange, or if military manpower is valued at a premium rate, there may be some incentive—or at least reduced disincentive—toward contributions in these forms. If each country must make ten percent of its contribution in convertible currency but is allowed double credit for further contributions in that form, countries most able to do so might be induced to provide more foreign exchange.

Another incentive can be created if the total contribution for the group of countries is variable rather than fixed. Suppose the international program is a defense program and that each country's percentage share is fixed but the overall total is left open. Now consider a country whose share is, say, ten percent. For every million dollars added to this country's defense budget, it stands to be reimbursed in some fashion by 900,000 dollars. If the country has a desire to enlarge its own military establishment and is mainly deterred by the cost, that cost is greatly reduced by the fact that other countries must cover the largest portion. If every country is in a similar position, each will have an incentive to raise its own contribution and the result may be a larger total than would otherwise have resulted. An analogy is the lunch group that divides the bill equally with the result that everybody is tempted to order an expensive meal.

Incentives can also be mischievous, of course. If countries are assessed, for example, not just on income but also on their foreign exchange reserves, there may be an unintended distortion of the normal incentive to accumulate foreign exchange, or at least to accumulate it in the particular forms that are "taxable."

An unfortunate but likely effect of any cost-sharing scheme is an incentive for each country to produce more favorable statistics. Any formula is likely to put some pressure on the statisticians and accountants who produce national income estimates. However impervious their integrity, they are subjected to a disturbing self-consciousness about the effect of the statistics they produce. One of the reasons for the extended controversy in the OEEC over adoption of a standardized system of national accounts was the tendency for each accounting decision to understate needs or overstate capacities of some countries relative to others, which in turn could have a possible influence on the distribution of assistance or stand as a reflection on a country's defense effort. On the other hand, cost-sharing arrangements perhaps deserve some credit for stimulating the production of useful statistical data where none previously existed.

The Internal Distribution of Income

An interesting and inherently insoluble problem is posed by the distribution of personal income within countries. Strictly interpreted, the use of average per capita income assumes that all personal incomes within a country are equal to the national average; more loosely, and more commonly, it assumes that considerations of inter-country equity need only consider the average personal or family income, and not the actual distribution of income within a country. In point of fact personal incomes are unequal within countries; the patterns of income distribution vary greatly as among countries; the significance of income inequality itself differs between countries with different levels of average income; and in each country the pattern of distribution is far too complicated to be summarized in a single measure of dispersion.

No problem arises if the convention is firmly adopted that governments are the ultimate entities in an international contributions scheme. The international organization has neither authority within the individual countries, nor responsibility for the distribution of income within individual countries. Each country is a unit, and each is represented by a government, just as each tax-paying family in the United States constitutes a unit for income taxation. Under this philosophy, the international organization is responsible only for allocating the burden among countries and it makes no pretense of allocating the burden within countries.

This seems a reasonable, if limited, approach to the subject. But it is inconsistent with using per capita income as a measure of "capacity to pay." If governments are the only entities to be recognized by the system, capacity to pay should be related to the practical question of how easily a government can, in fact, mobilize funds for the project. This in turn would depend, among other things, on whether the "government" included the legislative, or only the executive, branch of the government. The introduction of per capita income injects an essentially personal or individual criterion into a scheme that was intended to recognize only governments.

It could be argued also that governments are only the agents of their populations and not the ultimate entities. Here, the personal rather than the national concept of capacity to pay would be proper. But since income distribution within a country is a national, not an international affair, the international scheme in this case must find some way of dealing with each national population as a group and on some uniform basis that permits comparability among countries. The most reasonable way to do this would be to recognize the average income per capita as

either "typical" of the individual incomes, or at least as representing a potential distribution of total income in a country. If this were done deviations from equality could be considered a matter of the country's own preference or responsibility.

There is still a practical question that has to be asked. Does a contributions schedule that relies on per capita income lead to a distribution that is consistent with progressive individual taxation? The answer is that roughly it may—and there is some presumption that it will—but it need not. If a country relies, for political or administrative reasons, on taxes that bear most heavily on low incomes, the incomes of wealthier citizens will simply raise the national average, raise the country's contribution, and thereby raise the burden on the low income groups. This is an important practical possibility, as is borne out by the fact that some countries have argued for lenient treatment on the ground that they have very *unequal* distributions of income but cannot avoid taxing low income groups, while others have claimed leniency because they have very *equal* distribution of income and therefore no high income groups to tax.

If, then, this use of per capita income seems unsatisfactory, an alternative could be considered that levies on each country a contribution related to the actual distribution of personal income. The first task would be to construct a personal income tax schedule. Second, statistics would be obtained from each country on the actual distribution of income, by size of income, among families. Third, a calculation would be made of the total taxes that would be paid by the entire population of each country if the tax were levied on individuals rather than on governments. Finally, this hypothetical tax total would be interpreted as the required contribution of the country. The governments would be under no obligation to pay attention to the hypothetical tax schedule in raising its taxes; nonetheless, the country totals would be consistent with a completely personal concept of capacity to pay, being derived from a hypothetical tax applied to individuals.

The most serious defect in this approach is that governments will still raise funds in their own ways. And the fact that they do so cannot be dismissed by saying that is the government's own business. The whole rationale for computing assessments on an individual basis disappears if governments tax on some other basis. In fact, it is not even certain that any improvement results from calculating country assessments in this fashion as compared with the use of a national average. A country with a very unequal distribution of income would be assessed a greater amount under this technique if the tax schedule used had any progressivity. But if the country's own tax system or political structure led it to

raise the funds from low income groups, the existence of high incomes in the country would only have served to raise the hypothetical tax total and, consequently, to raise the burden on the low-income taxpayers.

Thus, neither of these approaches leads to a satisfactory solution. The most they can do is pass the "blame" back to the countries. The per capita income approach declines to accept blame for the departure of actual incomes from the country average, and the hypothetical personal tax approach recognizes income distribution and declines to assume blame for the way taxes are raised. Neither is particularly good at achieving a progressive distribution of the individual burden, although both try to be individual, rather than governmental, in their concepts of equity.

Short of a true international tax, there cannot be a solution to this problem. And even if an international tax were levied on the citizens of the countries, the resulting equity would be questionable so long as it was superimposed on radically different existing national tax structures.

The insolubility of this problem arises essentially from the fact that we are dealing with a tax system at two levels: first, the international criteria for dividing the total among countries, and, second, the national criteria for dividing each country's total among its people. These criteria are bound to conflict, particularly since different countries use different internal criteria for their internal taxation. The problem is therefore insoluble for the same reason that the Federal Government cannot improve the diet of children by enlarging the income tax allowance for children. All the Federal Government can do by that means is to add purchasing power to families that have children, with the internal expenditure pattern still determined by the head of the family.

There is one possible further step. Each government might be required to indicate precisely the incidence of its contribution on each income class within the country. The international organization could inspect the personal incidence with a view to reaching a judgment on the burden borne by the population. Under this system, while the international organization could not redistribute the burden, it could at least judge by its own standards the severity of the actual burden within a country. To do this would require that governments be able to isolate the incidence of the contribution and be relied upon to do so with complete honesty. To do so would almost certainly lead to prolonged and bitter criticism of each other's tax systems. Any country that displayed an especially painful internal distribution of the burden would be subject to the accusation that it was pleading for a reduced assessment when its proper concern should be to improve its own tax system.

Nevertheless, this problem of income distribution, like the problem

of the existing level of taxation within countries, is of such practical importance as to rule out its being ignored. There seems to be no logical way to take it into account, but it can be expected, nonetheless, usually to make itself felt in the final outcome.

III. PROSPECTIVE DEVELOPMENTS

Having reviewed some of the recent developments and surveyed some of the problems that arise, it remains briefly to inquire what further development seems likely and whether this process of developing "equitable schemes" has gone as far as it can go short of political or economic union. It is probably not necessary to inquire whether it is a good thing for countries to try to work out systems for sharing costs; they will have to try as long as they continue to undertake joint projects.

We might ask whether it is a good thing that such efforts are tending to pattern themselves on the personal income tax. A modest answer might be that, considering the difficulties of reaching agreement, it is fortunate if a consensus on something exists.

We must inquire whether our whole discussion has misread the record, taking at face value an activity that is only a front. Do not these arrangements, and others yet to come, really represent bargaining with the results cast in the form of objective criteria and in the language of equity? Undoubtedly there has been a core of hard bargaining underlying all of these discussions; sometimes even the cloak has been pretty thin. Certainly where large sums are involved the search for an equitable formula must meet a primary condition of acceptability to the parties concerned; and where trifling sums are concerned, governments will jockey toward formulae that establish principles or precedents tending to favor them. The acceptability of certain outcomes will depend not only on the willingness of individual countries to concede, but also on side agreements being reached in other areas that may be simultaneously under negotiation. Furthermore, even if the country representatives themselves debate equity and objective criteria in good faith, the funds have to be appropriated by parliaments whose main business is not international relations; and the ultimate motives behind appropriations may be quite divorced from those apparent in the international discussions.

Nevertheless, even though the process is basically one of bargaining, the procedures and the language and the symbols have some effect, and their effect probably increases in strength as the process is repeated. Just as parliaments and cabinets have historically acquired power through the

exercise of what began as ceremonial and consultative functions, so may a tendency to negotiate in terms of "equitable criteria" come gradually to constrain the outcome and to elevate the formalities into substantive processes.

Perhaps if each of these cost-sharing arrangements were isolated from the rest of world affairs and could be divorced from the individual participants, the discussions could occur as simple bargaining glossed over for the occasion with window dressing. But in fact these discussions take place in the context of continuing international relations, in which agreement can only be reached by concessions, in which the willingness to make concessions depends on a measure of goodwill and some confidence that others will make concessions at other times or in other areas, in which the consciences of government officials can give a personality and conscience to the government itself, and, finally, in which decency and equity are treated as real values by many governments, or at least are recognized as concepts whose violation breaks the fabric of international collaboration.

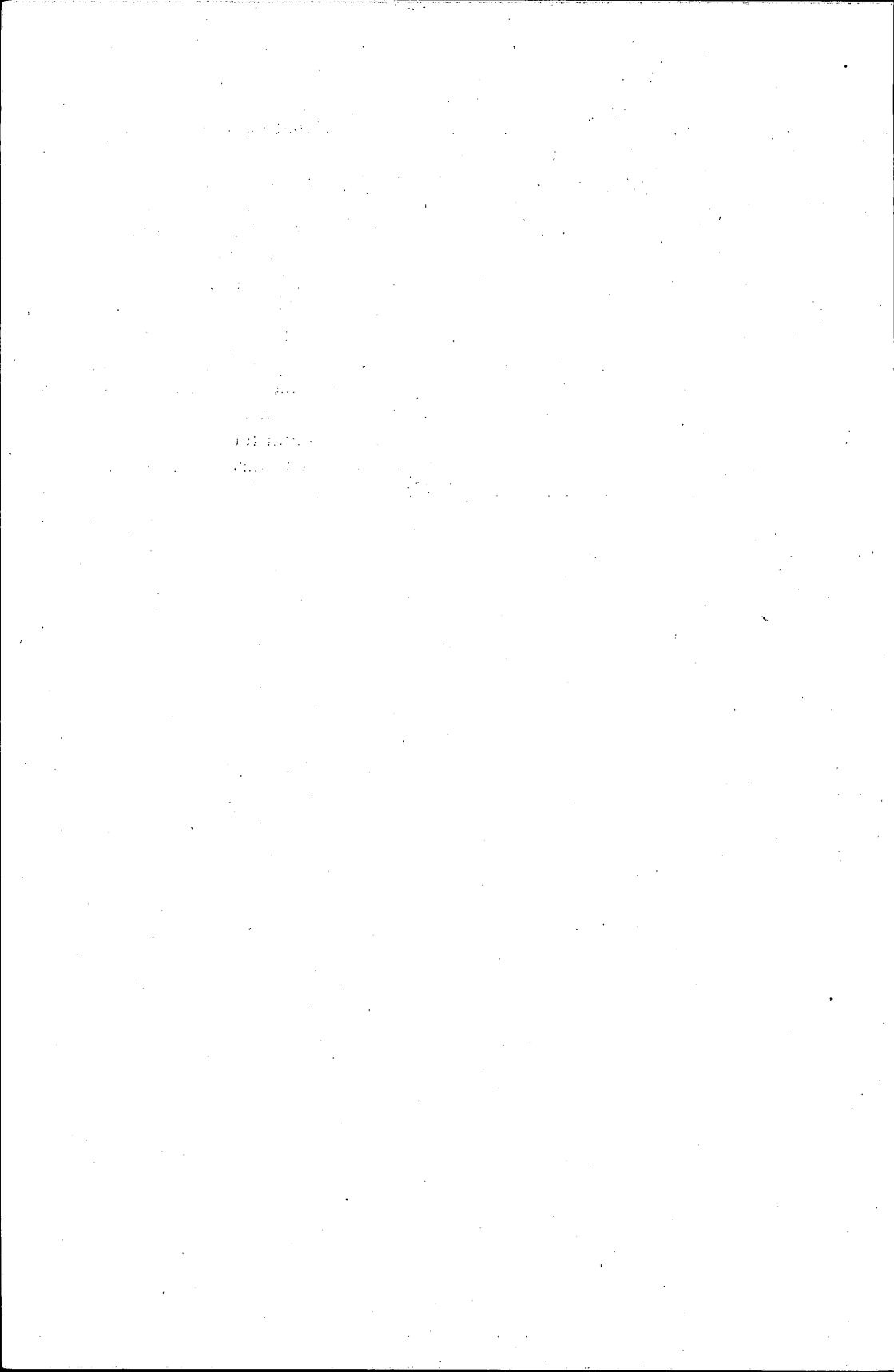
Furthermore, in many negotiations there is a wide area of outcomes that would be preferable, to all parties concerned, to a breakdown of negotiations. The concepts of "need," "capacity," "equity," and so on, help fill the vacuum of indeterminacy in such negotiations. Precedent helps fill the same vacuum; and having been used, the equity concepts are even more likely to be used again.

But if we assume that the search for criteria is a real one, or at least may become progressively more real as time goes on, what is the likelihood that agreed formulae will ever be devised? Even among countries with similar economies, institutions, and values, there are logical dilemmas as well as statistical problems. Among quite dissimilar countries the problems discussed above might seem virtually insoluble.

Much the same might be said about personal income taxation within the United States. Yet we have it. We are used to the income tax; we are accustomed to the need for arbitrary decisions; we accept the political process that sets the rate schedule; and we know that individual income does not measure personal welfare, that income means different things to different people, that the farmer and the city schoolteacher pay different prices for the things they buy and buy different kinds of things. The income tax is not a logical quantitative answer to the question of capacity to pay. It is the outcome of a political, administrative, and judicial process that has undergone decades of evolution. And it demonstrates that decisions and judgments that were originally quite arbitrary can come to seem almost natural with the passage of time. So, if a review of the problems has led us to conclude that there are obstacles that do not

yield to scientific analysis, we should keep in mind that logic is only one, not the only, means to a solution.

If we drop the idea of a formula, and think rather of the development of "criteria," or even more loosely of "relevant considerations" for the negotiation of country shares, many of the theoretical problems discussed earlier become, if not "soluble," at least resolvable. While a formula has to be simple and precise, "considerations" can be numerous and less well-defined; and principles can gradually be forged to which exceptions can be made for the cases to which the principles are least applicable. The existence of a vague consensus may never yield a quantitative formula but still be adequate to permit eventual agreement. The posing of unanswerable questions, the weighing of conflicting considerations, and the debating of principles too numerous and too vague to be included in a formula are not necessarily ineffectual just because the final outcome is a negotiated compromise.



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